San Mateo C/CAG Countywide LRSP

FINAL DRAFT

MAY 2024

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Executive Summary

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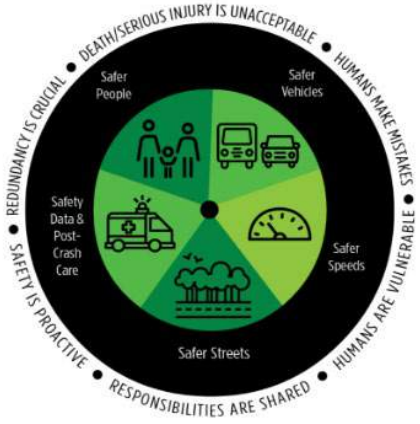
The City/County Association of Governments (C/CAG) created this Local Road Safety Plan (LRSP) with the following safety partners:

SAFE SYSTEM APPROACH

The recommendations and policies contained within this plan align with the principles of the Safe System Approach, which aims to eliminate fatal and severe injuries for all road users.

The Safe System Approach works by taking a holistic approach to roadway safety: by layering safe policy, design, and behavior initiatives atop one another, it maximally reduces the chance that a crash will occur and, if it does, that its outcome will be severe.



VISION & GOALS

C/CAG, its 21 local jurisdictions, and its partner agencies will work together to:

Identify safety improvements, strategies, and programs using the Safe System Approach to eliminate fatalities and severe injuries on local roads.

Enhance the existing roadway network in a cost-effective manner that promotes traffic safety and social equity, meets the needs of the community, and enriches the lives of residents.

Promote a culture across agencies and communities that puts roadway safety first in all actions.

The goals of this plan include the following:

1. Regularly review crash history and community needs to identify and prioritize opportunities to reduce crash risk for roadway users of all ages and abilities.
2. Partner with other local agencies to incorporate roadway safety into all actions.
3. Implement context-appropriate safety countermeasures systemically and as part of all projects to target emphasis areas and underserved communities.
4. Support agencies in providing opportunities for citizen engagement to identify issues and inform Countywide safety solutions.
5. Embrace the Safe System Approach to promote engineering and non-engineering strategies in the community.
6. Work with agencies to monitor safety projects and implementation to track progress towards goals.

See the individualized jurisdiction LRSP chapters for each jurisdiction's specific goals.

PUBLIC ENGAGEMENT

C/CAG hosted multiple events throughout the development of this plan to hear from residents throughout the County. The timeline below offers an overview of the breadth of event types and locations.

HIGH INJURY NETWORK

To create a comprehensive network of high injury segments for San Mateo County and its local jurisdictions, the plan identifies separate high injury networks (HINs) for pedestrians, bicyclists, and motor vehicles. This comprehensive HIN is visualized in an interactive map online. Users can toggle the data by travel mode.

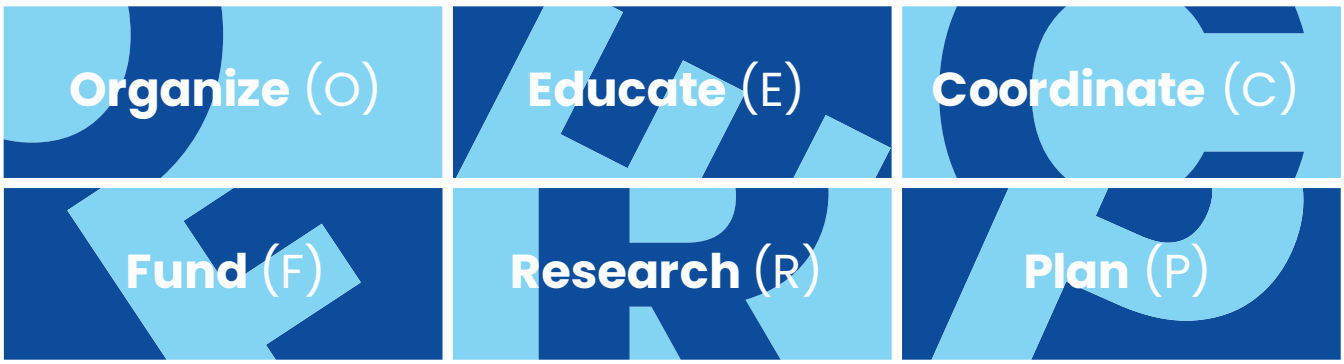
EMPHASIS AREAS

The project team analyzed crash data countywide to establish emphasis areas. Emphasis areas are crash dynamic, behavioral, or road user characteristics that agencies can focus on to maximize their reduction of fatalities and severe injuries on local roads. The Countywide emphasis areas are:

- Pedestrian and bicyclist safety
- Nighttime/low light safety
- Unsignalized intersections on arterials/collectors
- Vulnerable age groups (youth and aging)
- Motor vehicle speed related roadway segment crashes
- High-speed roadways (35+ mph)
- Alcohol involvement

RECOMMENDATIONS

Because C/CAG doesn't own local roadways and instead provides support and coordination to County agencies, the plan identifies 18 plan and program recommendations organized into the following categories:



PROJECT PRIORITIZATION

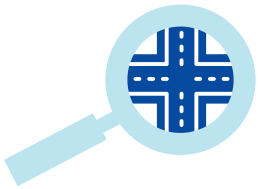
The spatial HIN analysis identified the highest crash locations by frequency and severity. Based on that work and the accompanying systemic analysis, the plan development team collaborated with partner jurisdictions to identify priority project locations. Prioritization used the following three factors:

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.

IMPLEMENTATION & MONITORING

A key part of achieving C/CAG's vision is consistently evaluating roadway safety performance and tracking progress towards the goals. The Plan includes monitoring strategies that will track the progress of this plan's implementation.

San Mateo C/CAG Countywide LRSP

Kittelson & Associates, Inc.

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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 City'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 City 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 take a broad view to evaluate risk across an entire roadway system.

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INTRODUCTION

This countywide Local Roadway Safety Plan (LRSP) was initiated by the City/County Association of Governments of San Mateo County (C/CAG) with funding provided by the Metropolitan Transportation Commission (MTC). The plan development team was C/CAG with a consultant team of Kittelson & Associates, Inc. (Kittelson), Safe Streets Research & Consulting (SSRC), and Circlepoint to provide a countywide vision for and assessment of transportation safety.

The plan is divided into two parts. The first part contains the Countywide LRSP, and the second part contains individual agency LRSPs for 10 participating agencies. C/CAG engaged its 21 constituent jurisdictions with the goal of providing an updated safety plan for those without one. The remaining 11 jurisdictions without a separate chapter in this plan already have or, at the time of this writing, are developing their own safety plans. Therefore, those agencies are not included individually in this plan. Links to their current safety plans are provided in a subsequent section. The jurisdictions with plans developed through this process include the following:

- Atherton
- Belmont
- Brisbane
- Colma
- East Palo Alto
- Foster City
- Half Moon Bay
- Hillsborough
- San Carlos
- Woodside

The completion of the LRSP will render jurisdictions in the County eligible for grant funding from the MTC OBAG 3 County & Local Program, future funding for Caltrans Highway Safety Improvement Program, and USDOT Safe Streets for All (SS4A) funding cycles.

What is an LRSP?

An LRSP is a systematic plan that assesses and identifies locations and strategies to improve local road safety. LRSPs take an interdisciplinary approach to traffic safety and rely on interagency and community collaboration to implement recommendations.

A Federal Highway Administration (FHWA) proven safety countermeasure, LRSPs provide crosscutting efforts to prioritize investments.[1] FHWA provides more than $2 billion each year in Highway Safety Improvement Program (HSIP) funds for States to address road safety challenges on all public roads.

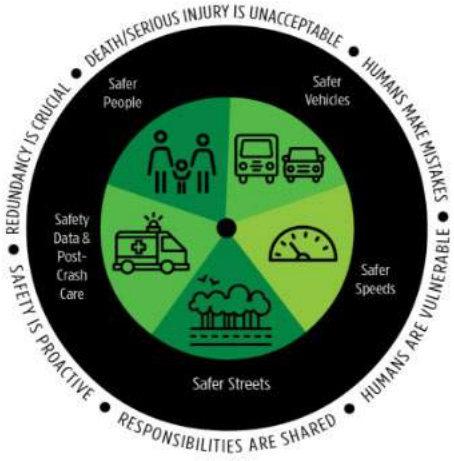
In California, to pursue HSIP grant funds (estimated at $210 million for Cycle 11 in 2022), a local agency must have an LRSP or equivalent planning document. This LRSP helps C/CAG and participating agencies qualify for HSIP funds and gets the city one step closer to eliminating traffic deaths and severe injuries on its roads.

At the national level, USDOT requires a current LRSP that meets certain criteria in order for an agency to be eligible for implementation funding grant opportunities.[2] This plan has been structured to meet those criteria for C/CAG at the countywide level and for each of the 11 participating jurisdictions.

[1] FHWA maintains a list of Proven safety countermeasures with documented effectiveness in reducing roadway fatalities and severe injuries (totaling 28 at present). More information is available online at https://highways.dot.gov/safety/proven-safety-countermeasures.
[2] The most recently published eligibility information is available online at https://www.transportation.gov/sites/dot.gov/files/2023-03/SS4A-Self-Certification-Eligibility-Worksheet-FY23.pdf.

Safe System Approach

Figure 1: Safe System Approach Principles and Elements



In January 2022, the U.S. Department of Transportation (USDOT) released its National Roadway Safety Strategy (NRSS). In addition to setting the vision for the USDOT, the NRSS adopts the Safe System Approach (SSA) to safety planning, analyses, and project prioritization and implementation.[3, 4, 5, 6, 7, 8]

The SSA aims to eliminate fatal and severe injuries for all road users.[3] The SSA views crashes as systematic events that can be mitigated (or avoided completely) through a holistic approach to infrastructure, enforcement, programs, and policies. A core assumption of this approach is that roadway users make mistakes while traveling and that the price of these mistakes should not be death or severe injury.

The SSA has five core elements[3]:

- **Safe road users:** This element reflects that the SSA prioritizes the safety of all road users traveling in the system. It also encompasses the human behavior and human factors issues that lead to crashes, injuries, and death.
- **Safe vehicles:** Vehicle regulations and vehicle design should be designed to mitigate the safety impacts of vehicle-involved crashes.
- **Safe speeds:** Because speed is the method of energy transfer to the human body, the SSA identifies it as a core element that should be considered in infrastructure design and policy-making.
- **Safe roads:** Roadways are the context in which crashes occur. They should be designed to accommodate user error and mitigate the consequences when crashes occur. The SSA emphasizes that engineers and planners must rely on better design of roadways and speed management – rather than the traditional approach of relying on enforcement – to improve safety outcomes[5,7].
- **Post-crash care:** The final element acknowledges the importance of people receiving medical care after crashes occur, as well as post-crash analysis to understand contributing factors.

The large role speed plays in determining crash severity suggests the need to design a roadway safety strategy that slows speeds, thereby lessening the kinetic energy transferred to the human body in a crash.[3] Recent Federal Highway Administration (FHWA) guidance, which highlights key alignments between the SSA, the Highway Safety Improvement Program (HSIP), and a State's Strategic Highway Safety Plan (SHSP), focuses on

[3] Elissa Goughnour, Kara Peach, Michael Dunn, Meghan Mitman, and Dan Gelinne. *Primer on Safe Systems Approach for Pedestrians and Bicyclists*. Federal Highway Administration. Washington, DC, 2021.
[4] The Safe System Approach. Washington, DC, 2022.
[5] Federal Highway Administration. "Integrating Equity into the Safe System Approach" Presentation. Accessed Apr. 17, 2023: https://highways.dot.gov/safety/zero-deaths/integrating-equity-safe-system-approach-presentation.
[6] Institute of Transportation Engineers. Recommendations of the Safe System Consortium. 2022.
[7] National Roadway Safety Strategy. Washington, DC, 2022.
[8] Core Elements for Vision Zero Communities. Washington, DC, 2022.

roadway speed—not just speeding behavior—as a general risk factor.[9] Similarly, international authorities focus on a **systemic approach**—using risk factors to inform a rating system that helps to identify problematic roadways and prioritize projects for addressing safety concerns.[10, 11]

C/CAG and its 21 jurisdictions do not have full control over all Safe System elements. For example, the agencies cannot directly affect safe vehicle design and regulation. A Safe System would require State and Federal policy—like legislation to allow automated speed enforcement and continued regulation of vehicle safety standards—will be essential to build a system that is truly safe.

HOW DO AUTONOMOUS VEHICLES AFFECT A SAFE SYSTEM?

The presence of autonomous vehicles (AVs) is expanding in the Bay Area, including San Mateo County. Potential benefits of AVs could include improvements to safety, quality of life, access, and mobility for all citizens.[12] Ongoing research on AV technology helps clarify the potential benefits and risks to understand the impacts AVs have on safety of roadway users.

C/CAG and the 21 partnering agencies do not have the authority to regulate the presence of AVs on the roadways. Currently, USDOT's National Highway Traffic Safety Administration (NHSTA) develops and regulates vehicle safety standards for automated vehicles, including issuing recalls for vehicles that do not meet them. In California, the California Public Utilities Commission (CPUC) and Department of Motor Vehicles (DMV) oversee and issue permits for AV pilots.

Local governments have a role in helping create safer roads and safer speeds for all travelers today. For example, local agencies can update design guidelines to include roadway and curbside signs and markings that consider new technologies like AVs.

C/CAG is partnered with the San Mateo County Transportation Authority (SMCTA) to develop a Countywide Automated Vehicles Strategic Plan. SMCTA and C/CAG are currently working with stakeholders to develop a framework for AV pilot programs, projects, and activities that align with County policies, plans, and funding opportunities.

This issue is of keen local interest. The proposed Transportation Safety Advisory Committee (see *O1: Transportation Safety Advisory Committee* on page 55) may include this topic in future meetings for discussion and local coordination.

[9] Emily Finkel, Cullen McCormick, Meghan Mitman, Sarah Abel, Jackie Clark. 2020. *Integrating the Safe System Approach with the Highway Safety Improvement Program*. Federal Highway Administration. Washington, DC.

[10] PIARC Road Safety Manual. 2019. Accessed April 17, 2023: https://roadsafety.piarc.org/en

[11] New Zealand Ministry of Transport. 2010. *Safer Journeys - A National Strategy to Improve Road Safety*.

[12] National Science & Technology Council and USDOT. 2020. *Ensuring American Leadership in Automated Vehicle Technology.* https://www.transportation.gov/sites/dot.gov/files/2020-02/EnsuringAmericanLeadershipAVTech4.pdf

Safety and Social Equity

We know that nationwide and statewide, safety impacts and fatal/severe injury crashes affect the population unevenly. The burdens of inequitable infrastructure investments result in more death and severe injury among marginalized populations.

The 2022 USDOT *National Roadway Safety Strategy*[13] notes the following impacts:

- Nationally, the 40 percent of counties with the highest poverty rates in 2019 experienced a fatality rate 35 percent higher than the national average on a per population basis.[14]
- From 2019 to 2020, traffic-related fatalities among Black people increased by over three times higher than the overall nationwide increase of 7.2 percent.[15]
- People who are American Indian and Alaska Native have more than double the national fatality rate per population on a per population basis.

Within California, the American Indian/Alaskan Native, Black, and Hispanic population have per population fatality rates 16, 9, and 7 percent higher, respectively, than among the White population. Pedestrian fatality rates are 50, 65, and 37 percent higher, respectively.[16]

Within San Mateo County, Black and Hispanic travelers are victims in crashes at rates 2.2 and 1.2 times their share of the population, respectively.

Because of the continual disproportionate impact of crashes and the burden on disadvantaged communities, this plan incorporates social equity into the analysis, project prioritization, and plan recommendations. Social equity will be used to guide future investments and focus areas for non-engineering strategies that can improve safety in line with the Safe System approach.

Alignment with the SHSP

The 2020–2024 California Strategic Highway Safety Plan (SHSP) sets out California's vision, goals, and objectives for reducing fatal and severe injury crashes on public roads (local roads and State Highways). To draw this roadmap, the California Department of Transportation (Caltrans) analyzed crash data and collaborated with traffic safety partners across the state. As a result, the SHSP identified 16 challenge areas, or areas with the most potential to improve roadway safety. Of the challenge areas, six were identified as high-priority areas, or areas with the greatest opportunity to reduce fatality and severe injury.

Whereas the SHSP has historically used the five "Es" (education, enforcement, engineering, emergency response, and emerging technologies) to organize its strategies, as of 2021 State transportation officials shifted

[13] https://www.transportation.gov/sites/dot.gov/files/2022-02/USDOT-National-Roadway-Safety-Strategy.pdf
[14] 1 FARS 2019 data publication, 1st release; Poverty rates and Population data by County, U.S. Census. The fatality rate for the top 40 percent of counties by poverty rate was 14.9 per 100,000 population versus 11.0 for the country.
[15] https://crashstats.nhtsa.dot.gov/Api/Public/ViewPublication/813118
[16] https://dot.ca.gov/-/media/dot-media/programs/safety-programs/documents/shsp/combined-shsp-fact-sheets-april-2022-a11y.pdf

focus toward principles that integrate social equity, take a Safe System Approach, and encourage proven countermeasures and emerging technologies. This plan is aligned with the SHSP's updated guidance.

SHSP challenge areas include (with high-priority challenge areas presented in **bold font**):

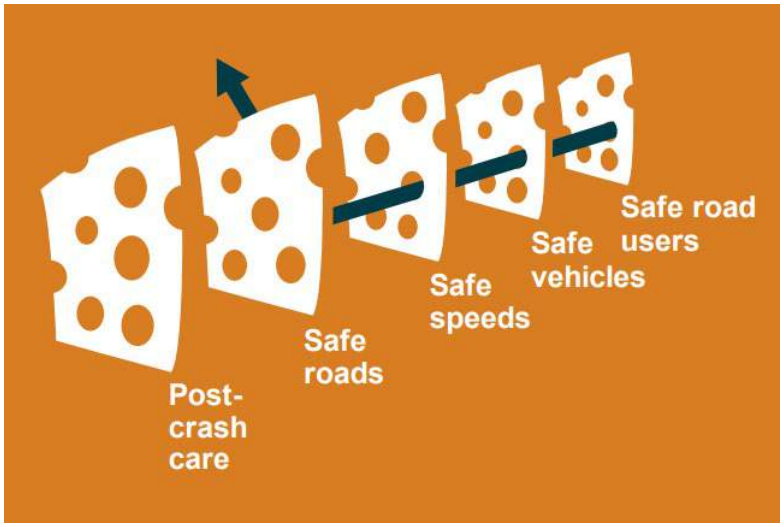
- Aging Drivers (65 and older)
- **Bicyclists**
- Commercial Vehicles
- Distracted Driving
- **Impaired Driving**
- **Intersections**
- **Lane Departures**
- Motorcyclists
- Occupant Protection
- **Pedestrians**
- **Speed Management/Aggressive Driving**
- Work Zones
- Young Drivers (15–20 years old)

Incorporating Vision Zero

Vision Zero is a local, national, and international movement to eliminate all traffic-related deaths and severe injuries. The traditional approach to traffic safety views deaths and severe injuries as the cost of getting around; Vision Zero rejects this inevitability and instead understands that traffic fatalities and severe injuries are preventable.

By using the principles of the Safe System Approach, Vision Zero initiatives build layers of protection and redundancy into the transportation system to protect all roadway users—even when they make mistakes. The layers of overlapping redundancy are sometimes referred to as the "Swiss Cheese" Model (see Figure 1)— death and severe injury would only occur when all layers fail.

Figure 1. "Swiss Cheese" Model Demonstrating Layers of Redundancy



Source: FHWA (https://cdn-wordpress.webspec.cloud/intrans.iastate.edu/uploads/sites/10/2021/11/SSA-Iowa-FHWA.pdf)

This plan is aligned with a Vision Zero approach. Although C/CAG does not own local or State roads within San Mateo County, its vision for this plan represents an aggregate of all 21 communities' visions and would result in significant near-term declines in fatal and severe injuries, with an eventual goal of zero.

MTC passed a Vision Zero policy in 2020 that identified actions to support cities like those in San Mateo County to pursue a Vision Zero commitment. Such a commitment means building a safer transportation system and creating and sustaining a culture where residents, workers, and visitors prioritize traffic safety and minimize the lethality of traffic mistakes. This plan will be implemented through coordination with identified safety partners, including both city agencies and external parties.

What's in the Plan

This LSRP includes the following:

- Vision and Goals: Countywide vision, accompanying local agency goals, and associated C/CAG goals
- Plan Development: A summary of the collaborative process for developing the LRSP.
- Countywide Data Analysis Findings: A description of major systemic and spatial findings from a countywide existing conditions analysis.
- State Highways in San Mateo County: A snapshot of the influence of Caltrans facilities on safety in the county and a commitment to work with Caltrans to improve safety on its network.
- Safe System Aligned Recommendations: Engineering, policy, and program recommendations for C/CAG and member agencies to realize the plan's vision and goals.
- Projects: A summary of identified countywide locations to consider for implementing safety projects.
- Implementation and Monitoring: Actions and performance measures to evaluate progress on plan goals.

VISION AND GOALS

Vision

This Countywide Plan vision establishes a desired future condition for San Mateo County, one which is achievable only with collaborative efforts from all relevant agencies.

As the lead agency in developing this plan, C/CAG envisions a County of diverse partners sharing resources and responsibility for maintaining a safe and equitable transportation system, with all actors consistently working together to eliminate death and severe injury on roads countywide.

Together, C/CAG, its 21 local jurisdictions, and partner agencies work to:

- Identify safety improvements, strategies, and programs using the Safe System Approach to eliminate fatalities and severe injuries on local roads.
- Enhance the existing roadway network in a cost-effective manner that promotes traffic safety and social equity, meets the needs of the community, and enriches the lives of residents.
- Promote a culture across agencies and communities that puts roadway safety first in all actions.

C/CAG will lead, coordinate, and support its 21 local jurisdictions in achieving their vision to reduce or eliminate fatalities and severe injury crashes across all public roadways. The desired quantitative reductions from each jurisdiction's plan is summarized below (with links to the current published plans):

- **Atherton:** Reduce fatal and severe injury crashes to zero by 2050.
- **Belmont:** Eliminate all traffic fatalities and reduce the number of non-fatal crashes by 50 percent by 2040.

- **Brisbane:** Reduce fatal and severe injury crashes to zero by 2050; establish and promote a Safe System culture to build overlapping layers of safety.
- **Burlingame:** Reduce fatal and severe injury crashes to zero by 2050.
- **Colma:** Eliminate all traffic fatalities and reduce the number of non-fatal crashes by 50 percent by 2040.
- **Daly City (published 2020)**[17]: Eliminate fatalities and serious injuries by 2035.
- **East Palo Alto:** Eliminate all traffic fatalities and reduce the number of non-fatal injury crashes by 50 percent by 2050.
- **Foster City:** Eliminate all traffic fatalities and reduce the number of non-fatal crashes by 50 percent by 2050 as part of a broader effort to promote roadway safety in Foster City's departments, businesses, and residents.
- **Half Moon Bay:** Eliminate all traffic fatalities and reduce non-fatal crashes by 50 percent by 2050.
- **Hillsborough:** Eliminate all traffic fatalities and reduce the number of non-fatal crashes by 50 percent by 2050.
- **Menlo Park (updated 2024)**[18]: Eliminate all traffic fatalities and serious injuries by 2040.
- **Millbrae (adopted 2022)**[19]: Systemically identify and analyze roadway safety problems and recommend improvements.
- **Pacifica (adopted 2023)**[20]: Residents and visitors to Pacifica are able to safety travel by car, foot, bicycle, transit, and other modes of transportation to access daily needs and recreational opportunities.
- **Portola Valley:**[21] To provide for safe and reasonably expeditious movement for local residents and minimize the disruptive influences of through traffic.
- **Redwood City (adopted 2022)**[22]: Eliminate traffic fatalities and severe injuries for all modes by 2030.
- **San Bruno (adopted 2023)**[23]: Identify and analyze road safety issues from a systemic perspective and recommend improvements.
- **San Carlos:** Eliminate all traffic fatalities and reduce the number of non-fatal crashes by 50 percent by 2050.
- **San Mateo (ongoing)**: The City is committed to reaching its goal of eliminating all preventable traffic fatalities and severe injuries by 2050.
- **South San Francisco (published 2022)**[24]: Support the California vision of moving towards significantly reducing fatalities and serious injuries for all road users.
- **Unincorporated County (published 2021)**[25]: Reduce the number of fatal crashes to zero by 2035.
- **Woodside:** Achieve 50 percent reduction in fatal and severe injury crashes by 2050.

Plan Goals

This plan acts in the service of achieving several Countywide safety goals. These goals have guided the creation of this plan and serve as markers C/CAG can use to measure the plan's success moving forward.

[17] https://www.dalycity.org/DocumentCenter/View/3369/Vision-Zero-Action-Plan-2020-PDF
[18] https://menlopark.gov/Government/Departments/Public-Works/Capital-improvement-projects/Vision-Zero-Action-Plan
[19] https://portal.laserfiche.com/Portal/DocView.aspx?id=15854&repo=r-c2783ec8&searchid=81b66911-b352-477f-ab4f-4a776cf7f808
[20] https://www.cityofpacifica.org/home/showpublisheddocument/15778/638278612505239698
[21] From the Town's Circulation Element
[22] https://www.redwoodcity.org/home/showpublisheddocument/25615/638016840641870000
[23] https://www.sanbruno.ca.gov/436/Projects
[24] https://www.ssf.net/home/showpublisheddocument/30166/638245818532000000
[25] https://www.smcsustainability.org/wp-content/uploads/San-Mateo-County-LRSP3-1.pdf

The goals include the following:

- Regularly review crash history and community needs to identify and prioritize opportunities to reduce crash risk for roadway users of all ages and abilities.
- Partner with local agencies to incorporate roadway safety into all actions.
- Implement context-appropriate safety countermeasures systemically and as part of all projects to target emphasis areas and underserved communities.
- Support agencies in providing opportunities for citizen engagement to identify issues and inform Countywide safety solutions.
- Embrace the Safe System Approach to promote engineering and non-engineering strategies in the community.
- Work with agencies to monitor safety projects and implementation to track progress towards goals.

PLAN DEVELOPMENT

Existing Safety Efforts

This plan, in addition to outlining a countywide vision for roadway safety, concludes with 11 tailored safety plans for various towns and cities within San Mateo County. The remaining 10 jurisdictions within San Mateo County already have or are developing their own safety plans and therefore are not included individually in this plan (links provided where available):

- Burlingame (2023)
- Daly City (2020)
- Menlo Park (2024)
- Millbrae (2022)
- Pacifica (2023)
- Portola Valley (2019)
- Redwood City (2022)
- San Bruno (2023)
- San Mateo (ongoing)
- South San Francisco (2022)
- Unincorporated County (2021)

Project Advisory Group

The project team convened an advisory group to review and guide the plan's progress. Throughout the plan's development, the project team engaged the advisory group regularly and in different ways, including whole-group meetings, specific break-out meetings, and one-on-one conversations.

The advisory group consisted of the following individuals and organizations:

Table 1. C/CAG Constituent Jurisdictions and Partner Agencies

Agency	Representative(s)	Agency	Representative(s)
Town of Atherton	Robert Ovadia	City of San Bruno	Hae Won Harry Yip
City of Belmont	Matt Hoang Tracy Scramaglia	City of San Carlos	Hanieh Houshmandi Steven Machida
City of Brisbane	Tomas Santoyo Karen Kinser	City of San Mateo	Bethany Lopez Azalea Mitch
City of Burlingame	Andrew Wong	City of South San Francisco	Jeff Chou Matthew Ruble
Town of Colma	Abdulkader Hashem	Town of Woodside	Yazdan Emrani Sindhi Mekala Sean Rose

Agency	Representative(s)	Agency	Representative(s)
City of Daly City	Richard Chiu, Jr.	County of San Mateo	San Mateo County Fire Marshal; Diana Shu
City of East Palo Alto	Irene Chiu Humza Javed Anwar Mirza	California Highway Patrol	Mackenzie Crouch
City of Foster City	Justin Lai Francine Magno Amy Zhou	Caltrans	Greg Currey Jake Freedman Sergio Ruiz
City of Half Moon Bay	Maz Bozorginia Jonathan Woo	County of San Mateo Sustainability Department	Joel Slavit
Town of Hillsborough	Paul Willis	Metropolitan Transportation Commission	Bryan Redmond
City of Menlo Park	Matthew Hui	SamTrans	Martin Reyes
City of Millbrae	Sam Bautista	San Mateo County Office of Education	Theresa Vallez-Kelly
City of Pacifica	Lisa Peterson	San Mateo County Health	Liz Sanchez
Town of Portola Valley	Howard Young	Silicon Valley Bicycle Commission	Anthony Montes
City of Redwood City	Malahat Owrang		

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 to create a culture of roadway safety. Additional partners may be identified in the future, but the advisory group shown above represents a group of invested parties that can be leveraged for plan implementation.

COMMUNITY ENGAGEMENT AND INPUT

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

Pop-up Events Conducted as Part of Public Engagement at Woodside Public Library (top) and at Brisbane Farmers' Market (bottom).

Events

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

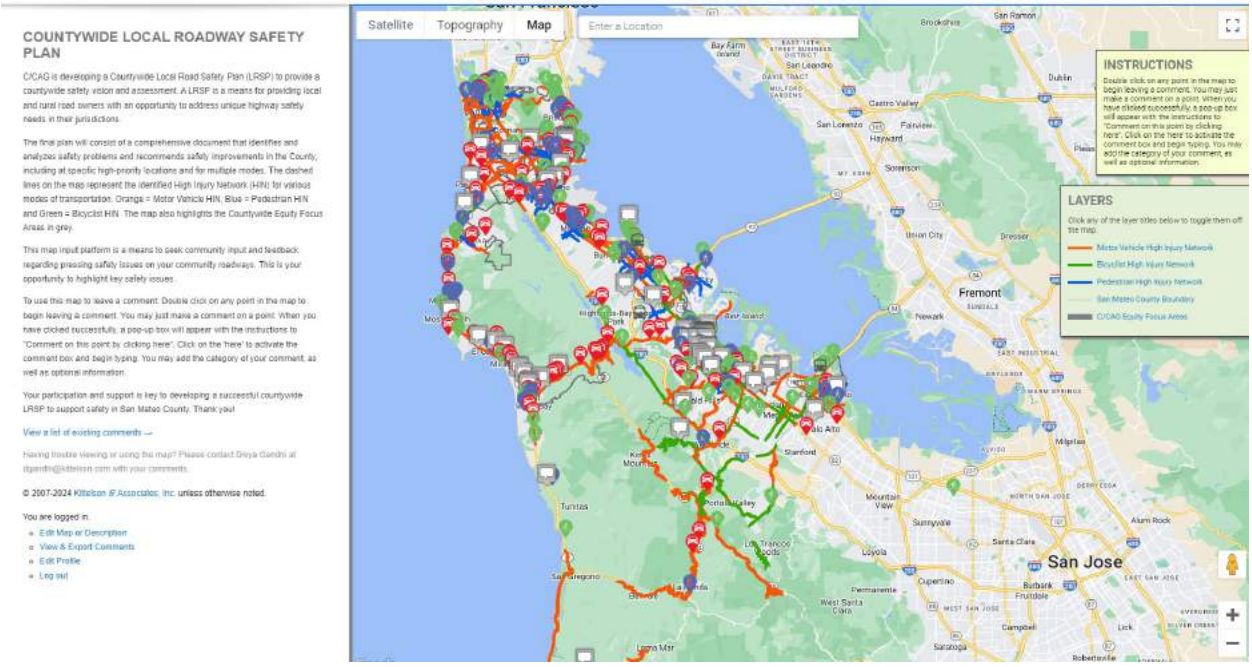
Table 2. Calendar of C/CAG Public Engagement Events

Date	Event	Location
August 10, 2023	Countywide Virtual Kickoff meeting – Sharing 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). Respondents were able to record location-specific feedback, associate a travel mode, and leave a detailed comment pertaining to a safety concern.

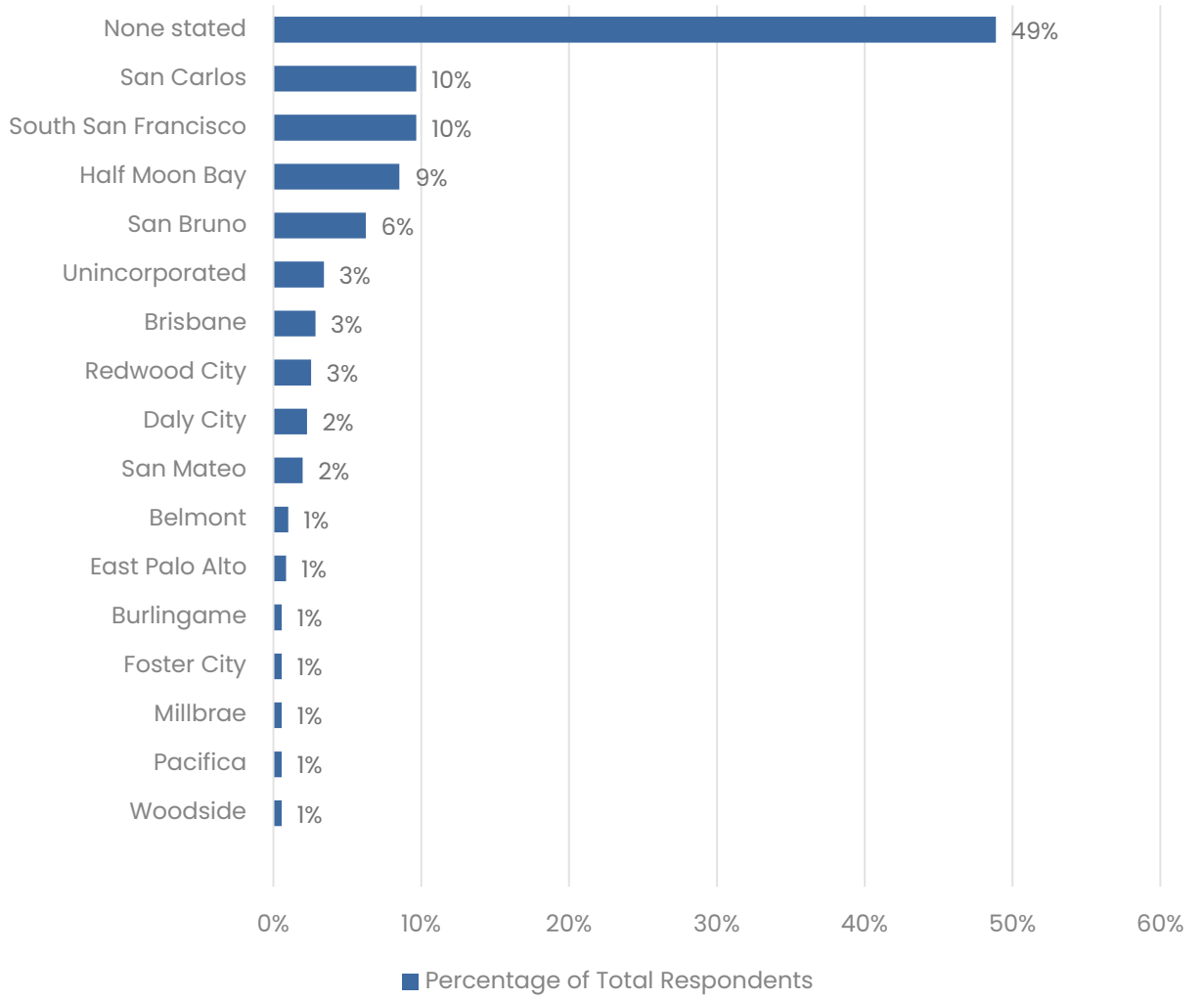
Figure 2. Online Map Survey Tool



Countywide, there were a total of 528 comments recorded by 352 respondents. Those comments are included in Appendix A, organized by local jurisdiction. Of the 352 respondents:

- 180 respondents mentioned their city of residence. Among the respondents who shared their city of residence, the top three were South San Francisco (19 percent), San Carlos (19 percent) and Half Moon Bay (17 percent). Figure 3 shows the percentage of total respondents by city of residence. (In many cases, respondents would leave a comment within a jurisdiction but not identify their city or town of residence. We have recorded those responses as "none stated.")
- 140 respondents identified their age group. Among the respondents who identified their age group, the top three categories were 35-39 years (26 percent), 30-34 years (24 percent), and 45-49 years (11 percent).
- 116 respondents identified their race/ethnicity. Among the respondents who identified their race/ethnicity, 83 percent were White, 7 percent were Asian, 6 percent were Hispanic, and 4 percent belonged to Other race/ethnicity groups.
- 106 respondents responded to whether they lived in a C/CAG Equity Focus Area. Of these respondents, 55 percent responded as "Yes", and 45 percent responded as "No".

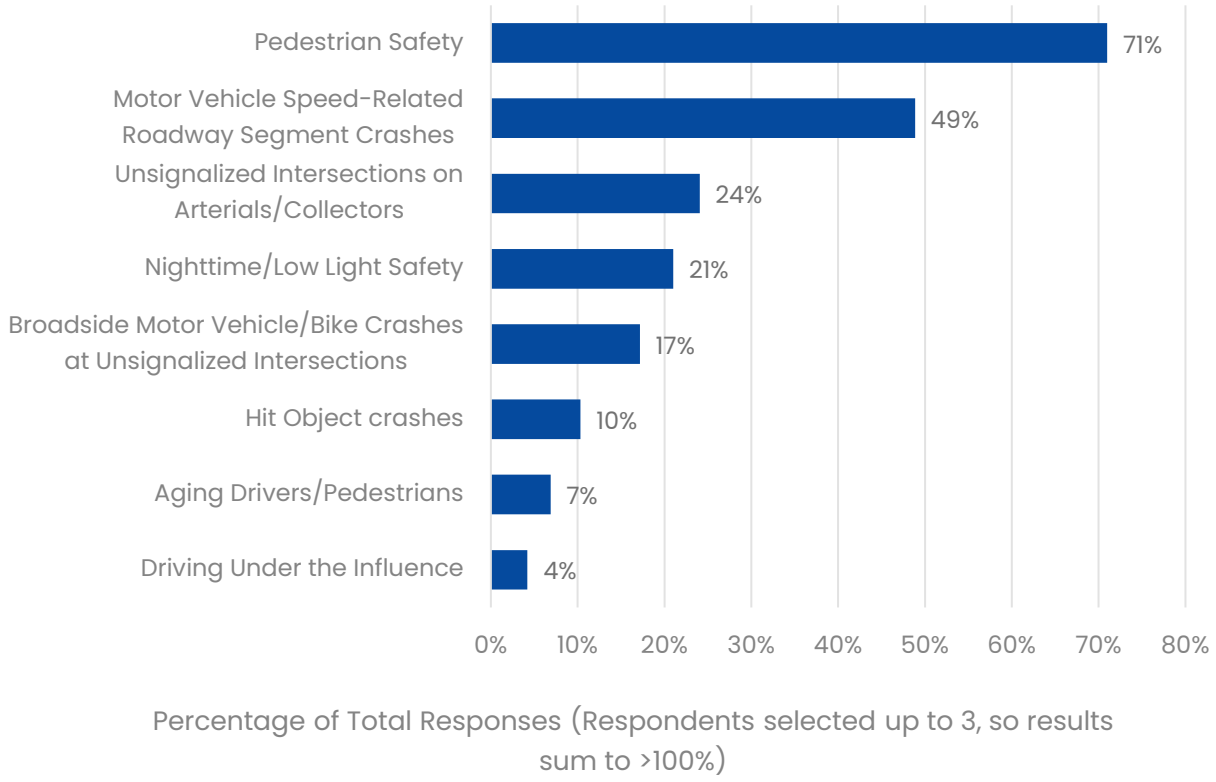
Figure 3. Percentage of Total Respondents by City of Residence



Of the 528 responses, the following trends emerged:

- Respondents were asked to identify the travel mode for their comment and safety concern. The most frequent travel modes identified were biking (26 percent), driving (22 percent) and walking (20 percent).
- Respondents were asked to pick their top three emphasis areas for the plan to focus on. The most frequently selected emphasis areas were pedestrian safety (71 percent of respondents), motor vehicle speed related roadway safety (49 percent), and unsignalized intersections on arterials/collectors (24 percent). Figure 4 shows the percentage of total responses by emphasis areas selected. (Because respondents could select multiple, the responses sum to more than 100 percent).

Figure 4. Percentage of Total Responses by Emphasis Areas Selected



Respondents were also asked which Safe System elements were most important for the plan to focus on (Safer People, Safer Roads, Safer Vehicles, Safer Speeds, or Post-Crash Care). Of those who responded to the question, the top three safe system elements selected were safer roads (70 percent), safer people (46 percent), and safer speeds (34 percent). Some respondents selected more than one, so results sum to more than 100 percent.

Phase 1 Feedback

This section describes the general themes/concerns gathered from community feedback. Additionally, maps of comment locations are included in the local jurisdiction chapters.

Biking Concerns/Requests

- Provide a more connected bike network: continuous bike lanes (especially through intersections) and install bike lanes to transit connections (Caltrain) and biotechnology business parks in South San Francisco.
- Upgrade or general maintenance concerns of existing bike infrastructure including widening and restriping bike lanes, installing raised barriers on overpasses, installing bike wayfinding signs, installing street lighting to increase visibility of bicyclists, removing speed humps, repairing potholes, and removing debris along bike lanes.
- Add new bike infrastructure such as protected bike lanes, separated bike lanes, road diets, bike tunnels, and bike bridges.
- Concerns regarding conflicts with motor vehicles including high traffic volumes and congestion, vehicle speeds, right of way issues, and turning conflicts at intersections.
- Upgrade signal timing to provide a leading bicycle interval.
- Remove on-street parking to make more way for bikes along the roadway.
- Request to provide modal filters: to allow only bicycles and pedestrians on certain streets.

Pedestrian Concerns/Requests

- Add new pedestrian infrastructure or upgrade existing infrastructure such as building new sidewalks, widening existing sidewalks, providing midblock crossings, and high visibility crosswalks.
- Requests for sidewalk maintenance and trimming low hanging trees.
- Support for additional pedestrian infrastructure including Rectangular Rapid Flashing Beacons, push buttons for WALK signs and pedestrian hybrid beacons (HAWK), increasing pedestrian walk times and modifying signals to include a leading pedestrian interval (especially at intersections near transit connections and schools).
- Concerns regarding conflicts with motor vehicles including high traffic volumes and congestion, speeding, and running STOP signs.
- Concerns related to sharing sidewalks with micromobility devices such as bicycles, electric scooters, skateboards, etc.
- Pedestrian visibility concerns: street lighting is absent or insufficient.
- Concerns regarding curb ramps being insufficient for wheelchairs or other mobility challenged roadway users.

Traffic Enforcement Concerns

- Multiple concerns regarding running STOP signs and red lights.
- Concerns regarding speeding observed at multiple locations – requests for traffic calming.
- Concerns regarding illegal on-street parking, double parking, parking on sidewalks and bike lanes and large vehicles parking on roadways or curves.

Roadway Infrastructure/ Traffic Operations Concerns

- Primary concerns include traffic congestion, the number of lanes not being sufficient for the traffic volumes during peak hours and poor signal timing design (signals show red when there are no vehicles at an approach)
- Concerns regarding maintenance of roadway infrastructure including friction of the roadway surfaces, potholes, lack of proper roadway markings, wayfinding signage and improving visibility at intersections.
- Requests to reduce vehicle conflict points at intersections through design.
- Requests to install barriers to separate two-way traffic, lengthening passing lanes and adding high occupancy vehicle lanes.

Public Transit Concerns

- Improve biking and walking connections to transit stations.
- Provide more public transportation options.
- Ensure reliable bus services and routes serving locations such as schools, parks and seniors.

Phase 2 Feedback

Phase 2 outreach included more detailed discussion of the Countywide High Injury Network and draft priority locations within communities. Participants were also asked to weigh in on potential engineering solutions. The project team received over 200 comments on priority locations and proposed countermeasures. The locations and themes of Phase 2 comments are presented in the individual plan chapters included in this plan document. Comments received, organized by event, are included in Appendix B. Themes from this feedback varied between communities but are summarized as follows:

General Comments

- Desire for better enforcement of motor vehicles speeding and stopping at stop signs.

Pedestrian Comments

- Concerns of pedestrian safety on major roadways and desire for pedestrian enhancements, such as sidewalks and pedestrian signals, to enhance safety,

Bicycle Comments

- Desire to improve bicycle facilities, specifically clearly marked and separated bike lanes.
- Concerns of poor visibility for bicyclists, especially where bicyclists and drivers share the road.

Motor Vehicle Comments

- Desire for traffic calming measures, such as speed bumps, stop signs, and traffic lights.
- Concerns of vehicles speeding, especially in areas with lots of pedestrians

COUNTYWIDE DATA ANALYSIS FINDINGS

A **systemic descriptive analysis** was conducted to identify patterns, trends, and potential risk factors based on five-year County crash data. The descriptive analysis identifies environmental, design, and user characteristics most associated with fatal and severe injury (F/SI) outcomes. The data were downloaded from the Transportation Injury Mapping System[26] (TIMS) Crash database representing injury and fatal crashes for the full years 2018 through 2022.

The analysis was limited to roadways and crashes that occur on locally owned roadways and along at-grade State Highway facilities. The analysis excluded all Caltrans-owned grade-separated freeways and ramps, with the exception of crashes occurring within the influence area of ramp terminal intersections (which typically include Caltrans and locally owned roadways).

The subsequent State Highways in San Mateo County Section beginning on page 43 describes at-grade State Highway trends in the county and provides recommendations for working with Caltrans to improve safety on State Highway roads in the County.

Table 3 shows an overview of crashes and share of local/State Highway locations for the data analyzed.

Table 3. Injury/Fatal Crash Data Overview, All Modes Aggregated (2018-2022), Non-Freeway Crashes

			Non-Freeway Injury/Fatal Crash Breakdown			
Year	Total Count	Crashes on Non-Freeway Roadways	State Highway Crashes	State Highway Share (percent)	Local Roadway Crashes	Local Roadway Share (percent)
2018-2022	12,526	8,468	2,712	43%	5,756	57%

Source: TIMS 2023

[26] Transportation Injury Mapping System, http://tims.berkeley.edu

Pre-Pandemic versus Pandemic Comparison

The COVID-19 pandemic has had a significant effect on travel patterns, behaviors, and traffic volumes. The analysis considered crashes that occurred before the pandemic (2017-2019) and during the pandemic years (2020-2022) to observe changes in safety due to the COVID-19 pandemic.

Based on the findings as listed in Table 4, the total number of crashes has decreased, but the number of F/SI crashes before versus after is quite similar (52 compared to 48 percent of the six-year total). This is also evident in the average crash severity score per crash, which indicates that in the pandemic era the average crash severity has been about 20 percent higher compared to 2017-2019.[27]

Based on Caltrans Traffic Census data, traffic volumes decreased from 2017 to 2021 along State Highway routes Countywide by between 3 and 38 percent (See Table 9 in Appendix C). This means that overall crash frequency decreased alongside traffic volumes—an expected trend—but that the frequency for the most severe crashes remained relatively stable.

Table 4. Injury/Fatal Crashes by Year, All Modes Aggregated (2017-2022), Non-Freeway Crashes

Year	Count	percent of 6-year Total Crashes	F/SI Count	percent of Total F/SI Crashes	Average Crash Severity Score
2017-2019	6,109	58%	555	52%	22.8
2020-2022	4,436	42%	518	48%	27.2
Total	**10,545**	**100%**	**1,073**	**100%**	**24.7**

Source: TIMS 2023

Table 5 shows the total number of crashes has decreased from pre-pandemic to pandemic era in most County jurisdictions with the exception of East Palo Alto, Half Moon Bay, and Woodside. The Cities of Atherton, Burlingame, Daly City, East Palo Alto, Foster City, Millbrae, Pacifica, Portola Valley, Redwood City, San Carlos, Woodside, and Unincorporated San Mateo County (64 percent of total jurisdictions) all recorded higher F/SI crashes in the pandemic era.

[27] The crash severity score is a normalized measure that scores a crash based on its average societal cost and compares it to a typical reported crash resulting in property damage only (PDO). For example, a crash at a signalized intersection resulting in death or severe injury is weighted 120 times a PDO crash; a crash resulting in a minor injury is weighted 11 times a PDO; and crash resulting in a possible injury is weighted six times a PDO. A higher average crash severity score means that those crashes resulted in more severe outcomes more often.

Table 5. Injury/Fatal Crashes by Year/Jurisdiction, All Modes Aggregated (2017-2022), Non-Freeway Crashes

Jurisdiction	Year	F/SI	Other Crashes	Total
Atherton	2017-2019	2	116	118
	2020-2022	3	41	44
Belmont	2017-2019	5	164	169
	2020-2022	5	130	135
Brisbane	2017-2019	8	53	61
	2020-2022	8	23	31
Burlingame	2017-2019	3	212	215
	2020-2022	11	116	127
Colma	2017-2019	22	9	31
	2020-2022	0	1	1
Daly City	2017-2019	4	544	548
	2020-2022	39	434	473
East Palo Alto	2017-2019	10	250	260
	2020-2022	33	229	262
Foster City	2017-2019	4	106	110
	2020-2022	10	74	84
Half Moon Bay	2017-2019	10	77	87
	2020-2022	9	82	91
Hillsborough	2017-2019	4	30	34
	2020-2022	2	13	15
Menlo Park	2017-2019	23	430	453
	2020-2022	15	252	267
Millbrae	2017-2019	11	142	153

Jurisdiction	Year	F/SI	Other Crashes	Total
	2020-2022	24	107	131
Pacifica	2017-2019	21	249	270
	2020-2022	24	167	191
Portola Valley	2017-2019	2	25	27
	2020-2022	10	11	21
Redwood City	2017-2019	41	783	824
	2020-2022	50	546	596
San Bruno	2017-2019	56	266	322
	2020-2022	23	187	210
San Carlos	2017-2019	15	155	170
	2020-2022	19	139	158
San Mateo	2017-2019	58	715	773
	2020-2022	23	326	349
South San Francisco	2017-2019	66	530	596
	2020-2022	43	424	467
Unincorporated	2017-2019	113	625	738
	2020-2022	137	529	666
Woodside	2017-2019	14	73	87
	2020-2022	30	87	117

Source: TIMS 2023

Hot Spot analysis/ High Injury Network Identification

A hot spot analysis involves analyzing historic crash data for the County and within each local jurisdiction. Hot spot analysis is a valuable method to identify locations with disproportionate histories of crashes, but it is not intended to reveal roadway factors that contribute to high crash risk. To identify the modal High Injury Networks (HINs) for pedestrians, bicyclists, and motor vehicles, a sliding window analysis was conducted as described in Appendix C

Dynamic maps of all local jurisdiction HINs, as well as of the combined Countywide HIN, can be viewed at this link. Static maps are contained in the body and as part of Appendix C of this plan. On these maps, routes labeled as "Non-Highway" are not part of the State's highway network.

- The pedestrian HIN is represented by 98 miles of the street network that had the highest concentration of weighted crashes on a per-mile basis. The minimum weighted crash threshold was substantially higher along State routes (i.e., Caltrans roadways) compared to local roads. This differential scoring was used to keep State routes from dominating the HIN and precluding insights about locally controlled roadways. The Pedestrian HIN covers just 3.4 percent of the street network for the County but accounts for half of all pedestrian crashes and 69 percent of fatal and severe injury pedestrian crashes from 2018 to 2022. Roughly 12 percent of the pedestrian HIN is along a State route, and 10 percent of the pedestrian HIN is along El Camino Real (SR 82).
- The bicyclist HIN was produced using the same approach as the pedestrian HIN (i.e., evaluating State routes separately from local streets and using the same relative scoring). The bicyclist HIN represents 96 miles of the street network and accounts for 3.3 percent of the street network. Twenty-seven percent of the network is along a State route, with El Camino Real comprising nearly 10 percent of the bicyclist HIN mileage. Most crashes along the bicyclist HIN involved both a bicyclist and a motorist (82 percent of total crashes; 67 percent of F/SI crashes), while the remaining crashes were solo bicyclist crashes.
- The Motor Vehicle HIN was developed using the same per-mile weighted analysis as the pedestrian and bicyclist HIN but the crash thresholds for State highways and local roadways. The motor vehicle HIN represents 283 miles of the street network and accounts for about 10 percent of the street network, 63 percent of all injury motor vehicle crashes, and 44 percent of F/SI motor vehicle crashes. Forty-two (42) percent of the network is along a State route.

To consolidate a network of high injury segments for San Mateo County and its specific jurisdictions, motor vehicle HIN, pedestrian HIN and bicycle HIN were combined to identify, for every roadway segment in the County, whether it is part of zero, one, two, or all three of the modal HINs.

Figure 5. Countywide Pedestrian High Injury Network

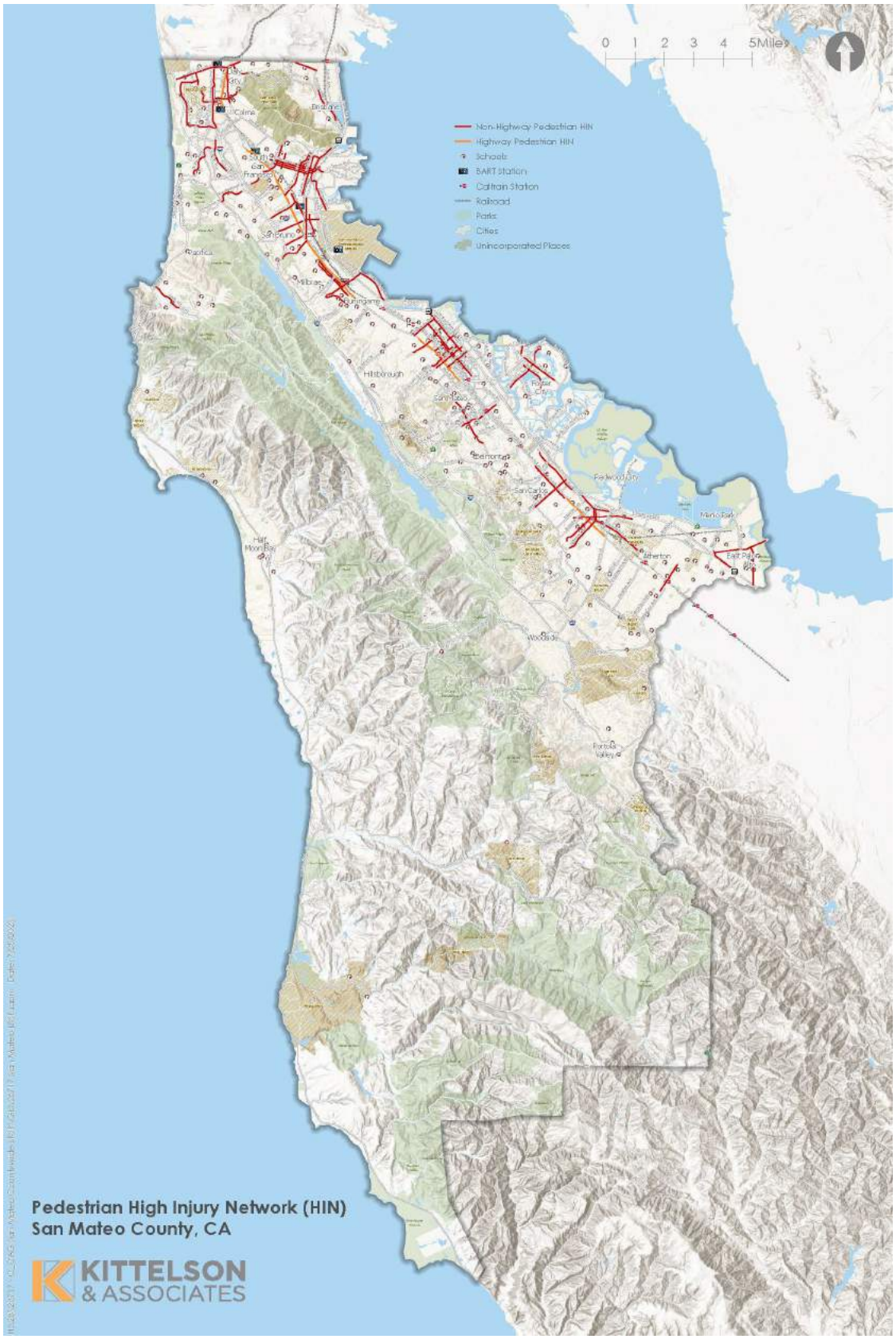


Figure 6. Countywide Bicyclist High Injury Network

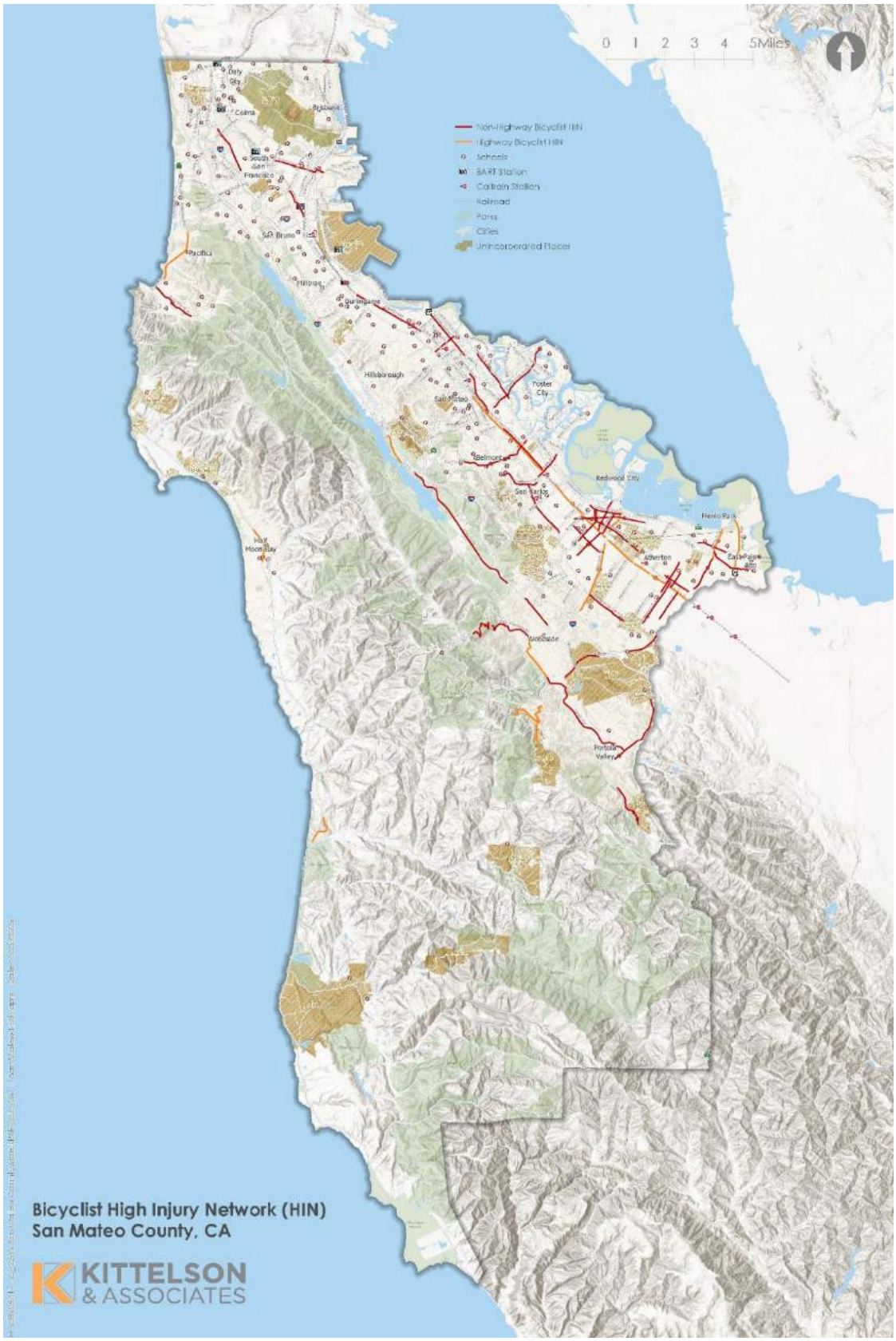
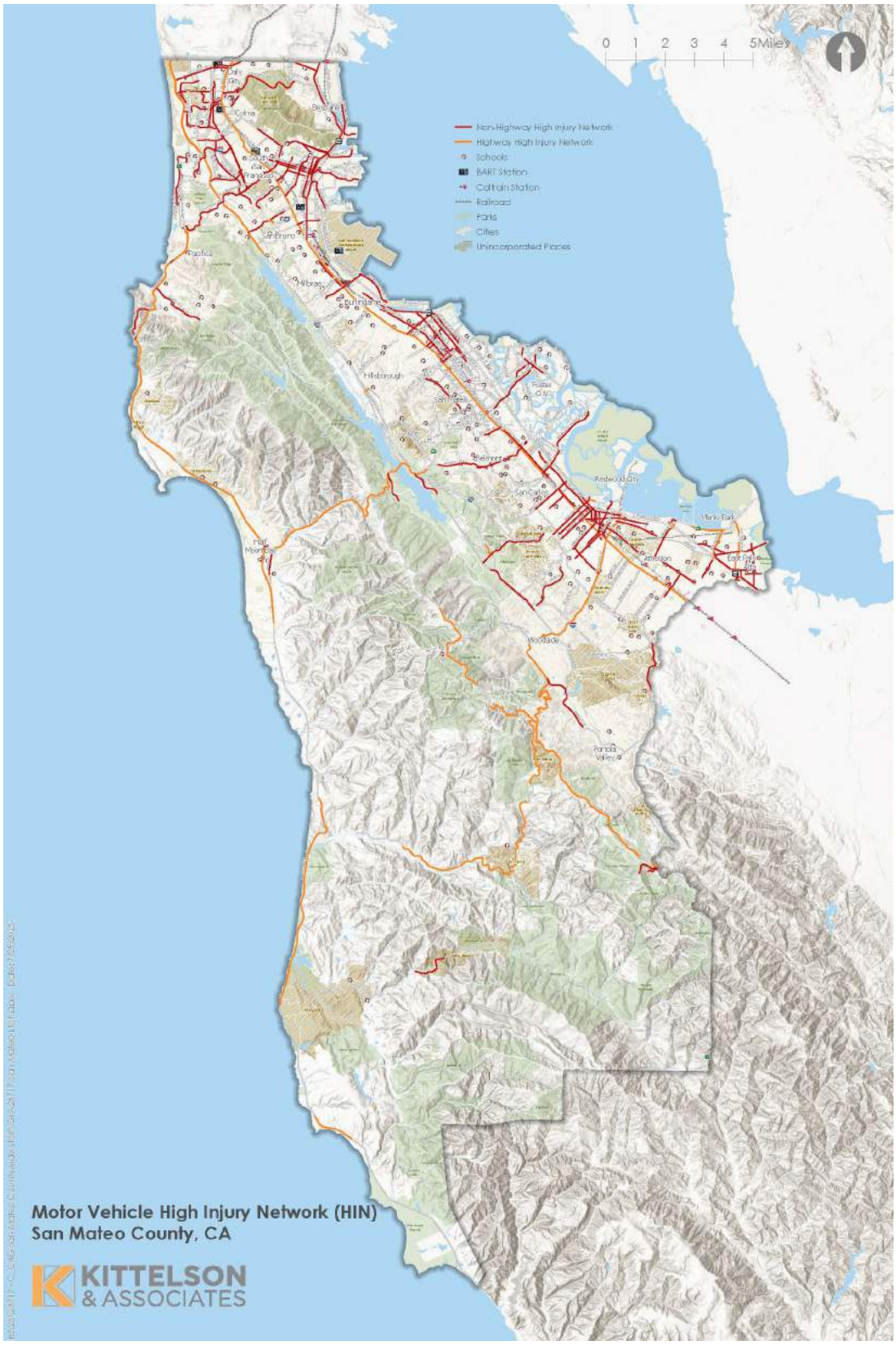


Figure 7. Countywide Motor Vehicle High Injury Network

Figure 8. Countywide Combined High Injury Network



SYSTEMIC DESCRIPTIVE FINDINGS

In addition to the spatial and location-based findings, the analysis analyzed the crash data for systemic findings. Those are organized by mode (pedestrian, bicyclist, and motor vehicles). An overview of crashes by mode for the 5-year period is provided in Table 6. The following pages describe high-level Countywide systemic crash findings. Pages 40-41 show countywide findings in relation to the County emphasis areas.

Table 6: Injury/Fatal Crashes by Mode, Countywide (2018-2022), Non-Freeway Crashes

Mode	Count	% of 5-year Total Crashes	F/SI Count	% of Total F/SI Crashes
Pedestrians	1,064	13%	208	23%
Bicyclists	1,058	13%	175	20%
Motor Vehicle Alone	6,328	75%	515	57%
Total	**8,450**	**100%**	**898**	**100%**

Source: TIMS 2023

EMPHASIS AREAS

The project team analyzed crash data countywide to establish emphasis areas. Emphasis areas are crash dynamic, behavioral, or road user characteristics that agencies can focus on to maximize fatal and severe injury reduction on local roads. Countywide emphasis areas are listed below.

1. **Pedestrian and bicyclist safety.** Countywide, pedestrians were involved in 13 percent of all 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 all injury crashes but 20 percent of fatal/severe injury crashes.
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.
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. **Vulnerable age groups (youth and aging).** Countywide across all modes, crash victims between the 15 to 34 years old are more likely to be injured including F/SI as a result of traffic safety than other groups. Victims between the ages 50 and 69 and between 75 and 84 are more likely to be severely injured than other groups.
5. **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 all injury crashes and 23 percent of fatal/severe injury crashes)

6. **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.
7. **Alcohol involvement.** Countywide, one in ten (10 percent) of all motor vehicle injury crashes and one in five F/SI motor vehicle crashes (19 percent) involved alcohol.

SYSTEMIC FINDINGS BY MODE

The systemic findings highlight the following topics for modes as appropriate. More detail is provided in a detailed analysis memo provided as Appendix C.

- Crashes by Year
- Lighting Conditions
- Weather Conditions
- Roadway Conditions
- Proximity to Transit Stop
- Crash Locations
- Functional Classification
- Intersection Control
- Number of Legs at Intersection
- Posted Speed Limit
- Functional Classification
- Pre-Crash Movements
- Violation Types
- Alcohol Usage
- Violation Types
- Victim Age

Pedestrian Findings

Crashes by Year

- There was a sharp reduction in crashes at the start of the pandemic; however, crashes appear to have increased in severity during the core pandemic years.
- Pedestrian crash frequencies increased in 2022 as pandemic-related restrictions eased and travel and activities begin to increase, although the overall share of severe and fatal crashes dropped back to about 16 percent.

Lighting Conditions

- Lighting condition has a strong correlation with F/SI outcomes. Crashes that occurred in darkness or low-light (i.e., dusk or dawn) conditions were much more likely to result in a F/SI outcome (27 percent) compared to those that occurred during daylight (15 percent), and this disproportionality was even stronger in dark, unlit conditions (32 percent F/SI).

Proximity to Transit Stop

- Intersections within 250 feet of a transit stop had a crash rate of 20 crashes per 100 intersections, compared to just four crashes per 100 intersections for those intersections further away.

Crash Locations

- Most crashes occurred at an intersection (76 percent of injury/fatal crashes; 68 percent of F/SI crashes), with the remainder coded to segment locations (24 percent of injury/fatal crashes; 32 percent of F/SI crashes).
- Segment and unsignalized intersection pedestrian crashes tended to be more severe, compared to crashes at signalized intersections. Motorist speeds may be higher midblock than at intersections, resulting in higher kinetic energy and limited reaction time, both of which may contribute to greater injury severity from segment crashes.

Functional Classification

- Primary streets had the highest rate of crashes per 100 miles (340 crashes per 100 miles) and F/SI crashes (81 F/SI crashes per 100 miles), followed by secondary streets (137 crashes per 100 miles; 29 F/SI crashes per 100

miles). This finding supports research showing consistent pedestrian crash risk along major arterials, which generally have higher vehicle speeds, higher vehicle volumes, and greater crossing widths.

- At intersections, crashes occurred most frequently at:
  - Secondary and residential streets (23 percent of injury/fatal crashes; 28 percent of F/SI crashes),
  - Primary and residential streets (20 percent of injury/fatal crashes; 23 percent of F/SI crashes), and
  - Residential and residential streets (19 percent of injury/fatal crashes; 13 percent of F/SI crashes).

Intersection Control

- A majority of intersection crashes occurred at unsignalized intersections (63 percent of injury/fatal and 61 percent of F/SI crashes).
- Crashes were concentrated at signalized intersections (51 crashes per 100 intersections; 9 F/SI crashes per 100 intersections).
- Crashes that involved a pedestrian crossing in a crosswalk at a signalized intersection with a motorist going straight accounted for the second largest share of F/SI crashes (23 percent); these crashes were also disproportionately severe when they occurred, with 42 percent resulting in a F/SI outcome.

Posted Speed Limit

- Roadways with 25 mph speed limits are underrepresented in F/SI crashes even though they accounted for the largest share of pedestrian crashes. They accounted for 38 percent of pedestrian crashes and 34 percent of F/SI crashes, but 80 percent of the street network has a speed limit of 25mph or less.
- Streets with a posted speed limit of 45 mph had the second largest share of crashes (27 percent) and F/SI crashes (29 percent), followed by 35 mph streets (23 percent of injury/fatal crashes; 27 percent of F/SI crashes). These higher speed streets had some of the highest percentages of crashes resulting in an F/SI outcome, average crash severity scores, and crash severity scores per 100 miles.[28] These findings support the current understanding that higher speed roads have serious safety implications for vulnerable road users.

Pre-Crash Movements

- Most pedestrian crashes involved the following:
  - A pedestrian crossing at an intersection with a motorist turning left (24 percent). These crashes most frequently occurred at a signalized intersection (45 percent), but most of the F/SI crashes with this crash type occurred at unsignalized intersections.
  - A pedestrian crossing at an intersection with a motorist proceeding straight (15 percent). These crashes most frequently occurred at unsignalized intersections for overall crashes (77 percent) and F/SI crashes (59 percent).
  - A pedestrian crossing not in a crosswalk with a motorist proceeding straight (13 percent). These crashes most often occurred at segment locations (46 percent of injury/fatal crashes; 53 percent of F/SI crashes), followed by unsignalized intersections (39 percent of injury/fatal crashes; 31 percent of F/SI crashes).

[28] The crash severity score is a normalized measure that scores a crash based on its average societal cost and compares it to a typical reported crash resulting in property damage only (PDO). For example, a crash at a signalized intersection resulting in death or severe injury is weighted 120 times a PDO crash; a crash resulting in a minor injury is weighted 11 times a PDO; and crash resulting in a possible injury is weighted six times a PDO. A higher average crash severity score means that those crashes resulted in more severe outcomes more often.

- Of those three crash types, those that involved a motorist proceeding straight had a higher share of crashes that resulted in a F/SI outcome and a higher average crash severity score.

Alcohol Usage

- The vast majority of crashes did not have any road user found to be under the influence of alcohol (96 percent of injury/fatal crashes; 94 percent of F/SI crashes).

Victim Age

- Pedestrian victims aged between 15 and 29 years of age and between 55 and 59 years of age accounted for the largest share of victims for all injury severities. However, pedestrian victims aged from 40 to 44 and from 55 to 74 years of age had the largest share of F/SI victims.

Bicyclist Findings

Crashes by Year

- Bicyclist crash frequencies were highest during the first two years of the five-year study period and lowest during the core period of the COVID-19 pandemic (2020-2021).
- Crash severity appears to be getting worse. Bicyclist injury trends showed that 20-23 percent of crashes resulted in a F/SI outcome in 2021-2022, compared to 11-15 percent of crashes in 2018-2020.

Lighting Conditions

- The vast majority of bicyclist crashes occurred during daylight conditions (84 percent), which fits with when most bicyclist trips occur.
- Bicyclist crashes were more likely to result in an F/SI outcome during dark lighting conditions (21 percent) compared to daylight conditions (16 percent).

Weather Conditions

- More than 90 percent of total crashes and F/SI bicyclist crashes occurred during clear weather conditions.

Roadway Conditions

- Most crashes occurred at locations with no unusual conditions (95 percent of crashes).
- Though a comparatively small sample, the majority of F/SI bicyclist crashes that occurred with any type of non-typical roadway condition (n=17) were solo bicyclist crashes (n=13), underscoring the vulnerability of bicyclists and the need for well-maintained roads.

Crash Locations

- Most bicyclist crashes (43 percent) occurred at unsignalized intersections, but most F/SI crashes occurred at segment locations (43 percent). Roughly one-third of the F/SI crashes at unsignalized intersections were solo bicyclist crashes.
- Among the crashes at unsignalized intersections, and excluding solo bicyclist crashes, it was most common for both parties to be traveling in the same direction (e.g., an overtaking or dooring crash) in both overall crashes (45 percent) and F/SI crashes (58 percent).
- Among the unsignalized same-direction crashes, most involved both the bicyclist and motorist going straight (17 percent).
- Most F/SI crashes at unsignalized intersections involved both parties traveling in perpendicular directions, either both going straight (n=7) or the bicyclist going straight and the motorist making a left turn (n=4).

Functional Classification

- Most bicyclist crashes occurred along:

  - Secondary streets (39 percent),
  - Residential streets (20 percent), and
  - Primary streets (20 percent).

- At intersections, crashes occurred most frequently at:
  - Secondary-residential intersections (28 percent of injury/fatal crashes; 24 percent of F/SI crashes),
  - Residential-residential intersections (18 percent of injury/fatal crashes; 13 percent of F/SI crashes),
  - Primary-residential intersections (17 percent of injury/fatal crashes; 16 percent of F/SI crashes), and
  - Tertiary-residential intersections (16 percent of injury/fatal crashes; 18 percent of F/SI crashes).

Intersection Control

- Most crashes occurred at unsignalized intersections, accounting for 67 percent of injury/fatal crashes and 70 percent of F/SI crashes. When looking at crashes per 100 intersections, crashes were concentrated at signalized intersections (38 crashes per 100 intersections; 5 F/SI crashes per 100 intersections). The percentage of crashes that resulted in a F/SI outcome was comparable between location types, with 15 percent of crashes resulting in a F/SI outcome at unsignalized intersections compared to 13 percent at signalized intersections.

Posted Speed Limit

- Higher-speed streets tend to higher crash severity scores per 100 miles. Most crashes and F/SI crashes occurred along 45 mph roadways (32 percent of injury/fatal crashes; 31 percent of F/SI crashes), while only 8 percent of the network is made up of 45 mph streets.
- Streets with a posted speed limit of 40 mph had the largest rate of crashes per 100 miles (n=166) and F/SI crashes per 100 miles (n=138). Given that these streets comprise less than 1 percent of the network, these statistics indicate that a disproportionate share of overall crashes and F/SI crashes occur on these roads.

Pre-Crash Movements

- Most bicyclist crashes involved:
  - Both roadway users proceeding straight at the time of the crash (21 percent of injury/fatal crashes; 18 percent of F/SI crashes). These crashes occurred most frequently at unsignalized intersections (53 percent), whereas F/SI crashes occurred most frequently at signalized intersections (43 percent).
  - A bicyclist proceeding straight and a motorist turning left (12 percent of injury/fatal crashes; 9 percent of F/SI crashes). Most of these crashes occurred at unsignalized intersections (25 percent of injury/fatal crashes; 46 percent of F/SI crashes).
  - A bicyclist proceeding straight and a motorist turning right (11 percent of injury/fatal crashes; 6 percent of F/SI crashes). Most of these crashes occurred at unsignalized intersections (43 percent of injury/fatal crashes; 29 percent of F/SI crashes) and signalized intersections (32 percent of crashes; 53 percent of F/SI crashes).

Violation Types

The most frequent violation types included:

- Automobile right-of-way (19 percent of crashes; 15 percent of F/SI crashes),
- Unsafe speed (18 percent of crashes; 28 percent of F/SI crashes), and
- Improper turning (17 percent of crashes; 12 percent of F/SI crashes).

Alcohol Usage

- Few reported crashes identified either the motorist or bicyclist as being under the influence of alcohol (less than 2 percent of injury/fatal crashes; less than 5 percent of F/SI crashes).

Motor Vehicle Findings

Crashes by Year

- Motor Vehicle crash frequencies were highest during the first two years of the five-year period and lowest during the core period of the COVID-19 pandemic (2020-2021).
- Crash severity has decreased, with the highest crash severity observed in 2018 which then decreased during the pandemic years (2020-2021).

Lighting Conditions

- About 26 percent of motor vehicle crashes were observed to have occurred in the dark—22 percent under street lights and 5 without street lights. Crashes with no streetlights had approximately double the per-crash severity score of daylight crashes and 70 percent higher average score than crashes under street lights.

Crash Locations

- About 39 percent of motor vehicle crashes and 52 of F/SI motor vehicle crashes occurred at a segment or midblock location. Unsignalized intersection and roadway segment crashes are both more severe on average than signalized intersection crashes.

Functional Classifications

- Secondary roadways are overrepresented in in F/SI share (36 percent) compared to total share (29 percent).
- Intersection crashes along primary and secondary roads account for the majority of intersection crashes (36 and 29 percent each) and similarly large shares of F/SI crashes (35 and 29 percent). The highest crash severity scores were at intersections along the trunk and primary roadway system where they intersect with lower-order intersections—particularly at unsignalized intersections. This indicates that unsignalized minor-street intersections along arterial roadways have a disproportionate severity burden in the county.

Intersection Control

- The majority of motor vehicle crashes occurred at unsignalized intersections, but signalized intersections have a much higher crash rate per 100 intersections.

Posted Speed Limit

- Higher-speed streets tend to have very high crash severity. Most crashes and F/SI crashes occurred along roadways with speed greater than 40 mph roadways (56 percent of all crashes; 70 percent of F/SI crashes).
- Notably, almost 47 percent of the 40 mph+ unsignalized intersection crashes occurred along secondary roadways A majority of crashes at 45 mph or higher intersections were at unsignalized intersections (56 percent)
- Roadways with posted speed limits of 40 mph or higher consist of 12 percent of County roadways but make up 44 percent total crashes and the majority (55 percent) of total F/SI crashes. Crashes that occurred on roadways with a posted speed limit of 40 mph or higher had an average crash severity per mile that was more than thirteen times that of crashes occurring on roadways with a posted speed limit of 25 mph or less.

Crash Types

- At intersections, the most frequent and severe motor vehicle crashes were the following types and locations:

  - Broadside: 61 percent occurred unsignalized intersections,
  - Rear-end: 55 percent at occurred at signalized intersections, and
  - Head-on: 51 percent occurred at signalized intersections.

- On roadway segments, the predominant crash types are rear-end (29 percent), hit-object (21 percent), and broadside (18 percent). Weighted by severity, hit-object crashes are disproportionately overrepresented.

Violation Types

The most frequent violation types included:

- Unsafe speed (27 percent of injury/fatal crashes, 23 percent of F/SI crashes),
- Automobile right-of-way (19 percent of crashes; 12 percent of F/SI crashes), and
- Improper turning (18 percent of crashes; 19 percent of F/SI crashes).

Alcohol Usage

About 10 percent of the motor vehicle crashes included a driver under the influence, but those accounted for 19 percent of F/SI crashes and had an average crash severity score about 1.5 times as high as other motor vehicle crashes.

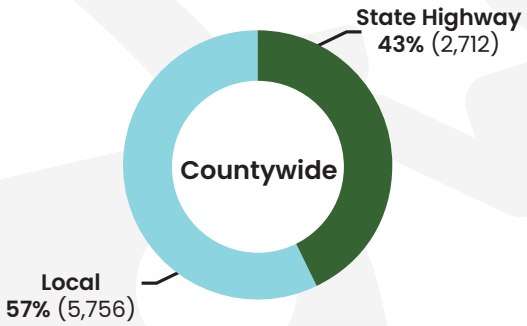
- Victims between the ages of 10 and 29 are more likely to be injured, including F/SI as result of traffic safety issues on average than other groups. Victims between the ages 15 to 24 are especially overrepresented with victims and F/SI ratios over 2.
- Victims ranging from ages 0 to 14 (children) account for 18 percent of the countywide population and 14 percent of total crashes and 8 percent of F/SI motor vehicle crash victims.
- Victims ranging from ages 15 to 24 (young adult) account for 11 percent of the countywide population but account for 22 percent of total crashes and 26 percent of F/SI motor vehicle crash victims.

Victims ranging from ages 65 and up account for 16 percent of the countywide population but account for 10 percent of total crashes and 14 percent of F/SI motor vehicle crash victims.

San Mateo County—Crash History

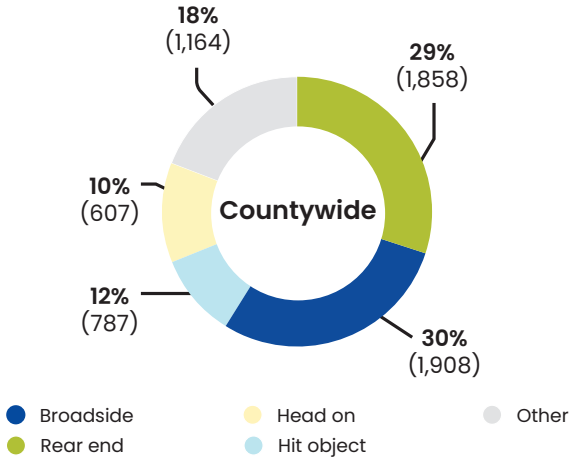
Total Crashes

In San Mateo County, 8,464 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 San Mateo County.



Mode Involvement

Pedestrian Crashes (1,073)

Countywide

13% (1,073) All Injury Crashes

23% (208) Fatal/Severe Injury Crashes

Bicycle Crashes (1,067)

Countywide

13% (1,067) All Injury Crashes

20% (176) Fatal/Severe Injury Crashes

Motor Vehicle[1] Crashes (6,324)

Countywide

75% (6,324) All Injury Crashes

57% (515) Fatal/Severe Injury Crashes

8% (625) of reported collisions in the Countywide total involved drugs or alcohol

5% (472) of reported collisions in the Countywide total involved young drivers[1]

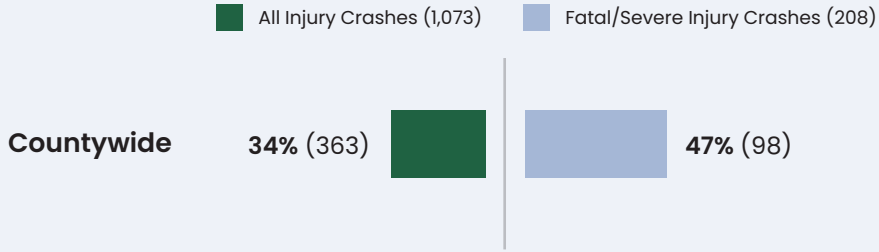
1. *Motor crashes include motor vehicles and motorcyclists.*
2. *Young driver crashes are crashes that involve at fault drivers who are under 30 years old.*

San Mateo County—Crash History

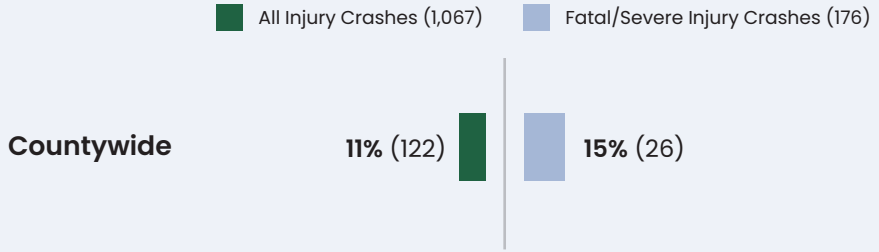
Dark Conditions

Crashes reported in nighttime conditions were found to be more severe—especially in dark, unlit conditions. Here are the Countywide crashes in dark conditions:

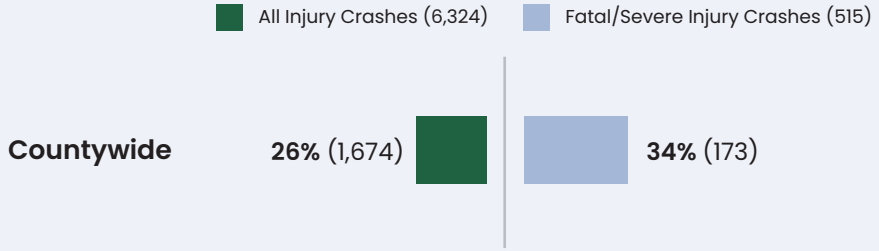
Share of Pedestrian Crashes in Dark Conditions (363)



Share of Bicyclist Crashes in Dark Conditions (122)

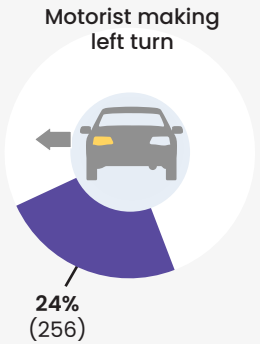


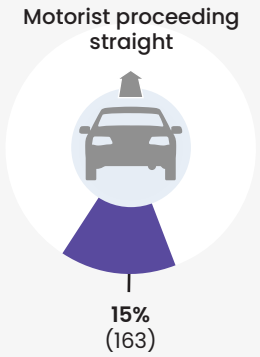
Share of Motor Vehicle Crashes in Dark Conditions (1,674)



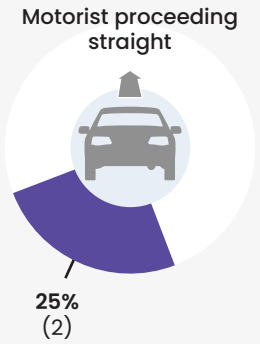
Reported Pedestrian Crashes (1,073)

Pedestrian Crossing at Intersection





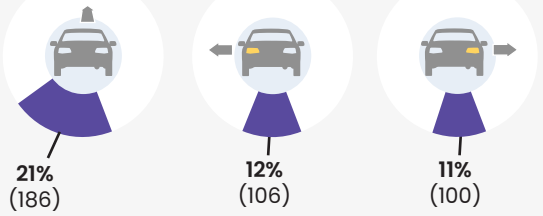
Pedestrian Crossing Not at a Crosswalk



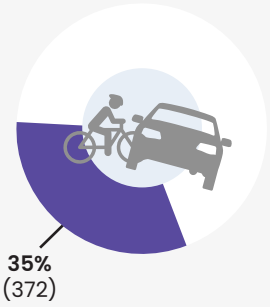
Countywide

Reported Bicycle Crashes (1,067)

Bicyclist Proceeding Straight



Perpendicular Bicyclist Crashes



Countywide

STATE HIGHWAYS IN SAN MATEO COUNTY

State Highways are some of the most critical interjurisdictional facilities across the C/CAG region. They connect multiple jurisdictions; move high volumes of people across many travel modes; serve critical freight needs; and in some communities serve as high-activity walking, biking, and commercial corridors.

Any planning and project development requires cross-jurisdictional coordination.

The County includes the at-grade State Highways which run through the jurisdictions shown in Table 7.

Table 7. San Mateo County State Highways and Local Jurisdictions

	At-Grade State Routes							Freeways		
Local Jurisdictions	1	35 (Skyline Blvd)	82 (El Camino Real)	84	92 (Half Moon Bay Rd)	109 (University Ave)	114 (Willow Rd)	US 101	I-280	I-380
Atherton			X							
Belmont			X					X		
Brisbane								X		
Burlingame			X					X	X	
Colma			X						X	
Daly City	X	X	X						X	
East Palo Alto						X	X	X		
Foster City					X					
Half Moon Bay	X		X		X					
Hillsborough		X							X	
Menlo Park			X	X		X	X	X	X	
Millbrae			X					X	X	
Pacifica	X	X								
Portola Valley										
Redwood City			X	X				X		
San Bruno		X	X					X	X	X
San Carlos			X					X		
San Mateo			X		X			X		

Local Jurisdictions	At-Grade State Routes							Freeways		
	1	35 (Skyline Blvd)	82 (El Camino Real)	84	92 (Half Moon Bay Rd)	109 (University Ave)	114 (Willow Rd)	US 101	I-280	I-380
South San Francisco		X	X					X	X	
Unincorporated County	X	X	X	X	X				X	
Woodside		X		X					X	
Total	**3**	**4**	**13**	**5**	**3**	**2**	**2**	**12**	**11**	**1**

Safety on At-Grade State Highways

At-grade State Highways serve a high volume of traffic to, though, and within San Mateo County. As a result, they account for a considerable share of countywide crashes.

Table 8 provides a breakdown of reported non-freeway crashes from 2018 to 2022 in the County and a share occurring within each jurisdiction on the State Highway network. Overall, the State Highway network accounted for 43 percent of at-grade crashes within the County and was as high as 77 percent within any jurisdiction.

The following jurisdictions showed the highest variation from that share:

- Brisbane (contains no at-grade State Highways): 100 percent local
- Portola Valley (SR 35 defines the southwestern boundary, but otherwise contains no at-grade State Highways): 100 percent local
- Hillsborough: 100 percent local
- Half Moon Bay: 23 percent local
- Unincorporated: 37 percent local
- Woodside: 39 percent local

Table 8. Injury/Fatal Crashes by Jurisdiction, All Modes Aggregated (2018-2022), Non-Freeway Crashes

Jurisdiction	Count	State Highway Crashes	Percent (%) State Highway Crashes	Local Roadway Crashes	Percent (%) Local Roadway Crashes
Atherton	121	36	30%	85	70%
Belmont	244	66	29%	178	71%
Brisbane	69	-	0%	69	100%
Burlingame	267	90	30%	177	70%
Colma	11	3	59%	8	41%
Daly City	863	143	29%	720	71%
East Palo Alto	458	150	33%	308	67%
Foster City	150	7	29%	143	71%
Half Moon Bay	145	116	77%	29	23%
Hillsborough	38	-	0%	38	100%
Menlo Park	542	188	33%	354	67%
Millbrae	230	94	38%	136	62%
Pacifica	394	141	56%	253	44%
Portola Valley	39	-	0%	39	100%
Redwood City	1,137	295	26%	842	74%
San Bruno	412	171	36%	241	64%
San Carlos	281	48	18%	233	82%
San Mateo	869	176	29%	693	71%
South San Francisco	866	168	17%	698	83%
Unincorporated	1,147	704	61%	443	39%
Woodside	185	111	61%	74	39%
Total	**8,468**	**2,712**	**43%**	**5,756**	**57%**

Source: TIMS 2023

Existing Plans and Directives to Improve Safety

Caltrans has already taken steps to address safety on at-grade State Highways in San Mateo County, as included in the following documents, discussed in more detail below:

- Director's Policy 36: Road Safety
- Road Safety Action Plan 2023-24
- District 4 Bike Plan
- District 4 Pedestrian Plan

CALTRANS DIRECTOR'S POLICY 36: ROAD SAFETY – ESTABLISHES THE VZ COMMITMENT

Director's Policy 36, issued in February 2022, establishes a vision for Caltrans to eliminate fatalities and severe injuries (F+SIs) on California's roadways by 2050.[29] The statement includes the following intended results:

- "….to establish a corporate expectation to prioritize safety in order to achieve its goal of zero fatalities and severe injuries by 2050."
- "All Divisions shall align their programs, plans, policies, procedures, and practices with the Safe System Approach as appropriate to their division."
- This statement includes a commitment to:
- A safety first mindset
- Prioritize eliminating F+SIs through existing programs and the development of new programs.
- Eliminate race-, age-, ability- and mode-based disparities in road safety outcomes.

The policy statement also formally adopts the Safe System Approach, which aligns with this Countywide Local Roadway Safety Plan.

CALTRANS ROAD SAFETY ACTION PLAN 2023-24

The Caltrans Road Safety Action Plan 2023-24 lays out a coordinated plan to support Caltrans' goal of eliminating fatal and severe injury crashes by 2050.[30] Importantly, the Plan includes the following actions relevant to this Countywide LRSP.

[29] Available online at https://dot.ca.gov/-/media/dot-media/programs/safety-programs/documents/policy/dp_36-a11y.pdf
[30] Available online at https://dot.ca.gov/-/media/dot-media/programs/traffic-operations/documents/safety/road-safety-action-plan-2023-24-a11y.pdf

Table 9. Caltrans SAP Actions Related to LRSP

Action	Relevance to this Plan
1.5 Propose to extend Caltrans' delegation to approve proactive safety projects in addition to reactive projects.	This plan includes countywide and jurisdiction-specific priority locations identified through a combination of reactive and proactive measures. C/CAG and local jurisdictions will look for opportunities to coordinate with Caltrans to identify proactive safety projects (i.e., the locations may not have risen to the top of Caltrans' own prioritization process).
2.1 Develop best-practice guidance to improve the safety of pedestrians and bicyclists on the State Highway System.	This plan includes a list of context-appropriate recommended countermeasures, including for pedestrians and bicyclists, for each jurisdiction to improve safety. This list of countermeasures aligns with the Caltrans *Local Roadway Safety Manual*, and jurisdictions may cross check available countermeasures against forthcoming Caltrans best-practice guidance to identify alignment and, therefore, opportunities to coordinate on projects.
3.1 Develop a statewide inventory of safety devices to support proactive safety initiatives and create a framework to extend the database to include additional roadside safety features.	

DISTRICT 4 BIKE PLAN

The 2018 District 4 Bike Plan includes a list of top tier bicyclist/pedestrian projects on Caltrans facilities.[31] The plan includes over 100 bicycle/pedestrian projects on Caltrans facilities based on how they address safety, mobility, and/or equity. Many of these projects are located on at-grade State Highways. Those are included as an attachment. For those that have not yet been implemented, Caltrans and the relevant jurisdictions will use the advisory group to be formed as a recommendation from this plan to coordinate and bring forward pathways to implementation.

DISTRICT 4 PEDESTRIAN PLAN

The 2021 District 4 Pedestrian Plan includes an assessment of walking conditions and a tiered ranking of priority highway segments and crossings for pedestrian improvements.[32] The plan also includes recommendations for local coordination to advance pedestrian projects.

Improvements to Date in the County

Local jurisdictions have successfully partnered with Caltrans to bring forward safety projects on State Highways in the County. The following projects can serve as a model for cross-jurisdictional coordination in the name of safety improvements:

- Town of Colma – El Camino Real

[31] Available online at https://dot.ca.gov/-/media/dot-media/district-4/documents/d4-bike-plan/caltransd4bikeplan_report_lowres-r6.pdf
[32] Available online at https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/active-transportation-complete-streets/district4-finalreport-a11y.pdf

The Town of Colma worked closely with Caltrans to develop the 2021 *El Camino Real Bicycle and Pedestrian Improvement Plan* which proposes a series of projects along the corridor along with potential funding sources..[33] The Town has successfully received SMCTA and OBAG funding to improve the El Camino Real/Mission Road intersection as a result of this plan. The Town is continuing to look for funding and implementation opportunities.

- South San Francisco El Camino Real
  The City of South San Francisco has teamed with the San Mateo County Transportation Authority, the San Mateo County Office of Education, and the Silicon Valley Bike Coalition to install a demonstration project along a 0.3-mile stretch of El Camino Real. The project includes a class IV separated bike lane, a newly striped crosswalk, and a boarding platform for SamTrans buses. The project proceeded with Caltrans coordination.

Caltrans Recommendations and Actions

Given the nature and scale of crash history along at-grade State Highways, and in light of C/CAG's and Caltrans' Vision Zero commitment, Caltrans will participate in the recommended County Safety Advisory Group and will work with the group to achieve the following outcomes:

- Consult the Caltrans District 4 Bike Plan and Pedestrian Plan Project list to further advance projects not yet funded.
- Develop a list of safety treatments or project types meeting each of the following three criteria:
  - "Caltrans maintained" – Local jurisdictions would be able to install these treatments provided they reach agreement with Caltrans for Caltrans to maintain the treatments.
  - "Locally maintained" – Local jurisdictions would be able to install these treatments and would be required to maintain on at-grade State Highways without the need for a maintenance agreement.
  - "Coordination required" – Caltrans would be generally supportive of such a project, but some maintenance details would need to be negotiated.
- Develop a template or exemplar for a maintenance agreement that agencies can use in an "off-the-shelf" fashion to more easily advance safety projects in partnership with Caltrans.
- Caltrans will proactively identify when projects are moving into certain project development phases or project streams, to provide the opportunity for local jurisdiction input and coordination to improve safety.
- Caltrans will listen to input and help shape areas of need and project opportunity countywide, including proactive safety projects.

[33] Available online at https://www.colma.ca.gov/documents/ecr-improvement-plan/

SAFE SYSTEM-ALIGNED RECOMMENDATIONS

This section offers engineering recommendations, which include physical countermeasures to be implemented onto roadways, as well as policy and program recommendations, which work to increase safe travel behavior in roadway users through action-based outreach, strategic funding, and equitable prioritization of resources.

Each individual recommendation is designed to bring the Countywide roadway network and its users into better alignment with the values and practices of the Safe System Approach. When implemented in tandem, however, these twin tracks of recommendations will create the holistic, layered protection in the Countywide roadway network that the Safe System Approach requires.

Engineering

C/CAG does not own any local roadways and therefore will not design, implement, or maintain engineering countermeasures. However, through this project it has coordinated with the participating jurisdictions to develop lists of city- or town-approved countermeasures. The following table presents the cumulative list of countermeasures developed among agencies

Table 10: Engineering Countermeasures

Location Type [1]	Countermeasure	Crash Types	Cost
All	Lighting [2]	Nighttime	$$
All	Roadside Design Features [4]	All	Varies
SI	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number [2]	Signalized Local/Arterial Intersections	$
SI	Install left-turn lane and add turn phase [2]	Signalized Local/Arterial Intersections	$-$$
SI	Convert signal to mast arm (from pedestal-mounted) [2]	Signalized Local/Arterial Intersections	$$$
SI	Install raised median on approaches [2]	Signalized Local/Arterial Intersections	$
SI	Create directional median openings to allow (and restrict) left-turns and U-turns (signalized intersection) [2]	Pedestrian Crashes, Signalized Local/Arterial Intersections	$
SI	Install raised pavement markers and striping [2]	Wet, Night, all	$
SI	Install flashing beacons as advance warning (S.I.) [2]	read-end, broadside	$$$
SI	No Right Turn on Red (RTOR)	Pedestrian Crashes, Signalized Local/Arterial Intersections	$
SI	Centerline Hardening or Continuous Raised Median [3]	All crashes	$
SI	Convert intersection to roundabout (from signal) [2]	Signalized Local/Arterial Intersections	$$$
SI	Install pedestrian countdown signal heads [2]	Pedestrian Crashes, Signalized Local/Arterial Intersections	$
SI	Install pedestrian crossing [2]	Pedestrian Crashes, Signalized Local/Arterial Intersections	$

Location Type [1]	Countermeasure	Crash Types	Cost
SI	Install pedestrian scramble [2]	Pedestrian Crashes, Signalized Local/Arterial Intersections	$
SI	Install Bicycle Box [2]	Bicyclist Crashes, Signalized Local/Arterial Intersections	$
SI	Modify signal phasing to implement a Leading Pedestrian Interval (LPI) [2]	Pedestrian Crashes, Signalized Local/Arterial Intersections	$
SI	Install painted safety zone	Pedestrian Crashes, Signalized Local/Arterial Intersections	$
SI	Install Protected Intersection Elements	Pedestrian Crashes, Signalized Local/Arterial Intersections	$
SI	Extend pedestrian crossing time	Pedestrian	$
SI	Pedestrian Phase Recall	Pedestrian	$
SI	Extend green time for bikes	Bikes	$
SI	Extend Yellow and All Red Time	All	$
SI	Bicycle Crossing (Solid Green Paint)	Bikes	$
SI	Bicycle Signal/Exclusive Bike Phase	Bikes	$
SI	ADA-compliant directional curb ramps and audible push buttons	Pedestrian	$
SI,UI	Splitter Islands [4]	All	$
SI,UI	Approach Curvature [4]	All	Varies
SI,UI	Curb Radius Reduction [3]	All	$-$$

Location Type [1]	Countermeasure	Crash Types	Cost
UI	Convert intersection to roundabout (from all way stop) [2]	All	$$$
UI	Convert intersection to roundabout (from stop or yield control on minor road) [2]	All	$$$
UI	Convert intersection to mini-roundabout [2]	All	$$$
UI	Create directional median openings to allow (and restrict) left-turns and u-turns (unsignalized intersections) [2]	All	$
UI	Install raised medians (refuge islands) [2]	Pedestrian and Bicyclists	$
UI	Install pedestrian crossings (signs and markings only) [2]	Pedestrian and Bicyclists	$
UI	Install pedestrian crossings (with enhanced safety features) [2]	Pedestrian and Bicyclists	$$$
UI	Install/upgrade larger or additional stop signs or other intersection warning or regulatory signs [2]	Rear-end, right-angle, or turning crashes related to lack of driver awareness	$
UI	Install flashing beacons at stop-controlled intersection [2]	Broadside, Rear-end	$$$
UI	Install Pedestrian Signal, Pedestrian Hybrid Beacon, or Rectangular Rapid Flashing Beacon [2]	Pedestrian and Bicycle	$$$
UI	Install transverse rumble strips on approaches [2]	All	$
UI	Install splitter islands on the minor road approaches [2]	All	$
UI	Curb Extensions	All	$
UI,SI	Splitter Islands [4]	All	$
UI,SI	Approach Curvature [4]	All	Varies

Location Type [1]	Countermeasure	Crash Types	Cost
UI,SI	Curb Radius Reduction [3]	All	$-$$
R	Road diet (Reduce travel lanes from 4 to 3 and add a two way left-turn and bike lanes) [2]	All	Varies
R	Corridor access management [2]		Varies
R	Install edgeline rumble strips/stripes [2]	All	Varies
R	Install separated bike lanes [2]	Pedestrian and Bicyclists	$$$
R	Install/upgrade pedestrian crossing (with enhanced safety features) [2]	Pedestrian and Bicyclists	$$$
R	Install raised pedestrian crossing [2]	Pedestrian and Bicyclists	$
R	Remove or relocate fixed objects outside of Clear Recovery Zone [2]	Hit Object	Varies
R	Install delineators, reflectors and/or object marker [2]	All	$
R	Install/upgrade signs with new fluorescent sheeting (regulatory or warning) [2]	All	$
R	Install dynamic/variable speed warning signs [2]	Driver Behavior	Varies
R	Lane Narrowing	All	$

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

Sources: [2] Caltrans Local Roadway Safety Manual (2022); [3] NCHRP Report 926; [4] NCHRP Report 613

$ = ≤$50,000; $$ = $50,000 - $200,000; $$$ = > $200,000

Policy and Program

Based on the goals, existing conditions, and opportunities identified in the development of this plan, this section identifies categories of actions C/CAG and identified partners can take to support LRSP implementation. The recommendations fall into a few categories, as shown in Table 11.

The recommendations are described in more detail following the table, and Table 12 on page 62 provides a list of recommendations and partner roles.

Table 11. Recommendations and Categories

Category	Near-Term Recommendations	Ongoing Recommendations	Long-Term or Ongoing Recommendations
Organize (O)	O1: Transportation Safety Advisory Committee		
		O2: High-Visibility Media Campaign	
Educate (E)		E1: Best Practices Training E2: Law Enforcement Training E3: Technical Assistance for Safety Education in Schools	
			E4: Communication Protocol
Coordinate (C)	C1: AB413 Implementation		C2: Safe System Enabling Legislation C3: Graduated Traffic Fine Structure
Fund (F)	F1: Dedicated Funding	F2: Equitable Investment F3: Prioritize Investments F4: Identify Targeted Enforcement Funding	
Research (R)			R1: Safety and Equity Impacts Evaluation R2: Data Quality Improvements R3: Crash Data Enhancements R4: Big Data
Plan (P)		P1: Safe Routes to School P2: Annual Review	
			P3: Plan Update

ORGANIZE

O1: Transportation Safety Advisory Committee

Convene the Plan's Advisory Group as the newly-established San Mateo County Transportation Safety Advisory Committee (TSAC) to coordinate on safety plan implementation and discuss relevant safety topics in the region, like enforcement coordination and AVs. The TSAC will include seats for the agencies listed in this table and will identify additional seats dedicated to representatives of equity priority communities, vulnerable road users, youth, older adults, parents of school-age children, local businesses, traffic violence victim families, etc.

The TSAC will include representation from Caltrans to allow coordination on State Highway locations in the County. As a member of the TSAC, Caltrans will proactively identify when projects are moving into certain project development phases or project streams, to provide the opportunity for local jurisdiction input and coordination to improve safety. Caltrans will also listen to input and help shape areas of need and project opportunity countywide, including proactive safety projects.

Convene meetings quarterly. Expected agenda topics include (but are not limited to):

- Scheduling and developing and approach for interim evaluations and updated plans (at the jurisdiction and county level)
- Tracking and coordinating funding opportunities, especially where cross-jurisdiction collaboration is desirable
  - Keeping agencies apprised of Caltrans, MTC, USDOT, SMCTA, and other funding guidelines and requirements
  - Prioritizing items among the remaining recommendations within this plan

Lead agency: C/CAG

Coordinating partners: Constituent jurisdictions, County Public Health, Sustainability Department, County Office of Education, SMCTA, California Highway Patrol, MTC, SVBC, Caltrans, County Sheriff's Office, BART

O2: High-Visibility Media Campaign

Conduct a safety media campaign. This may be exclusively a media campaign to raise awareness about the emphasis areas identified in this plan, or this may be a high-visibility enforcement campaign. If the latter, the campaign includes 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, Sustainability Department, San Mateo County Office of Education

EDUCATE

E1: Best Practices Training

Through the TSAC, convene best practices training to keep local jurisdictions informed of state-of-the art practices related to safety planning and implementation. Example education session topics may include: (1) support for developing competitive grant applications, (2) share safety best practices including updated safety countermeasure recommendations, (3) training on available data sources.

C/CAG will organize and schedule the workshops and will seek assistance from MTC and Caltrans in identifying relevant topics and training resources (especially related to grant-related topics).

Lead agency: C/CAG
Coordinating partners: MTC, Caltrans, constituent jurisdictions

E2: Law Enforcement Training

Integrate safety into training for new officers (e.g., NHTSA's pedestrian training for law enforcement).

Lead agency: County Sheriff's Office
Coordinating partners: California Highway Patrol

E3: Technical Assistance for Safety Education in Schools

Continue to fund School Travel Fellowship Program to provide the following:

- technical assistance to schools and planners to implement roadway safety 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: San Mateo County Office of Education
Coordinating partners: C/CAG, County Public Health, Sustainability Department, SVBC

E4: 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 to emphasize shared responsibility.

Lead agency: C/CAG
Coordinating partners: Constituent jurisdictions

COORDINATE

C1: AB413 Implementation

Coordinate among jurisdictions through the TSAC to provide an implementation pathway for Assembly Bill 413, which prohibits the stopping, standing, or parking of a vehicle within 20 feet of the approach of any marked or unmarked crosswalk, or 15 feet where a curb extension is present. Prior to January 1, 2025, jurisdictions may only issue warnings unless the violation occurred where red paint or signage prohibits the stopping, standing, or parking.

Communicating and enforcing AB413 presents logistical challenges for local jurisdictions, but through the TSAC they may prepare common and individualized implementation pathways.

Lead agency: C/CAG
Coordinating partners: Constituent jurisdictions

C2: Safe System Enabling Legislation

Consider advocating for legislation that could support the Safe System Approach—for example, authorization to implement automated enforcement. Include public engagement and input from constituent jurisdictions while the implementation of Assembly Bill 645 brings speed cameras to Glendale, Long Beach, Los Angeles, Oakland, San Jose, and San Francisco.

Lead agency: C/CAG
Coordinating partners: MTC, Caltrans, California Transportation Commission (CTC)

C3: Graduated Traffic Fine Structure

Through legislative agenda, consider advocating for an income-based graduated traffic fine structure at the state level, so fines do not disproportionately impact people with lower incomes. Such a change would allow traffic enforcement to occur where necessary while tempering disproportionate burdens.
Lead agency: C/CAG
Coordinating partners: TSAC members

FUND

F1: 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: C/CAG
Coordinating partners: SMCTA, MTC, Caltrans, CTC

F2: Equitable Investment

Prioritize investments in disadvantaged communities. Include social equity criteria in scoring when making funding available. Consider using a combination of indices in allowing local agencies to identify disadvantaged communities. For example, consider including C/CAG Equity Focus Areas, MTC Equity Priority Communities, USDOT Historically Disadvantaged Communities, USDOT Areas of Persistent Poverty, and other relevant indices subsequently developed locally, regionally, or federally.
Lead agency: C/CAG

F3: Prioritize Investments

Incorporate the regional High Injury Network and local jurisdictions' prioritized locations when allocating and scoring funding opportunities for local jurisdictions. (This includes identified locations for the 11 jurisdictions with safety plan updates as part of the regional LRSP and for the ten jurisdictions not included in this plan document.) Award points or a similar priority mechanism for projects that improve conditions in these identified locations. Stipulate community engagement requirements for projects receiving funding.
Lead agencies: C/CAG, SMCTA

F4: Identify Targeted Enforcement Funding

Identify grant opportunities to expand targeted traffic enforcement of emphasis areas or other targeted behaviors associated with fatal/severe injury outcomes. Local jurisdictions lack discretion over law enforcement priorities and some cities who contract with the County Sheriff's Office would benefit from additional resource allocation dedicated specifically to target behaviors. One such funding opportunity would be through the California Office of Traffic Safety, which has a grant program related to priority program areas provided documented crash data are available: alcohol impaired driving, distracted driving, drug-impaired driving, emergency medical services, motorcycle safety, occupant protection, pedestrian and bicycle safety, and police traffic services.

Lead agency: C/CAG, SMCTA

Coordinating partners: County Sheriff's Office

RESEARCH

R1: Safety and Equity Impacts Evaluation

Conduct 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 burdens related to homelessness, race/ethnicity, language, income, and immigration status, citations by demographics, citation type, and location.

Lead agency: C/CAG

Coordinating partners: MTC, County Sheriff's Office

R2: Data Quality Improvements

Conduct one or more studies and/or convene working groups to address the following challenges:

- Integrating hospital and police data
- Providing a means to collect and incorporate near-miss data into safety analysis
- Collecting and incorporating crash data where AVs are involved
- Developing a consistent countywide crash database that would prevent the time lag present in SWITRS, provide accurate and timely monitoring of crashes and allow monitoring of injury trends over time.

Some agencies have successfully used video-based conflict monitoring algorithms to capture near-miss information at select locations. The techniques show promise for identifying conflicts that correlate to crashes, but the ability to scale the technology is still unclear.[34] Funding may be available through the California Office of Traffic Safety grant program, which lists *Roadway Safety and Traffic Records* as a category among its priority program areas.

Lead agency: C/CAG

Coordinating partners: County Public Health, County Sheriff's Office, constituent jurisdictions, local police departments

R3: 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

R4: Big Data

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, Constituent Jurisdictions

[34] For example, the Pennsylvania Department of Transportation evaluated the technology as part of its SMART intersections project. More information is available online at https://www.penndot.pa.gov/ProjectAndPrograms/Planning/Research-And-Implementation/Documents/Smart%20Intersections.pdf

PLAN

P1: Safe Routes to School

Continue to conduct school safety assessments at all public and private schools, develop implementation plans for improvements up to one quarter mile from the schools.

Lead agency: San Mateo County Office of Education

P2: Annual review

Provide an annual review of plan implementation progress. This review includes an update and presentation to the C/CAG board and information posted on the C/CAG website.

Lead agency: C/CAG

P3: Plan Update

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

Alternately, coordinate with all 21 jurisdictions to see that local plans are pursued and updated consistent with best practices within the five-year timeframe.

Lead agency: C/CAG

Coordinating partners: Constituent jurisdictions

Table 12: Policy/Program Recommendations and Partner Roles

Recommendation	Agency Involvement (L = Lead; P = Participate)										
	C/CAG	California Highway Patrol	Caltrans	Constituent Jurisdictions	County Office of Education	County Public Health	County Sheriff's Office	Sustainability Department	MTC	SMCTA	SVBC
O1: Transportation Safety Advisory Committee	L	P	P	P	P	P	P	P	P	P	P
O2: High-Visibility Media Campaign		P			P	L	P	P			
E1: Best Practices Training	L		P	P					P		
E2: Law Enforcement Training		P					L				
E3: Technical Assistance for Safety Education in Schools					L	P		P			P
E4: Communication Protocol	L			P							
C1: AB413 Implementation											
C2: Safe System Enabling Legislation	L		P						P		
C3: Graduated Traffic Fine Structure	L	P	P	P	P	P	P	P	P	P	P
F1: Dedicated Funding	L		P						P	P	
F2: Prioritize Investments	L									P	
F3: Equitable Investment	L										
F4: Identify Targeted Enforcement Funding	L									L	
R1: Safety and Equity Impacts Evaluation	L								P		
R2: Data Quality Improvements	L			P		P	P				
R3: Crash Data Enhancements	P	P					L		P		
R4: Big Data	L								P	P	
P1: Safe Routes to School				P	L						
P2: Annual Review	L			P							
P3: Plan Update	L			P							

PROJECT PRIORITIZATION

The spatial HIN analysis identified the regionally highest-crash locations by frequency and severity. Based on that work and the accompanying systemic analysis, the plan development team worked with participating jurisdictions to identify priority project locations. The methodology and jurisdiction-specific results are included as Appendix D.

For those jurisdictions, the prioritization used the following three factors:

- **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).

In line with this plan's goals, C/CAG supports the development of safety projects and solutions along countywide HIN corridors or along subsequently identified project priority locations. For the 11 participating jurisdictions, those remaining priority locations are included in subsequent chapters. For the 10 jurisdictions with existing or developing plans, refer to those plans documents for identified priority project locations.

This plan places particular emphasis on locations where projects could provide safety benefits to disadvantaged neighborhoods. Accordingly, Table 13 and Table 14 provide summary statistics on the mileage of the Countywide HIN by modal emphasis and by the jurisdictions they are located within. The tables also provide the percentage of each HIN corridor that passes through identified social equity areas:

- **C/CAG Equity Focus Areas**, as defined in the C/CAG Comprehensive Bicycle and Pedestrian Plan.
- **MTC Equity Priority Communities** (formerly called "Communities of Concern") as guided by MTC's Equity Platform.
- **USDOT Areas of Persistent Poverty**, as defined by the Climate and Economic Justice Screening Tool (CEJST) developed by the Council on Environmental Quality.
- **USDOT Historically Disadvantaged Communities**, as defined by the CEJST.

This plan identifies the following emphasis areas which local agencies may use to define systemic treatments for safety problems town- or city-wide, or to further screen locations among those on the Countywide HIN or on their priority project lists.

1. **Pedestrian and bicyclist safety**
2. **Nighttime/low light safety**
3. **Unsignalized intersections on arterials/collectors**
4. **Vulnerable age groups (youth and aging)**
5. **Motor vehicle speed related roadway segment crashes**
6. **High speed roadways (35+mph)**
7. **Alcohol involvement**

Table 13: Local HIN Segments by Mode, Jurisdiction, and Social Equity Neighborhoods

Road name	Length (mi) of appliable criterion / location																									Percent of Corridor in Social Equity Area			
	Pedestrian HIN	Bicyclist HIN	Motor Vehicle HIN	Total HIN Length, Any Modes	Max 1/2 Mile Crash Severity Score	ATHERTON	BELMONT	BRISBANE	BURLINGAME	COLMA	DALY CITY	EAST PALO ALTO	FOSTER CITY	HALF MOON BAY	HILLSBOROUGH	MENLO PARK	MILLBRAE	PACIFICA	PORTOLA VALLEY	REDWOOD CITY	SAN BRUNO	SAN CARLOS	SAN MATEO	SOUTH SAN FRANCISCO	UNINCORPORATED	WOODSIDE	USDOT APP	USDOT HDC	MTC EPC	C/CAG Equity Focus Areas
Total	**87.7**	**70.8**	**167.7**	**231.7**		**3.4**	**5.4**	**4.2**	**9.1**	**2.2**	**24.4**	**8.5**	**5.5**	**2.2**	**0.0**	**11.5**	**5.4**	**6.7**	**5.7**	**27.2**	**10.0**	**11.6**	**25.4**	**30.9**	**36.4**	**5.6**				
2nd	**0.6**	**0.0**	**0.6**	0.6	554																		0.6					89%	29%	
3rd	**1.8**	**0.0**	**0.7**	1.8	569																0.7		1.1					28%	18%	
42nd	**0.0**	**0.0**	**0.7**	0.7	339																		0.7					100%		
4th	**0.0**	**0.0**	**0.4**	0.4	384																		0.4					100%		
5th	**1.1**	**0.0**	**0.0**	1.1	571																		1.1					45%	29%	
87th	**0.0**	**0.0**	**1.2**	1.2	352						0.3														1.0			87%		78%	
9th	**0.8**	**0.0**	**0.0**	0.8	389																		0.8					64%		
Adams	**0.0**	**0.0**	**0.1**	0.1	499															0.1									100%	100%	
Airport	**2.6**	**0.0**	**2.9**	3.0	991																			3.0				93%	97%	57%	
Alameda De Las Pulgas	**2.0**	**3.5**	**1.7**	6.7	732	1.0	0.3													0.5		1.6	3.0		0.7						
Alpine	**0.0**	**4.5**	**3.0**	7.5	628										0.5				3.3						4.1			15%			
Amphlett	**0.0**	**0.0**	**1.5**	1.5	572				0.1														1.5						100%	20%	
Avalon	**0.0**	**0.0**	**1.0**	1.0	264																0.1			1.0					74%	
Baden	**1.3**	**0.0**	**1.3**	1.3	1,075																			1.3				8%	100%	100%	
Bay	**1.8**	**0.0**	**3.3**	3.3	1,051							1.8								0.7					1.2		27%	55%	100%	70%	
Bayshore	**2.0**	**0.8**	**4.7**	4.7	1,177			2.7			0.3	1.7												0.1				9%	37%	31%	
Beech	**0.0**	**0.0**	**0.2**	0.2	601															0.2									100%	100%	
Belmont	**0.0**	**0.0**	**0.6**	0.6	268																	0.6									
Brewster	**0.0**	**0.0**	**1.5**	1.5	527															1.5											

Road name	Length (mi) of appliable criterion / location																										Percent of Corridor in Social Equity Area			
	Pedestrian HIN	Bicyclist HIN	Motor Vehicle HIN	Total HIN Length, Any Modes	Max 1/2 Mile Crash Severity Score	ATHERTON	BELMONT	BRISBANE	BURLINGAME	COLMA	DALY CITY	EAST PALO ALTO	FOSTER CITY	HALF MOON BAY	HILLSBOROUGH	MENLO PARK	MILLBRAE	PACIFICA	PORTOLA VALLEY	REDWOOD CITY	SAN BRUNO	SAN CARLOS	SAN MATEO	SOUTH SAN FRANCISCO	UNINCORPORATED	WOODSIDE	USDOT APP	USDOT HDC	MTC EPC	C/CAG Equity Focus Areas
Brittan	**1.4**	**0.0**	**1.4**	1.4	1,383												1.4													
Broadway	**3.3**	**2.4**	**3.2**	3.8	1,647												1.3			2.5							37%	8%	42%	34%
California	**0.0**	**2.5**	**1.3**	2.5	789				2.5														0.1					48%		
Canada	**0.0**	**6.3**	**3.2**	7.1	554																				5.5	1.7				
Capitol	**0.0**	**0.0**	**0.2**	0.2	506							0.2																	100%	100%
Carlos	**0.0**	**0.0**	**0.0**	0.0	352																				0.0					
Chester	**0.0**	**0.0**	**0.4**	0.4	407						0.4														0.1					68%
Chestnut	**0.9**	**0.8**	**1.4**	1.8	714															0.8				0.9	0.0		35%		63%	65%
Claremont	**1.2**	**0.0**	**0.0**	1.2	275																		1.2					58%	33%	17%
Clarke	**0.0**	**0.0**	**0.3**	0.3	286							0.3																	100%	100%
Coast	**0.0**	**0.0**	**1.4**	1.4	1,067																				1.4					
Commercial	**1.3**	**0.0**	**0.0**	1.3	686																			1.3					94%	94%
Crocker	**1.1**	**0.0**	**0.0**	1.1	418						1.1																			61%
Crystal Springs	**1.1**	**0.0**	**0.0**	1.1	400															1.1									9%	9%
Cypress	**0.0**	**0.0**	**0.5**	0.5	231																			0.5				43%	100%	100%
Delaware	**2.3**	**1.4**	**1.1**	3.6	569																		3.6					11%	39%	9%
Donohoe	**0.0**	**0.5**	**0.5**	0.5	888							0.5																	100%	100%
Dwight	**0.0**	**0.0**	**0.6**	0.6	448				0.6														0.1							
Eastmoor	**0.0**	**0.0**	**0.7**	0.7	737						0.7																	85%		85%
Edgewood	**0.0**	**0.0**	**2.5**	2.5	635																				2.5					
Eucalyptus	**0.5**	**0.0**	**0.0**	0.5	488																			0.5					55%	82%

Road name	Length (mi) of appliable criterion / location																									Percent of Corridor in Social Equity Area			
	Pedestrian HIN	Bicyclist HIN	Motor Vehicle HIN	Total HIN Length, Any Modes	Max 1/2 Mile Crash Severity Score	ATHERTON	BELMONT	BRISBANE	BURLINGAME	COLMA	DALY CITY	EAST PALO ALTO	FOSTER CITY	HALF MOON BAY	HILLSBOROUGH	MENLO PARK	MILLBRAE	PACIFICA	PORTOLA VALLEY	REDWOOD CITY	SAN BRUNO	SAN CARLOS	SAN MATEO	SOUTH SAN FRANCISCO	UNINCORPORATED	WOODSIDE	USDOT APP	USDOT HDC	MTC EPC	C/CAG Equity Focus Areas
Farm Hill	**0.0**	**0.0**	**1.8**	1.8	565															1.4						0.5				
Foster City	**1.7**	**0.0**	**1.2**	1.7	678								1.7																	
Gellert	**1.2**	**0.0**	**2.7**	2.7	527						1.7													1.1						33%
Geneva	**0.8**	**0.0**	**0.8**	0.8	1,241						0.8																	100%	13%	100%
Grand	**1.9**	**1.8**	**3.4**	3.4	1,347																			3.4				50%	89%	48%
Grant	**0.0**	**0.0**	**0.6**	0.6	356																		0.6					71%	35%	
Guadalupe Canyon	**0.0**	**0.0**	**2.5**	2.5	719			0.1			0.4														2.2					8%
Harvey	**0.0**	**0.0**	**0.1**	0.1	829															0.1										
Haven	**0.0**	**0.0**	**0.3**	0.3	275										0.3													100%	100%	
Hickey	**1.3**	**0.0**	**2.8**	2.8	759						1.9									0.9				0.2				18%	18%	25%
Hillcrest	**0.0**	**0.0**	**0.4**	0.4	329						0.4																			100%
Hillsdale	**3.1**	**2.6**	**2.4**	3.9	953								1.9										2.1					13%		18%
Hillside	**1.4**	**0.0**	**1.9**	3.3	531					0.7	1.2													1.1	0.5				14%	46%
Holly	**0.0**	**1.0**	**0.8**	1.0	713															0.2	0.9									20%
Hopkins	**0.0**	**0.0**	**1.3**	1.3	461															1.3										
Howard	**0.0**	**0.0**	**1.1**	1.1	536		1.1																0.1						9%	
Hudson	**0.0**	**1.4**	**0.0**	1.4	385															1.4									71%	43%
Humboldt	**2.0**	**1.8**	**2.0**	2.0	2,172		0.4																1.7					20%	85%	15%
Huntington	**1.1**	**1.0**	**0.0**	1.2	758																1.0			0.3				28%	60%	60%
Industrial	**1.7**	**0.0**	**2.4**	2.4	881															0.5	2.0									
James	**1.2**	**0.0**	**0.0**	1.2	361															1.2										

Road name	Length (mi) of appliable criterion / location																											Percent of Corridor in Social Equity Area			
	Pedestrian HIN	Bicyclist HIN	Motor Vehicle HIN	Total HIN Length, Any Modes	Max 1/2 Mile Crash Severity Score	ATHERTON	BELMONT	BRISBANE	BURLINGAME	COLMA	DALY CITY	EAST PALO ALTO	FOSTER CITY	HALF MOON BAY	HILLSBOROUGH	MENLO PARK	MILLBRAE	PACIFICA	PORTOLA VALLEY	REDWOOD CITY	SAN BRUNO	SAN CARLOS	SAN MATEO	SOUTH SAN FRANCISCO	UNINCORPORATED	WOODSIDE	USDOT APP	USDOT HDC	MTC EPC	C/CAG Equity Focus Areas
Jefferson	**1.7**	**1.3**	**1.6**	1.7	942						1.9									1.7										35%	24%
Jenevein	**0.8**	**0.0**	**0.0**	0.8	494																0.8									13%	49%
John Daly	**1.8**	**0.0**	**1.9**	1.9	1,152						1.9																	32%	32%	11%	32%
Junipero Serra	**2.0**	**1.6**	**5.4**	5.8	935					1.3	1.7													3.1				9%		27%
King	**0.0**	**0.0**	**1.3**	1.3	785						1.3							0.0						0.1							82%
Kings Mountain	**0.0**	**3.5**	**0.0**	3.5	528																				2.1	1.7					
Laurel	**1.5**	**1.0**	**0.0**	2.5	406	0.2										1.0						1.5									
Lincoln	**0.0**	**0.0**	**0.5**	0.5	668															0.5									100%	76%
Linda Mar	**1.1**	**1.6**	**1.9**	1.9	880													1.9												21%
Linden	**1.6**	**0.0**	**1.8**	1.8	1,195																0.1			1.8				83%	100%	100%
Lyall	**0.0**	**0.0**	**0.3**	0.3	246		0.3																								
Magnolia	**1.5**	**0.0**	**0.0**	1.5	454			0.3									1.3												13%		47%
Main	**0.0**	**0.0**	**2.0**	2.0	451									1.1						0.9										31%	75%
Maple	**0.7**	**1.1**	**1.2**	1.9	889															1.2				0.7			26%	16%	79%	74%
Market	**0.8**	**0.0**	**0.0**	0.8	356						0.8																				91%
Marsh	**0.0**	**0.0**	**1.3**	1.3	543	0.4										0.7									0.5			47%	47%	38%
Menlo	**0.0**	**0.0**	**0.3**	0.3	449											0.3															
Metro Center	**0.0**	**0.0**	**0.7**	0.7	361									0.7																	
Middle	**0.0**	**1.1**	**0.0**	1.1	416											1.1															
Middlefield	**2.2**	**2.2**	**3.8**	3.8	2,166	1.2										0.6				1.5					1.0		26%	8%	39%	24%
Millbrae	**1.5**	**0.0**	**1.5**	1.5	878												1.5											39%		20%

Road name	Length (mi) of appliable criterion / location																										Percent of Corridor in Social Equity Area			
	Pedestrian HIN	Bicyclist HIN	Motor Vehicle HIN	Total HIN Length, Any Modes	Max 1/2 Mile Crash Severity Score	ATHERTON	BELMONT	BRISBANE	BURLINGAME	COLMA	DALY CITY	EAST PALO ALTO	FOSTER CITY	HALF MOON BAY	HILLSBOROUGH	MENLO PARK	MILLBRAE	PACIFICA	PORTOLA VALLEY	REDWOOD CITY	SAN BRUNO	SAN CARLOS	SAN MATEO	SOUTH SAN FRANCISCO	UNINCORPORATED	WOODSIDE	USDOT APP	USDOT HDC	MTC EPC	C/CAG Equity Focus Areas
Miller	**1.3**	**0.0**	**1.1**	1.3	682																			1.3					23%	45%
Mission	**1.9**	**0.0**	**1.9**	1.9	1,062						1.8														0.2				5%	68%
Newbridge	**0.0**	**1.0**	**1.0**	1.0	1,089							0.4				0.7												70%	100%	100%
Norfolk	**0.0**	**1.9**	**0.0**	1.9	384																		1.9							9%
Oak Grove	**1.1**	**1.2**	**0.0**	1.2	527	0.4										0.9														
O'Connor	**0.0**	**0.0**	**0.6**	0.6	319							0.6																	100%	72%
Old Bayshore	**1.3**	**0.0**	**1.4**	1.4	815				1.2								0.3											85%		
Old Canada	**0.0**	**0.0**	**1.1**	1.1	606																				1.1					
Old County	**0.0**	**1.9**	**3.4**	3.4	884	1.2													0.1		2.2				0.3					
Old Page Mill	**0.0**	**0.0**	**0.5**	0.5	393																				0.5			100%		
Orange	**0.0**	**0.0**	**1.0**	1.0	330																			1.0				60%	80%	70%
Oyster Point	**0.0**	**0.0**	**1.1**	1.1	482																			1.1				100%	100%	9%
Palmetto	**0.0**	**0.0**	**2.1**	2.1	635														2.1											
Park Plaza	**0.4**	**0.0**	**0.0**	0.4	362						0.4																100%	100%	100%	100%
Peninsula	**1.0**	**0.0**	**0.0**	1.0	1,101				0.1														1.0						10%	
Pescadero Creek	**0.0**	**0.0**	**1.4**	1.4	341																				1.4			100%		
Poplar	**1.4**	**0.0**	**0.9**	1.4	1,361																		1.4						37%	
Portola	**0.0**	**4.2**	**2.4**	4.2	1,277														2.4						0.4	1.7				
Price	**0.0**	**0.0**	**0.8**	0.8	264						0.8														0.1					93%
Pulgas	**1.3**	**0.0**	**1.5**	1.5	862							1.5																13%	100%	20%
Railroad	**0.0**	**0.0**	**0.7**	0.7	253																			0.7				41%	100%	100%

Road name	Length (mi) of appliable criterion / location																									Percent of Corridor in Social Equity Area			
	Pedestrian HIN	Bicyclist HIN	Motor Vehicle HIN	Total HIN Length, Any Modes	Max 1/2 Mile Crash Severity Score	ATHERTON	BELMONT	BRISBANE	BURLINGAME	COLMA	DALY CITY	EAST PALO ALTO	FOSTER CITY	HALF MOON BAY	HILLSBOROUGH	MENLO PARK	MILLBRAE	PACIFICA	PORTOLA VALLEY	REDWOOD CITY	SAN BRUNO	SAN CARLOS	SAN MATEO	SOUTH SAN FRANCISCO	UNINCORPORATED	WOODSIDE	USDOT APP	USDOT HDC	MTC EPC	C/CAG Equity Focus Areas
Ralston	**0.0**	**2.5**	**3.5**	3.5	488		3.5																		0.1					
Randolph	**0.0**	**0.0**	**0.8**	0.8	539																			0.8				38%	38%	
Ravenswood	**0.0**	**0.6**	**0.6**	0.6	580	0.2										0.6														
Redwood Shores	**0.0**	**0.0**	**2.0**	2.0	444															2.0										35%
Rollins	**0.0**	**0.0**	**2.4**	2.4	407				2.4														0.1					38%	4%	
Roosevelt	**0.0**	**1.1**	**1.2**	1.2	429															1.2									58%	33%
Runnymede	**0.0**	**0.9**	**0.0**	0.9	449							0.9																	100%	86%
San Anselmo	**0.0**	**0.0**	**0.9**	0.9	363											0.4				0.6									68%	21%
San Bruno	**1.7**	**0.0**	**0.8**	1.7	1,940															1.7									23%	23%
San Carlos	**0.0**	**1.4**	**0.0**	1.4	471																	1.4								
San Marco	**0.0**	**0.0**	**0.0**	0.0	356															0.0									100%	
San Mateo	**1.4**	**0.0**	**9.8**	9.8	1,101									1.1						1.4			1.2	0.6	5.6			10%	13%	34%
San Pedro	**0.0**	**0.0**	**0.5**	0.5	839						0.5																	16%		100%
Sand Hill	**0.0**	**2.6**	**0.0**	2.6	734										1.1										1.7				4%	
Santa Cruz	**0.0**	**1.6**	**0.0**	1.6	503										1.6															
Santa Domingo	**0.0**	**0.0**	**0.0**	0.0	532															0.0									100%	
Santa Inez	**0.0**	**0.0**	**0.3**	0.3	499																		0.3							
Scofield	**0.0**	**0.0**	**0.1**	0.1	374							0.1																	100%	100%
Sequoia	**0.8**	**0.0**	**0.0**	0.8	363			0.4								0.6												64%		
Serramonte	**0.0**	**0.0**	**1.0**	1.0	253				0.1	1.0																		33%	33%	33%
Sharp Park	**0.0**	**0.0**	**2.1**	2.1	858												1.6			0.6										69%

Road name	Length (mi) of appliable criterion / location																										Percent of Corridor in Social Equity Area			
	Pedestrian HIN	Bicyclist HIN	Motor Vehicle HIN	Total HIN Length, Any Modes	Max 1/2 Mile Crash Severity Score	ATHERTON	BELMONT	BRISBANE	BURLINGAME	COLMA	DALY CITY	EAST PALO ALTO	FOSTER CITY	HALF MOON BAY	HILLSBOROUGH	MENLO PARK	MILLBRAE	PACIFICA	PORTOLA VALLEY	REDWOOD CITY	SAN BRUNO	SAN CARLOS	SAN MATEO	SOUTH SAN FRANCISCO	UNINCORPORATED	WOODSIDE	USDOT APP	USDOT HDC	MTC EPC	C/CAG Equity Focus Areas
Shell	**1.1**	**0.0**	**0.0**	1.1	641								1.1																	
Sierra Point	**0.0**	**0.0**	**1.4**	1.4	352			1.4																						
Sister Cities	**0.0**	**0.0**	**0.9**	0.9	570																			0.9					11%	
Sneath	**1.0**	**0.0**	**1.3**	1.8	418																1.8									5%
Southgate	**3.1**	**0.0**	**2.7**	3.1	792					0.1	3.1																10%	52%	26%	61%
Spruce	**1.7**	**0.0**	**1.7**	1.7	817																			1.7				60%	72%	84%
Stafford	**0.0**	**0.0**	**0.4**	0.4	11															0.4		0.1								
Sullivan	**0.5**	**0.0**	**1.3**	1.3	781						1.2														0.2			100%	1%	100%
Tilton	**0.8**	**0.8**	**0.0**	0.8	758																		0.8					43%	69%	
Valota	**0.0**	**0.0**	**1.2**	1.2	395															1.2										
Veterans	**1.2**	**1.1**	**1.7**	1.7	877															1.7							17%		17%	
Walnut	**0.3**	**0.0**	**0.0**	0.3	235																			0.3				25%	63%	63%
Washington	**0.9**	**0.0**	**0.9**	0.9	758						0.4														0.6			89%		43%
Westborough	**1.8**	**0.0**	**2.7**	2.7	1,501																0.1			2.3	1.2					64%
Westmoor	**0.0**	**0.0**	**0.4**	0.4	396						0.4																	75%		100%
Whipple	**0.0**	**0.0**	**1.8**	1.8	1,057															1.8										
Willow	**0.0**	**2.3**	**1.8**	2.3	504							0.5			2.1													25%	43%	43%
Winslow	**0.0**	**0.0**	**0.8**	0.8	330															0.8										

Table 14: State Highway HIN Segments by Mode, Jurisdiction, and Social Equity Neighborhoods

Road name	Length (mi) of appliable criterion / location																										Percent of Corridor in Social Equity Area			
	Pedestrian HIN	Bicyclist HIN	Motor Vehicle HIN	Total HIN Length, Any Modes	Max 1/2 Mile Crash Severity Score	ATHERTON	BELMONT	BRISBANE	BURLINGAME	COLMA	DALY CITY	EAST PALO ALTO	FOSTER CITY	HALF MOON BAY	HILLSBOROUGH	MENLO PARK	MILLBRAE	PACIFICA	PORTOLA VALLEY	REDWOOD CITY	SAN BRUNO	SAN CARLOS	SAN MATEO	SOUTH SAN FRANCISCO	UNINCORPORATED	WOODSIDE	USDOT APP	USDOT HDC	MTC EPC	C/CAG Equity Focus Areas
Total	**15.2**	**27.1**	**120.1**	**122.6**		**3.4**	**5.4**	**4.2**	**9.1**	**2.2**	**24.4**	**8.5**	**5.5**	**2.2**	**0.0**	**11.5**	**5.4**	**6.7**	**5.7**	**27.2**	**10.0**	**11.6**	**25.4**	**30.9**	**36.2**	**5.6**				
El Camino Real	**10.2**	**9.3**	**23.2**	23.5	2,670	1.5	1.6		3.0	1.2						1.5	1.8			2.5	2.1	2.0	4.3	2.9	0.8			17%	13%	18%
Golf Course	**0.0**	**0.0**	**0.2**	0.2	246																				0.2					
John Daly	**1.8**	**0.0**	**1.9**	1.9	1,152						1.9																32%	32%	11%	32%
La Honda	**0.0**	**1.1**	**13.7**	14.0	1,874																				10.5	3.5		59%		
Marsh	**0.0**	**0.0**	**1.3**	1.3	543	0.4										0.7									0.5			47%	47%	38%
Mission	**1.9**	**0.0**	**1.9**	1.9	1,062						1.8														0.2				5%	68%
San Jose	**0.0**	**0.0**	**0.2**	0.2	279						0.2																			100%
San Mateo	**1.4**	**0.0**	**9.8**	9.8	1,101								1.1								1.4	1.2	0.6	5.6				10%	13%	34%
Skyline	**0.0**	**3.0**	**24.2**	25.3	1,160						7.0							2.5			2.3		0.6	14.8	0.5			24%	6%	15%
State Highway 1	**0.0**	**4.2**	**26.7**	26.7	1,511								5.3					5.4						16.8				34%		16%
State Highway 84	**0.0**	**0.0**	**2.6**	2.6	658											2.2									0.4			83%	83%	4%
State Highway 92	**0.0**	**0.0**	**1.8**	1.8	844																	0.1		1.7						
Tom Lanos Tunnel	**0.0**	**0.0**	**2.2**	2.2	407																			2.2						
University	**0.0**	**2.1**	**1.8**	2.1	2,597							1.7				0.5												56%	100%	100%
Willow	**0.0**	**2.3**	**1.8**	2.3	504							0.5				2.1												25%	43%	43%
Woodside	**0.0**	**5.2**	**6.9**	7.0	1,666															3.1					0.5	3.6	11%		23%	8%

SamTrans Bus Stop Prioritization

The plan development team analyzed bus stop data provided by SamTrans to identify correlation of roadway and intersection risk factors with crash history around high-ridership bus stops. Systemic roadway and intersection characteristics were identified and used to develop a priority list of bus stops for SamTrans. The detailed methodology and results are included in Appendix E. Table 15 presents the priority bus stop locations as they relate to pedestrian and bicycle crash history, equity, and systemic risk factors.

Table 15. Priority Bus Stop Locations for Pedestrian and Bicycle Improvements

RANK	STOP ID	STOP LOCATION	JURISDICTION	CRASH HISTORY				EQUITY	SYSTEMIC CHARACTERISTICS				TOTAL SCORE (0-1)
				Ped & Bike Crash Severity Score (0-432)	Ped HIN	Bike HIN	Ped & Bike Crash History Score (Normalized 0-1)	Equity Score (0-1)	Uncontrolled Location (0-1)	Absence of Sidewalks (0-1)	> 35 MPH (0-1)	Char. Score (Normalized 0-1)	
1	344658	Jefferson Ave at Adams St	Redwood City	235	1	1	1.27	1	1	0	1	0.67	0.97
2	344657	Jefferson Ave at Adams St	Redwood City	224	1	1	1.26	1	1	0	1	0.67	0.97
3	344086	El Camino Real & Lincoln Ave	Redwood City	219	1	1	1.25	1	1	0	1	0.67	0.96
4	344095	El Camino Real & Winklebleck St	Redwood City	202	1	1	1.23	1	1	0	1	0.67	0.96
5	344203	Middlefield Rd & Dumbarton Ave	North Fair Oaks	399	1	1	1.46	1	1	0	0	0.33	0.92
6	344204	Middlefield Rd & Dumbarton Ave	North Fair Oaks	399	1	1	1.46	1	1	0	0	0.33	0.92
7	344207	Middlefield Rd & Flynn Ave	Redwood City	28	1	1	1.03	1	1	0	1	0.67	0.89
8	341111	N Delaware St & Tilton Ave	San Mateo	22	1	1	1.03	1	1	0	1	0.67	0.89
9	344087	El Camino Real & Main St	Redwood City	22	1	1	1.03	1	1	0	1	0.67	0.89
10	351002	3745 Bayshore Blvd-Andrys Trailer Park	Brisbane	165	1	0	0.69	1	1	1	1	1.00	0.89
11	344085	El Camino Real & Jefferson Ave	Redwood City	11	1	1	1.01	1	1	0	1	0.67	0.88
12	344195	Middlefield Rd & Cassia St	Redwood City	0	1	1	1.00	1	1	0	1	0.67	0.88
13	344196	Middlefield Rd & Elm St	Redwood City	0	1	1	1.00	1	1	0	1	0.67	0.88
14	344659	Jefferson Ave at Grand St	Redwood City	0	1	1	1.00	1	1	0	1	0.67	0.88
15	335099	Huntington Ave & Sneath Ln	San Bruno	0	1	1	1.00	1	1	0	1	0.67	0.88
16	361094	E Hillsdale Blvd & Center Park Ln	Foster City	285	1	1	1.33	1	0	0	1	0.33	0.88
17	334127	Grand Ave & Maple Ave	South San Francisco	263	1	1	1.30	1	0	0	1	0.33	0.87
18	334128	Grand Ave & Maple Ave	South San Francisco	263	1	1	1.30	1	0	0	1	0.33	0.87
19	336039	El Camino Real & Silva Ave	Millbrae	371	1	0	0.93	1	1	0	1	0.67	0.86
20	334122	Grand Ave & Eucalyptus Ave	South San Francisco	224	1	1	1.26	1	0	0	1	0.33	0.86
21	334123	Grand Ave & Eucalyptus Ave	South San Francisco	224	1	1	1.26	1	0	0	1	0.33	0.86
22	344193	Middlefield Rd & 5th Ave	North Fair Oaks	213	1	1	1.25	1	0	0	1	0.33	0.85
23	334131	Grand Ave & Spruce Ave	South San Francisco	153	1	1	1.18	1	0	0	1	0.33	0.83
24	334132	Grand Ave & Spruce Ave	South San Francisco	153	1	1	1.18	1	0	0	1	0.33	0.83
25	344900	El Camino Real & Dumbarton Ave	North Fair Oaks	0	0	1	0.50	1	1	1	1	1.00	0.83
26	341278	Peninsula Ave & Humboldt St	San Mateo	131	1	1	1.15	1	0	0	1	0.33	0.82
27	344082	El Camino Real & Hopkins Ave	Redwood City	120	1	1	1.14	1	0	0	1	0.33	0.82
28	344083	El Camino Real & Hopkins Ave	Redwood City	120	1	1	1.14	1	0	0	1	0.33	0.82
29	332221	Mission St & Evergreen Ave-Daly City	Daly City	252	1	0	0.79	1	1	0	1	0.67	0.81
30	334124	Grand Ave & Linden Ave	South San Francisco	55	1	1	1.06	1	0	0	1	0.33	0.79

IMPLEMENTATION AND MONITORING

A key part of achieving C/CAG's vision is consistently evaluating roadway safety performance and tracking progress towards the goals. C/CAG will develop a process to regularly collect data and information around the performance measures that can be used to assess changes city-wide and at the top priority locations.

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

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

Table 16. Implementation Goals and Measures of Success

Goal	Measure of Success
■ Regularly review crash history and community needs to identify and prioritize opportunities to reduce crash risk for roadway users of all ages and abilities. ■ Partner with local agencies to incorporate roadway safety into all actions.	■ Convene TSAC meetings 2-4 times per year. ■ Number of project locations identified in this plan advanced through project development, reported at the agency level, and aggregated regionally. ■ Annual and three-year total reported crashes, fatal/severe injury crashes, crashes by mode, and crashes by emphasis areas identified. ■ Improved data availability or maintenance to enhance safety analysis and practice. ■ Amount of grant funding money awarded for safety projects.
■ Implement context-appropriate safety countermeasures systemically and as part of all projects to target emphasis areas and underserved communities.	■ Share of project locations identified in this plan advanced through project development by presence within equity focus areas, reported at the agency level, and aggregated regionally.
■ Support agencies in providing opportunities for citizen engagement to identify issues and inform Countywide safety solutions.	■ Implementation of a high-visibility media campaign ■ Percent of school participation in SRTS and roadway safety education opportunities. ■ Quantification of education campaigns, through number of participants reached, events held, and similar measures. ■ Number or percent of C/CAG-funded safety project development activities that include community engagement. ■ Number of engagement touchpoints and number of community member interactions countywide for safety plans or projects. ■ Report-backs from local jurisdictions to the TSAC regarding community engagement, including information about outreach to disadvantaged communities where applicable.
■ Embrace the Safe System Approach to promote engineering and non-engineering strategies in the community.	■ Number of trainings conducted regarding Safe System elements, available tools, or practices.

Town of Atherton

LOCAL ROADWAY SAFETY PLAN

FINAL DRAFT

MAY 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.

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INTRODUCTION

This chapter serves as a standalone local roadway safety plan (LRSP) for the Town of Atherton. 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 Atherton has a 2023 population of 6,678 per California Department of Finance. The town has 51 total centerline miles per Caltrans 2022 California Public Road Data. From 2018 through 2022, there were 121 reported crashes on surface streets in the Town and 4 fatal/severe injury crashes. Pedestrians were involved in 10 percent of all reported crashes and 50 percent of fatal/severe injury crashes. Bicyclists were involved in 21 percent of all reported crashes and no fatal/severe injury crashes. Of reported at-grade crashes, 36 (30 percent) occurred on or along state highways. The LRSP provides Safe System-aligned strategies tailored to Atherton's crash history and local priorities, as well as performance measures to evaluate progress.

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

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 Atherton's vision for roadway safety is:

- Reduce fatal and severe injury crashes to zero by 2050.
- Promote a culture of roadway safety in Atherton's departments, educational institutions, and residents.

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

1. Regularly review crash history and community needs to identify and prioritize opportunities to reduce crash risk for roadway users of all ages and abilities.
2. Implement context-appropriate safety countermeasures systemically and as part of all projects to target emphasis areas and underserved communities.
3. Promote plan recommendations with identified safety partners to incorporate roadway safety through safety projects and educational campaigns in Atherton.
4. Provide opportunities for community engagement to identify issues and inform safety solutions across the community.
5. Embrace the Safe System approach to promote engineering and non-engineering strategies in the community.
6. Identify opportunities to incorporate social equity into safety improvements.
7. Monitor implementation of the Atherton LRSP to track progress towards goals.

PLAN DEVELOPMENT

Existing Safety Efforts

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

Table 1. Town of Atherton 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
Bicycle and Pedestrian Master Plan	The Town's Bicycle and Pedestrian Master Plan outlines identified needs and active transportation routes.	Safe Roads Safe Road Users
Neighborhood Traffic Management Plan	The Town's Neighborhood Traffic Management Plan outlines neighborhood traffic calming measures and programs to reduce travel speeds and cut-through traffic with an intent to improve safety for all modes of travel.	Safe Roads Safe Road Users

Program Name	Program Description	Safe System Elements
Alameda de las Pulgas Traffic and Safety Improvements	The Town is currently preparing project plans for Alameda de las Pulgas Drive, which project will include a traffic signal and reconfiguration at Atherton Avenue, signalization at Cam al Lago, pedestrian crossing improvements at Stockbridge, and relocation of a midblock pedestrian signal between Cam al Lago and Mills Avenue.	Safe Roads
El Camino Real Complete Streets Gap Closure Planning Study	The Town is currently working with the San Mateo County Transportation Authority on a planning study for El Camino Real to identify active transportation improvements on the roadway between Selby and Valparaiso.	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 the Town of Atherton'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
- Sustainability Department
- 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
- Atherton Police Department

Community Engagement and Input

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

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, 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** – Sharing 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
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, and Traffic Safety Committee Meeting

ONLINE MAP SURVEY

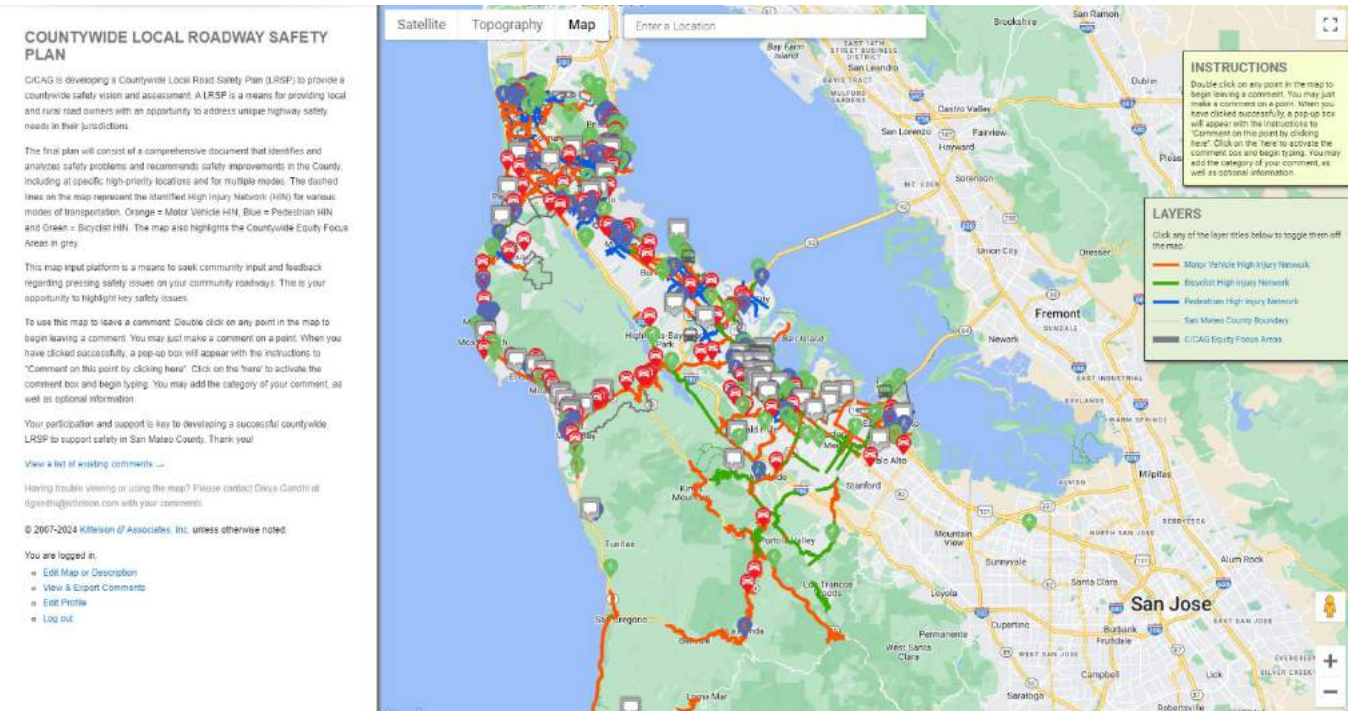
The project team made an online countywide webmap tool and survey available during August and September 2023 for the public to provide comments and respond to questions to guide the plan's development (see Figure 2. Online Map Survey Tool). Respondents were able to record location-specific feedback,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

Countywide, there were a total of 528 comments recorded by 352 respondents. There were two comments made within the Town of Atherton. The comments included the following:

- Request to provide modal filters: to allow only bicycles and pedestrians on certain streets.
- Noted locations include Selby Lane at Stockbridge Avenue, and Barry Lane.

The comments received are provided in Appendix A. The project team also 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.

Figure 2. Online Map Survey Tool



PHASE 2 COMMUNITY ENGAGEMENT FEEDBACK

The project team held an event at the Atherton Library in January 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. Comments received are provided in Appendix B. The following themes were identified:

Pedestrian Comments

- Desire for pedestrian facilities, such as sidewalks, curb ramps, crosswalks, and pedestrian signals, to make walking safer and more comfortable, especially along El Camino Real and in the neighborhood east of Middlefield Road
- Desire for better pedestrian crossings over the Caltrain rail tracks

- Concern that drivers are running through stop signs and red signals, specifically along Isabella Avenue and at El Camino Real / Fair Oaks Lane (signalized) and Maple Avenue / Dinkelspiel Station Lane (unsignalized).

Bicycle Comments

- Concerns that there is not enough separation between bicyclists and drivers along El Camino Real. [There are no bike lanes on El Camino Real.]
- Concerns of poor visibility—due to curved roads, inadequate lighting, and parked cars at corners—that makes biking unsafe

Motor Vehicle Comments

- Desire for lighting to improve visibility along roadways
- Concerns over traffic and congestion in Atherton
- Concerns over blind corners and site line issues, especially along El Camino Real and at the Fair Oaks Lane / Dinkelspiel Station Lane intersection.

Countermeasures Comments

- Desire for lane or road narrowing, specifically along Atherton Avenue and El Camino Real and side, and a desire to do more to improve safety
- Concerns that bike lane improvements are dangerous to drivers

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 System[1] (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 Atherton 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 Atherton:

1. **Pedestrian and bicyclist safety.** Countywide, pedestrians were involved in 13 percent of all 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 all injury crashes but 20 percent of fatal/severe injury crashes. In Atherton, pedestrians were involved in 50 percent of fatal/severe injury

[1] Transportation Injury Mapping System, http://tims.berkeley.edu

crashes, higher than their overall share of all injury crashes (10 percent). Bicyclists were involved in 21 percent of all reported injury crashes. None of the bicyclist-involved crashes resulted in fatality or severe injury.

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 Atherton, one of the four fatal/severe injury crashes occurred in dark conditions.
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. **Vulnerable age groups (youth and aging).** Countywide across all modes, crash victims between the 15 to 34 years old are more likely to be injured including F/SI as a result of traffic safety than other groups. Victims between the ages 50 – 69 and 75 to 84 are also more likely to be severely injured than other groups. In Atherton, 9 crashes or 7 percent of all reported injury crashes involve at fault drivers who are under 30 years old.
5. **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 all injury crashes and 23 percent of fatal/severe injury crashes). In Atherton, "Too fast for conditions" was the top-cited violation among reported injury crashes (37 percent).
6. **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.

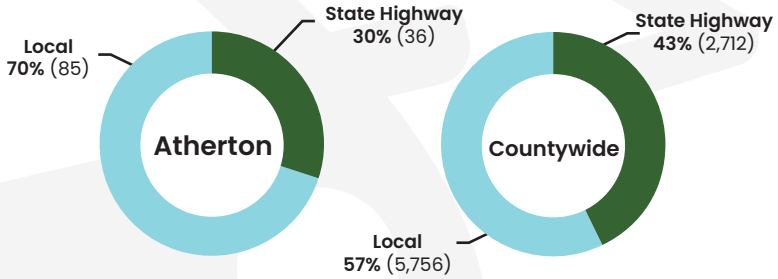
The next pages present summary findings from a crash data review that compares the Town of Atherton to countywide trends in these emphasis areas. It includes summary statistics related to the above-cited emphasis areas but also shows:

- The share of local crashes that occurred on or at a State Highway facility compared to Countywide levels.
- The most frequently reported local 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 locally, bicyclist crashes account for a higher share of F/SI crashes than among all injury levels.
- The share of local and Countywide crashes occurring in dark conditions for crashes of all injury levels and for F/SI crashes (organized by mode).
- Reported pedestrian and bicyclist crashes summarized by the most common preceding movements countywide, with a comparison of those movements' share of local crashes to Countywide shares.
- The local and Countywide share of crashes involving drugs or alcohol and involving drivers under age 30.

Atherton—Crash History

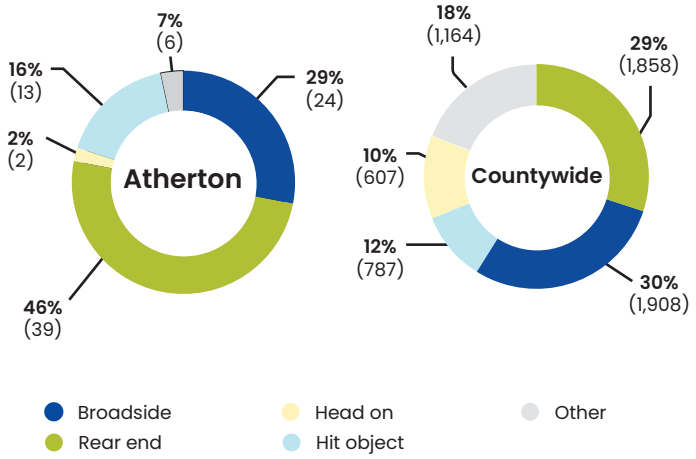
Total Crashes

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



Most Frequent Collision Types

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



Mode Involvement (Local Road Crash Count, State Highway Count)

Pedestrian Crashes (12 Total: 8 Local , 3 State Highway)

	All Injury Crashes	Fatal/Severe Injury Crashes
Atherton	10% (8, 4)	50% (0, 2)
Countywide	13% (1,073)	23% (208)

Bicycle Crashes (25 Total: 20 Local, 5 State Highway)

	All Injury Crashes	Fatal/Severe Injury Crashes
Atherton	21% (20, 5)	0% (0)
Countywide	13% (1,067)	20% (176)

Motor Vehicle[1] Crashes (84 Total, 57 Local, 27 State Highway)

	All Injury Crashes	Fatal/Severe Injury Crashes
Atherton	69% (57, 27)	50% (0, 2)
Countywide	75% (6,324)	57% (515)

2% (2, 0)

of reported collisions in Atherton involved drugs or alcohol

44% (39, 14)

of reported collisions in Atherton involved young drivers[1]

8% (625)

Compared to the countywide total, where 8% (625) of reported collisions involved drugs or alcohol

5% (472)

Compared to the countywide total, where 5% (472) of reported collisions involved young drivers[2]

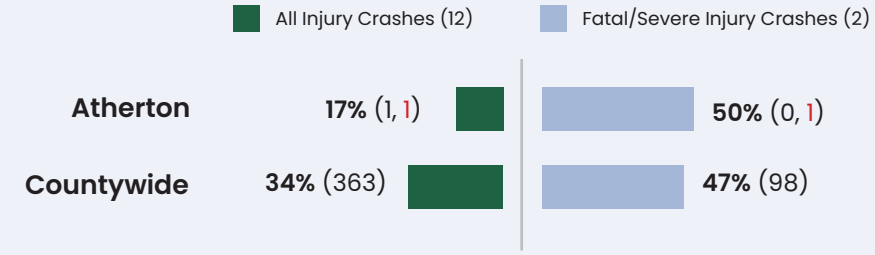
1. *Motor crashes include motor vehicles and motorcyclists.*
2. *Young driver crashes are crashes that involve at fault drivers who are under 30 years old.*

Atherton—Crash History

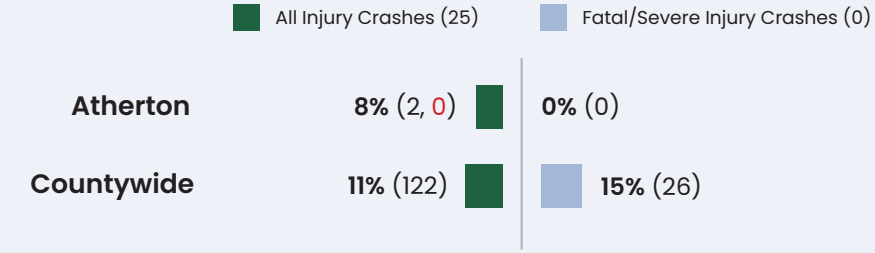
Dark Conditions

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

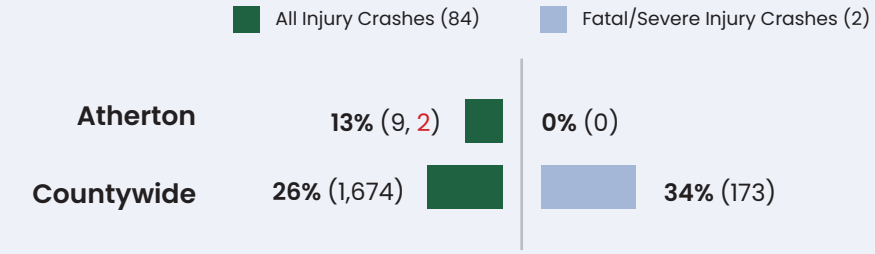
Share of Pedestrian Crashes in Dark Conditions (2)



Share of Bicyclist Crashes in Dark Conditions (2)

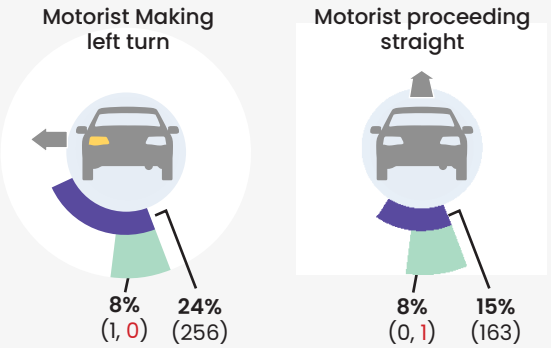


Share of Motor Vehicle Crashes in Dark Conditions (11)

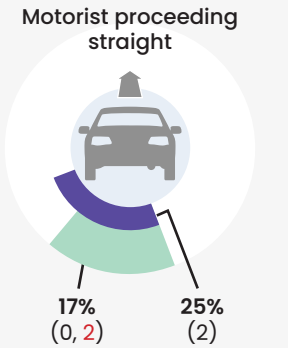


Reported Pedestrian Crashes (12)

Pedestrian Crossing at Intersection



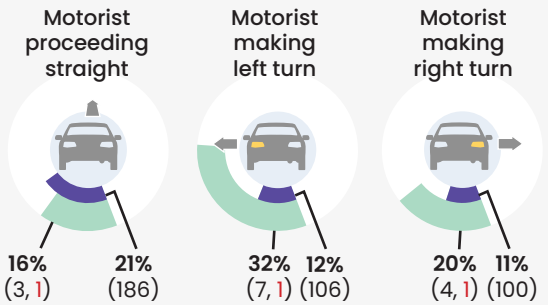
Pedestrian Crossing Not at a Crosswalk



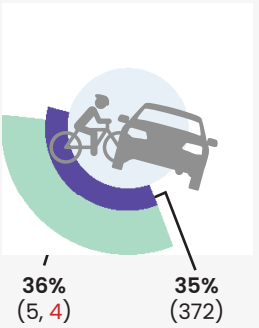
Agency Countywide

Reported Bicycle Crashes (25)

Bicyclist Proceeding Straight



Perpendicular Bicyclist Crashes



Agency Countywide

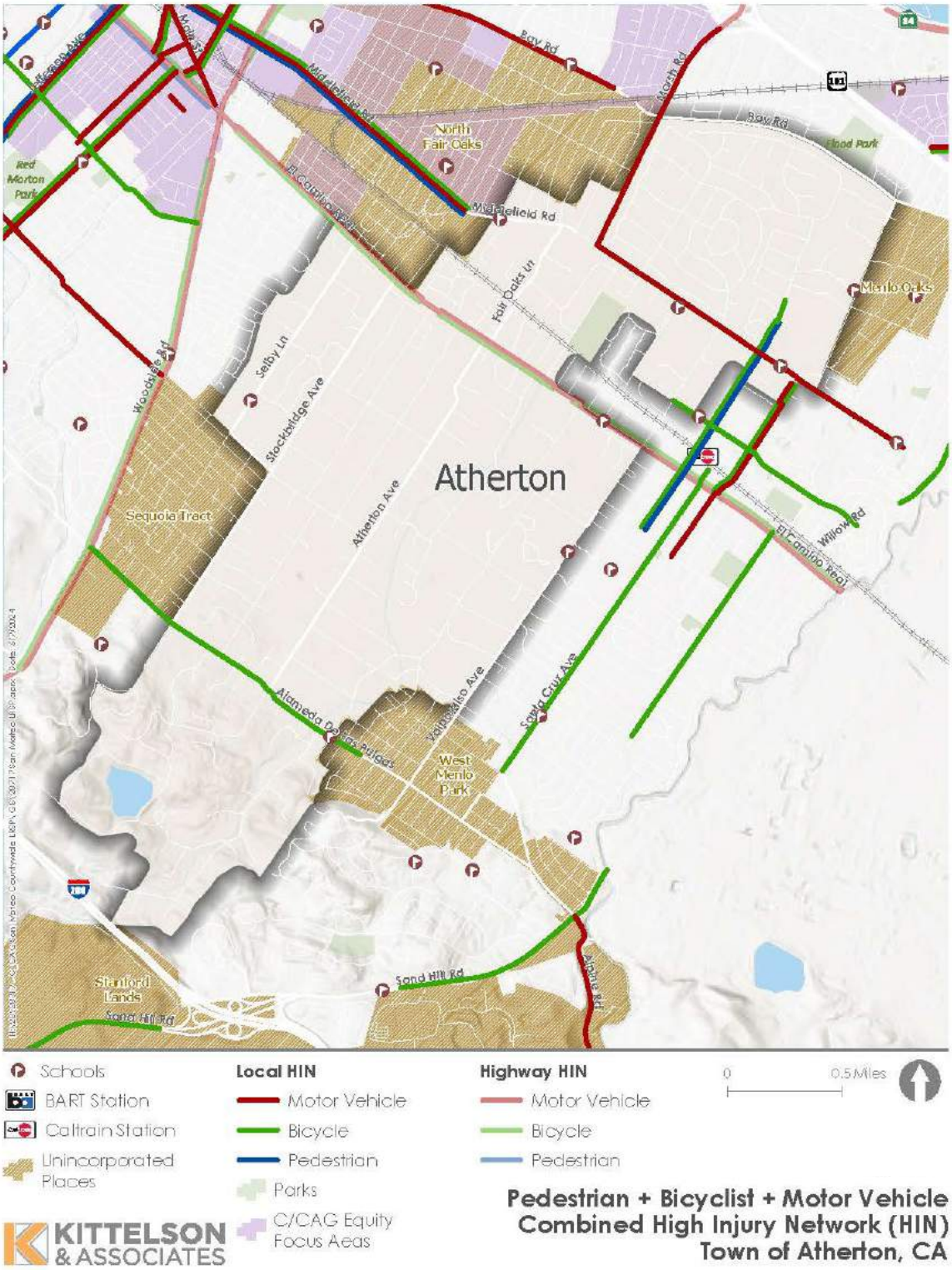
Countywide High Injury Network

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 3 and Figure 4 show the HIN segments identified within the Town.

Table 3. Countywide HIN Segments in Atherton

Roadway name	All County Jurisdiction(s) including this HIN Roadway	Length within Atherton (mi)	Total Length, all jurisdictions included (mi)	Motor Vehicle HIN	Bicyclist HIN	Pedestrian HIN
Oak Grove Ave	Atherton, Menlo Park	0.3	1.2		X	X
Ravenswood Ave	Atherton, Menlo Park	0.1	0.6	X	X	X
Middlefield Rd	Atherton, Menlo Park, Redwood City, Unincorporated	1.1	3.8	X	X	X
Marsh Rd	Atherton, Menlo Park, Unincorporated	0.2	1.3	X		
El Camino Real	San Carlos, Atherton, Menlo Park, Redwood City, Millbrae, San Bruno, Belmont, San Mateo, Burlingame, South San Francisco, Colma, Unincorporated	0.9	23.5	X	X	X
Alameda de las Pulgas	San Carlos, Atherton, Redwood City, Belmont, San Mateo, Unincorporated	0.9	6.7	X	X	X

Figure 3. Countywide HIN within the Town of Atherton



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). The resulting scores are sorted per jurisdiction, so that Atherton's prioritized locations are compared to themselves rather than to other County jurisdictions.

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

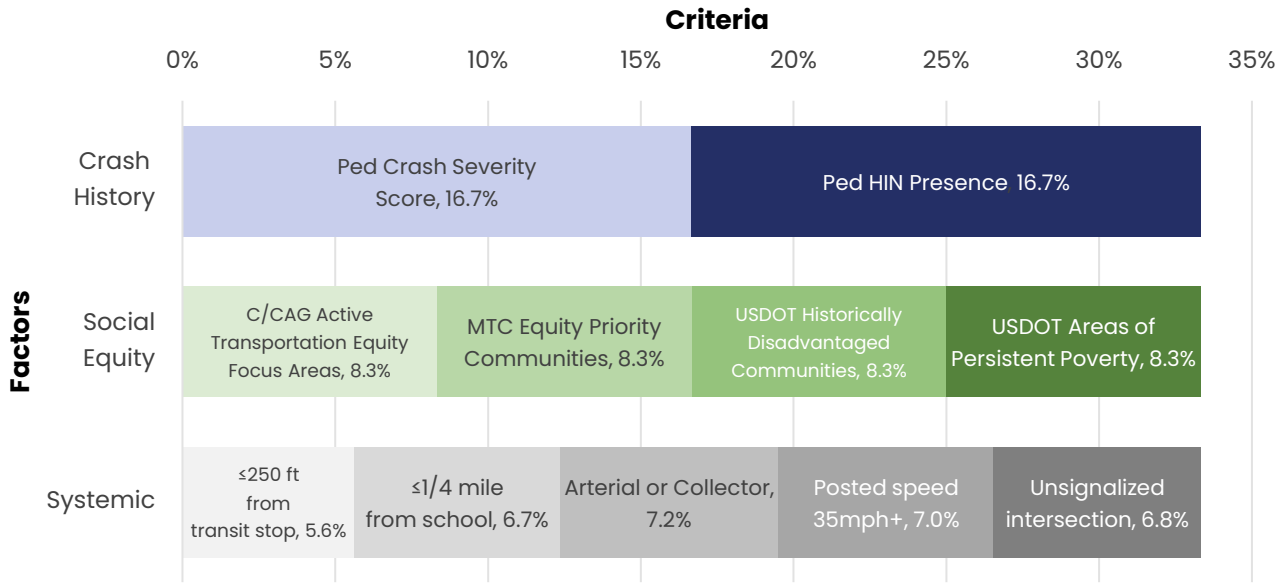


Figure 5. Bicycle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)

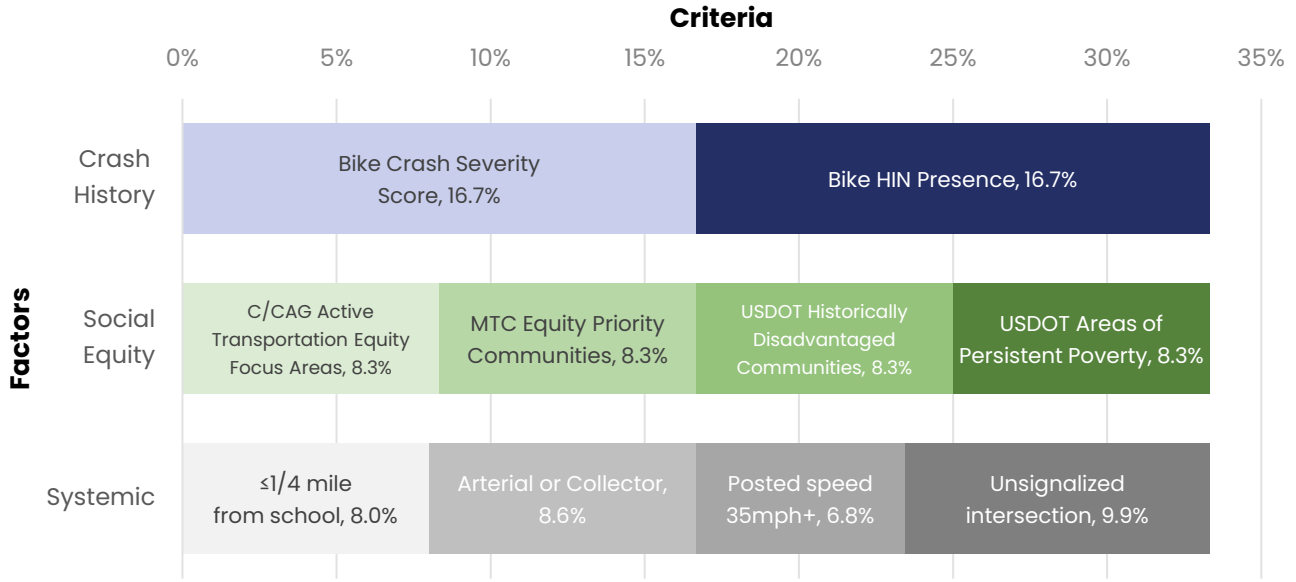
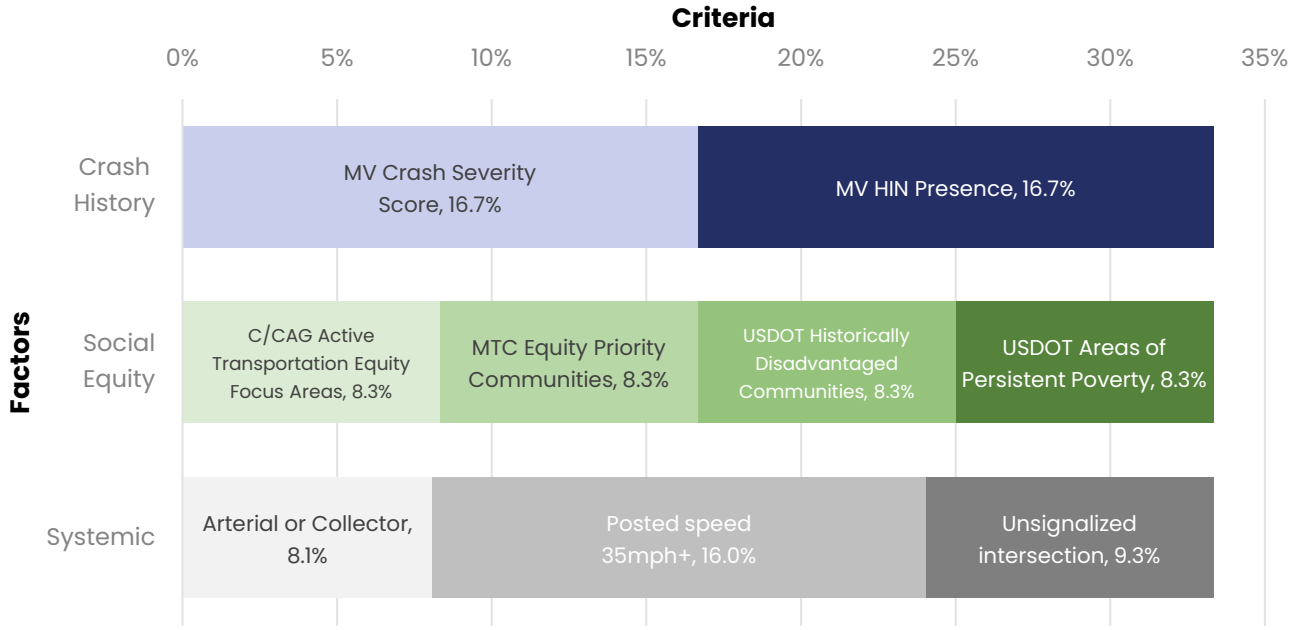


Figure 6. Motor Vehicle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)



Social Equity

Social equity is a critical consideration 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. Ultimately 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 C. Figure 7 also shows the locations.

Table 4. Priority Locations

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
	El Camino Real, Berkshire Ave to Spruce Ave (E to W town limits)****	**Corridor**	**Yes**	**X**	**X**	**X**
1	El Camino Real and Columbia Ave*,**	Intersection	Yes	**X**	**X**	**X**
2	Loyola Ave and El Camino Real*,**	Intersection	Yes	**X**	**X**	**X**
3	El Camino Real and 5th Ave*,**	Intersection	Yes	**X**	**X**	**X**
4	Amherst Ave and El Camino Real*,**	Intersection	Yes	**X**	**X**	**X**
5	El Camino Real and Berkshire Ave*,**	Intersection	Yes	**X**	**X**	
6	El Camino Real and Stockbridge Ave	Intersection	Yes	**X**	**X**	**X**
7	Selby Ln and El Camino Real*,**	Intersection	Yes	**X**	**X**	**X**
8	Wilburn Ave and El Camino Real	Intersection	Yes	**X**	**X**	
9	El Camino Real and Almendral Ave	Intersection	Yes	**X**		

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
10	El Camino Real and Spruce Ave***	Intersection	Yes	**X**		
11	El Camino Real and Isabella Ave	Intersection	Yes		**X**	
12	El Camino Real and Ashfield Rd	Intersection	Yes		**X**	
13	Maple Ave and El Camino Real	Intersection	Yes		**X**	
14	El Camino Real and Walnut Ave	Intersection	Yes		**X**	
15	El Camino Real and Tuscaloosa Ave	Intersection	Yes		**X**	
16	El Camino Real and Redwood Way	Intersection	Yes		**X**	
17	El Camino Real and Lloyden Dr	Intersection	Yes		**X**	
	Alameda de las Pulgas, Stockbridge Ave to Cam Al Lago (E to W town limits)****	**Corridor**	**No**	**X**	**X**	**X**
18	Alameda de las Pulgas and Stockbridge Ave*	Intersection	No	**X**	**X**	
19	Alameda de las Pulgas and Walsh Rd	Intersection	No		**X**	**X**
20	Callado Way and Alameda de las Pulgas	Intersection	No		**X**	
21	Fletcher Dr And Alameda De Las Pulgas	Intersection	No		**X**	
22	Alameda De Las Pulgas and Atherton Ave	Intersection	No		**X**	
23	Alameda De Las Pulgas and Polhemus Ave	Intersection	No		**X**	
24	Alameda De Las Pulgas and Karen Way	Intersection	No		**X**	
	Valparaiso Ave, Camino por los Arboles to Victoria Dr*	**Corridor**	**No**	**X**		**X**
25	Robert S Dr and Valparaiso Ave***	Intersection	No	**X**		
26	Valparaiso Ave and Lee Dr	Intersection	No	**X**		**X**
27	Park Ln and Valparaiso Ave***	Intersection	No	**X**		

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
28	Elder Ave and Atherton Oaks Ln	Intersection	No	**X**		
	Middlefield Rd, Encina Ave to Ringwood Ave	**Corridor**	**No**	**X**		**X**
29	Middlefield Rd and Ravenswood Ave***	Intersection	No	**X**		**X**
30	Middlefield Rd and Ringwood Ave***	Intersection	No	**X**		**X**
31	Middlefield Rd and Encina Ave*	Intersection	No	**X**		**X**
32	Middlefield Rd and Palmer Ln	Intersection	No	**X**		
33	Middlefield Rd and Watkins Ave	Intersection	No	**X**		
34	Middlefield Rd and Oak Grove Ave	Intersection	No			**X**
35	Lane Pl and Middlefield Rd	Intersection	No			**X**
36	De Bell Dr and Middlefield Rd	Intersection	No			**X**
37	Middlefield Rd and San Benito Dr	Intersection	No			**X**
Other Corridors						
38	Oak Grove Ave and Oak Grove Ave	Intersection	No		**X**	**X**
39	Glenwood Ave and Laurel St***	Intersection	No	**X**	**X**	**X**
40	Oak Grove Ave and de Bell Dr	Intersection	No		**X**	

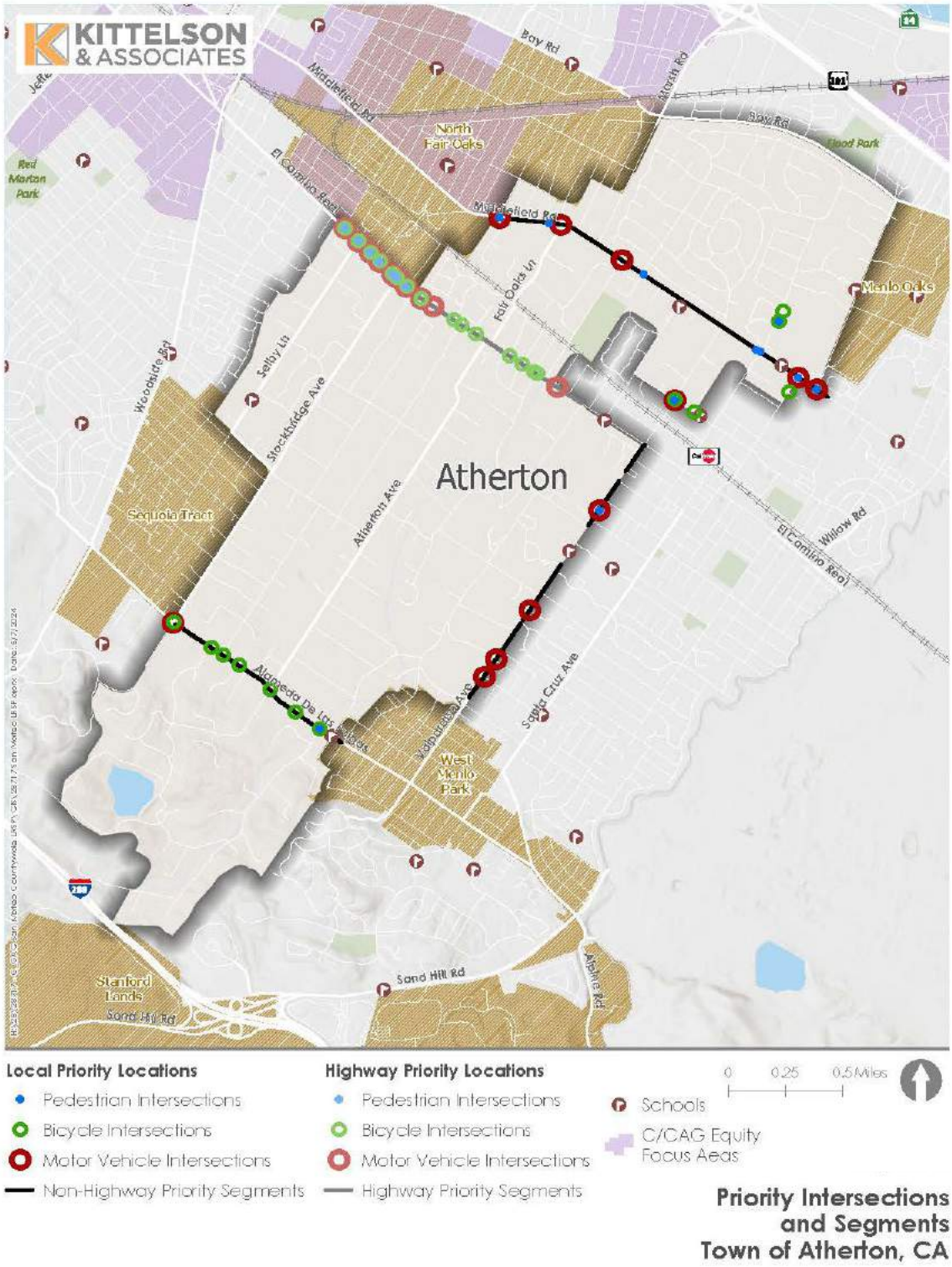
*Intersection is shared jurisdictionally with Unincorporated San Mateo County.

**Roadway is Caltrans jurisdiction.

***Intersection is shared jurisdictionally with Menlo Park.

****The Town is currently preparing a study on this corridor (see Table 1).

Figure 7: Atherton Priority Locations



IMPROVEMENTS – ENGINEERING, POLICY & PROGRAMS

This section presents Safe System-aligned recommendations that can create levels of redundancy for traffic safety in the Town of Atherton. 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.

Engineering Countermeasure Toolbox

Table 5. Town of Atherton Countermeasure Toolbox

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
All Location Types					
Lighting along high speed corridors*	All	Nighttime	0.4	$$	Medium
Signalized Intersections					
ADA-compliant directional curb ramps and audible push buttons	SI	Pedestrian	N/A	$-$$	Low

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
Curb radius reduction	SI, UI	All crashes	N/A	$$	Low
Extend pedestrian crossing time	SI	Pedestrian	N/A	$	High
Improve signal hardware: lenses, back plates with retroreflective borders, mounting, size, and number*	SI	Signalized local/arterial intersections	0.15	$	Very High
Install advance stop bar before crosswalk (bicycle box)*	SI	Bicycle crashes, signalized local/arterial intersections	0.15	$	High
Install pedestrian crossing*	SI	Pedestrian crashes, signalized local/arterial intersections	0.25	$-$$	High
Install raised pavement markers and striping*	SI	Wet, night, all	0.1	$	High
Modify signal phasing to implement a Leading Pedestrian Interval (LPI)	SI	Pedestrian crashes, signalized local/arterial intersections	0.6	$	High
No Right Turn on Red (RTOR)	SI	Pedestrian crashes, signalized local/arterial intersections	N/A	$	Medium
Pedestrian phase recall	SI	Pedestrian	N/A	$	High
Unsignalized Intersections					
Bicycle crossing (solid green paint)	UI	Bicycle	N/A	$	Medium
Covert intersection to mini-roundabout*	UI	All crashes	0.3	$$	Low
Convert intersection to roundabout (from stop or yield control on minor road)*	UI	All crashes	Varies	$$$	Low
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?
Curb radius reduction	SI, UI	All crashes	N/A	$$	Low
Install pedestrian crossings (signs and markings only)*	UI	Pedestrians and bicycle	0.25	$-$$$	High
Install pedestrian crossings (with enhanced safety features like Rectangular Rapid Flashing Beacons)*	UI	Pedestrians and bicycle	0.35	$-$$$	Medium
Install/upgrade larger or additional STOP signs or other intersection warning or regulatory signs*	UI	Turning crashes related to lack of driver awareness	0.15	$	High
Install buffered or separated bike lanes*	R	Pedestrian and bicycle	0.45	$-$$	High
Install delineators, reflectors, and/or object marker*	R	All crashes	0.15	$	High
Install pedestrian signal or pedestrian hybrid beacon*	UI	Pedestrian and bicycle	0.3	$$$	High
Install raised pedestrian crossing*	UI	Pedestrian and bicycle	0.35	$	Medium
Upgrade intersection pavement markings*	UI	Turning crashes related to lack of driver awareness	0.25	$	High
Roadways					
Install/upgrade signs with new fluorescent sheeting (regulatory or warning)*	R	All crashes	0.15	$	High
Install dynamic/variable speed warning signs*	R	Driver behavior	0.3	$	High
Lane Narrowing	R	All	Varies	$	Medium

*****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

In addition to the engineering countermeasures and projects recommended above, the Town 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 Town's Safe System Approach.

Table 5. Town of Atherton Policy and Program Recommendations

Category	Near-Term Recommendations	Long-Term or Ongoing Recommendations
Local Culture Shift (LCS)	LCS1: Transportation Safety Advisory Committee Participation	LCS2: High-Visibility Media Campaign LCS3: Communication Protocol
Local Enforcement Coordination (LEC)		LEC2: Speed Monitoring Awareness Radar Trailer
Local Funding (LF)	LF1: Dedicated Funding	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 Fleet LEO6: Conspicuity Enhancements and Education
Local Planning/ Evaluation (LPE)		LPE1: Annual Review LPE2: Plan Update LPE4: Safe Routes to School LPE8: Speed Limits/Speed Management Plan

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 Atherton 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 Atherton Public Works

LONG-TERM OR ONGOING ACTIONS

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 Atherton 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 Atherton 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 Atherton 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, Sustainability Department, SVBC

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 Atherton Public Works

LEO5: Safe City Fleets

Provide educational materials for Town staff who drive Town vehicles and integrate safety awareness training into contracting process with vendors who provide Town services. Other measures include installing safety features (such as pedestrian/obstacle detection and speed tracking) on Town vehicles and reporting on correction plans against unsafe driving.
Lead agency: Town of Atherton Public Works

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 Atherton

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 Atherton Public Works

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 Atherton Public Works

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 Atherton Public Works

IMPLEMENTATION & MONITORING

A key part of achieving Atherton's vision is consistently evaluating roadway safety performance and tracking progress towards the goals. Atherton 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 Atherton can initiate immediately, and longer-term actions, which may require coordination and additional staff time.

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

Table 6. Town of Atherton Goals and Measures of Success

GOAL	MEASURE OF SUCCESS
1. Regularly review crash history and community needs to identify and prioritize opportunities to reduce crash risk for roadway users of all ages and abilities. Review proposed improvement plans to ensure that roadway projects, retrofits, and maintenance projects incorporate complete streets that support multiple modes of travel.	• 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
2. Implement context-appropriate safety countermeasures systemically and as part of all projects to target emphasis areas and underserved communities. 3. Promote plan recommendations with identified safety partners to incorporate roadway safety through safety projects and educational campaigns in Atherton. 4. Provide opportunities for community engagement in roadway capital improvement projects to identify safety solutions. 5. Identify opportunities to incorporate social equity into safety improvements.	• Community engagement included as part of all C/CAG-funded safety project development activities • Number of engagement touchpoints and community member interactions 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 • Distribution at the jurisdiction level for safety projects within equity focus areas (C/CAG EFAs or MTC EPCs) versus outside these areas • Expansion of SRTS and Roadway Safety Education in Schools programs to more schools within the Town
6. Embrace the Safe System Approach to promote engineering and non-engineering strategies in the community.	• 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
7. Monitor implementation of the Atherton LRSP to track progress towards goals.	• See above in this table

Town of Atherton

San Mateo C/CAG Countywide LRSP

City of Belmont

LOCAL ROADWAY SAFETY PLAN

FINAL DRAFT

MAY 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 City'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 City 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.

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INTRODUCTION

This chapter serves as a standalone local roadway safety plan (LRSP) for the City of Belmont. 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 City will revisit and update this LRSP at least every five years.

The City of Belmont has a 2023 population of 26,793 per California Department of Finance. The city has 68 total centerline miles per Caltrans 2022 California Public Road Data. From 2018 through 2022, there were 244 reported crashes on surface streets in the City and 8 fatal/severe injury crashes. In that time period, pedestrians were involved in 11 percent of all reported crashes and 13 percent of fatal/severe injury crashes. Bicyclists were involved in 14 percent of all reported crashes and 25 percent of fatal/severe injury crashes. The LRSP provides Safe System-aligned strategies tailored to Belmont's crash history and local priorities, as well as performance measures to evaluate progress.

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

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

VISION & GOALS

The City of Belmont'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 City has established the following goals:

1. Regularly review crash history and community needs to identify and prioritize opportunities to reduce crash risk for roadway users of all ages and abilities.
2. Implement safety countermeasures systemically and as part of all projects to target emphasis areas and underserved communities.
3. Promote plan recommendations with identified safety partners to incorporate roadway safety through safety projects and educational campaigns in Belmont.
4. Provide opportunities for community engagement to identify issues and inform safety solutions across the community.
5. Embrace the Safe System Approach to promote engineering and non-engineering strategies in the community.
6. Identify opportunities to incorporate social equity into safety improvements.
7. Monitor implementation of the Belmont LRSP to track progress towards goals.

PLAN DEVELOPMENT

Existing Safety Efforts

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

Table 1. City of Belmont 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
Comprehensive Pedestrian and Bicycle Plan	The key goals of the plan are to support efforts to increase the rate of walking and bicycling, as well as to support adopted policies that are aimed at providing complete streets.	Safe Roads, Safe Speeds, Safe Road Users
Traffic-Calming Policy	This policy seeks to address speeding and other driving behavior issues.	Safe Road Users, Safe Speeds

Program Name	Program Description	Safe System Elements
Parking and Traffic Safety Committee (PTSC)	This committee is comprised of senior members of the Department of Public Works, Police Department, and Fire Department. Residents may submit traffic and parking problems and/or recommendations to the Parking Traffic and Safety Committee (PTSC). The PTSC will evaluate the request based on current policy, perform field investigations if required, review existing traffic information, and schedule the item for discussion at a public PTSC meeting if needed.	Safe Roads
Stop Sign Warrant Policy	The City maintains a policy for all-way stop, 2-way stop, and 3-way stop sign installation. It is available on the City's Parking & Traffic Safety Committee website.	Safe Speeds, Safe Road Users, Safe Roads
Speed Cushion Guidelines	The City's Guidelines for the Installation of Speed Humps provides criteria for the placement and design of speed humps. They are available on the City's Parking & Traffic Safety Committee website.	Safe Roads, Safe Speeds
Truck Parking Policy	This policy states that no large trucks can park at an intersection.	Safe Roads, Safe Road Users
Complete Streets Policy	The City's commitment to creating and maintaining Complete Streets that provide safe, comfortable, and convenient travel for all users.	Safe Roads, Safe Road Users, Safe Speeds, Post-Crash Care, Safe Vehicles

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 the City of Belmont'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
- Sustainability Department
- 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
- Belmont Police Department
- Parking and Traffic Safety Committee (PTSC)

Community Engagement and Input

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

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 City's plan. These events focus on jurisdiction-specific issues and on countywide concerns. The table below lists the events, organized by themed engagement phases, and is followed by the community input themes we heard.

Table 1. Community Engagement Phases and 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). Respondents were able to record location-specific feedback, associate a travel mode, and leave a detailed comment pertaining to a safety concern.

Biking Concerns/Requests

- Add new bike infrastructure such as protected bike lanes and separated bike lanes.
- Concerns regarding conflicts with motor vehicles including high traffic volumes and congestion, vehicle speeds, right of way issues, and turning conflicts at intersections.
- Remove on-street parking to make more way for bikes along the roadway.
- Request to provide modal filters: to allow only bicycles and pedestrians on certain streets.

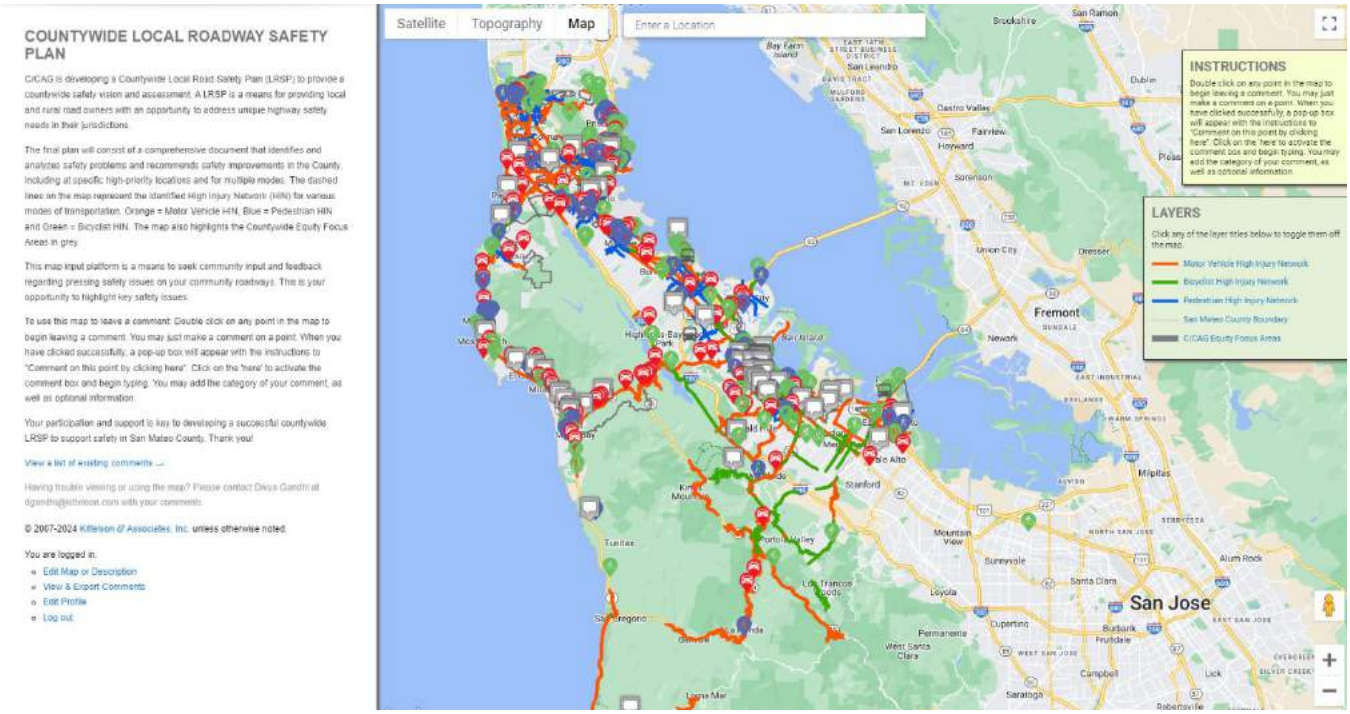
Pedestrian Concerns/Requests

- Concerns regarding conflicts with motor vehicles including high traffic volumes and congestion, speeding, and running STOP signs.
- Traffic Enforcement Concerns
- Concerns regarding speeding and on-street parking.

Roadway Infrastructure/ Traffic Operations Concerns

- Clear sight triangles to improve visibility on intersection approaches.
- Requests to install STOP signs at unsignalized intersections.
- Concerns regarding narrow and windy roads.
- Concerns regarding maintenance of roadway infrastructure including high friction of the roadway surfaces.

Figure 1. Online Map Survey Tool



The location and modal emphasis of comments in Belmont is presented in Figure 2. Webmap Comments in Belmont. The comments received are provided in Appendix A. The project team also identified common themes in the responses made countywide which may be relevant to the City. Those are presented in the Community Engagement section of the Countywide LRSP.

PHASE 2 COMMUNITY ENGAGEMENT FEEDBACK

The project team held an event at the Belmont Farmers' Market in December 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 B.

The following themes were identified:

General Comments

- Desire to reduce speed limits
- Desire for better signage and lighting near speed bumps
- Concerns around traffic near schools during drop-off and pick-up

Pedestrian Comments

- Desire for more signage around crosswalks so pedestrians can cross safely, especially around schools
- Concern that pedestrians do not have enough time to cross the street
- Concern that bicyclists using sidewalks to ride bikes and e-bikes put pedestrians in danger

Bicycle Comments

- Desire for separated bike lanes, specifically on El Camino Real, Alameda de las Pulgas and Old County Road

Motor Vehicle Comments

- Desire for signal improvements to make traveling more efficient

Countermeasures Comments

- Desire for more lighting at intersections, specifically flashing lights
- Desire for larger signal backplates and signal visibility during sunrise and sunset
- Concerns that curb extensions would impact bicyclist safety
- Concerns that lane narrowing would make driving and biking more dangerous
- Concerns that pedestrian refuge islands are dangerous to vehicles

Figure 2. Webmap Comments in Belmont

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 System[1] (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. For a more complete description of trends and findings, refer to Appendix C.

Emphasis Areas

The project team analyzed crash data in Belmont and compared countywide trends to establish emphasis areas. Emphasis areas are crash dynamic, behavioral, or road user characteristics that the City 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 City of Belmont:

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 Belmont, pedestrians and bicyclists were involved in 13 percent and 25 percent of the 8 reported F/SI crashes—higher than their overall share of all injury crashes (11 percent and 14 percent, total).
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 Belmont, one in every four crashes (25 percent) occurred in dark conditions.
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. **Vulnerable age groups (youth and aging).** Countywide across all modes, crash victims between the 15 to 34 years old are more likely to be injured including F/SI as a result of traffic safety than other groups. Victims between the ages 50 – 69 and 75 to 84 are also more likely to be severely injured than other groups. In Belmont, 17 crashes or 7 percent of all reported injury crashes involve at fault drivers who are under 30 years old.
5. **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).

[1] Transportation Injury Mapping System, http://tims.berkeley.edu

In Belmont, "Too fast for conditions" was the top-cited violation among motor vehicle crashes (in 26 percent of injury crashes).

6. **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.
7. **Alcohol involvement.** Countywide, one in ten (10 percent) of motor vehicle injury crashes and one in five F/SI motor vehicle crashes (19 percent) involved alcohol. In Belmont, 12 crashes or 5 percent of all reported injury crashes involve impaired driving.

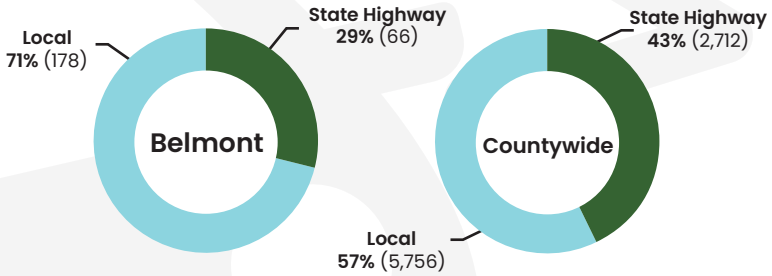
The next pages present summary findings from a crash data review that compares the City of Belmont to countywide trends in these emphasis areas. It includes summary statistics related to the above-cited emphasis areas but also shows:

- The share of local crashes that occurred on or at a State Highway facility compared to Countywide levels.
- The most frequently reported local 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 locally, bicyclist crashes account for a higher share of F/SI crashes than among all injury levels.
- The share of local and Countywide crashes occurring in dark conditions for crashes of all injury levels and for F/SI crashes (organized by mode).
- Reported pedestrian and bicyclist crashes summarized by the most common preceding movements countywide, with a comparison of those movements' share of local crashes to Countywide shares.
- The local and Countywide share of crashes involving drugs or alcohol and involving drivers under age 30.

Belmont—Crash History

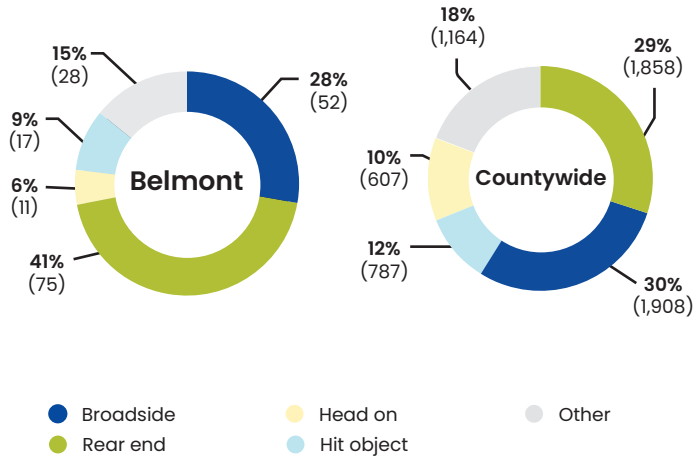
Total Crashes

In Belmont, 244 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 Belmont compares:



Mode Involvement

Pedestrian Crashes (26)

	All Injury Crashes	Fatal/Severe Injury Crashes
Belmont	11% (26)	13% (1)
Countywide	13% (1,073)	23% (208)

Bicycle Crashes (35)

	All Injury Crashes	Fatal/Severe Injury Crashes
Belmont	14% (35)	25% (2)
Countywide	13% (1,067)	20% (176)

Motor Vehicle[1] Crashes (183)

	All Injury Crashes	Fatal/Severe Injury Crashes
Belmont	75% (183)	63% (5)
Countywide	75% (6,324)	57% (515)

5% (12)
of reported collisions in Belmont involved drugs or alcohol

7% (17)
of reported collisions in Belmont involved young drivers[1]

8% (625) Compared to the countywide total, where 8% (625) of reported collisions involved drugs or alcohol

5% (472) Compared to the countywide total, where 5% (472) of reported collisions involved young drivers[2]

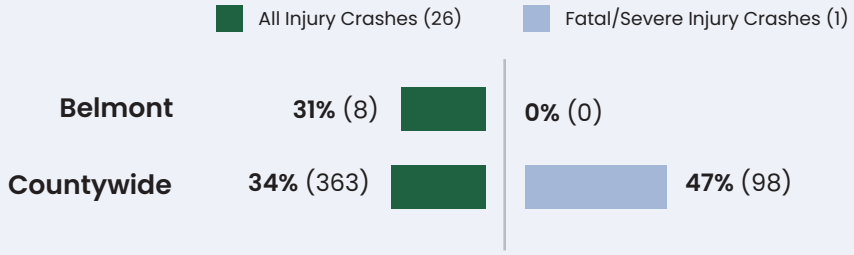
1. *Motor crashes include motor vehicles and motorcyclists.*
2. *Young driver crashes are crashes that involve at fault drivers who are under 30 years old.*

Belmont—Crash History

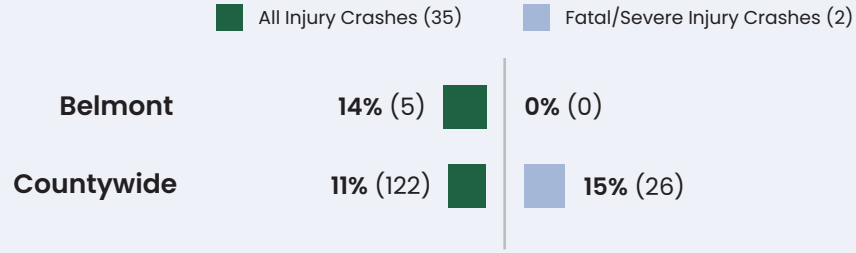
Dark Conditions

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

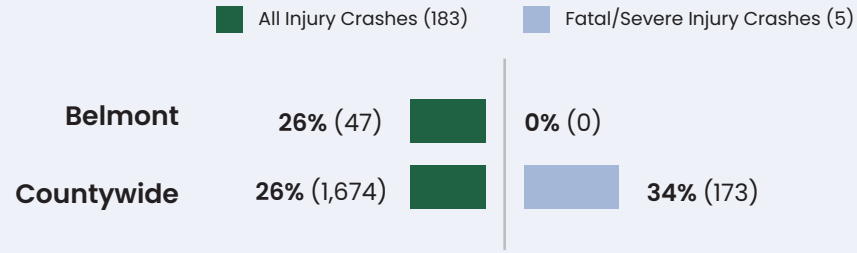
Share of Pedestrian Crashes in Dark Conditions (8)



Share of Bicyclist Crashes in Dark Conditions (5)

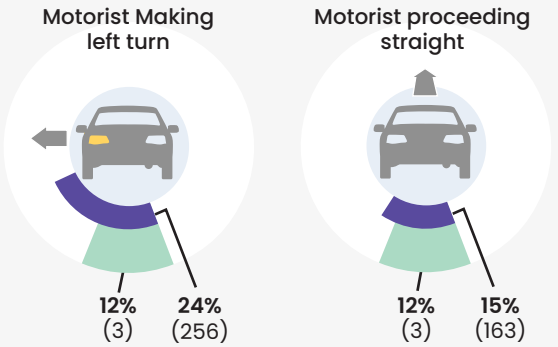


Share of Motor Vehicle Crashes in Dark Conditions (47)

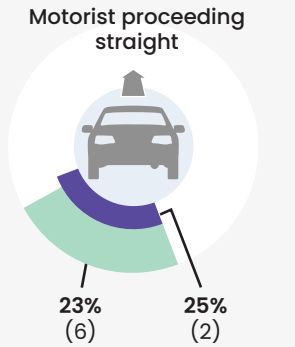


Reported Pedestrian Crashes (26)

Pedestrian Crossing at Intersection



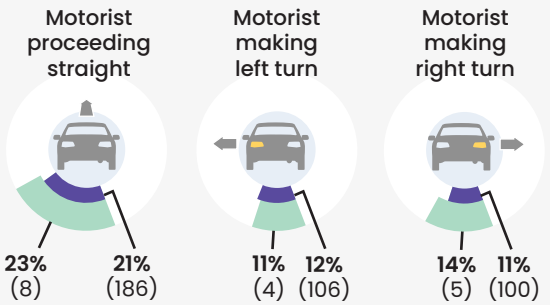
Pedestrian Crossing Not at a Crosswalk



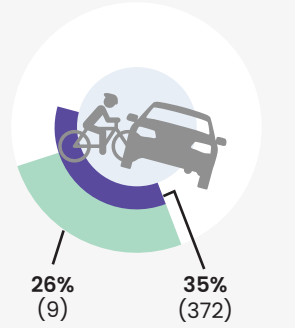
Agency Countywide

Reported Bicycle Crashes (35)

Bicyclist Proceeding Straight



Perpendicular Bicyclist Crashes



Agency Countywide

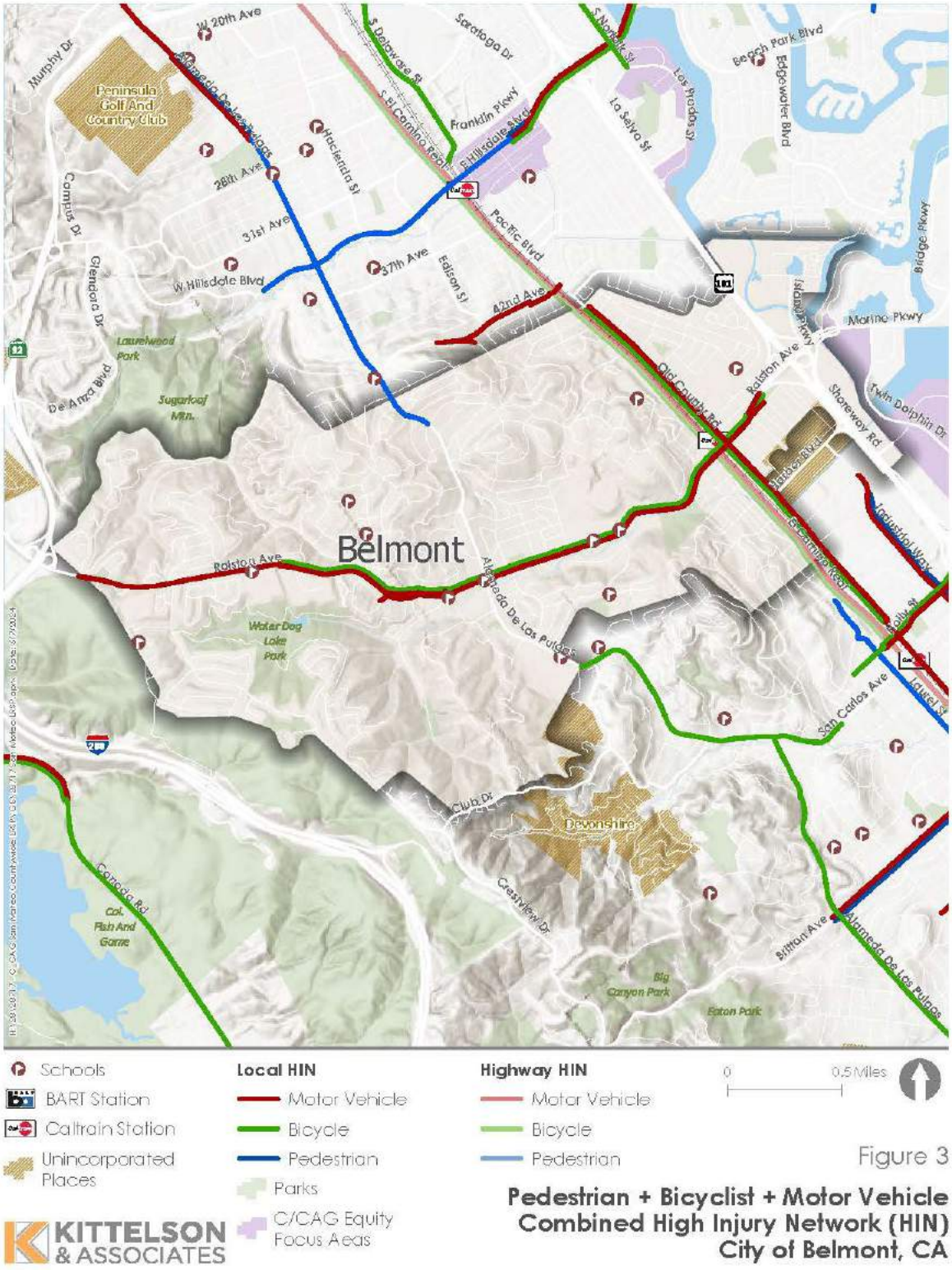
Countywide High Injury Network

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 3 and Figure 4 show the HIN segments identified within the City.

Table 2. Countywide HIN Segments in Belmont

Roadway name	All County Jurisdiction(s) including this HIN Roadway	Total Length, all jurisdictions included (mi)	Motor Vehicle HIN	Bicyclist HIN	Pedestrian HIN
Lyall Way	Belmont	0.3	X		
Ralston Ave	Belmont, Unincorporated	3.5	X	X	
El Camino Real	San Carlos, Atherton, Menlo Park, Redwood City, Millbrae, San Bruno, Belmont, San Mateo, Burlingame, South San Francisco, Colma, Unincorporated	23.5	X	X	X
Alameda de las Pulgas	San Carlos, Atherton, Redwood City, Belmont, San Mateo, Unincorporated	6.7	X	X	X
Old County Rd	San Carlos, Belmont, Harbor/Industrial	3.4	X	X	

Figure 3. Countywide HIN within the City of Belmont



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 City 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)

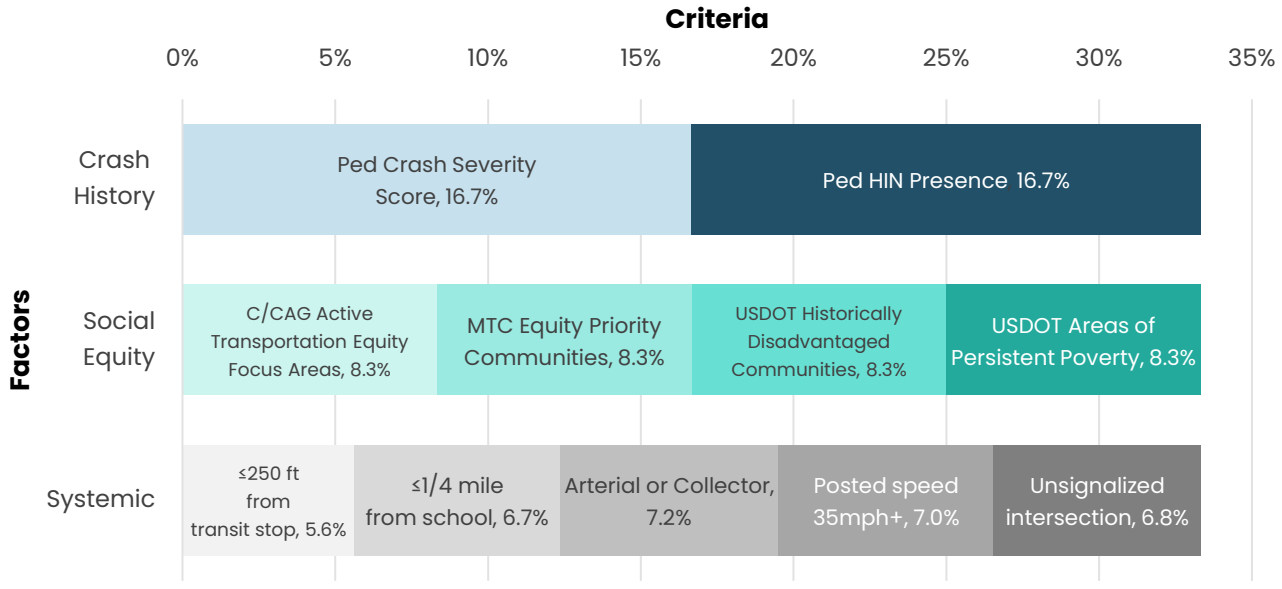


Figure 5. Bicycle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)

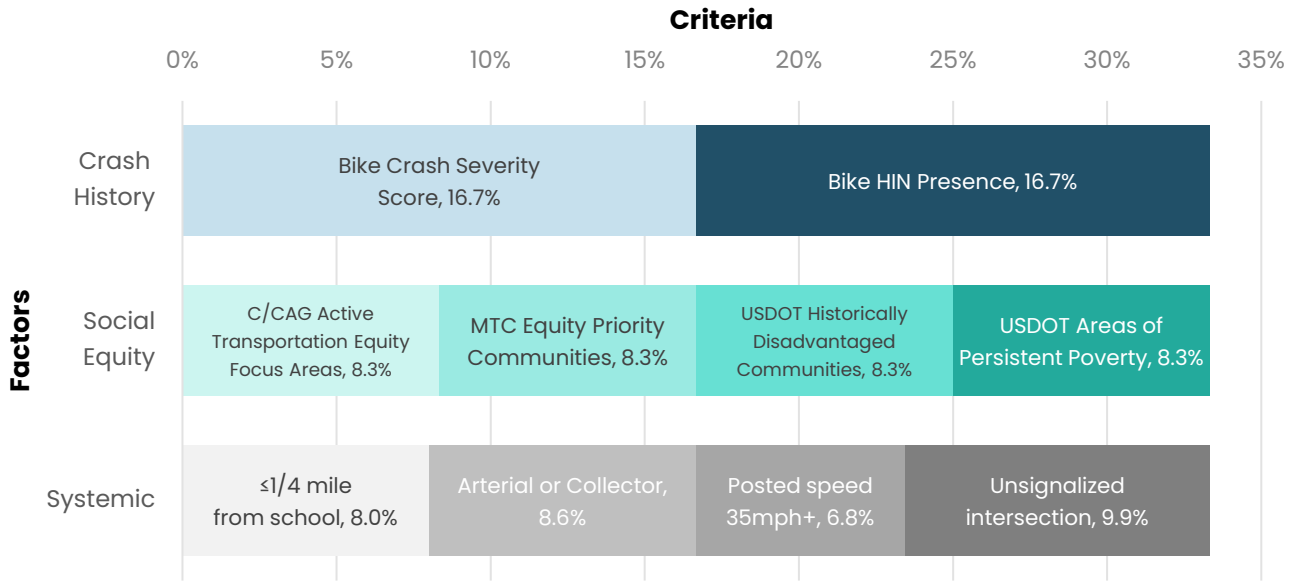
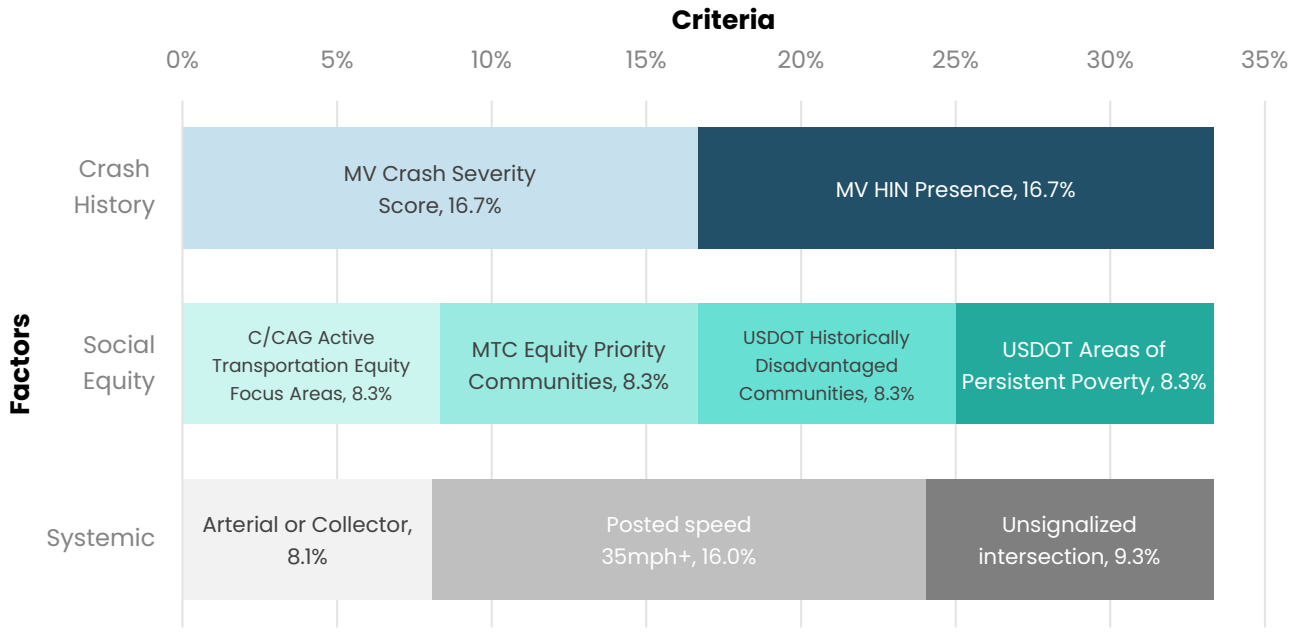


Figure 6. Motor Vehicle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)



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. Ultimately 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 City 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 D. Figure 7 also shows the locations.

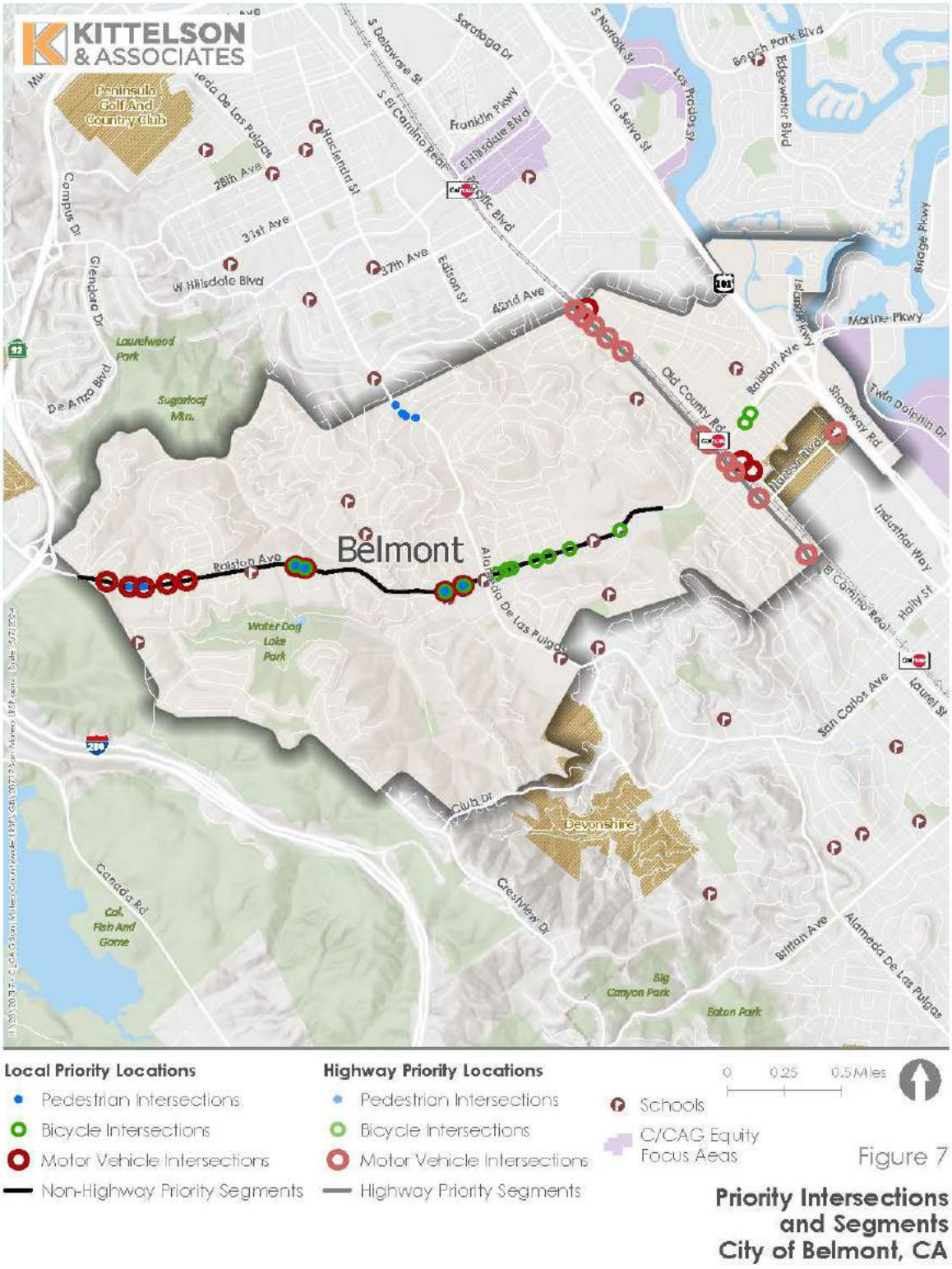
Table 3. Priority Locations

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
1	Anita Ave and El Camino Real	Intersection	Yes	**X**		
2	Ruth Ave and El Camino Real	Intersection	Yes	**X**		
3	El Camino Real and Belmont Ave	Intersection	Yes	**X**		
4	El Camino Real and North Rd	Intersection	Yes	**X**		
5	El Camino Real and Davey Glen Rd	Intersection	Yes	**X**		
6	Belmont Canyon Rd (W) and Ralston Ave	Intersection	No	**X**		**X**
7	Pullman Ave and Lyall Way	Intersection	No	**X**	**X**	**X**
8	El Camino Real and 5th Ave	Intersection	Yes	**X**		

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
9	Flashner Ln and El Camino Real	Intersection	Yes	**X**		
10	El Camino Real and Broadway	Intersection	Yes	**X**		
11	El Camino Real and Emmett Ave	Intersection	Yes	**X**		
12	Davis Dr and Ralston Ave	Intersection	No	**X**	**X**	**X**
13	Oneill Ave and Old County Rd	Intersection	No	**X**		
14	Ralston Ave and Belmont Canyon Rd	Intersection	No	**X**	**X**	**X**
15	Merry Moppet Ln and Ralston Ave	Intersection	No	**X**	**X**	**X**
16	Belmont Canyon Rd (E) and Ralston Ave	Intersection	No	**X**		**X**
17	Hill St and El Camino Real	Intersection	Yes	**X**		
18	Sterling View Ave and Old County Rd	Intersection	No	**X**		
19	Belmont Canyon Rd and Ralston Ave	Intersection	No	**X**		
20	Lassen Dr and Ralston Ave	Intersection	No	**X**		
21	Old County Rd and Waltermire St	Intersection	No	**X**		
22	El Camino Real and Waltermire St	Intersection	Yes	**X**		
23	Belmont Canyon Rd and Ralston Ave	Intersection	No	**X**		
24	Harbor Blvd and Us Highway 101 Hwy	Intersection	Yes	**X**		
25	Alameda De Las Pulgas and Monroe Ave	Intersection	No			**X**
26	Alameda De Las Pulgas and Cipriani Blvd	Intersection	No			**X**
27	Alameda De Las Pulgas and Lyon Ave	Intersection	No			**X**

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
28	Alameda De Las Pulgas and Forest Ave	Intersection	No			**X**
29	Ralston Ave and Academy Ave	Intersection	No		**X**	
30	Ralston Ave and Maywood Dr	Intersection	No		**X**	
31	Ralston Ave and Furlong St	Intersection	No		**X**	
32	Ralston Ave and Villa Ave	Intersection	No		**X**	
33	Ralston Ave and Chula Vista Dr	Intersection	No		**X**	
34	Granada St and Ralston Ave	Intersection	No		**X**	
35	Notre Dame Ave and Ralston Ave	Intersection	No		**X**	
36	Ralston Ave and Misty Ln	Intersection	No		**X**	
37	Ralston Ave and Chevy St	Intersection	No		**X**	
38	El Camino Real, North Road to F Street	Corridor	Yes	**X**		
39	Ralston Avenue, Villa Street to west of South Road	Corridor	No		**X**	
40	Ralston Avenue, Christrian Drive to Villa Street	Corridor	No	**X**	**X**	**X**

Figure 7: Belmont Priority Locations



IMPROVEMENTS – ENGINEERING, POLICY & PROGRAMS

This section presents Safe System-aligned recommendations that can create levels of redundancy for traffic safety in the City of Belmont. 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 City departments and partners in pursuit of the plan's vision and goals.

Project Scopes

With the development of this plan the project team worked with the City 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 City could consider at these locations. The City 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 City-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:

- Ralston Ave—Villa Avenue to eastern city limits. Recommended improvements include:
    - Larger or additional regulatory signs
    - Pedestrian crossing signs and markings
    - Dynamic/variable speed warning signs
    - Separated or buffered Class II bike lanes where feasible
    - Pedestrian crossings with enhanced safety features (flashing beacons, curb extensions, advance "yield" lines)
    - Raised pedestrian crossings
- Ralston Ave—Villa Ave to Christian Dr (western city limits). Recommended improvements include:
    - Creation of bike lanes and contiguous sidewalks
    - Reduction in travel lane widths and center median widths to accommodate bike/ped infrastructure
    - Dynamic/variable speed warning signs
    - Delineators
    - Pedestrian crossings with enhanced safety features (flashing beacons, curb extensions, advance "yield" lines)
    - Separated and/or buffered bike lanes

Another location not scoped but noted for consideration is El Camino Real within city limits. The roadway is maintained by Caltrans, so the city may consider partnering with Caltrans and with adjacent jurisdictions to seek grant funding for safety treatments along El Camino Real. A project could include, for example, separated bike lanes.

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

Engineering Countermeasure Toolbox

Table 5. City of Belmont 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 raised pavement markers and striping*	SI	Wet, night, all	0.1	$	High
Install flashing beacons as advance warning (SI)*	SI	Rear end, broadside	0.3	$-$$	Medium
Centerline hardening or continuous raised median	SI	All crashes	0.46	$	Medium
Convert intersection to roundabout (from signal)	SI	Signalized local/arterial intersections	Varies	$-$$$	Low
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 painted safety zone	SI	Pedestrian crashes, signalized local/arterial intersections	N/A	$	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
Convert intersection to roundabout (from all-way stop)*	UI	All crashes	Varies	$$$	Low
Convert intersection to roundabout (from stop or yield control on minor road)*	UI	All crashes	Varies	$$$	Low

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
Covert intersection to mini-roundabout*	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
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 flashing beacons at stop-controlled intersection*	UI	Broadside, rear end	0.15	$$$	High
Install pedestrian signal or pedestrian hybrid beacon*	UI	Pedestrian and bicycle	0.3	$$$	High
Road diet (Reduce travel lanes from four to three, and	R	All crashes	0.35	$	Medium

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
add a two-way, left-turn lane and bike lanes)*					
Corridor access management	R	N/A	0.35	$	Medium
Install separated bike lanes*	R	Pedestrian and bicycle	0.45	$-$$	High
Install/upgrade pedestrian crossing (with enhanced safety features)*	R	Pedestrian and bicycle	0.35	$$-$$$	Medium
Install raised pedestrian crossing*	R	Pedestrian and bicycle	0.35	$	Medium
Remove or relocate fixed objects outside of clear recovery zone*	R	Hit object	035	$-$$	High
Install delineators, reflectors, and/or object marker*	R	All crashes	0.15	$	High
Install/upgrade signs with new fluorescent sheeting (regulatory or warning)*	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
Pedestrian phase recall	SI	Pedestrian	N/A	$	High
Extend green time for bikes	SI	Bicycle	N/A	$	High
Extend yellow and all-red time	SI	All crashes	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
Approach curvature	UI, SI	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

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 4. City of Belmont Policy and Program Recommendations

Category	Near-Term Recommendations	Long-Term or Ongoing Recommendations
Local Culture Shift (LCS)	LCS1: Transportation Safety Advisory Committee participation	LCS3: Communication Protocol LCS4: Implement Car-Free Zones
Local Enforcement Coordination (LEC)		LEC2: Speed Monitoring Awareness Radar Trailer LEC4: Bicycle and Pedestrian Citation Diversion Program
Local Funding (LF)	LF1: Dedicated Funding	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 Fleet
Local Planning/ Evaluation (LPE)		LPE1: Annual Review LPE2: Plan Update LPE3: Safety and Equity Impacts Evaluation LPE4: Safe Routes to School LPE8: Speed Limits/Speed Management Plan

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
- Belmont should complete a comprehensive, citywide transportation master plan to: address future growth; enhance multimodal transportation safety; increase safety for people biking and walking; increasing mode split for people biking, walking, and taking transit; replace and update the 2016 Comprehensive Pedestrian and Bike Plan; determine a new list of CIPs; and decrease single-occupant driving

Lead agency: City of Belmont 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: City of Belmont Public Works

LONG-TERM OR ONGOING ACTIONS

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: City of Belmont Public Works

LCS4: Implement Car-Free Zones

More effectively target resources to pedestrian crash problems in a limited geographic area. Realizing these zones requires upfront analysis and planning, countermeasure development, and implementation. Implementation can focus on addressing particular problems or on increasing general safety in specific areas during windows of peak pedestrian activity. (For example: Friday nights in commercial districts, Sundays on recreational routes/areas, etc.)
Lead agency: City of Belmont Public Works

LEC2: Speed Monitoring Awareness Radar Trailer

Coordinate with Belmont 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: City of Belmont Police Department
Coordinating partners: City of Belmont Public Works

LEC4: Bicycle and Pedestrian Citation Diversion Program

Implements an alternative citation structure for bicyclists and pedestrians. Upon incurring a traffic violation, these users can reduce or remove the fee associated with the violation by instead attending a class. Requires local law enforcement to sanction preexisting curricula or to sanction original material of their own.
Lead agency: City of Belmont Police Department

LF2: Equitable Investment

Prioritize citywide 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: City of Belmont 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: City of Belmont 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, Sustainability Department, 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: City of Belmont 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: City of Belmont Public Works

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: City of Belmont
Coordinating partners: C/CAG, County Public Health

LEO5: Safe City Fleets

Provide educational materials for City staff who drive City vehicles and integrate safety awareness training into contracting process with vendors who provide City services. Other measures include installing safety features (such as pedestrian/obstacle detection and speed tracking) on City vehicles and reporting on correction plans against unsafe driving.
Lead agency: City of Belmont Public Works

LPE1: Annual Review

Provide an annual review of plan implementation progress. This review includes an update and presentation to City Council as well as a written update to the TSAC so that C/CAG may compile county plan implementation status.
Lead agency: City of Belmont 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: City of Belmont 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 City 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 City.
Lead agency: SMCOE
Coordinating partners: City of Belmont Public Works

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: City of Belmont Public Works

IMPLEMENTATION & MONITORING

A key part of achieving Belmont's vision is consistently evaluating roadway safety performance and tracking progress towards the goals. The City of Belmont will develop a process to regularly collect data and information around the performance measures that can be used to assess changes city-wide and at the top priority locations.

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

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

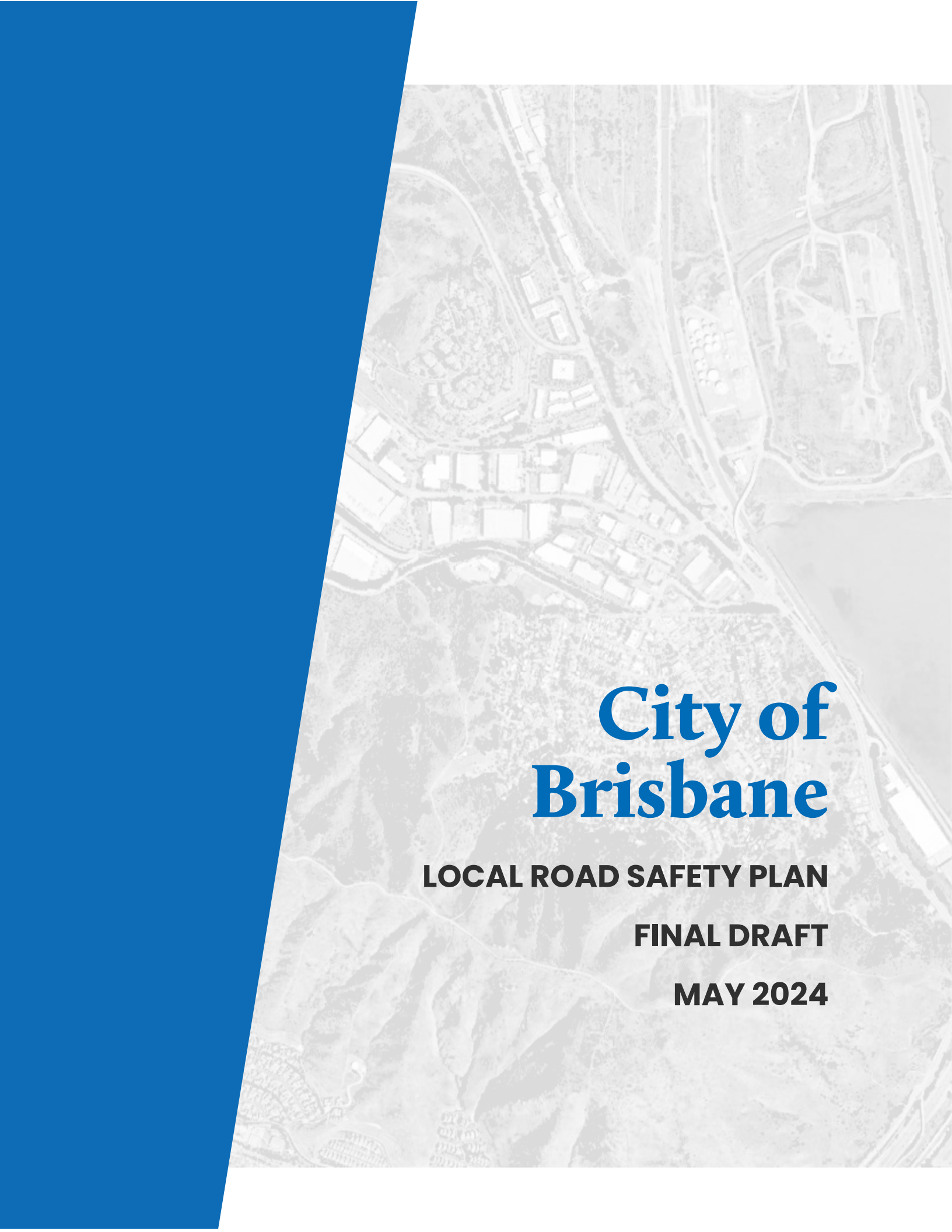
Table 5. City of Belmont Goals and Measures of Success

GOAL	MEASURE OF SUCCESS
1. Regularly review crash history and community needs to identify and prioritize opportunities to reduce crash risk for roadway users of all ages and abilities. Review proposed improvement plans to ensure that roadway projects, retrofits, and maintenance projects incorporate complete streets that support multiple modes of travel.	• 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
2. Implement safety countermeasures systemically and as part of all projects to target emphasis areas and underserved communities. 3. Promote plan recommendations with identified safety partners to incorporate roadway safety through safety projects and educational campaigns in Belmont. 4. Provide opportunities for community engagement in roadway capital improvement projects to identify safety solutions. 5. Identify opportunities to incorporate social equity into safety improvements.	• Community engagement included as part of all C/CAG-funded safety project development activities • Number of engagement touchpoints and number of community member interactions citywide for safety plans or projects. • Report-backs to the City Council and TSAC regarding community engagement, including information about outreach to disadvantaged communities where applicable • Distribution at the jurisdiction level for safety projects within equity focus areas (C/CAG EFAs or MTC EPCs) versus outside these areas • Expansion of SRTS and Roadway Safety Education in Schools programs to more schools within the City
6. Embrace the Safe System Approach to promote engineering and non-engineering strategies in the community.	• Percent of school district participation in SRTS and roadway safety education opportunities • Number of trainings city staff have participated in regarding Safe System elements, available tools, or practices

GOAL	MEASURE OF SUCCESS
	• Improved data availability or maintenance to enhance safety analysis and practice
7. Monitor implementation of the Belmont LRSP to track progress towards goals.	• See above in this table

City of Belmont

San Mateo C/CAG Countywide LRSP



City of Brisbane

LOCAL ROAD SAFETY PLAN

FINAL DRAFT

MAY 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 City'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 City 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.

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INTRODUCTION

This chapter serves as a standalone local roadway safety plan (LRSP) for the City of Brisbane. 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 City will revisit and update this LRSP at least every five years.

The City of Brisbane has a 2023 population of 4,648 per California Department of Finance. The city has 26 total centerline miles per Caltrans 2022 California Public Road Data. From 2018 through 2022, there were 69 reported crashes on surface streets in the City and 12 fatal/severe injury crashes. In that time period, pedestrians were involved in 12 percent of all reported crashes and 50 percent of fatal/severe injury crashes. Bicyclists were involved in 7 percent of all reported crashes and 17 percent of fatal/severe injury crashes. The LRSP provides Safe System-aligned strategies tailored to Brisbane's crash history and local priorities, as well as performance measures to evaluate progress.

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

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

VISION & GOALS

The City of Brisbane's vision for roadway safety is:

- Reduce fatal and severe injury crashes to zero by 2040.
- Promote a culture of roadway safety in Brisbane's departments, businesses, and residents.

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

1. Work with Brisbane Police Department to review crash history and community needs on a semi-annual basis to identify and prioritize opportunities to reduce crash risk for roadway users of all ages and abilities.
2. Utilize existing plans, such as the Brisbane Bicycle and Pedestrian Master Plan, to implement safety countermeasures systemically and as part of all projects to target emphasis areas and underserved communities
3. Provide opportunities for community engagement to identify issues and inform safety solutions across the community.
4. Embrace the Safe System approach to promote engineering and non-engineering strategies in the community.
5. Identify opportunities to incorporate social equity into safety improvements.
6. Monitor implementation of the Brisbane LRSP to track progress towards goals.

PLAN DEVELOPMENT

Existing Safety Efforts

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

Table 1. City of Brisbane 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
2017 Bicycle Pedestrian Master Plan	The key goals of the plan are to support efforts to increase the rate of walking and bicycling, as well as to support adopted policies that are aimed at providing complete streets.	Safe Roads, Safe Speeds, Safe Road Users

Program Name	Program Description	Safe System Elements
Complete Streets Safety Committee	This citizen council advises the City Council on issues of roadway safety and Complete Streets development.	Safe Roads, Safe Speeds, Safe Road Users, Safe Vehicles
Complete Streets Policy	The City's commitment to creating and maintaining Complete Streets that provide safe, comfortable, and convenient travel for all users.	Safe Roads, Safe Road Users, Safe Speeds, Post-Crash Care, Safe Vehicles
SafeTREC Complete Streets Safety Assessment	The Complete Streets Safety Assessment, offered through the National Highway Traffic Safety Administration, saw a team of safety experts conduct a study for roadway safety in the City. The assessment included a phone consultation and field study, and concluded with a summary of findings and suggestions for roadway focus areas.	Safe Roads, Safe Road Users, Safe Speeds, Post-Crash Care, Safe Vehicles

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 the City of Brisbane'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
- Sustainability Department
- San Mateo County Office of Education (SMCOE)
- San Mateo County Transportation Authority (SMCTA)
- California Highway Patrol
- Metropolitan Transportation Commission (MTC)
- Silicon Valley Bicycle Coalition
- Caltrans
- Brisbane Police Department

Figure 1. A pop-up event held at the Brisbane Farmers' Market

Community Engagement and Input

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

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 City's plan. These events focus on jurisdiction-specific issues and on countywide concerns. The table below lists the events, 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		East Palo Alto

Date	Event	Location
August 19, 2023	**Phase 1 Pop-up/Tabling Event:** Shared crash data analysis; received input on locations and safety concerns	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). Respondents were able to record location-specific feedback, associate a travel mode, and leave a detailed comment pertaining to a safety concern.

Countywide, there were a total of 528 comments recorded by 352 respondents. There were 14 comments made within the City of Brisbane. The comments included the following:

Biking Concerns/Requests

- Add new bike infrastructure such as protected bike lanes and separated bike lanes.
- Provide a more connected bike network: continuous bike lanes (especially through intersections) and the Bay Trail.
- Concerns regarding conflicts with motor vehicles including high traffic volumes and congestion, vehicle speeds, right of way issues, parking, and turning conflicts at intersections.
- Requests to install leading bicycle intervals at signalized intersections.

Pedestrian Concerns/Requests

- Add new pedestrian infrastructure or upgrade existing infrastructure such as building new sidewalks, widening existing sidewalks, and high visibility crosswalks.
- Concerns regarding conflicts with motor vehicles including high traffic volumes and congestion, speeding, and running STOP signs.

Traffic Enforcement Concerns

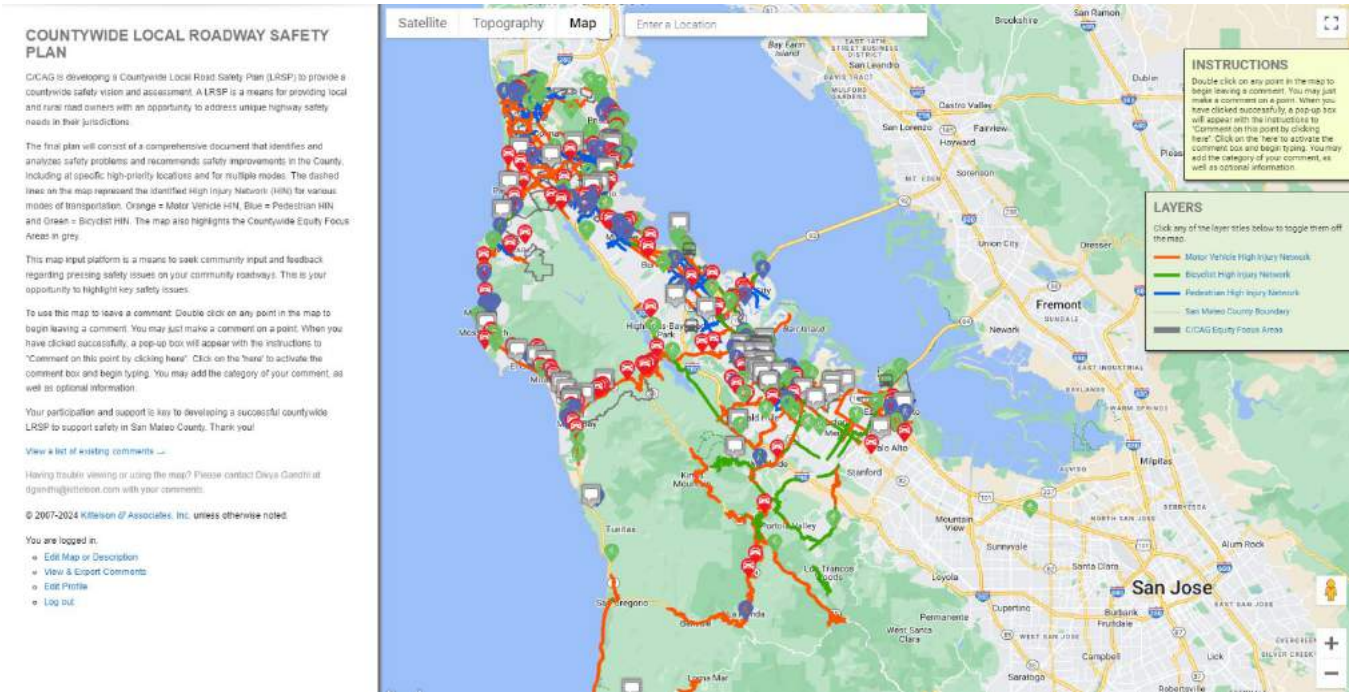
- Multiple concerns regarding running STOP signs and red lights.
- Concerns regarding speeding observed especially on Bayshore Boulevard.

Roadway Infrastructure/ Traffic Operations Concerns

- Clear sight triangles to improve visibility on intersection approaches.
- Requests to design roadway infrastructure for large vehicles (safe turning places at intersections).

The location and modal emphasis of comments in Brisbane is presented in Figure 3. The comments received are provided in Appendix A. The project team also identified common themes in the responses made countywide which may be relevant to the City. Those are presented in the Community Engagement section of the Countywide LRSP.

Figure 2. Online Map Survey Tool



PHASE 2 COMMUNITY ENGAGEMENT FEEDBACK

The project team held an event at the Brisbane's Farmers' Market in January 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 B. The following themes were identified:

Pedestrian Comments

- Desire for sidewalks, especially in school zones
- Desire for larger or additional signage to mark pedestrian crossings, especially in school zones

- Concerns that areas are not pedestrian friendly due to drivers speeding and running stop signs, specifically on San Benito Road, San Bruno Avenue, Sierra Point Road, Kings Road, Bayshore Boulevard, and the intersections of San Bruno Avenue / Mendocino Street, Humboldt Road / Placer Way, and Visitacion Avenue / Monterey Street

Bicycle Comments

- Desire for separated bicycle facilities throughout the City, especially on Bayshore Boulevard, Valley Drive, and Tunnel Road

Motor Vehicle Comments

- Desire to lower speed limits on narrow roads, especially in the hills
- Desire for traffic calming treatments, such as speed bumps and stop signs, to encourage slower speeds, especially along Glen Park Way and Alvarado Street
- Desire for additional lighting to increase visibility along roadways and at intersections, specially at Valley Drive, Bayshore Boulevard, the Sierra Point Road / San Benito Road intersection, and the Old Country Road / San Francisco Avenue / Visitacion Avenue / San Bruno Avenue intersection
- Concerns about sign visibility and site distance issues due to tree cover, parked cars, and curved roadways, specifically along US-101, San Bruno Avenue, Tunnel Road, and the Old Country Road / San Francisco Avenue / Visitacion Avenue / San Bruno Avenue intersection
- Concerns that curb bulbouts make turning difficult, specifically along Visitacion Avenue and Mariposa Street

Countermeasure Comments

- Desire for signs that encourage slower speeds on roadways
- Desire for additional stop signs
- Desire for additional lighting / flashing lights at intersections, especially for pedestrian crossings
- No desire for curb extensions or pedestrian refuge islands, especially on narrow roads

Figure 3. Webmap Comments in Brisbane

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 System[1] (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. For a more complete description of trends and findings, refer to Appendix C.

Emphasis Areas

The project team analyzed crash data in Brisbane and compared countywide trends to establish emphasis areas. Emphasis areas are crash dynamic, behavioral, or road user characteristics that the City 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 City of Brisbane:

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 Brisbane, pedestrians and bicyclists were involved in 50 percent and 17 percent of the 12 reported F/SI—higher than their overall share of all injury crashes (12 percent and 7 percent, total).
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 Brisbane, four of the six fatal/severe injury pedestrian crashes (67 percent) and two of the four fatal/severe injury motor vehicle crashes (50 percent) occurred in dark conditions.
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. **Vulnerable age groups (youth and aging).** Countywide across all modes, crash victims between the 15 to 34 years old are more likely to be injured including F/SI as a result of traffic safety than other groups. Victims between the ages 50 – 69 and 75 to 84 are also more likely to be severely injured than other groups. In Brisbane, 3 or 4 percent of all reported injury crashes involve at fault drivers who are under 30 years old.
5. **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

[1] Transportation Injury Mapping System, http://tims.berkeley.edu

cited primary crash factor (27 percent of injury crashes and 23 percent of fatal/severe injury crashes). In Brisbane, "Too fast for conditions" was the top-cited violation among motor vehicle crashes (in 20 percent of injury crashes).

6. **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.
7. **Alcohol involvement.** Countywide, one in ten (10 percent) of motor vehicle injury crashes and one in five F/SI motor vehicle crashes (19 percent) involved alcohol. In Brisbane, 14 percent of all reported injury crashes involve impaired driving.

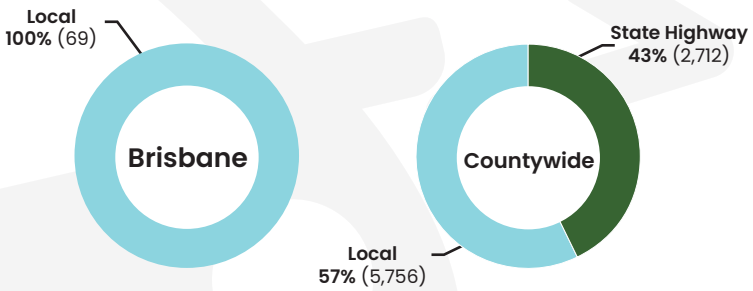
The next pages present summary findings from a crash data review that compares the City of Brisbane to countywide trends in these emphasis areas. It includes summary statistics related to the above-cited emphasis areas but also shows:

- The share of local crashes that occurred on or at a State Highway facility compared to Countywide levels.
- The most frequently reported local 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 locally, bicyclist crashes account for a higher share of F/SI crashes than among all injury levels.
- The share of local and Countywide crashes occurring in dark conditions for crashes of all injury levels and for F/SI crashes (organized by mode).
- Reported pedestrian and bicyclist crashes summarized by the most common preceding movements countywide, with a comparison of those movements' share of local crashes to Countywide shares.
- The local and Countywide share of crashes involving drugs or alcohol and involving drivers under the age of 30.

Brisbane—Crash History

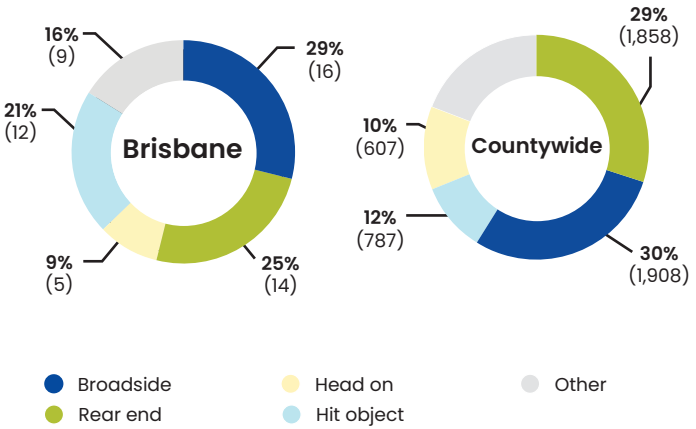
Total Crashes

In Brisbane, 69 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 Brisbane compares:



Mode Involvement

Pedestrian Crashes (8)

	Fatal/all injury crashes	Fatal/severe injury crashes
Brisbane	12% (8)	50% (6)
Countywide	13% (1,073)	23% (208)

Bicycle Crashes (5)

	Fatal/all injury crashes	Fatal/severe injury crashes
Brisbane	7% (5)	17% (2)
Countywide	13% (1,067)	20% (176)

Motor Vehicle[1] Crashes (56)

	Fatal/all injury crashes	Fatal/severe injury crashes
Brisbane	81% (56)	33% (4)
Countywide	75% (6,324)	57% (515)

14% (10)

of reported collisions in Brisbane involved drugs or alcohol

8% (625)

Compared to the countywide total, where 8% (625) of reported collisions involved drugs or alcohol

4% (3)

of reported collisions in Brisbane involved young drivers[1]

5% (472)

Compared to the countywide total, where 5% (472) of reported collisions involved young drivers[2]

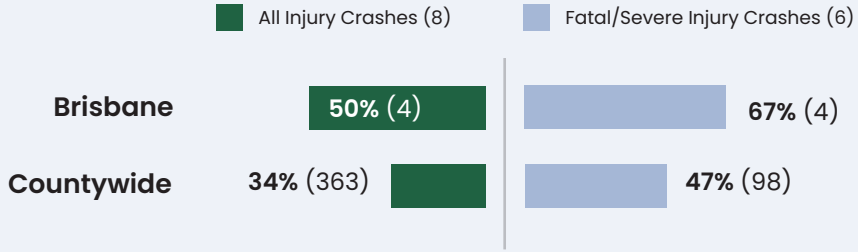
1. *Motor crashes include motor vehicles and motorcyclists.*
2. *Young driver crashes are crashes that involve at fault drivers who are under 30 years old.*

Brisbane—Crash History

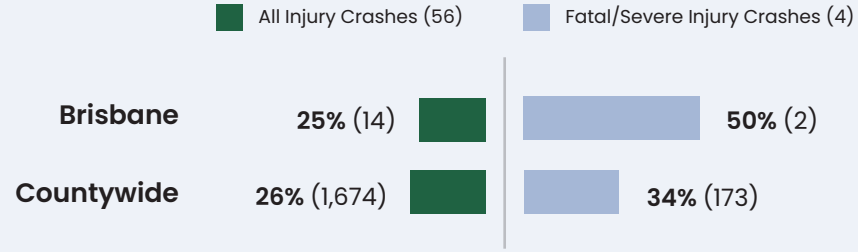
Dark Conditions

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

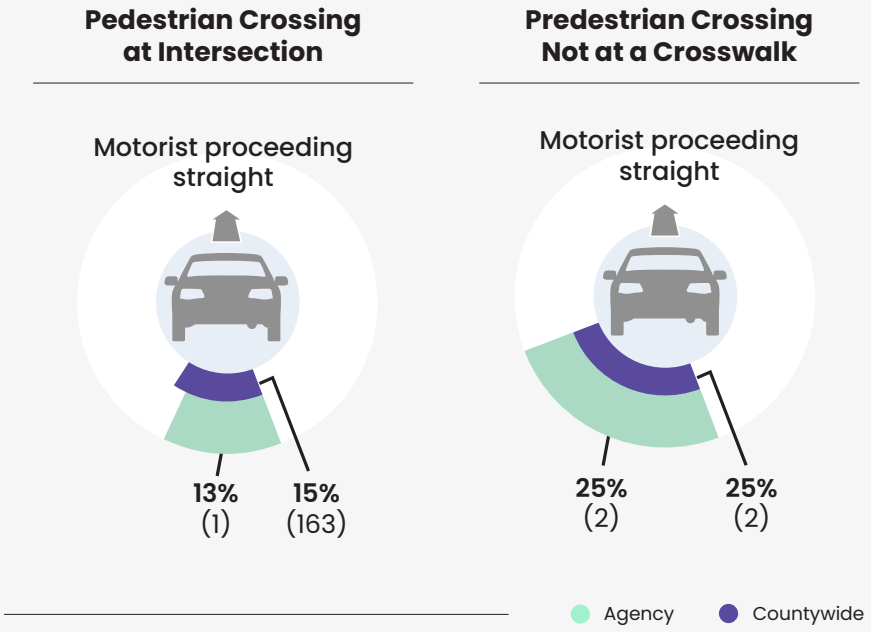
Share of Pedestrian Crashes in Dark Conditions (4)



Share of Motor Vehicle Crashes in Dark Conditions (14)



Reported Pedestrian Crashes (8)



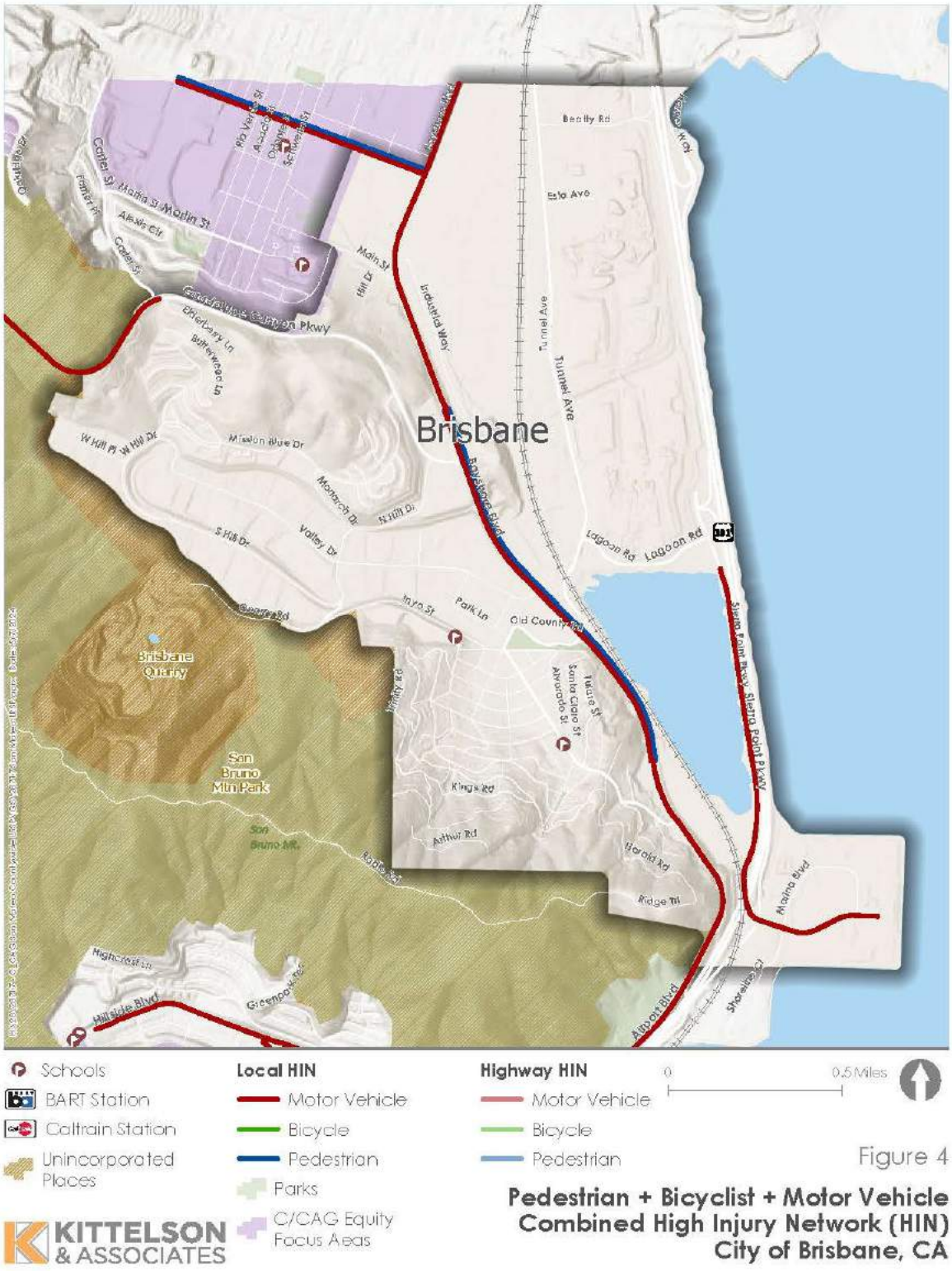
Countywide High Injury Network

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 3 and Figure 4 show the HIN segments identified within the City.

Table 3. Countywide HIN Segments in Brisbane

Roadway name	All County Jurisdiction(s) including this HIN Roadway	Total Length, all jurisdictions included (mi)	Motor Vehicle HIN	Bicyclist HIN	Pedestrian HIN
Sierra Point Pkwy	Brisbane	1.4	X		
Guadalupe Canyon Pkwy	Daly City, Brisbane, Unincorporated	2.5	X		
Bayshore Blvd	South San Francisco, Daly City, Brisbane	2.9	X		X

Figure 4. Countywide HIN within the City of Brisbane



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 City 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 5, Figure 6, and Figure 7).

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

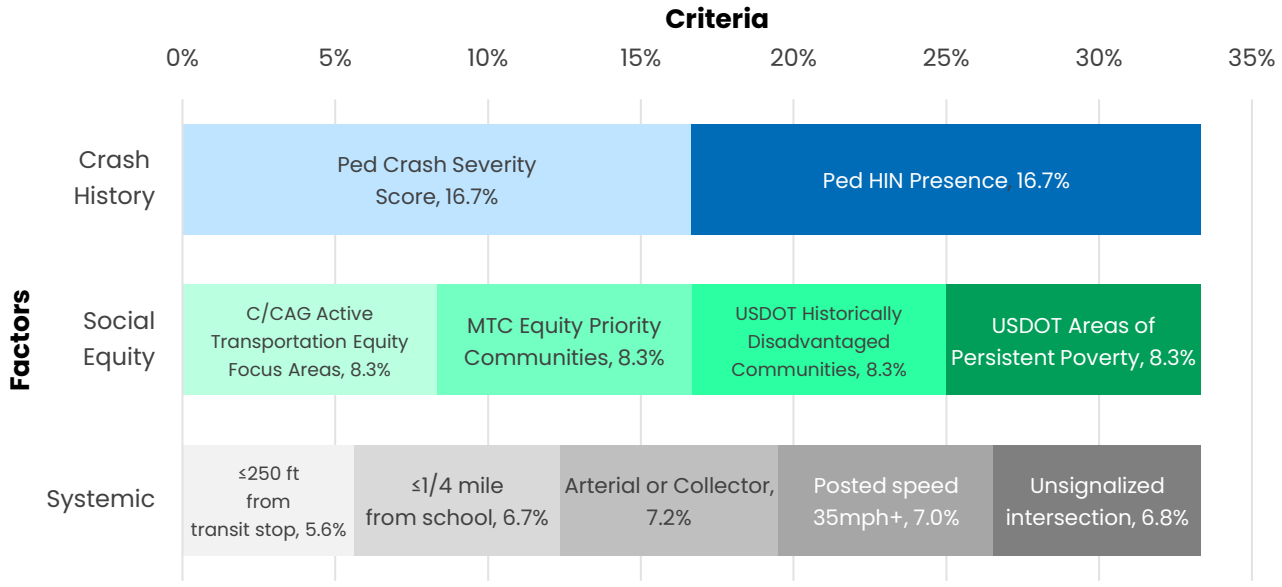


Figure 6. Bicycle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)

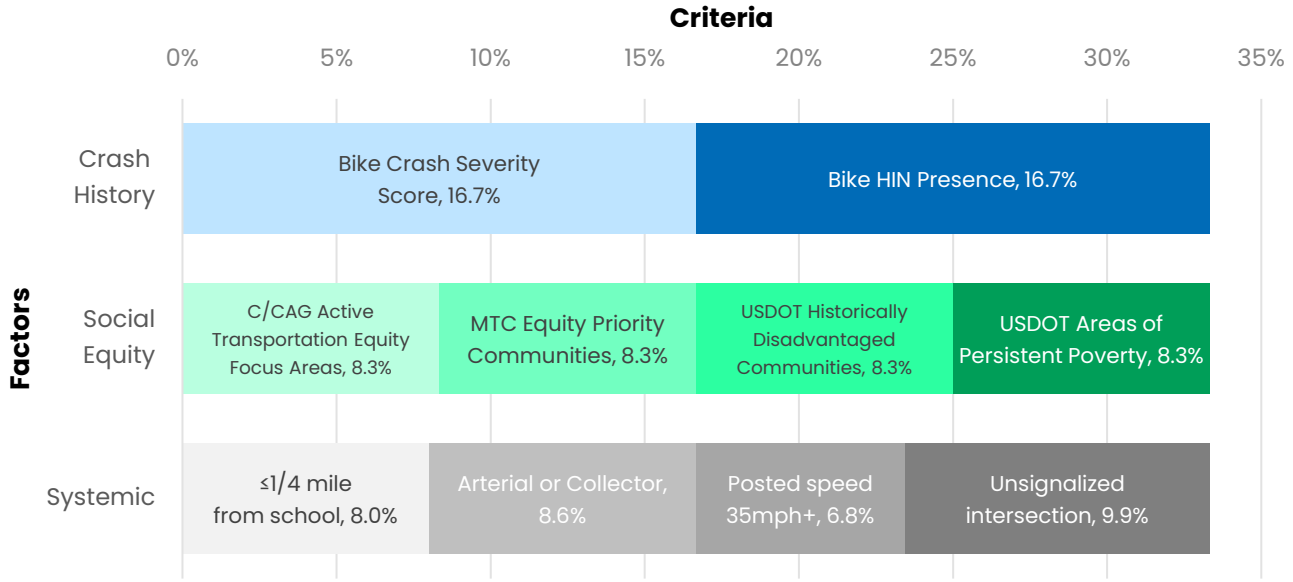
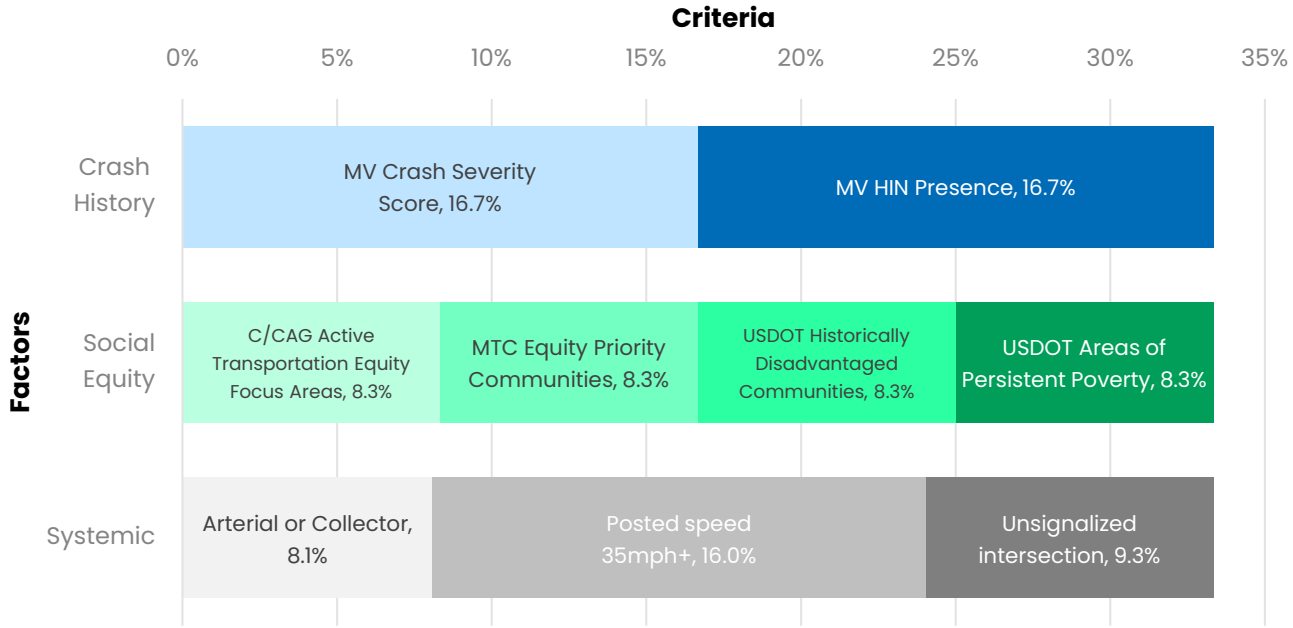


Figure 7. Motor Vehicle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)



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 City 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 D. Figure 8 also shows the locations.

Table 4. Priority Locations

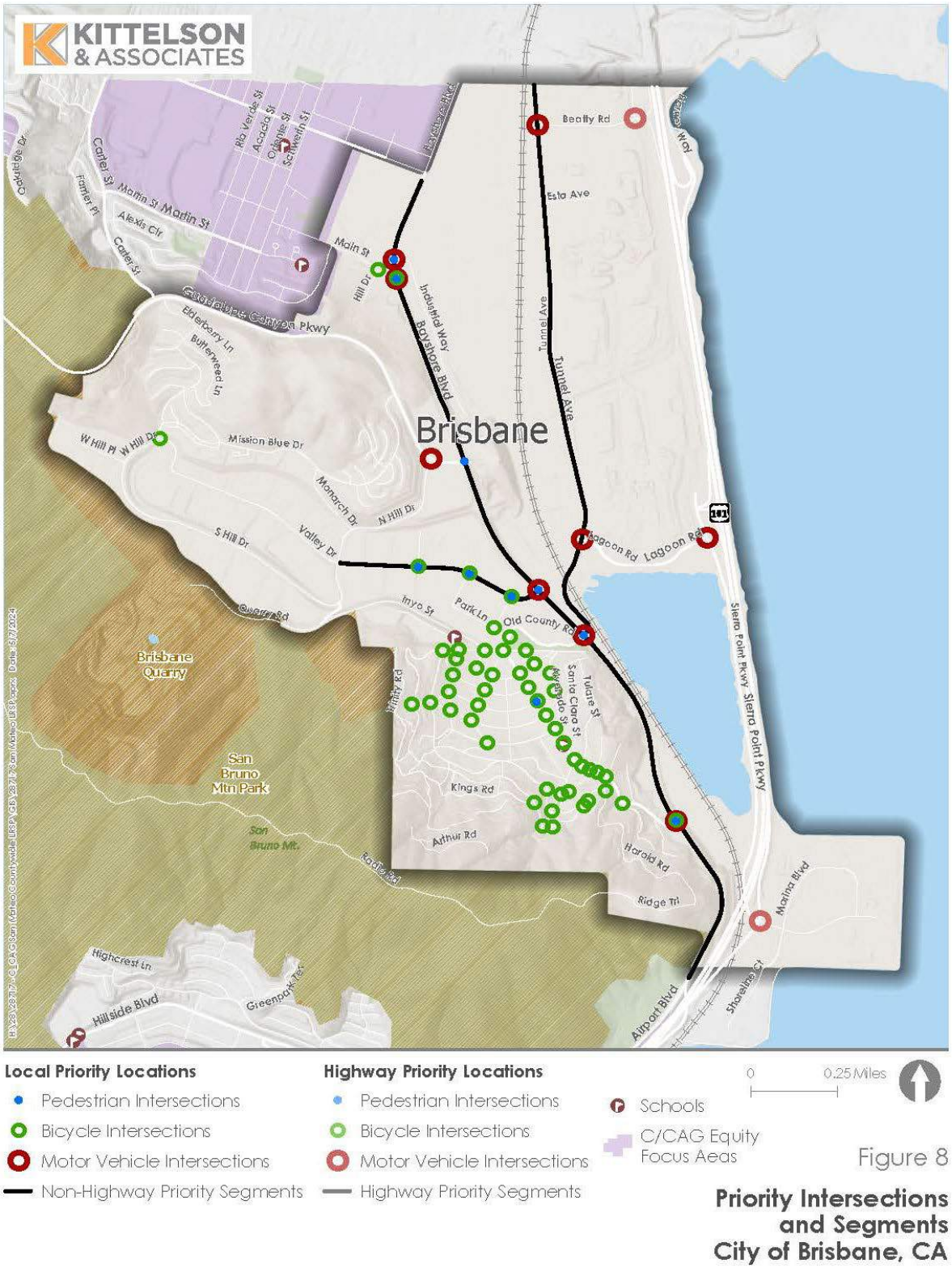
ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
1	Bayshore Blvd and Main St	Intersection	No	**X**	**X**	**X**
2	Bayshore Blvd and San Bruno Ave	Intersection	No	**X**	**XX**	**X**
3	Bayshore Blvd and Tunnel Ave	Intersection	No	**X**		**X**
4	Sierra Point Pkwy and Lagoon Rd	Intersection	No	**X**		
5	Beatty Rd and Tunnel Ave	Intersection	No	**X**		
6	Alana Way and Beatty Rd	Intersection	Yes	**X**		
7	Sierra Point Pkwy 101 NB Hwy and NB 101 Sierra Point Pkwy Hwy	Intersection	Yes	**X**		
8	Tunnel Ave and Lagoon Rd	Intersection	No	**X**		
9	Bayshore Blvd and Valley Dr	Intersection	No	**X**		**X**

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
10	Guadalupe Canyon Pkwy and Hill Dr	Intersection	No	**X**		
11	Bayshore Blvd and Industrial Way	Intersection	No	**X**		**X**
12	Guadalupe Canyon Pkwy and Bayshore Blvd	Intersection	No			**X**
13	Valley Dr and Park Ln	Intersection	No		**X**	**X**
14	Park Pl and Valley Dr	Intersection	No		**X**	**X**
15	San Bruno Ave and Mendocino St	Intersection	No		**X**	**X**
16	Cypress Ln and Valley Dr	Intersection	No		**X**	**X**
17	Hill Dr and Silverspot Dr	Intersection	No		**X**	
18	San Francisco Ave and Old County Rd	Intersection	No		**X**	
19	San Bruno Ave and Mariposa St	Intersection	No		**X**	
20	Old County Rd and Park Ln	Intersection	No		**X**	
21	Klamath St and Visitacion Ave	Intersection	No		**X**	
22	Santa Clara St and San Bruno Ave	Intersection	No		**X**	
23	San Bruno Ave and Alvarado St	Intersection	No		**X**	
24	Glen Pkwy and San Bruno Ave	Intersection	No		**X**	
25	Lake St and San Bruno Ave	Intersection	No		**X**	
26	San Bruno Ave and Tulare St	Intersection	No		**X**	
27	Monterey St and San Bruno Ave	Intersection	No		**X**	
28	Ross Way and Glen Pkwy	Intersection	No		**X**	
29	San Francisco Ave and Plumas St	Intersection	No		**X**	

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
30	Park Pl and Park Ln	Intersection	No		**X**	
31	San Francisco Ave and Inyo St	Intersection	No		**X**	
32	Mariposa St and Visitacion Ave	Intersection	No		**X**	
33	Visitacion Ave and Monterey St	Intersection	No		**X**	
34	Mariposa St and Inyo St	Intersection	No		**X**	
35	Sierra Point Rd and Humboldt Rd	Intersection	No		**X**	
36	Solano St and Mendocino St	Intersection	No		**X**	
37	Solano St and San Francisco Ave	Intersection	No		**X**	
38	Mariposa St and Solano St	Intersection	No		**X**	
39	Sierra Point Rd and Lassen St	Intersection	No		**X**	
40	Mono St and Klamath St	Intersection	No		**X**	
41	Visitacion Ave and Mendocino St	Intersection	No		**X**	
42	Humboldt Rd and Lassen St	Intersection	No		**X**	
43	Humboldt Rd and Lake St	Intersection	No		**X**	
44	Solano St and Humboldt Rd	Intersection	No		**X**	
45	Main St and Hill Dr	Intersection	No		**X**	
46	Gladys Ave and San Bruno Ave	Intersection	No		**X**	
47	Klamath St and San Bruno Ave	Intersection	No		**X**	
48	San Bruno Ave and Thomas Ave	Intersection	No		**X**	
49	Sierra Point Rd and Ross Way	Intersection	No		**X**	

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
50	Humboldt Rd and Glen Pkwy	Intersection	No		**X**	
51	Sierra Point Rd and Glen Pkwy	Intersection	No		**X**	
52	Humboldt Rd and Kings Rd	Intersection	No		**X**	
53	Humboldt Rd and Sierra Point Rd	Intersection	No		**X**	
54	Humboldt Rd and San Diego Ct	Intersection	No		**X**	
55	Mariposa St and Plumas St	Intersection	No		**X**	
56	Alvarado St and Visitacion Ave	Intersection	No		**X**	
57	Alvarado St and Monterey St	Intersection	No		**X**	
58	Alvarado St and Mendocino St	Intersection	No		**X**	
59	William Ave and San Bruno Ave	Intersection	No		**X**	
60	Humboldt Rd and Annis Rd	Intersection	No		**X**	
61	Lake St and Glen Park Way	Intersection	No		**X**	
62	Bayshore Blvd, Geneva Ave to S city limits	Corridor	No	**X**	**X**	**X**
63	Valley Dr, Bayshore Blvd to Hills Dr	Corridor	No	**X**	**X**	**X**
64	Tunnel, N city limit to Bayshore Blvd	Corridor	No	**X**		**X**

Figure 8: Brisbane Priority Locations



IMPROVEMENTS – ENGINEERING, POLICY & PROGRAMS

This section presents Safe System-aligned recommendations that can create levels of redundancy for traffic safety in the City of Brisbane. 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 City departments and partners in pursuit of the plan's vision and goals.

Project Scopes

With the development of this plan the project team worked with the City 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 City could consider at these locations. The City 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 City-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:

- Bayshore Blvd to Guadalupe Canyon Pkwy. Recommended improvements include:
    - Improvements to signal hardware (lenses, backplates with retroreflective borders, mounting, size, and number)

  - Installation of advance stop bar before crosswalk (bicycle box)
  - Modified signal phasing with a leading pedestrian interval
- Bayshore Blvd and Main St. Recommended improvements include:
  - Installation and/or upgrading of larger stop signs and other intersection warning or regulatory signs
  - Pavement markings
  - Dynamic/variable speed warning signs

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

Engineering Countermeasure Toolbox

Table 5. City of Brisbane 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 raised pavement markers and striping*	SI	Wet, night, all	0.1	$	High

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
Install flashing beacons as advance warning (SI)*	SI	Rear end, broadside	0.3	$-$$	Medium
Centerline hardening or continuous raised median	SI	All crashes	0.46	$	Medium
Install pedestrian countdown signal heads*	SI	Pedestrian crashes, signalized local/arterial intersections	0.25	$	High
Install pedestrian crossing*	SI	Pedestrian crashes, signalized local/arterial intersections	0.25	$	High
Install advance stop bar before crosswalk (bicycle box)*	SI	Pedestrian crashes, signalized local/arterial intersections	0.15	$	High
Modify signal phasing to implement a Leading Pedestrian Interval (LPI)	SI	Pedestrian crashes, signalized local/arterial intersections	0.6	$	High
Install painted safety zone	SI	Pedestrian crashes, signalized local/arterial intersections	N/A	$	High
Install Protected Intersection Elements	SI	Pedestrian crashes, signalized local/arterial intersections	N/A	$-$$$	Low

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
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	$$$	Low
Convert intersection to roundabout (from all-way stop)*	UI	All crashes	Varies	$$$	Low
Convert intersection to roundabout (from stop or yield control on minor road)*	UI	All crashes	Varies	$$$	Low
Covert intersection to mini-roundabout*	UI	All crashes	0.3	$$	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
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

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
Upgrade intersection pavement markings*	UI	Turning crashes related to lack of driver awareness	0.25	$	High
Install flashing beacons at stop-controlled intersection*	UI	Broadside, rear end	0.15	$$$	High
Install pedestrian signal or pedestrian hybrid beacon*	UI	Pedestrian and bicycle	0.3	$$$	High
Install splitter islands on the minor road approaches*	UI	All crashes	0.4	$	Medium
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
Install edge line 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 raised pedestrian crossing*	R	Pedestrian and bicycle	0.35	$	Medium
Remove or relocate fixed objects outside of clear recovery zone*	R	Hit object	035	$-$$	High
Install delineators, reflectors, and/or object marker*	R	All crashes	0.15	$	High

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
Install/upgrade signs with new fluorescent sheeting (regulatory or warning)*	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
Pedestrian phase recall	SI	Pedestrian	N/A	$	High
Extend green time for bikes	SI	Bicycle	N/A	$	High
Extend yellow and all-red time	SI	All crashes	N/A	$	High
Lane narrowing	R	All crashes	N/A	$-$$	Low
Bicycle crossing (solid green paint)	UI	Bicycle	N/A	$	Medium
Bicycle signal/exclusive bike phase	SI	Bicycle	N/A	$-$$	Low
Curb extensions	UI	All crashes	N/A	$-$$	Low
ADA-compliant directional curb ramps and audible push buttons	SI	Pedestrian	N/A	$-$$	Low
Splitter islands	UI, SI	All crashes	N/A	$$	Medium
Roadside design features	All	All crashes	N/A	$-$$$	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. City of Brisbane Policy and Program Recommendations

Category	Near-Term Recommendations	Long-Term or Ongoing Recommendations
Local Culture Shift (LCS)	LCS1: Transportation Safety Advisory Committee participation	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: City of Brisbane Public Works

LONG-TERM OR ONGOING ACTIONS

LCS2: High-Visibility Media Campaign

Coordinate with County Public Health and the Brisbane 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, Sustainability Department, SMCOE, City of Brisbane Police Department, City of Brisbane Public WorksLCS3: Communication

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: City of Brisbane Public Works

LCS4: Implement Car-Free Zones

More effectively target resources to pedestrian crash problems in a limited geographic area. Realizing these zones requires upfront analysis and planning, countermeasure development, and implementation. Implementation can focus on addressing particular problems or on increasing general safety in specific areas during windows of peak pedestrian activity. (For example: Friday nights in commercial districts, Sundays on recreational routes/areas, etc.)
Lead agency: City of Brisbane Public Works

LEC2: Speed Monitoring Awareness Radar Trailer

Coordinate with Brisbane 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: City of Brisbane Police Department
Coordinating partners: City of Brisbane Public Works

LF2: Equitable Investment

Prioritize citywide 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: City of Brisbane 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: City of Brisbane 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, Sustainability Department, 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: City of Brisbane 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: City of Brisbane Public Works

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: City of Brisbane

Coordinating partners: C/CAG, County Public Health

LEO5: Safe City Fleets

Provide educational materials for City staff who drive City vehicles and integrate safety awareness training into contracting process with vendors who provide City services. Other measures include installing safety features (such as pedestrian/obstacle detection and speed tracking) on City vehicles and reporting on correction plans against unsafe driving.

Lead agency: City of Brisbane Public Works

LPE1: Annual Review

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

Lead agency: City of Brisbane 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: City of Brisbane 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 City 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 City.
Lead agency: SMCOE
Coordinating partners: City of Brisbane Public Works

IMPLEMENTATION & MONITORING

A key part of achieving Brisbane's vision is consistently evaluating roadway safety performance and tracking progress towards the goals. The City of Brisbane will develop a process to regularly collect data and information around the performance measures that can be used to assess changes city-wide and at the top priority locations.

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

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

Table 6. City of Brisbane Goals and Measures of Success

GOAL	MEASURE OF SUCCESS
1. Work with Brisbane Police Department to review crash history and community needs on a semi-annual basis to identify and prioritize opportunities to reduce crash risk for roadway users of all ages and abilities. 2. Utilize existing plans, such as the Brisbane Bicycle and Pedestrian Master Plan, to implement safety countermeasures systemically and as part of all projects to target emphasis areas and underserved communities	• 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
3. Identify opportunities to incorporate social equity into safety improvements. 4. Provide opportunities for community engagement in roadway capital improvement projects to identify safety solutions.	• Community engagement included as part of all C/CAG-funded safety project development activities • Number of engagement touchpoints and number of community member interactions citywide for safety plans or projects. • Report-backs to the City Council and TSAC regarding community engagement, including information about outreach to disadvantaged communities where applicable • Distribution at the jurisdiction level for safety projects within equity focus areas (C/CAG EFAs or MTC EPCs) versus outside these areas • Expansion of SRTS and Roadway Safety Education in Schools programs to more schools within the City • Implementation of a high-visibility media campaign

GOAL	MEASURE OF SUCCESS
5. Embrace the Safe System Approach to promote engineering and non-engineering strategies in the community.	• Percent of school district participation in SRTS and roadway safety education opportunities • Number of trainings city staff have participated in regarding Safe System elements, available tools, or practices • Improved data availability or maintenance to enhance safety analysis and practice
6. Monitor implementation of the Brisbane LRSP to track progress towards goals.	• See above in this table

City of Brisbane

San Mateo C/CAG Countywide LRSP

Town of Colma

LOCAL ROADWAY SAFETY PLAN

FINAL DRAFT

MAY 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.

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

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

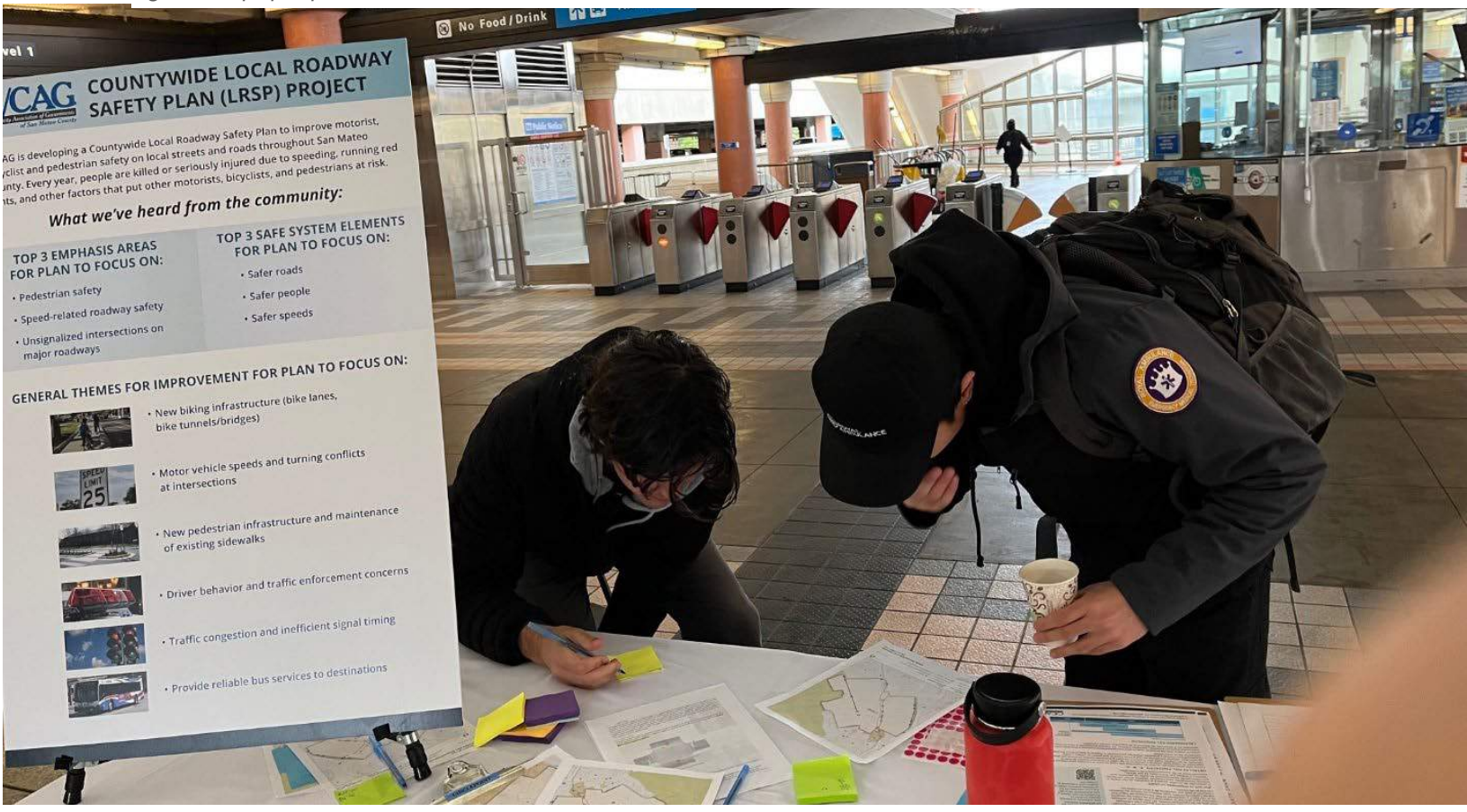
A variety of agency staff and community partners were involved throughout the development of this LRSP and played an integral role in identifying priorities, providing local context, and reviewing the existing conditions analysis. Many of the strategies identified in this plan will require coordination 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
- Sustainability Department
- 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.

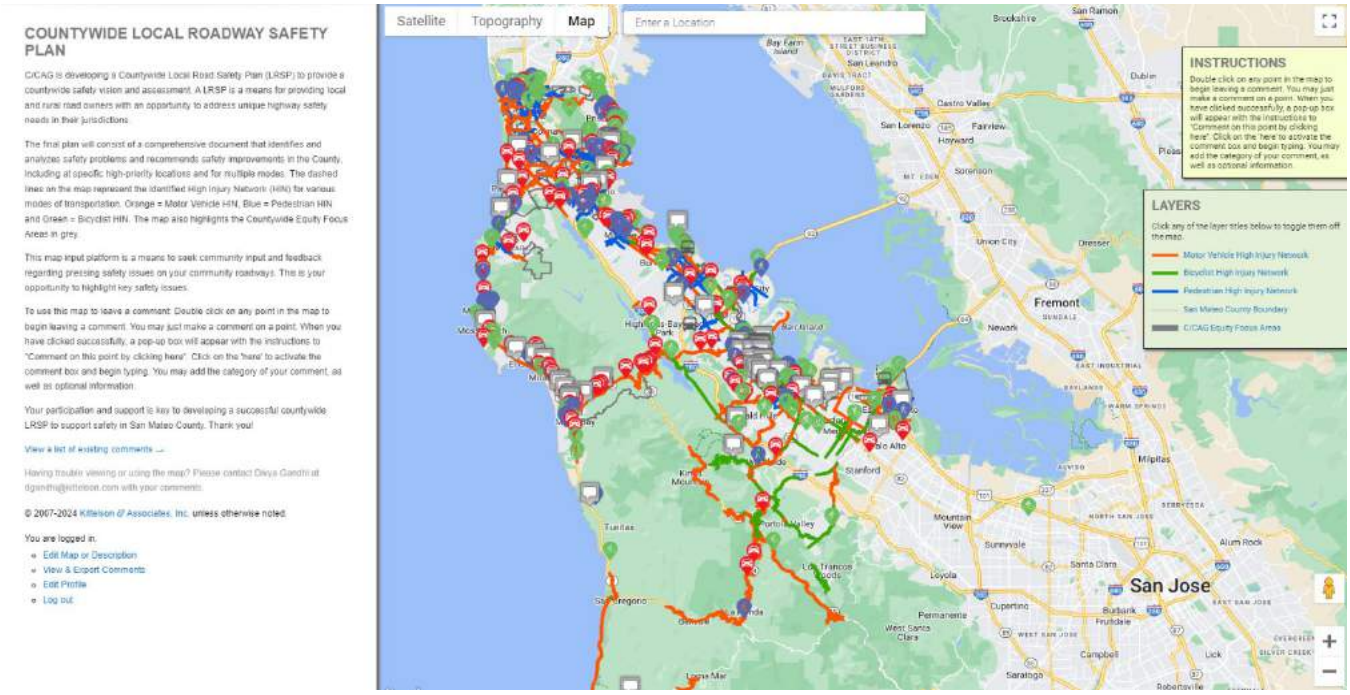
Table 2. C/CAG Public Engagement Events

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 System[1] (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.

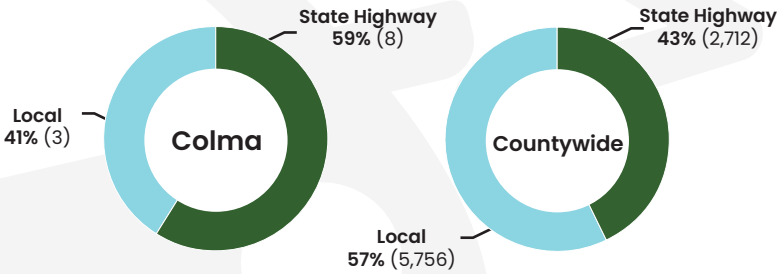
The next section presents summary findings from a crash data review that compares the Town of Colma to countywide trends in these emphasis areas. It includes summary statistics related to the above-cited emphasis areas but also shows:

- 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

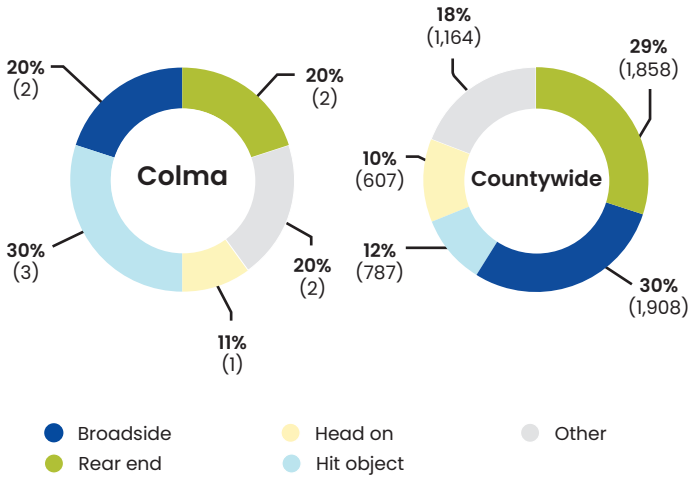
Total Crashes

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:



Mode Involvement

Pedestrian Crashes (0)

	All Injury Crashes	Fatal/Severe Injury Crashes
Colma	0% (0)	0% (0)
Countywide	13% (1,073)	23% (208)

Bicycle Crashes (1)

	All Injury Crashes	Fatal/Severe Injury Crashes
Colma	9% (1)	50% (1)
Countywide	13% (1,067)	20% (176)

Motor Vehicle[1] Crashes (10)

	All Injury Crashes	Fatal/Severe Injury Crashes
Colma	91% (10)	50% (1)
Countywide	75% (6,324)	57% (515)

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)

	All Injury Crashes (10)	Fatal/Severe Injury Crashes (1)
Colma	10% (1)	0% (0)
Countywide	26% (1,674)	34% (173)

1. *Motor crashes include motor vehicles and motorcyclists.*

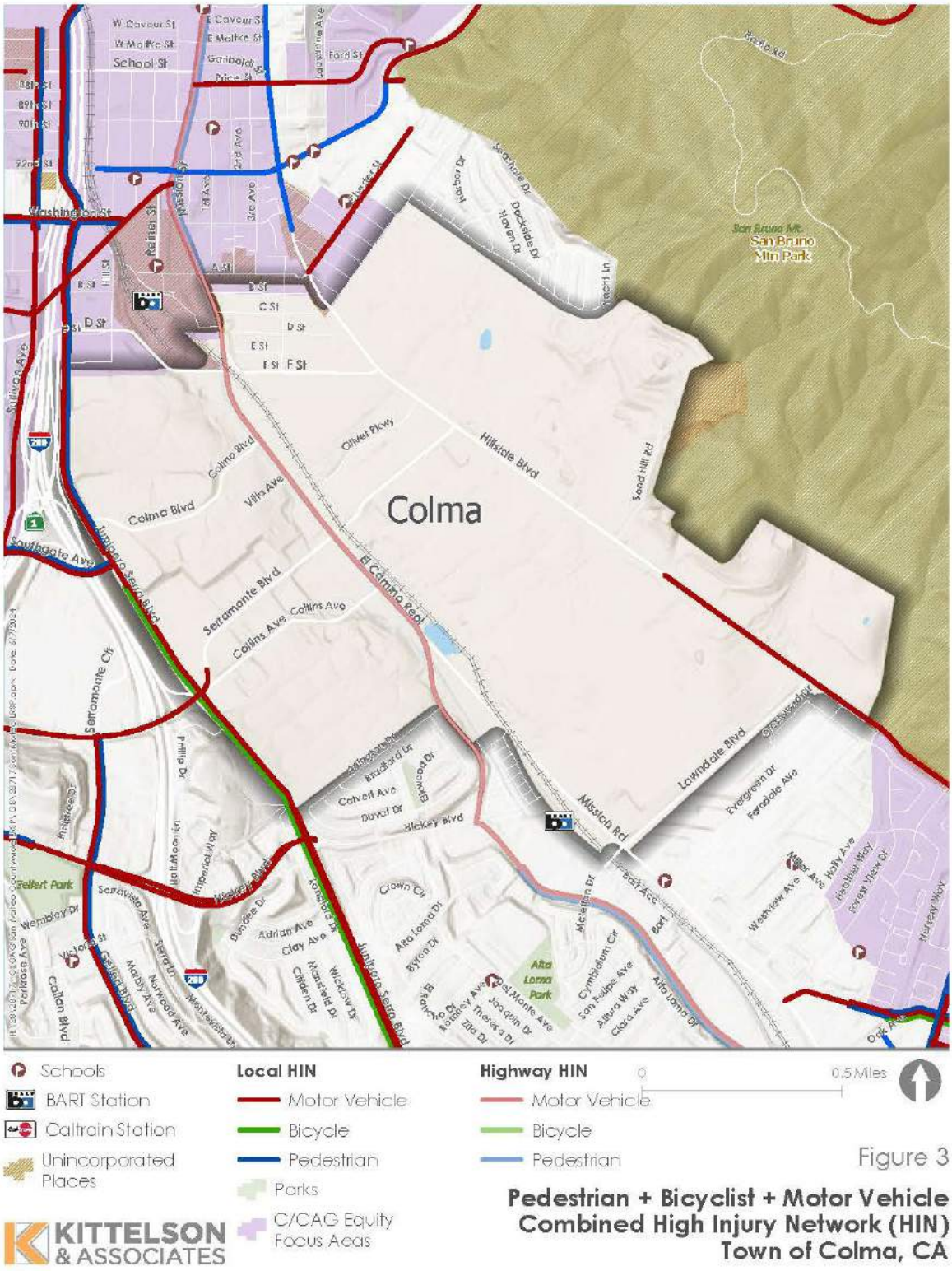
Countywide High Injury Network

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

Figure 3. Countywide HIN within the Town of Colma



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)

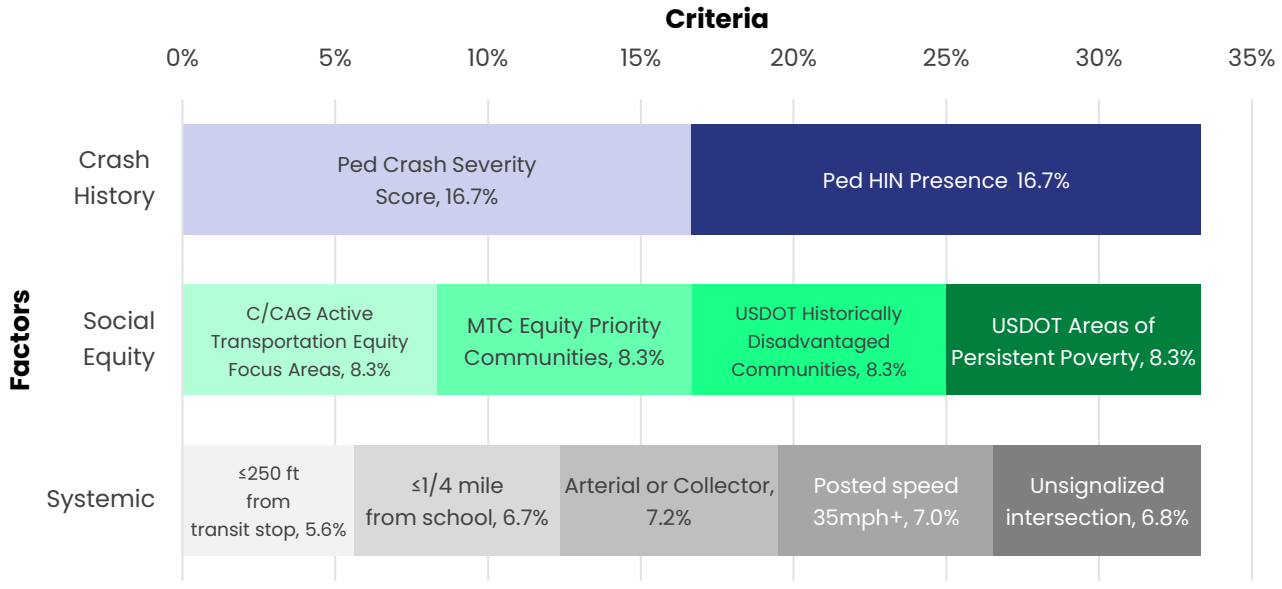


Figure 5. Bicycle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)

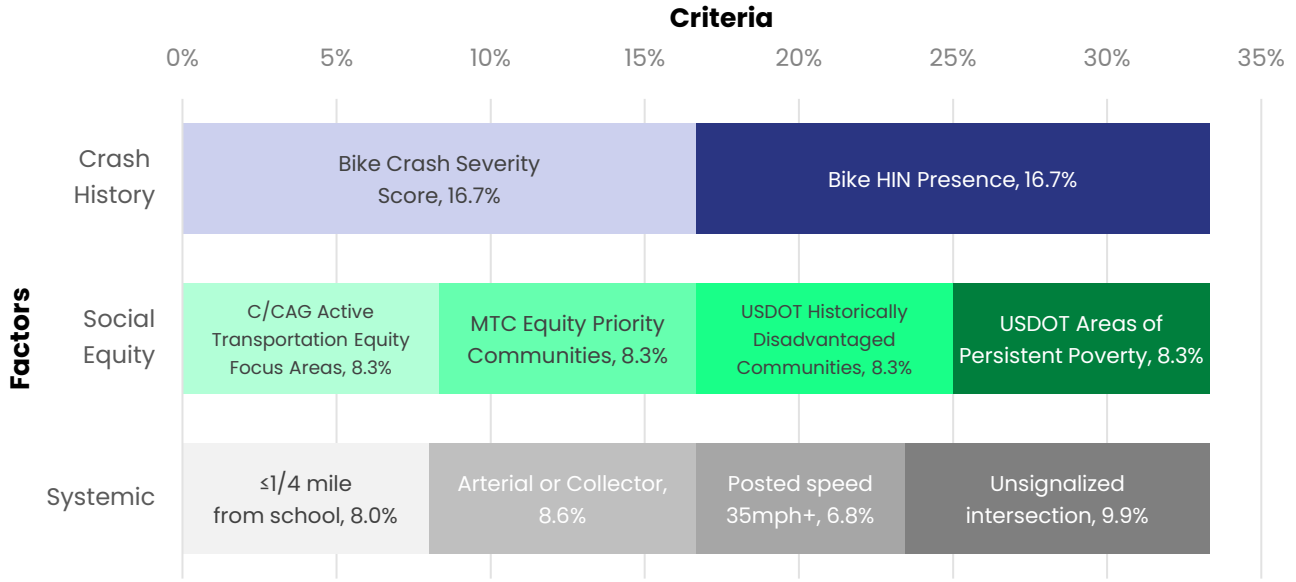
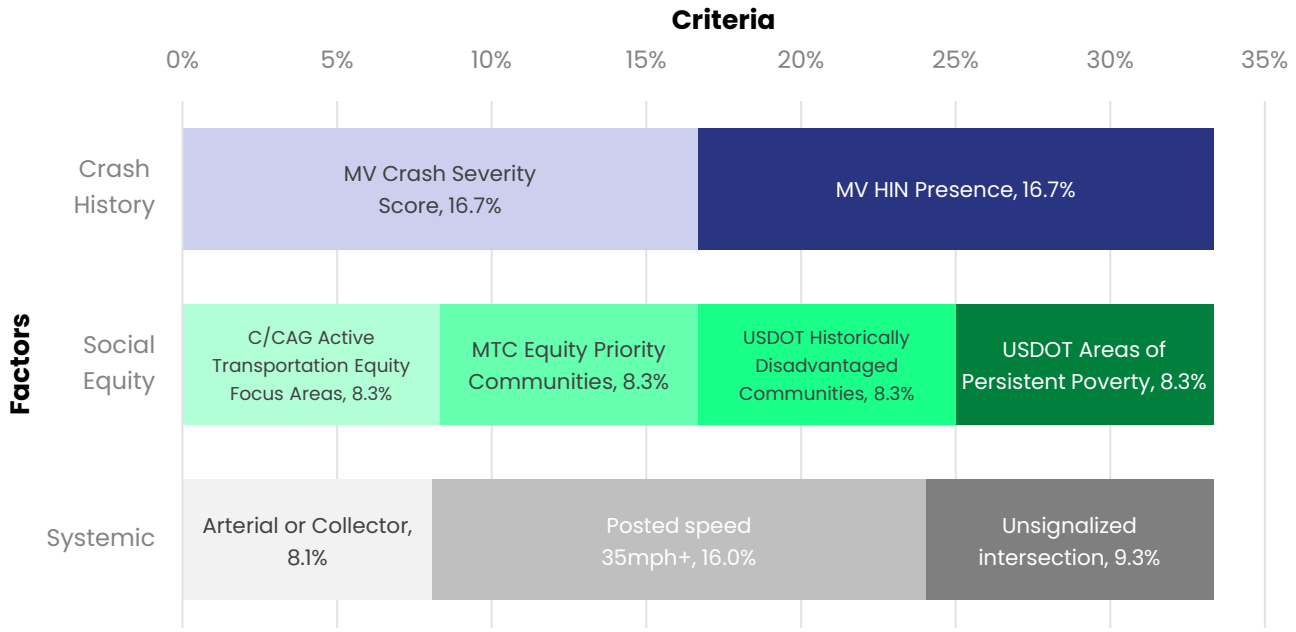


Figure 6. Motor Vehicle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)



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

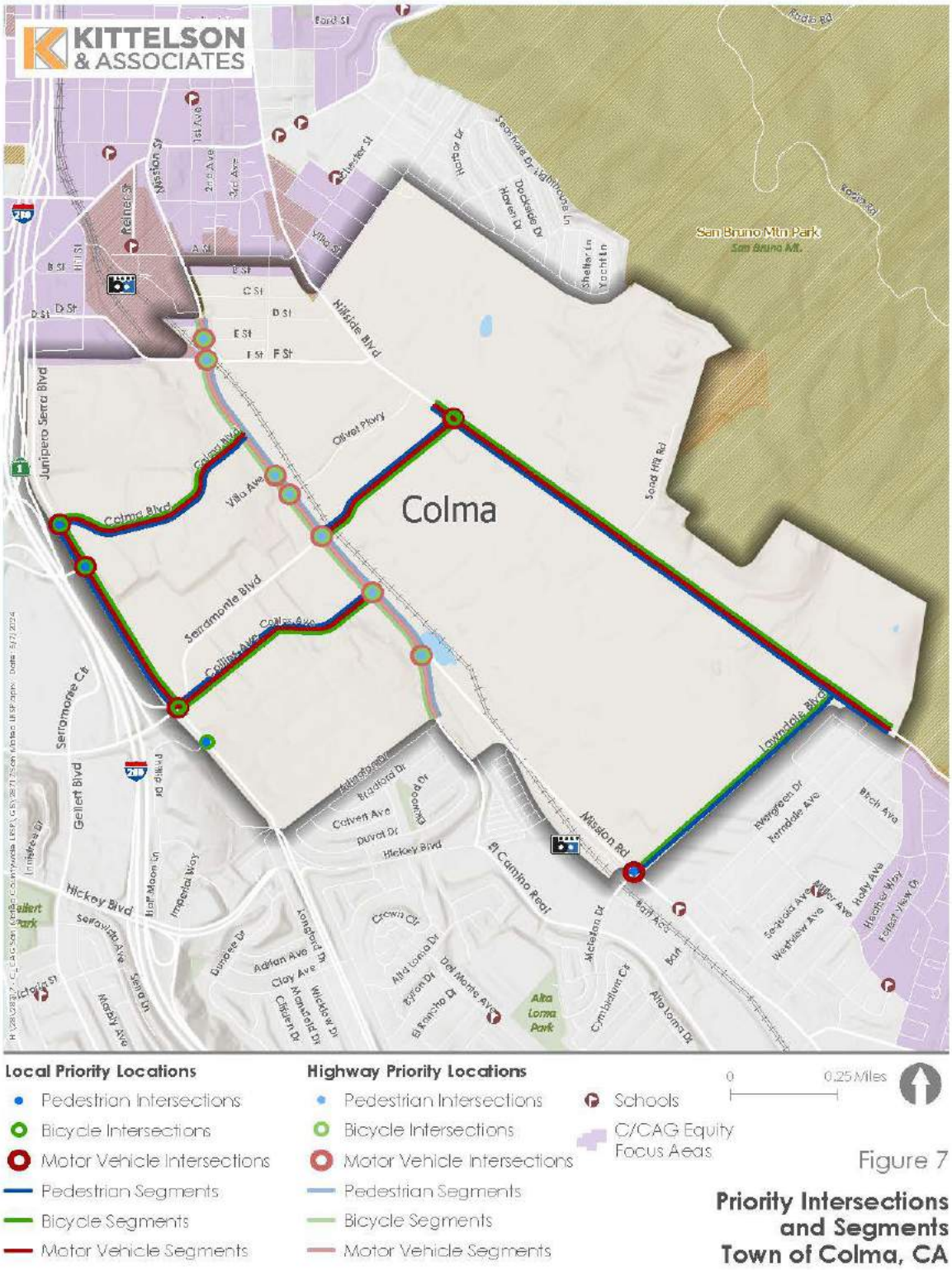
The prioritization resulted in the following top locations. For more details (including the scores of each location), consult Appendix B. Figure 7 also shows the locations.

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**

Figure 7. Colma Priority Locations



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
    - Reconfiguration of the intersection to eliminate the fifth leg
- 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, Sustainability Department, 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 offices (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, Sustainability Department, 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
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.	• 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
3. Advance the active transportation efforts of the Town and regional agencies to achieve the greenhouse gas (GHG) reduction.	• 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
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.	• 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.	• 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.	• See above in this table

Town of Colma

San Mateo C/CAG Countywide LRSP

City of East Palo Alto

LOCAL ROADWAY SAFETY PLAN

FINAL DRAFT

MAY 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 City'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 City 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.

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INTRODUCTION

This chapter serves as a standalone local roadway safety plan (LRSP) for the City of East Palo Alto. 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 City will revisit and update this LRSP at least every five years.

The City of East Palo Alto has a 2023 population of 28,586 per California Department of Finance. The city has 39 total centerline miles per Caltrans 2022 California Public Road Data. From 2018 through 2022, there were 458 reported crashes on surface streets in the City and 48 fatal/severe injury crashes. Pedestrians were involved in 27 percent of reported fatal/severe injury crashes and 12 percent of all crashes. Bicyclists were involved in 21 percent of reported fatal/severe injury crashes and 16 percent of all crashes. The LRSP provides Safe System-aligned strategies tailored to East Palo Alto's crash history and local priorities, as well as performance measures to evaluate progress.

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

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

VISION AND GOALS

The City of East Palo Alto vision for roadway safety is:

- Eliminate traffic fatalities and reduce the number of non-fatal injury crashes by 50 percent by 2030.

To support this vision, the City has established the following goal:

1. Implement traffic-calming and traffic-slowing measures on roads and at intersections with a high level of existing or planned pedestrian and non-motorized vehicle activity and/or crashes.

PLAN DEVELOPMENT

Existing Safety Efforts

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

Table 1. City of East Palo Alto 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
Speed maintenance toolkit	The traffic control devices to be considered for use in addressing the speed of traffic will include, but are not limited to, the following: 25 mph speed limit signs White "25" pavement legends (oversized legends may also be used) Curve warning signs with speed advisory plates "Watch Downhill Speed" signs "Strict Enforcement Area" graphic and letter signs Ceramic raised-pavement marker rumble strips Perpendicular painted white bars Centerline striping Supplementary reflective raised pavement markers Speed humps Other traffic control devices as approved in the Manual for Uniform Traffic Control Devices and/or the California Traffic Control Device Committee	Safe Roads, Safe Speeds, Safe Road Users

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 the City of East Palo Alto'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
- Sustainability Department
- 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
- East Palo Alto Police Department
- East Palo Alto Fire Department
- Ravenswood City School District

Figure 1. Phase 1 pop-up event at a farmers' market in East Palo Alto.

Community Engagement and Input

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

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 City's plan. These events focus on jurisdiction-specific issues and on countywide concerns. The table below lists the events, organized by themed engagement phases, and is followed by the community input themes we heard.

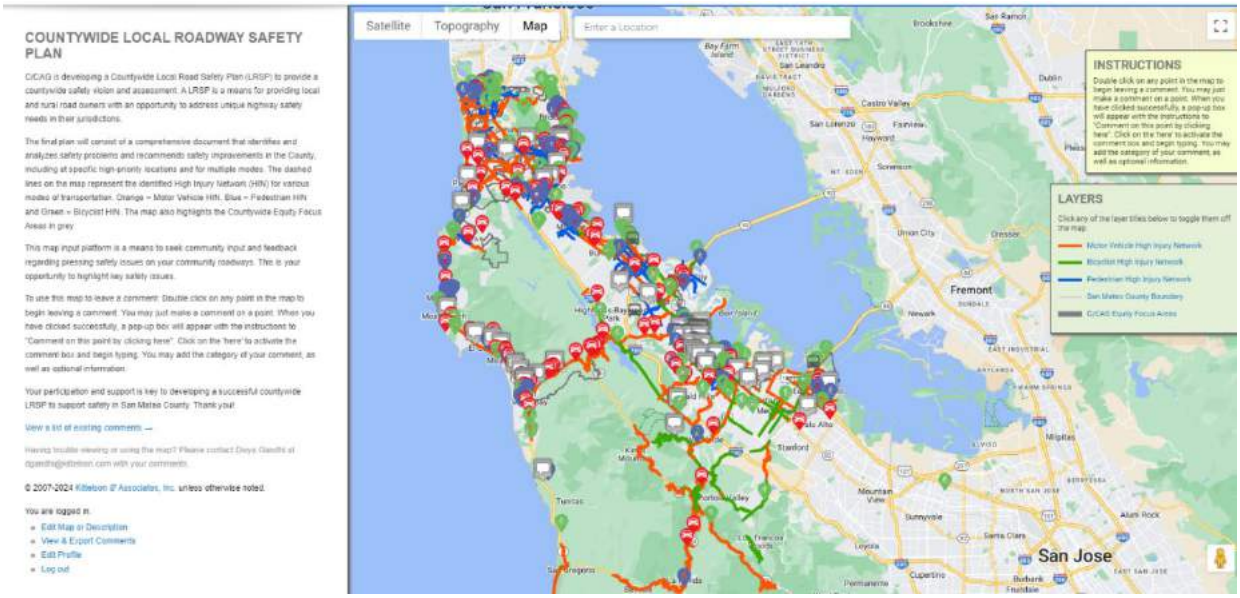
Table 2. Community Engagement Phases and Events

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). 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 five comments made within the City of East Palo Alto in addition to the conversations and feedback recorded at the Phase 1 event in August. The comments included the following:

Biking Concerns/Requests

- Add new bike infrastructure such as protected bike lanes and separated bike lanes.
- Provide a more connected bike network throughout East Palo Alto and connecting to other cities in the Bay Area.

Pedestrian Concerns/Requests

- Add new pedestrian infrastructure or upgrade existing infrastructure such as building new sidewalks, and high visibility crosswalks.

Traffic Enforcement Concerns

- Concerns regarding speeding observed – requests for traffic calming.
- Concerns regarding enforcement of traffic safety rules near school zones, especially on Pulgas Avenue.

Roadway Infrastructure/ Traffic Operations Concerns

- Concerns regarding traffic congestion during peak hours.

The location and modal emphasis of comments in East Palo Alto is presented in Figure 3. The comments received are provided in Appendix A. The project team also identified common themes in the responses made countywide which may be relevant to the City. Those are presented in the Community Engagement section of the Countywide LRSP.

Figure 3. Webmap Comments in East Palo Alto

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 System[1] (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. For a more complete description of trends and findings, refer to Appendix B.

Emphasis Areas

The project team analyzed crash data in East Palo Alto and compared countywide trends to establish emphasis areas. Emphasis areas are crash dynamic, behavioral, or road user characteristics that the City 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 City of East Palo Alto:

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 East Palo Alto, pedestrians and bicyclists were involved in 27 percent and 21 percent of the 48 reported F/SI crashes—higher than their overall share of all injury crashes (12 percent and 16 percent, total).
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 East Palo Alto, one in every two fatal/severe injury crashes (50 percent) occurred in dark conditions.
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. **Vulnerable age groups (youth and aging).** Countywide across all modes, crash victims between the 15 to 34 years old are more likely to be injured including F/SI as a result of traffic safety than other groups. Victims between the ages 50 – 69 and 75 to 84 are also more likely to be severely injured than other groups. In East Palo Alto, 33 crashes or 7 percent of all reported injury crashes involve at fault drivers who are under 30 years old.
5. **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

[1] Transportation Injury Mapping System, http://tims.berkeley.edu

commonly cited the primary crash factor (27 percent of injury crashes and 23 percent of fatal/severe injury crashes). In East Palo Alto, "Too fast for conditions" was the top-cited violation among motor vehicle crashes that resulted in fatal/severe injuries (32 percent).

6. **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.
7. **Alcohol involvement.** Countywide, one in ten (10 percent) of motor vehicle injury crashes and one in five F/SI motor vehicle crashes (19 percent) involved alcohol. In East Palo Alto, 7 percent of all reported injury crashes involve impaired driving.

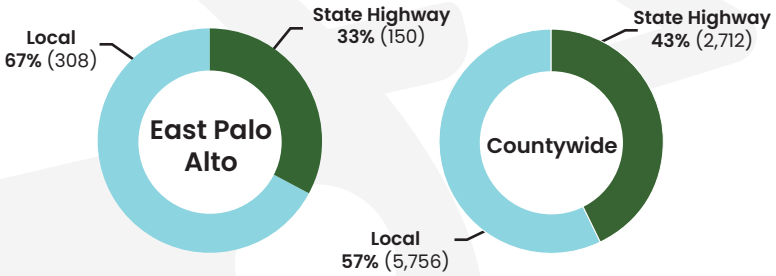
The next pages present summary findings from a crash data review that compares the City of East Palo Alto to countywide trends in these emphasis areas. It includes summary statistics related to the above-cited emphasis areas but also shows:

- The share of local crashes that occurred on or at a State Highway facility compared to Countywide levels.
- The most frequently reported local 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 locally, bicyclist crashes account for a higher share of F/SI crashes than among all injury levels.
- The share of local and Countywide crashes occurring in dark conditions for crashes of all injury levels and for F/SI crashes (organized by mode).
- Reported pedestrian and bicyclist crashes summarized by the most common preceding movements countywide, with a comparison of those movements' share of local crashes to Countywide shares.
- The local and Countywide share of crashes involving drugs or alcohol and involving drivers under age 30.

East Palo Alto—Crash History

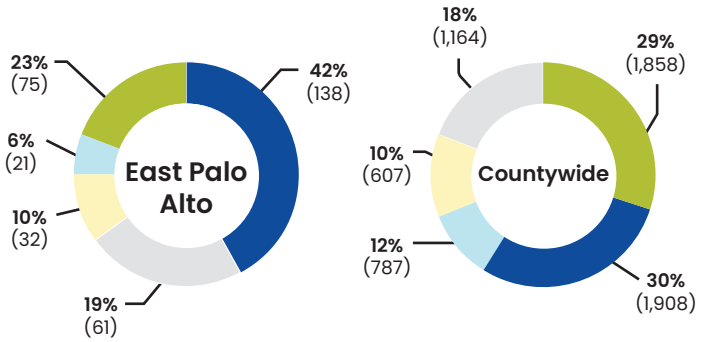
Total Crashes

In East Palo Alto, 458 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 East Palo Alto compares:



Mode Involvement

Pedestrian Crashes (56)

	All Injury Crashes	Fatal/Severe Injury Crashes
East Palo Alto	12% (56)	27% (13)
Countywide	13% (1,073)	23% (208)

Bicycle Crashes (75)

	All Injury Crashes	Fatal/Severe Injury Crashes
East Palo Alto	16% (75)	21% (10)
Countywide	13% (1,067)	20% (176)

Motor Vehicle[1] Crashes (327)

	All Injury Crashes	Fatal/Severe Injury Crashes
East Palo Alto	71% (327)	52% (25)
Countywide	75% (6,324)	57% (515)

7% (28)
of reported collisions in East Palo Alto involved drugs or alcohol

8% (625) Compared to the countywide total, where 8% (625) of reported collisions involved drugs or alcohol

7% (33)
of reported collisions in East Palo Alto involved young drivers[1]

5% (472) Compared to the countywide total, where 5% (472) of reported collisions involved young drivers[2]

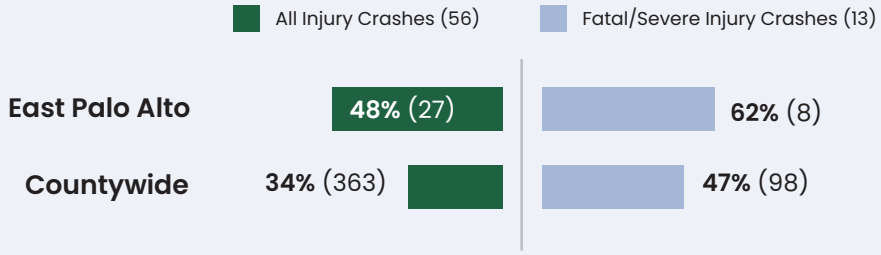
1. *Motor crashes include motor vehicles and motorcyclists.*
2. *Young driver crashes are crashes that involve at fault drivers who are under 30 years old.*

East Palo Alto—Crash History

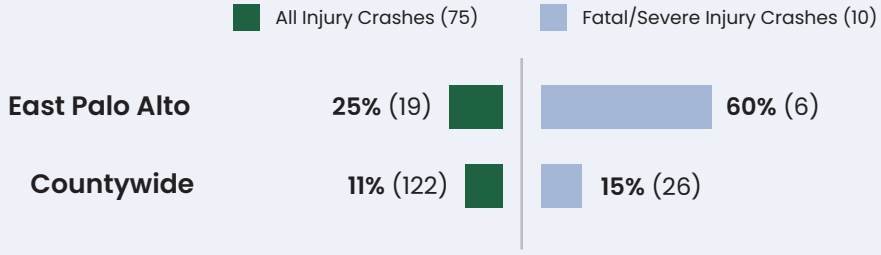
Dark Conditions

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

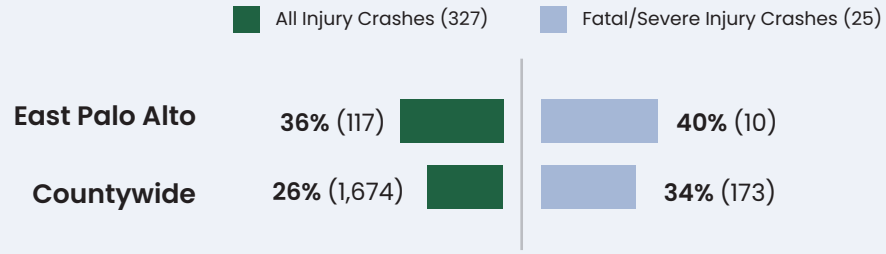
Share of Pedestrian Crashes in Dark Conditions (27)



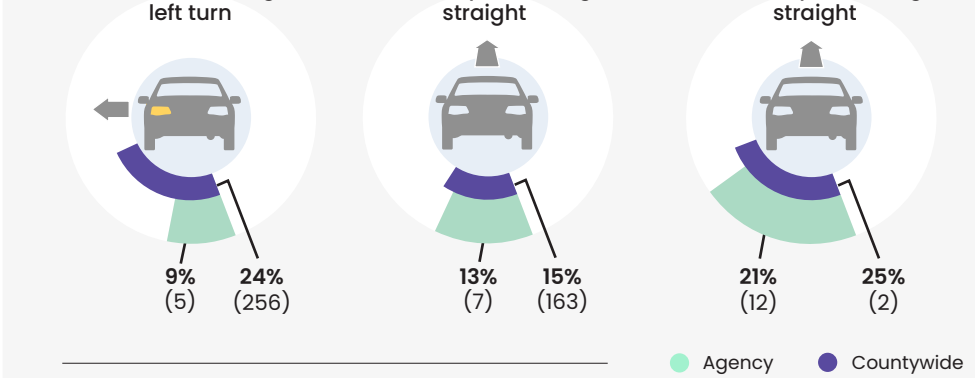
Share of Bicyclist Crashes in Dark Conditions (19)



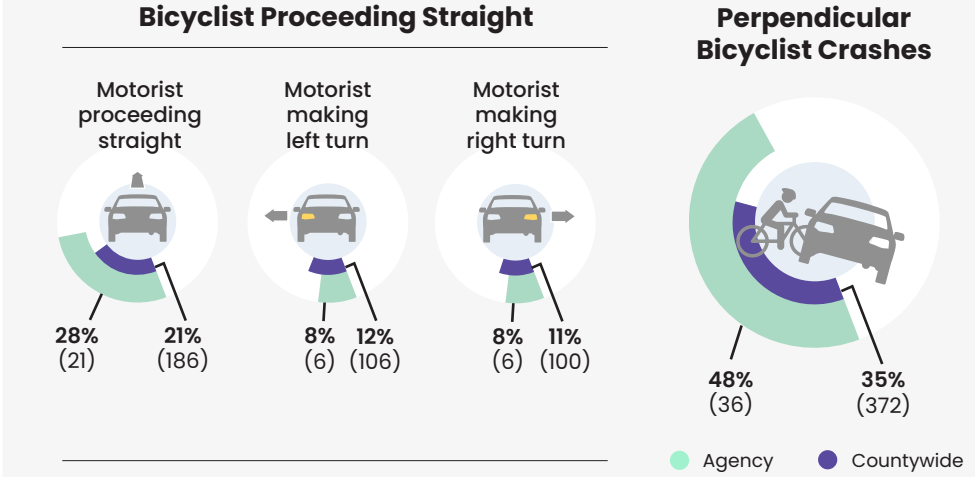
Share of Motor Vehicle Crashes in Dark Conditions (117)



Reported Pedestrian Crashes (56)



Reported Bicycle Crashes (75)



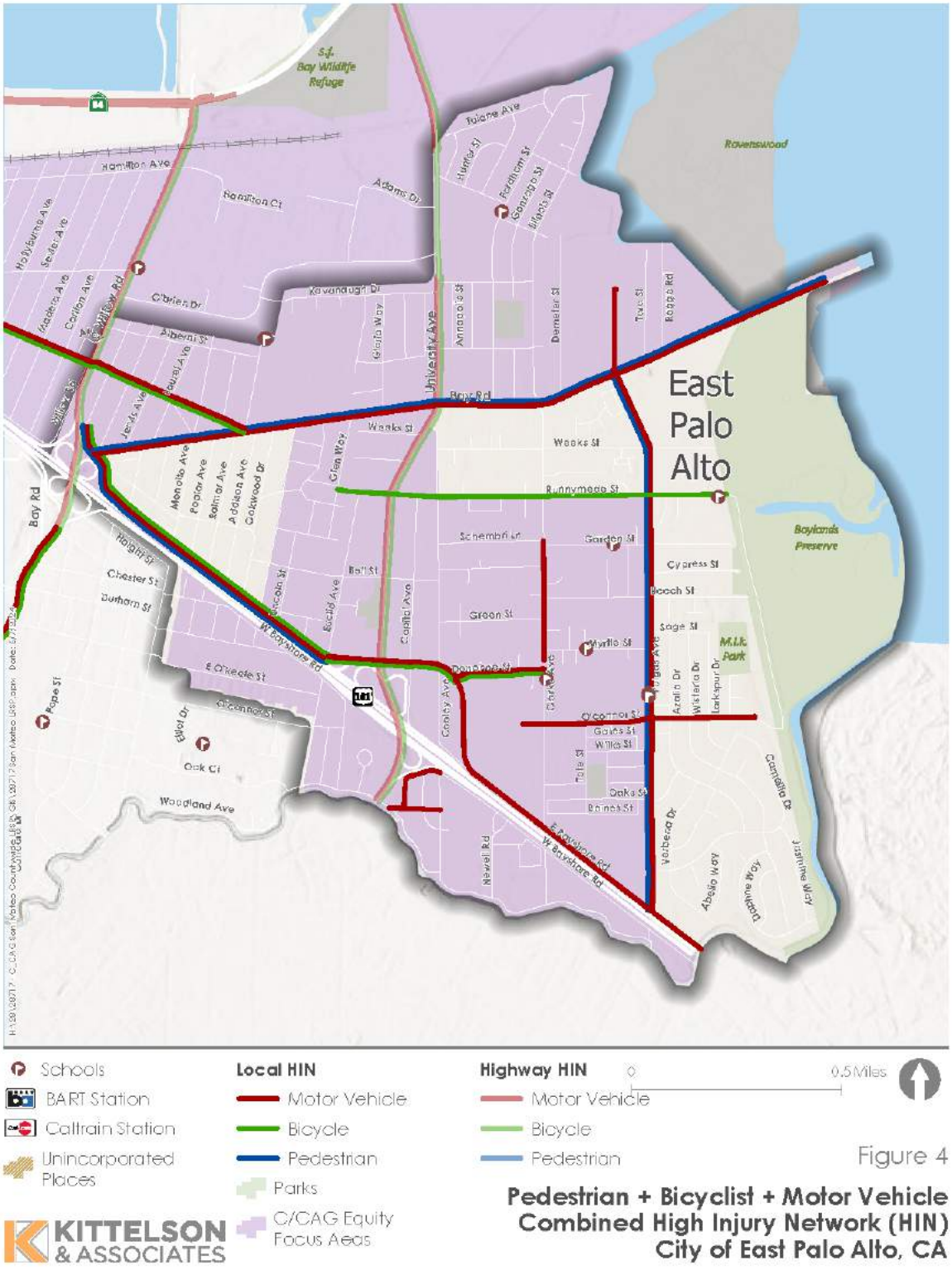
Countywide High Injury Network

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 3 and Figure 4 show the HIN segments identified within the City.

Table 3. Countywide HIN Segments in East Palo Alto

Roadway name	All County Jurisdiction(s) including this HIN Roadway	Total Length, all jurisdictions included (mi)	Motor Vehicle HIN	Bicyclist HIN	Pedestrian HIN
Bayshore Rd	East Palo Alto	1.7	X	X	X
Capitol Ave	East Palo Alto	0.2	X		
Clarke Ave	East Palo Alto	0.3	X		
Donohoe St	East Palo Alto	0.5	X	X	
O'Conner St	East Palo Alto	0.6	X		
Pulgas Ave	East Palo Alto	1.5	X	X	X
Runnymede St	East Palo Alto	0.9		X	
Scofield St	East Palo Alto	0.1	X		
Newbridge St	East Palo Alto, Menlo Park	1	X	X	
University Ave	East Palo Alto, Menlo Park	2.1	X	X	
Willow Rd	East Palo Alto, Menlo Park	2.3	X	X	
U.S. 101	East Palo Alto, Redwood City, South San Francisco	1.2	X		
Bay Rd	East Palo Alto, Redwood City, Unincorporated	3.3	X		X

Figure 4. Countywide HIN within the City of East Palo Alto



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 City 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 5, Figure 6, and Figure 7).

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

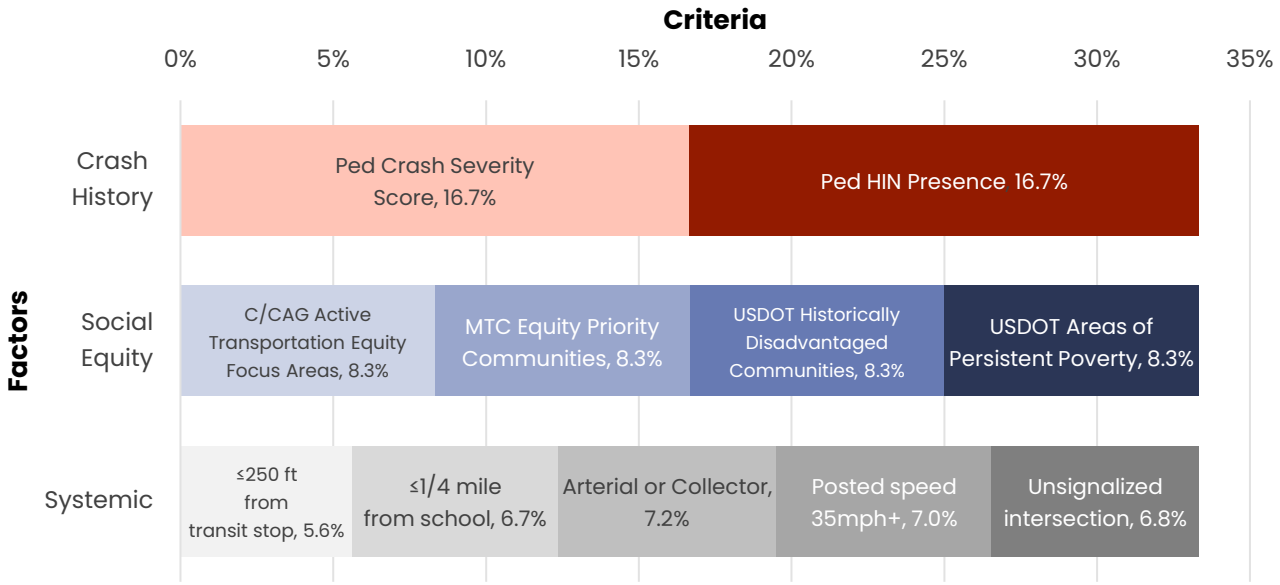


Figure 6. Bicycle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)

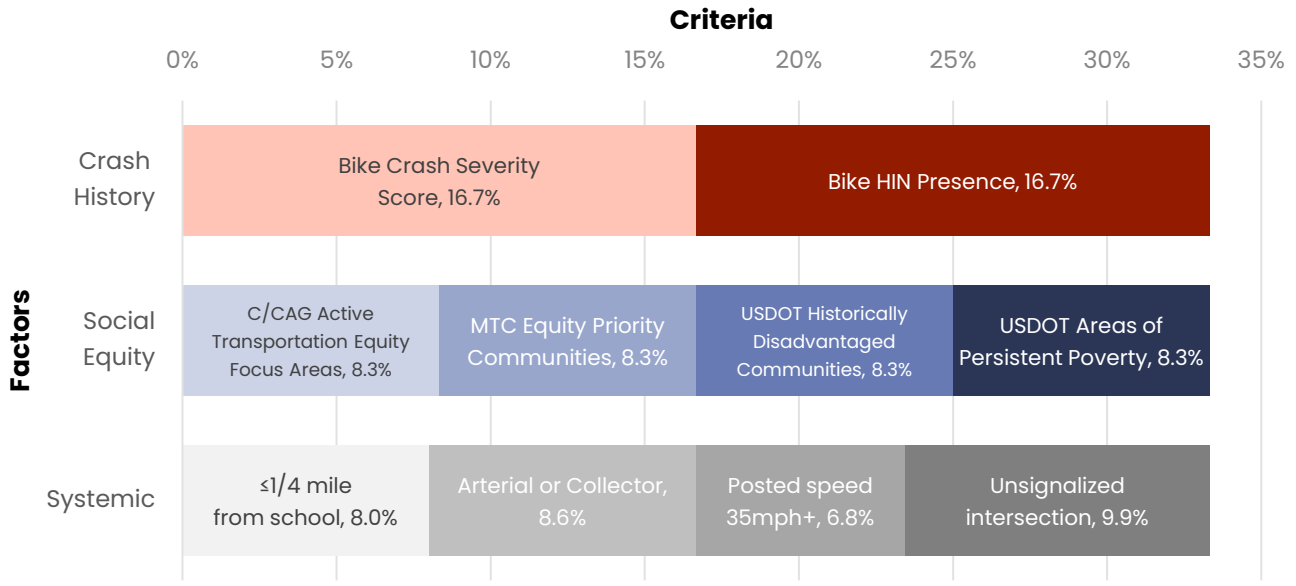
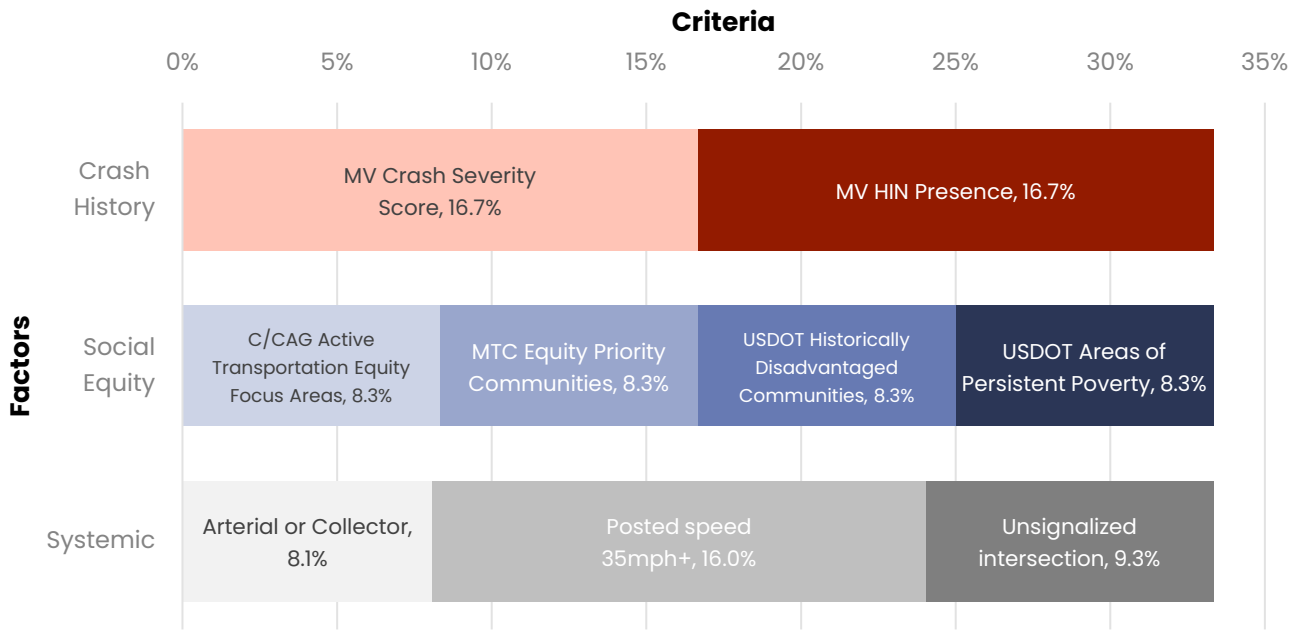


Figure 7. Motor Vehicle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)



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 City to understand which locations meet which measures.

Results

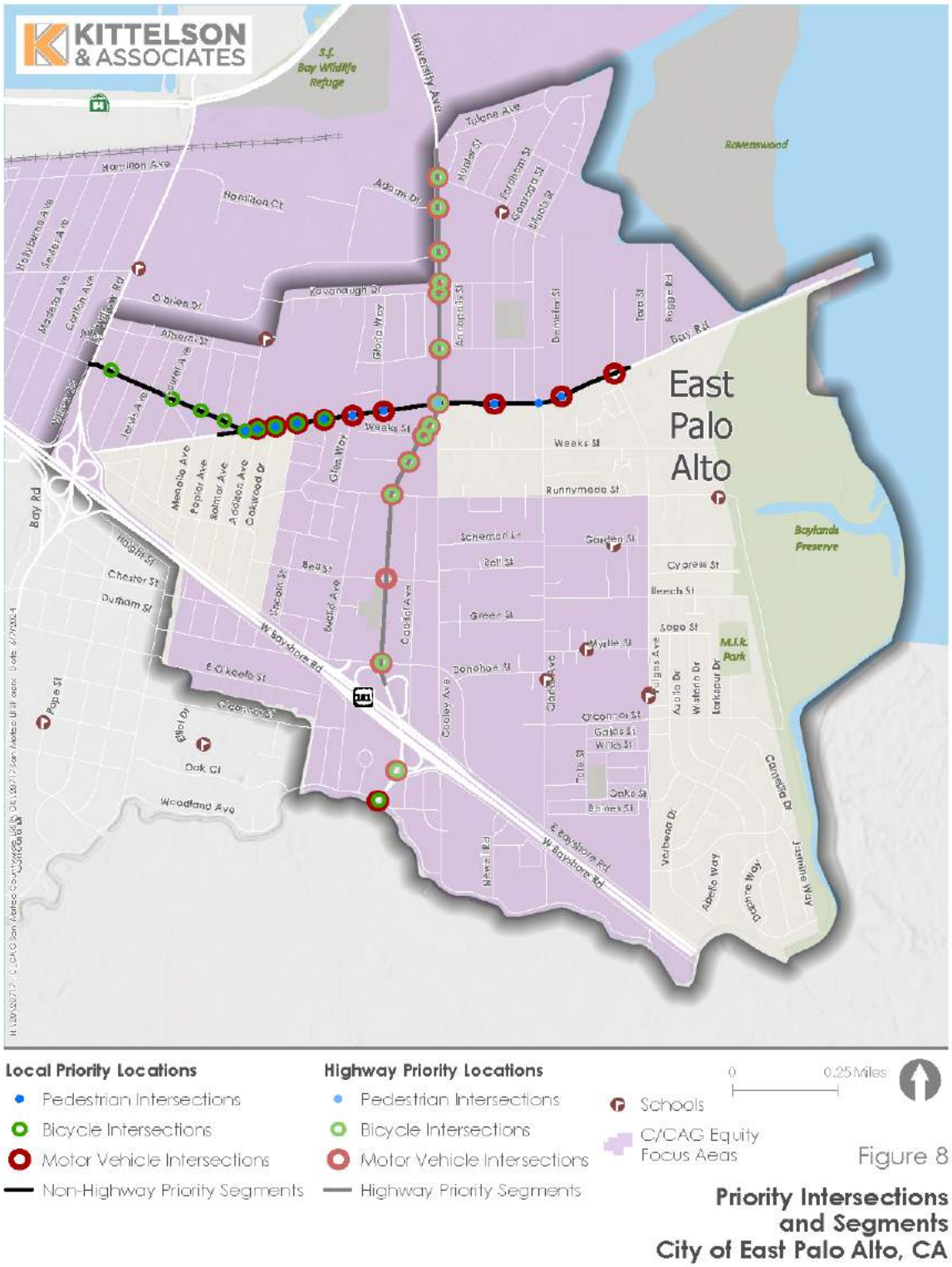
The prioritization resulted in the following top locations. For more details (including the scores of each location), consult Appendix C. Figure 8 also shows the locations.

Table 4. Priority Locations

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
1	Purdue Ave and University Ave	Intersection	Yes	**X**	**X**	
2	University Ave and Weeks St	Intersection	Yes	**X**	**X**	
3	University Ave and Adams Dr	Intersection	Yes	**X**	**X**	
4	University Ave and Michigan Ave	Intersection	Yes	**X**	**X**	
5	Bay Rd and University Ave	Intersection	Yes	**X**	**X**	**X**
6	Notre Dame Ave and University Ave	Intersection	Yes	**X**	**X**	
7	University Ave and Kavanaugh Dr	Intersection	Yes	**X**	**X**	
8	University Ave and Sacramento St	Intersection	Yes	**X**	**X**	
9	Donohoe St and University Ave	Intersection	Yes	**X**	**X**	
10	O'Brien Dr and University Ave	Intersection	Yes	**X**	**X**	
11	Cooley Ave and University Ave	Intersection	Yes	**X**	**X**	

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
12	University Ave and Runnymede St	Intersection	Yes	**X**	**X**	
13	University Ave and Bell St	Intersection	Yes	**X**		
14	Woodland Ave and University Ave	Intersection	No	**X**	**X**	
15	Gloria Way and Bay Rd	Intersection	No	**X**		**X**
16	Glen Way and Bay Rd	Intersection	No	**X**		**X**
17	Bay Rd and Palo Alto Verde Ave	Intersection	No	**X**	**X**	**X**
18	University Ave and 101 Ramps	Intersection	Yes	**X**	**X**	
19	Dumbarton Ave and Bay Rd	Intersection	No	**X**	**X**	**X**
20	Demeter St and Bay Rd	Intersection	No	**X**		**X**
21	Bay Rd and Addison Ave	Intersection	No	**X**	**X**	**X**
22	Oakwood Dr and Bay Rd	Intersection	No	**X**		**X**
23	Pulgas Ave and Bay Rd	Intersection	No	**X**		
24	Bay Rd and Fordham St	Intersection	No	**X**		**X**
25	Bay Rd and Ralmar Ave	Intersection	No		**X**	**X**
26	Clarke Ave and Illinois St	Intersection	No			**X**
27	Newbridge St and Menalto Ave	Intersection	No		**X**	
28	Newbridge St and Poplar Ave	Intersection	No		**X**	
29	Bay Rd and Addison Ave	Intersection	No		**X**	
30	Mello St and Newbridge St	Intersection	No		**X**	
31	Saratoga Ave and Newbridge St	Intersection	No		**X**	
32	Bay Rd, Newbridge St to Pulgas Ave	Corridor	No	**X**	**X**	**X**
33	University Ave (SR 109), N city limits to Donohoe Rd	Corridor	Yes	**X**	**X**	**X**
34	Newbridge St, Bay Rd to W city limits	Corridor	No		**X**	**X**

Figure 8: East Palo Alto Priority Locations



IMPROVEMENTS – ENGINEERING, POLICY & PROGRAMS

This section presents Safe System-aligned recommendations that can create levels of redundancy for traffic safety in the City of East Palo Alto. First are engineering recommendations: identified project scopes and 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 City departments and partners in pursuit of the plan's vision and goals.

Project Scopes

With the development of this plan the project team worked with the City 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 City could consider at these locations. The City 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 City-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:

- University Ave and Weeks St. Recommended improvements include:
    - Intersection lighting at the eastern side of the intersection
    - Raised median refuge islands at the north leg
    - Pedestrian crossings with enhanced safety features (curb extensions and advance "yield" lines)

  - Upgraded intersection pavement markings at the intersection
  - Signal or pedestrian hybrid beacons at the north leg
- University Ave and Bell St. Recommended improvements include:
  - Improved signal hardware (lenses, backplates with retroreflective borders, mounting, size, and number)
  - Restriped intersection pavement markings
  - Centerline hardening or continuous raised median at the north and south legs
  - Advance stop bar before crosswalk at the north and south legs
  - Modified signal phasing to include a leading pedestrian interval at the intersection

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

Engineering Countermeasure Toolbox

This section presents Safe System-aligned engineering recommendations that can create levels of redundancy for traffic safety in the City of East Palo Alto. 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 City departments and partners in pursuit of the plan's vision and goals.

Table 5. City of East Palo Alto 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	$-$$$	Medium
Create directional median openings to allow (and restrict left turns and U-	SI	Signalized local/arterial intersections	0.5	$-$$	Medium

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
turns (signalized intersection)*					
Install raised pavement markers and striping*	SI	Wet, night, all crashes	0.1	$	High
Install flashing beacons as advance warning*	SI	Rear-end, broadside	0.3	$-$$	Medium
No right turn on red	SI	Pedestrian crashes, signalized local/arterial intersections	N/A	$	Medium
Centerline hardening or continuous raised median	SI	All crashes	0.46	$	Medium
Convert intersection to roundabout (from signal)*	SI	Signalized local/arterial intersections	Varies	$-$$$	Low
Install pedestrian countdown signal heads*	SI	Pedestrian crashes, signalized local/arterial intersections	0.25	$	High
Install pedestrian crossing*	SI	Pedestrian crashes, signalized local/arterial intersections	0.25	$	High
Install pedestrian scramble*	SI	Pedestrian crashes, signalized local/arterial intersections	0.4	$	High
Install advance stop bar before crosswalk (bicycle box)*	SI	Pedestrian crashes, signalized local/arterial intersections	0.15	$	High

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
Modify signal phasing to implement a Leading Pedestrian Interval (LPI)	SI	Pedestrian crashes, signalized local/arterial intersections	0.6	$	High
Install painted safety zone	SI	Pedestrian crashes, signalized local/arterial intersections	N/A	$	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
Convert intersection to roundabout (from all-way stop)*	UI	All crashes	Varies	$$$	Low
Convert intersection to roundabout (from STOP or yield control on minor road)	UI	All crashes	Varies	$$$	Low
Convert intersection to mini roundabout*	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 flashing beacons at stop-controlled intersection*	UI	Broadside, rear-end	0.15	$$$	High
Install pedestrian signal or pedestrian hybrid beacon*	UI	Pedestrian and bicycle	0.3	$$$	High
Install transverse rumble strips on approaches	UI	All crashes	0.2	$	High
Install splitter islands on the minor road approaches	UI	All crashes	0.4	$	Medium
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 raised pedestrian crossing	R	Pedestrian and bicycle	0.35	$	Medium
Remove or relocate fixed objects outside of Clear Recovery Zone	R	Hit object	0.35	$-$$	High
Install delineators, reflectors, and/or object marker*	R	All crashes	0.15	$	High

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
Install/upgrade signs with new fluorescent sheeting (regulatory or warning)	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
Pedestrian phase recall	SI	Pedestrian	N/A	$	High
Extend green time for bicycles	SI	Bicycle	N/A	$	High
Extend yellow and all-red time	SI	All crashes	N/A	$	High
Lane narrowing	R	All crashes	N/A	$-$$	Low
Bicycle crossing (solid green paint)	UI	Bicycle	N/A	$	Medium
Bicycle signal/exclusive bicycle phase	SI	Bicycle	N/A	$-$$	Low
Curb extensions	UI	All crashes	N/A	$-$$	Low
ADA-compliant directional curb ramps and audible push buttons	SI	Pedestrian	N/A	$-$$	Low
Curb radius reduction	SI, UI	All crashes	N/A	$$	Low
Splitter islands	SI, UI	All crashes	N/A	$$	Medium
Approach curvature	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

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 6. City of East Palo Alto Policy and Program Recommendations

Category	Near-Term Recommendations	Long-Term or Ongoing Recommendations
Local Culture Shift (LCS)	LCS1: Transportation Safety Advisory Committee participation	LCS2: High-Visibility Media Campaign LCS3: Communication Protocol LCS4: Implement Car-Free Zones
Local Enforcement Coordination (LEC)		LEC2: Speed Monitoring Awareness Radar Trailer LEC3: Graduated Traffic Fine Structure LEC4: Bicycle and Pedestrian Citation Diversion Program
Local Funding (LF)	LF1: Dedicated Funding	LF2: Equitable Investment LF3: Prioritize Investments
Local Education / Outreach (LEO)		LEO1: Roadway Safety Education in Schools LEO3: Educational Materials for New Facilities LEO5: Smart City Fleets
Local Planning/ Evaluation (LPE)		LPE1: Annual Review LPE2: Plan Update LPE3: Safety and Equity Impacts Evaluation LPE4: Safe Routes to School LPE8: Speed Limits/Speed Management Plan

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: City of East Palo Alto 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: City of East Palo Alto Public Works

LONG-TERM OR ONGOING ACTIONS

LCS2: High-Visibility Media Campaign

Coordinate with County Public Health and the City of East Palo Alto 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, Sustainability Department, SMCOE, City of East Palo Alto Police Department, City of East Palo Alto 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: City of East Palo Alto Public Works

LCS4: Implement Car-Free Zones

More effectively target resources to pedestrian crash problems in a limited geographic area. Realizing these zones requires upfront analysis and planning, countermeasure development, and implementation. Implementation can focus on addressing particular problems or on increasing general safety in specific areas during windows of peak pedestrian activity. (For example: Friday nights in commercial districts, Sundays on recreational routes/areas, etc.)
Lead agency: City of East Palo Alto Public Works

LEC2: Speed Monitoring Awareness Radar Trailer

Coordinate with East Palo Alto 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: City of East Palo Alto Police Department
Coordinating partners: City of East Palo Alto Public Works

LEC3: Graduated Traffic Fine Structure

Through the legislative agenda, advocate for an income-based graduated traffic fine structure at the state level, so they do not disproportionately impact people with lower incomes.
Lead agency: C/CAG
Coordinating partners: City of East Palo Alto Public Works

LEC4: Bicycle and Pedestrian Citation Diversion Program

Implements an alternative citation structure for bicyclists and pedestrians. Upon incurring a traffic violation, these users can reduce or remove the fee associated with the violation by instead attending a class. Requires local law enforcement to sanction preexisting curricula or to sanction original material of their own.
Lead agency: City of East Palo Alto Police Department

LF2: Equitable Investment

Prioritize citywide 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: City of East Palo Alto 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: City of East Palo Alto 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, Sustainability Department, SVBC

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: City of East Palo Alto Public Works

LEO5: Safe City Fleets

Provide educational materials for City staff who drive City vehicles and integrate safety awareness training into contracting process with vendors who provide City services. Other measures include installing safety features (such as pedestrian/obstacle detection and speed tracking) on City vehicles and reporting on correction plans against unsafe driving.

Lead agency: City of East Palo Alto Public Works

LPE1: Annual Review

Provide an annual review of plan implementation progress. This review includes an update and presentation to City Council as well as a written update to the TSAC so that C/CAG may compile county plan implementation status.
Lead agency: City of East Palo Alto 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: City of East Palo Alto 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 City 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 City.
Lead agency: SMCOE
Coordinating partners: City of East Palo Alto Public Works

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: City of East Palo Alto Public Works

IMPLEMENTATION & MONITORING

A key part of achieving East Palo Alto's vision is consistently evaluating roadway safety performance and tracking progress towards the goals. The City of East Palo Alto will develop a process to regularly collect data and information around the performance measures that can be used to assess changes city-wide and at the top priority locations.

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

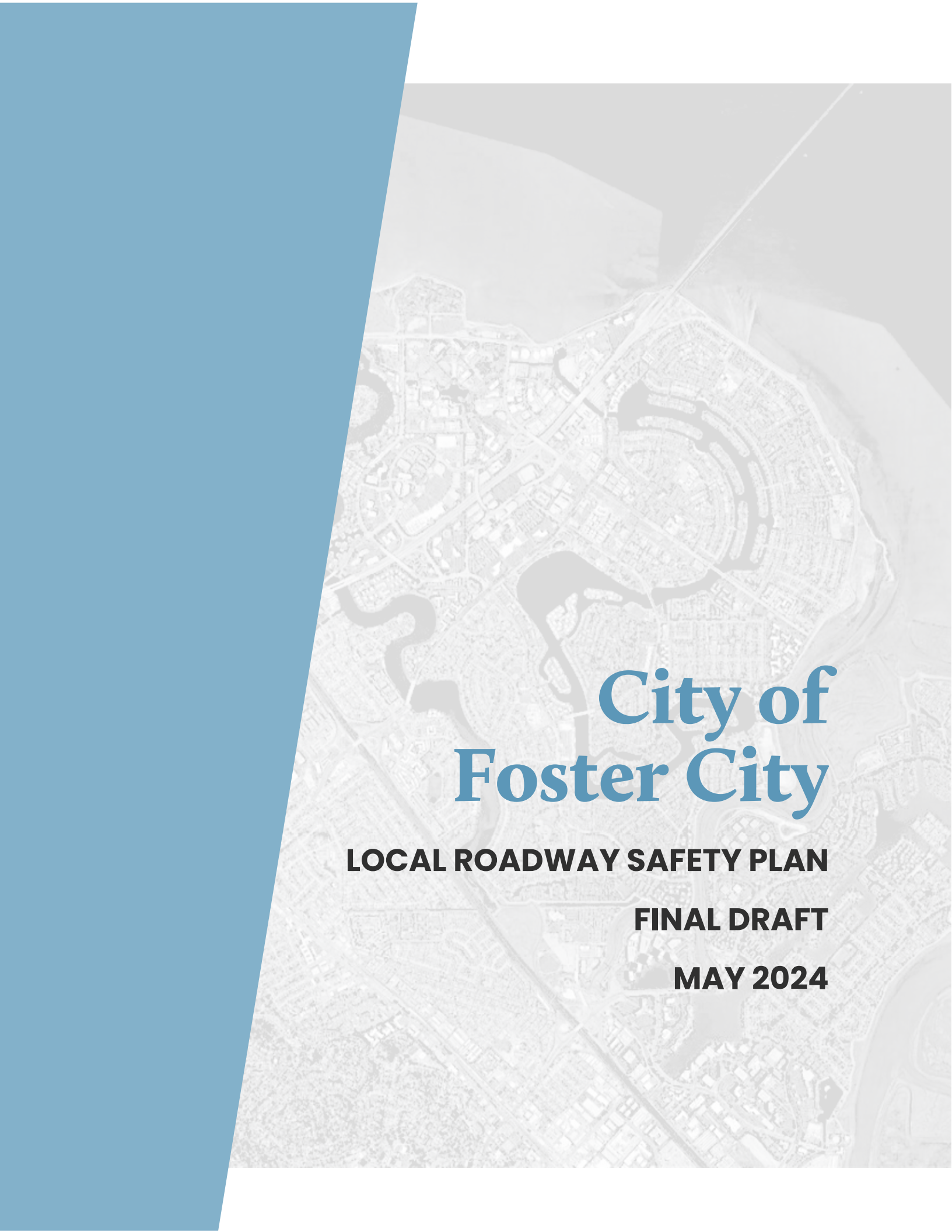
This section identifies recommendations for East Palo Alto and other county-level safety partners to implement the plan. These are aligned with the Safe System Approach and include a framework to measure plan progress over time.

Table 7. City of East Palo Alto Goals and Measures of Success

GOAL	MEASURE OF SUCCESS
1. Eliminate traffic fatalities and reduce the number of non-fatal injury crashes by 50 percent by 2030.	• 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 • 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 City 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 City • Community engagement included as part of all C/CAG-funded safety project development activities • Number of engagement touchpoints and number of community member interactions citywide for safety plans or projects. • Report-backs to the City Council and TSAC regarding community engagement, including information about outreach to disadvantaged communities where applicable • Percent of school district participation in SRTS and roadway safety education opportunities • Number of trainings city staff have participated in regarding Safe System elements, available tools, or practices • Improved data availability or maintenance to enhance safety analysis and practice

City of East Palo Alto

San Mateo C/CAG Countywide LRSP



City of Foster City

LOCAL ROADWAY SAFETY PLAN

FINAL DRAFT

MAY 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 City'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 City 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.

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INTRODUCTION

This chapter serves as a standalone local roadway safety plan (LRSP) for the City of Foster City. 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 City will revisit and update this LRSP at least every five years.

The City of Foster City has a 2023 population of 32,703 per California Department of Finance. The city has 50 total centerline miles per Caltrans 2022 California Public Road Data. From 2018 through 2022, there were 150 reported crashes on surface streets in the City and 13 fatal/severe injury crashes. In that time period, pedestrians were involved in 13 percent of all reported crashes and 46 percent of fatal/severe injury crashes. Bicyclists were involved in 11 percent of all reported crashes and 23 percent of fatal/severe injury crashes. The LRSP provides Safe System-aligned strategies tailored to Foster City's crash history and local priorities, as well as performance measures to evaluate progress.

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

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

VISION & GOALS

The City of Foster City's vision for roadway safety is:

- Eliminate all traffic fatalities and reduce the number of non-fatal crashes by 50 percent by 2050 as part of a broader effort to promote roadway safety in Foster City's departments, businesses, and residents.

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

1. Regularly review crash history and community needs to identify and prioritize opportunities to reduce crash risk for roadway users of all ages and abilities.
2. Provide opportunities for community engagement to identify issues and inform safety solutions across the community.

PLAN DEVELOPMENT

Existing Safety Efforts

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

Table 1. City of Foster City 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
General citywide improvement initiatives	The City plans to improve safety through multiple tools and programs. The Police Department will enforce policies and help to lead public education programs. Meanwhile, the Traffic Review Committee will map and monitor collisions, conduct speed surveys, and review safety improvements to make recommendations.	Safe Roads, Safe Speeds, Safe Road Users, Safe Vehicles

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 Foster City'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
- Sustainability Department
- 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
- Foster City Police Department

Figure 1. Phase 1 pop-up event held as part of the City of Foster City's "Summer Days."

Community Engagement and Input

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

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 City's plan. These events focus on jurisdiction-specific issues and on countywide concerns. The table below lists the events, organized by themed engagement phases, and is followed by the community input themes we heard.

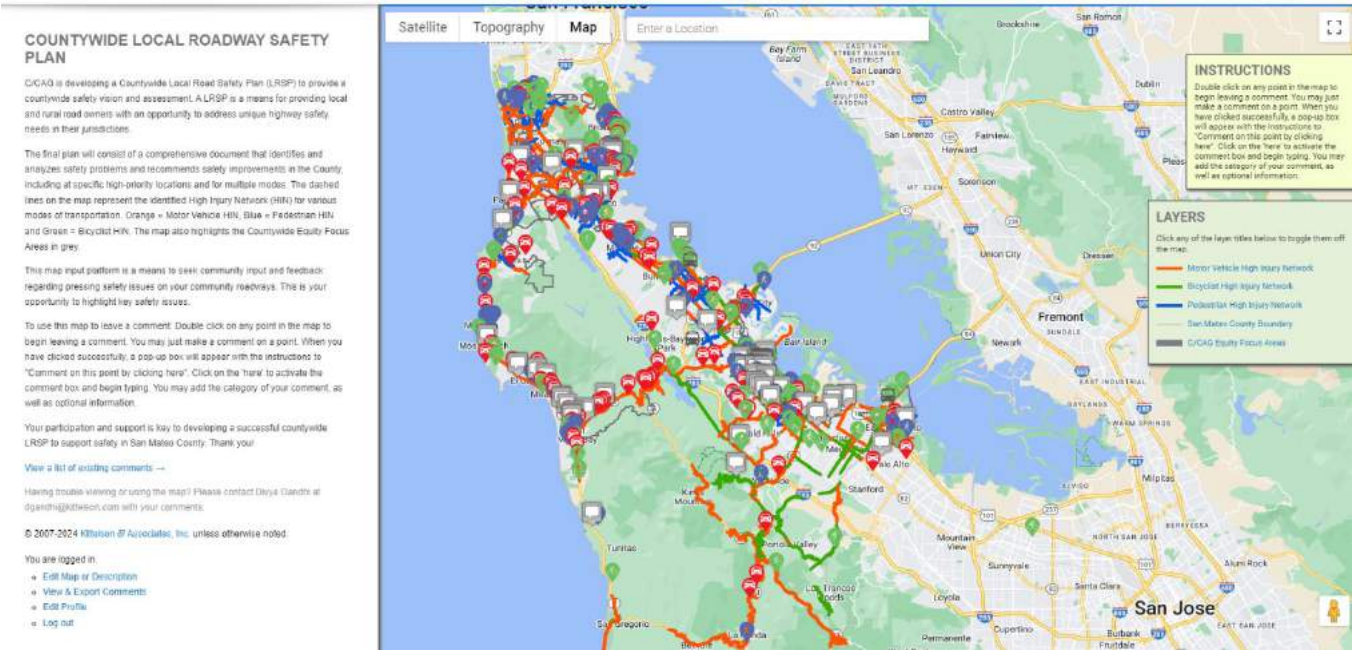
Table 2. Community Engagement Phases and Events

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). 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 five comments made within the City of Foster City in addition to the conversations and feedback recorded at the Phase 1 event in August. The comments included the following:

Biking Concerns/Requests

- Request to add new bike infrastructure such as bike lanes. Noted location includes San Mateo Bridge.

Pedestrian Concerns/Requests

- Signage requests including push buttons for WALK signs and pedestrian hybrid beacons.

Traffic Enforcement Concerns

- Concerns regarding speeding observed and requests for traffic calming, especially near school zones.

Roadway Infrastructure/ Traffic Operations Concerns

- Concerns regarding high traffic volumes and traffic congestion on Highway 101.
- Requests to improve signal timing design to reduce intersection delay.

The location and modal emphasis of comments in Foster City is presented in Figure 44. The comments received are provided in Appendix A. The project team also identified common themes in the responses made countywide which may be relevant to the City. Those are presented in the Community Engagement section of the Countywide LRSP.

Figure 3. Webmap Comments in Foster City

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 System[1] (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. For a more complete description of trends and findings, refer to Appendix B.

Emphasis Areas

The project team analyzed crash data in Foster City and compared countywide trends to establish emphasis areas. Emphasis areas are crash dynamic, behavioral, or road user characteristics that the City 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 City of Foster City:

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 Foster City, pedestrians and bicyclists were involved in 46 percent and 23 percent of the 13 reported F/SI crashes—higher than their overall share of all injury crashes (13 percent and 11 percent, total).
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 Foster City, four of the six fatal/severe injury pedestrian crashes (67 percent) and three of the four fatal/severe injury motor vehicle crashes (75 percent) occurred in dark conditions.
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. **Vulnerable age groups (youth and aging).** Countywide across all modes, crash victims between the 15 to 34 years old are more likely to be injured including F/SI as a result of traffic safety than other groups. Victims between the ages 50 – 69 and 75 to 84 are also more likely to be severely injured than other groups. In Foster City, 8 crashes or 5 percent of all reported injury crashes involve at fault drivers who are under 30 years old.

[1] Transportation Injury Mapping System, http://tims.berkeley.edu

5. **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 Foster City, "Too fast for conditions" was the top-cited violation among motor vehicle crashes (in 39 percent of injury crashes).
6. **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.

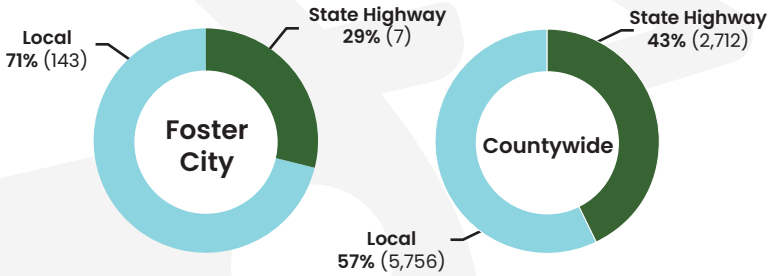
The next pages present summary findings from a crash data review that compares the City of Foster City to countywide trends in these emphasis areas. It includes summary statistics related to the above-cited emphasis areas but also shows:

- The share of local crashes that occurred on or at a State Highway facility compared to Countywide levels.
- The most frequently reported local 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 locally, bicyclist crashes account for a higher share of F/SI crashes than among all injury levels.
- The share of local and Countywide crashes occurring in dark conditions for crashes of all injury levels and for F/SI crashes (organized by mode).
- Reported pedestrian and bicyclist crashes summarized by the most common preceding movements countywide, with a comparison of those movements' share of local crashes to Countywide shares.
- The local and Countywide share of crashes involving drugs or alcohol and involving drivers under age 30.

Foster City—Crash History

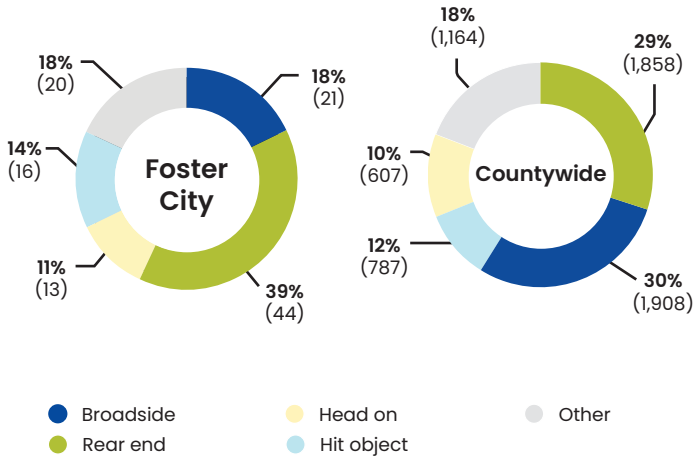
Total Crashes

In Foster City, 150 fatal and injury crashes were reported on at-grade facilities between 2018 – 2022, where:



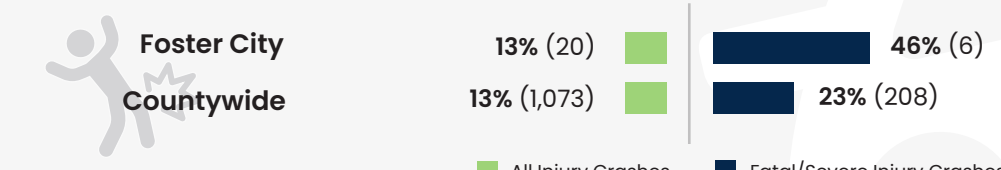
Most Frequent Collision Types

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

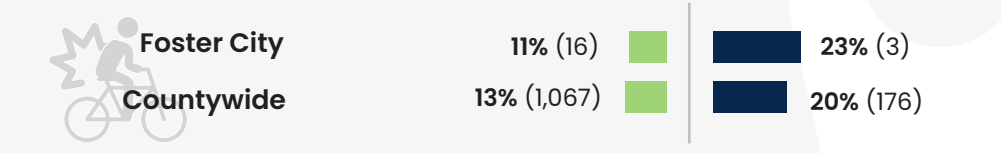


Mode Involvement

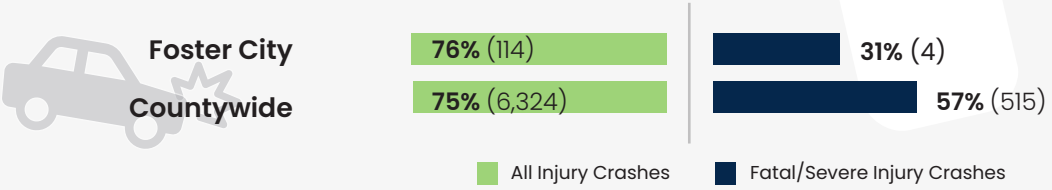
Pedestrian Crashes (20)



Bicycle Crashes (16)



Motor Vehicle[1] Crashes (114)



3% (5)
of reported collisions in Foster City involved drugs or alcohol

8% (625) Compared to the countywide total, where 8% (625) of reported collisions involved drugs or alcohol

5% (8)
of reported collisions in Foster City involved young drivers[2]

5% (472) Compared to the countywide total, where 5% (472) of reported collisions involved young drivers[2]

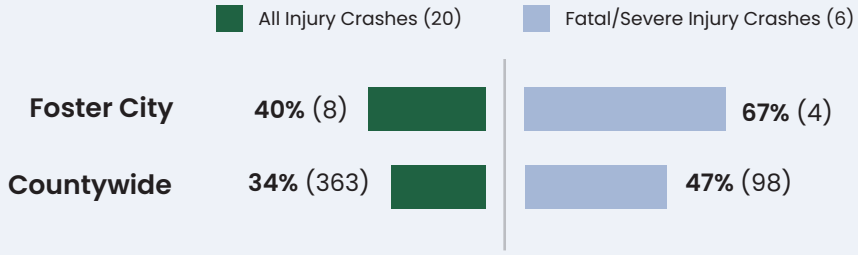
1. *Motor crashes include motor vehicles and motorcyclists.*
2. *Young driver crashes are crashes that involve at fault drivers who are under 30 years old.*

Foster City—Crash History

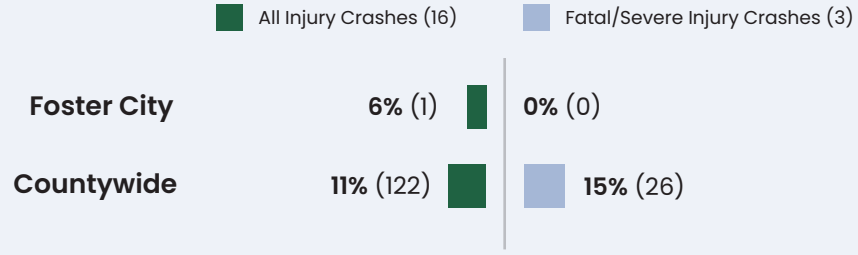
Dark Conditions

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

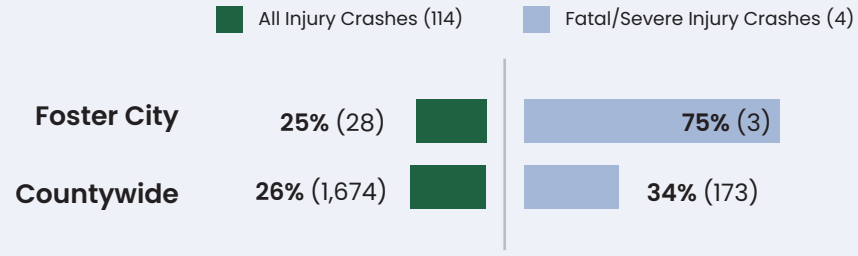
Share of Pedestrian Crashes in Dark Conditions (8)



Share of Bicyclist Crashes in Dark Conditions (1)

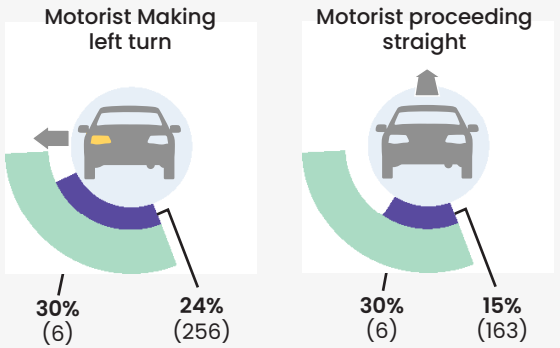


Share of Motor Vehicle Crashes in Dark Conditions (28)

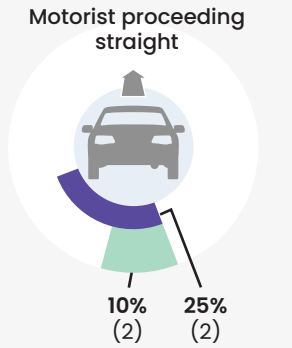


Reported Pedestrian Crashes (20)

Pedestrian Crossing at Intersection

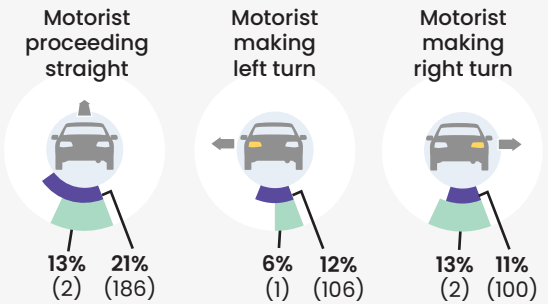


Pedestrian Crossing Not at a Crosswalk

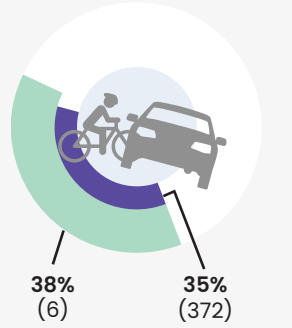


Reported Bicycle Crashes (16)

Bicyclist Proceeding Straight



Perpendicular Bicyclist Crashes



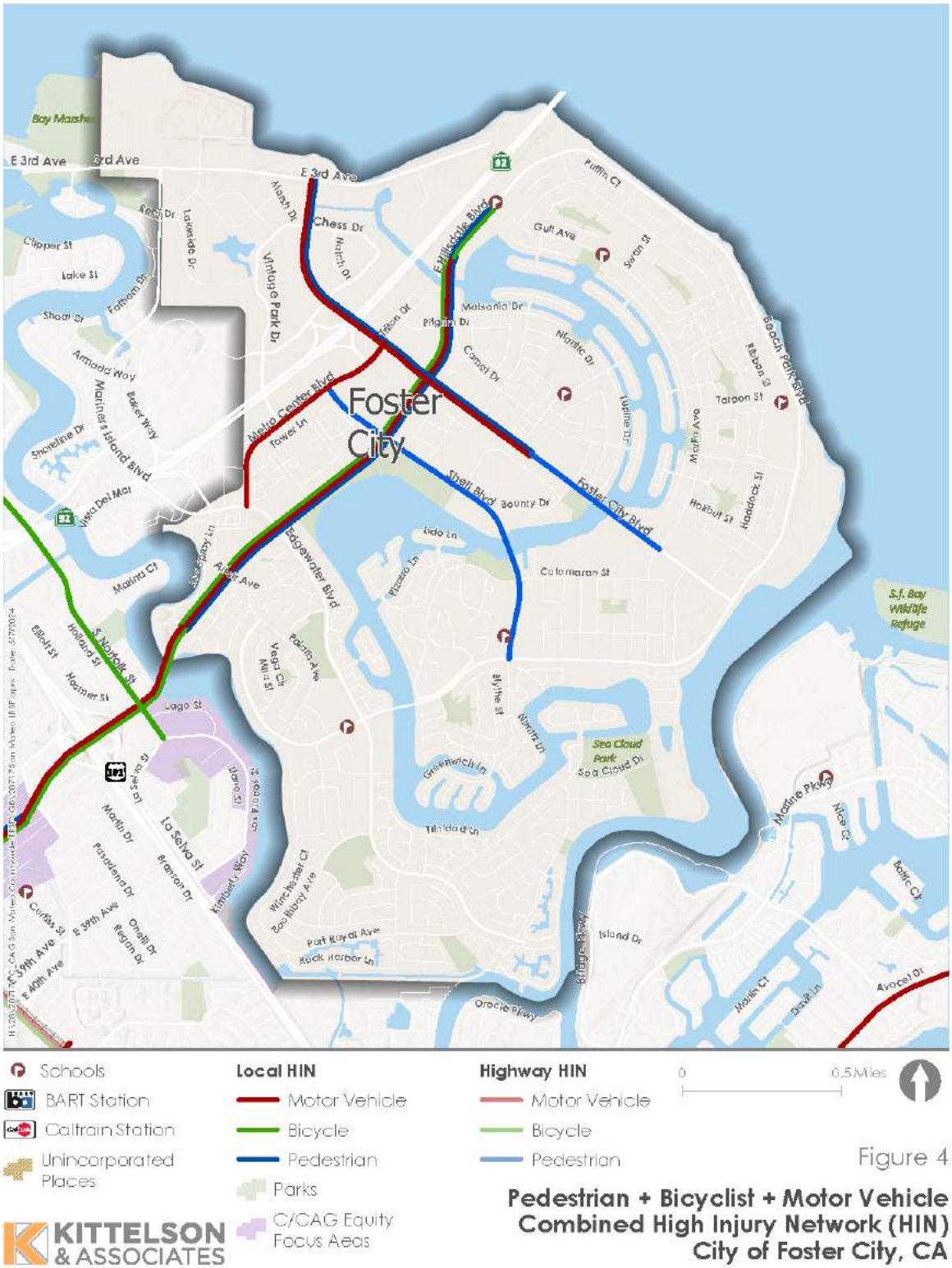
Countywide High Injury Network

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 3 and Figure 4 show the HIN segments identified within the City.

Table 3. Countywide HIN Segments in Foster City

Roadway name	All County Jurisdiction(s) including this HIN Roadway	Total Length, all jurisdictions included (mi)	Motor Vehicle HIN	Bicyclist HIN	Pedestrian HIN
Foster City Blvd	Foster City	1.7	X		X
Metro Center Blvd	Foster City	0.7	X		
Shell Blvd	Foster City	1.1			X
Hillsdale Blvd	Foster City, San Mateo	3.9	X	X	X

Figure 4. Countywide HIN within the City of Foster City



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 City 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 46, Figure 47, and Figure 48).

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

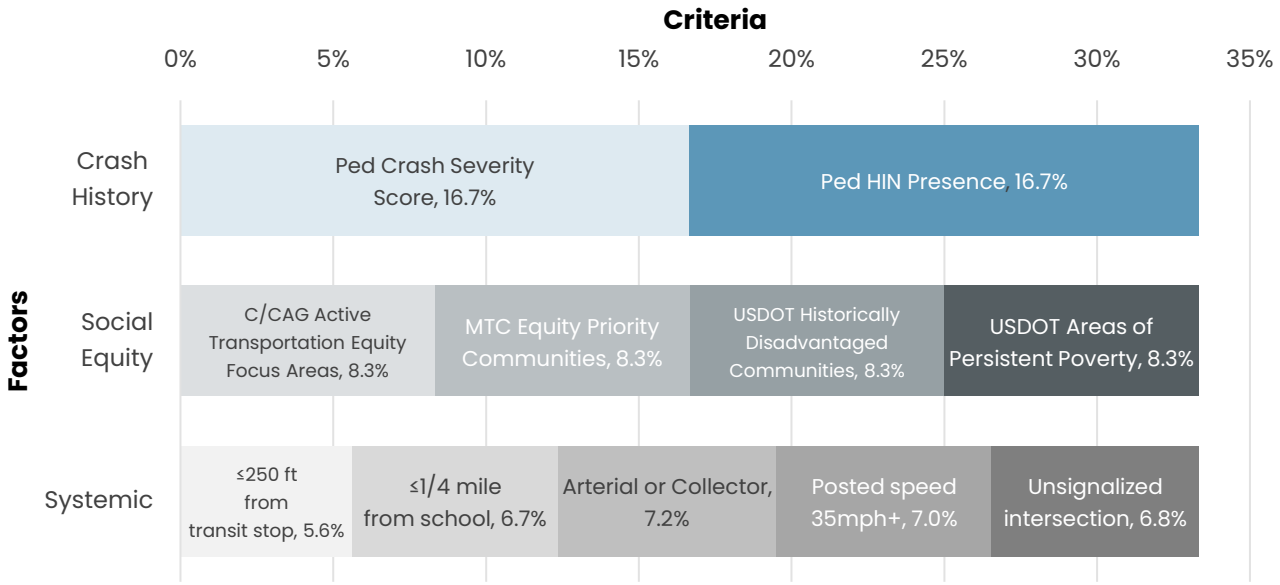


Figure 6. Bicycle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)

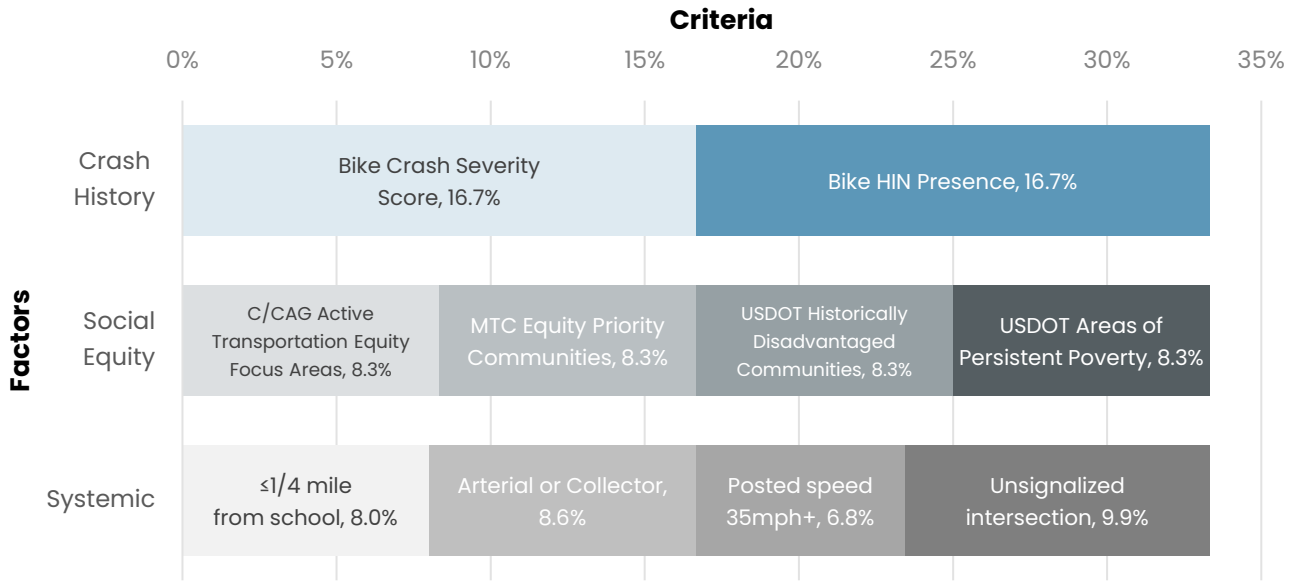
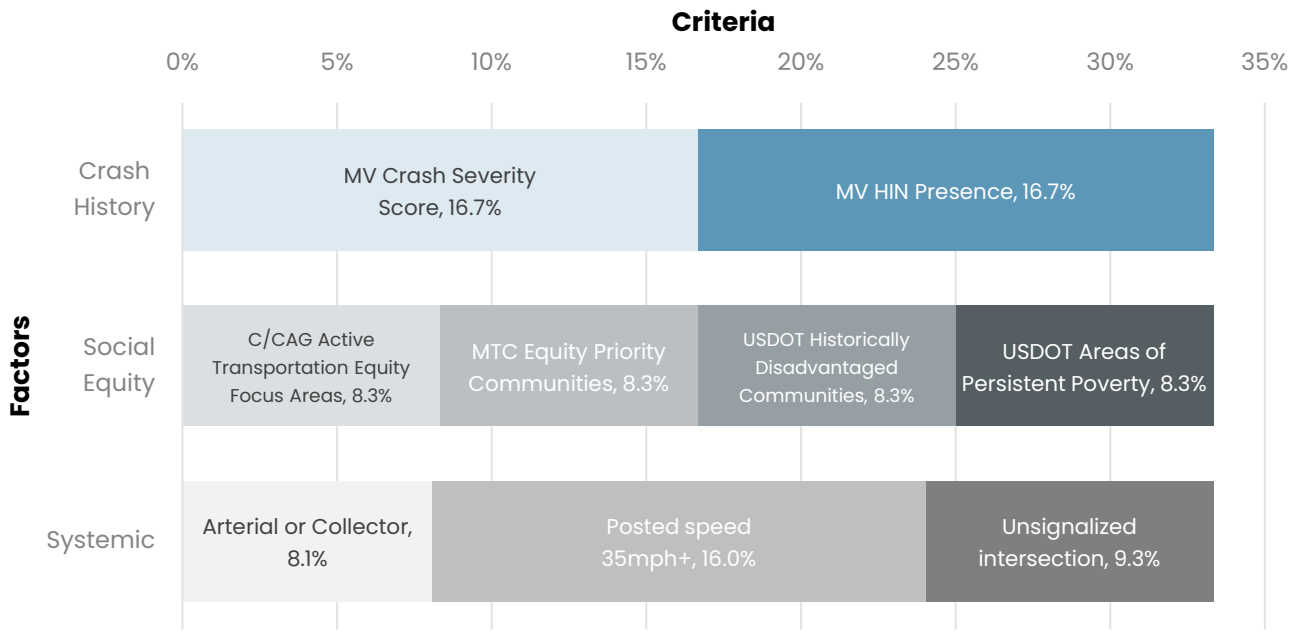


Figure 7. Motor Vehicle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)



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 City 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 C. Figure 8 also shows the locations.

Table 4. Priority Locations

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
1	Chess Dr and Foster City Blvd	Intersection	No	**X**		
2	Regulus St and Edgewater Blvd	Intersection	No	**X**		
3	Catamaran St and Shell Blvd	Intersection	No	**X**		**X**
4	Galleon Ln and Foster City Blvd	Intersection	No	**X**	**X**	**X**
5	Hillsdale Blvd and Parkway Ln	Intersection	No	**X**	**X**	**X**
6	Marlin Ave and Foster City Blvd	Intersection	No	**X**		**X**
7	Foster City Blvd and 3rd Ave	Intersection	No	**X**		
8	Beach Park Blvd and Egret St	Intersection	No	**X**	**X**	
9	Altair Ave and Edgewater Blvd	Intersection	No	**X**		
10	Marlin Ave and Beach Park Blvd	Intersection	No	**X**		
11	3rd Ave and Mariners Island Blvd	Intersection	No	**X**		

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
12	Commons Ln and Metro Center Blvd	Intersection	No	**X**		
13	Foster City Blvd and Caravel Ln	Intersection	No		**X**	**X**
14	Shell Blvd and Bounty Dr	Intersection	No			**X**
15	Hillsdale Blvd and Meridian Bay Ln	Intersection	No		**X**	**X**
16	Hillsdale Blvd and Admiralty Ln	Intersection	No		**X**	**X**
17	Foster City Blvd and Civic Center Dr	Intersection	No			**X**
18	Foster City Blvd and Admiralty Ln	Intersection	No			**X**
19	Shell Blvd and Civic Center Dr	Intersection	No			**X**
20	Hillsdale Blvd and Portal Ln	Intersection	No		**X**	
21	Promontory Point Ln and Hillsdale Blvd	Intersection	No		**X**	
22	Foster City Blvd and Hillsdale Blvd Edgewater Blvd and Dorado Ln	Intersection	No		**X**	
23	Beach Park Blvd and Swordfish St	Intersection	No		**X**	
24	Edgewater Blvd and Ram Ln	Intersection	No		**X**	
25	Tarpon St and Beach Park Blvd	Intersection	No		**X**	
26	Foster City Blvd, Chess Dr to Bounty Dr	Corridor	No	**X**	**X**	**X**
27	Hillsdale Blvd, Sea Spray Ln to north of Pilgrim Dr	Corridor	No	**X**	**X**	**X**
28	Shell Blvd, Hillsdale Blvd to Beach Park Blvd	Corridor	No	**X**		**X**
29	Edgewater Blvd, Hillsdale Blvd to Beach Park Blvd	Corridor	No	**X**	**X**	
30	Hillsdale/Beach Park Blvd, Pilgrim Dr to Foster City Blvd	Corridor	No	**X**	**X**	

Figure 8: Foster City Priority Locations

IMPROVEMENTS – ENGINEERING, POLICY & PROGRAMS

This section presents Safe System-aligned recommendations that can create levels of redundancy for traffic safety in the City of Foster City. First are engineering recommendations: identified project scopes and 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 City departments and partners in pursuit of the plan's vision and goals.

Project Scopes

With the development of this plan the project team worked with the City 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 City could consider at these locations. The City 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 City-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:

- Shell Blvd and Civic Center Dr. Recommended improvements include:
    - Upgraded, larger stop sign at Civic Center Dr
    - Installation of a pedestrian crossing at the west leg of the intersection

    - Installation of a pedestrian hybrid beacon at the west leg of the intersection
- Marlin Ave and Foster City Blvd. Recommended improvements include:
    - Change of traffic control
    - Pedestrian countdown signal heads
    - Advance stop bar before all crosswalks (bicycle box)

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

Engineering Countermeasure Toolbox

This section presents Safe System-aligned engineering recommendations that can create levels of redundancy for traffic safety in the City of Foster City. 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 City departments and partners in pursuit of the plan's vision and goals.

Table 5. City of Foster City 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 raised pavement markers and striping*	SI	Wet, night, all	0.1	$	High
Install flashing beacons as advance warning (SI)*	SI	Rear end, broadside	0.3	$-$$	Medium
Centerline hardening or continuous raised median	SI	All crashes	0.46	$	Medium

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
Install pedestrian countdown signal heads*	SI	Pedestrian crashes, signalized local/arterial intersections	0.25	$	High
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
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
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	0.25	$	High

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
		of driver awareness			
Install pedestrian signal or pedestrian hybrid beacon*	UI	Pedestrian and bicycle	0.3	$$$	High
Road diet (Reduce travel lanes from four to three, and add a two-way, left-turn lane and bike lanes)*	R	All crashes	0.35	$	Medium
Corridor access management	R	N/A	0.35	$	Medium
Install separated bike lanes*	R	Pedestrian and bicycle	0.45	$-$$	High
Install/upgrade pedestrian crossing (with enhanced safety features)*	R	Pedestrian and bicycle	0.35	$$-$$$	Medium
Install raised pedestrian crossing*	R	Pedestrian and bicycle	0.35	$	Medium
Remove or relocate fixed objects outside of clear recovery zone*	R	Hit object	035	$-$$	High
Install delineators, reflectors, and/or object marker*	R	All crashes	0.15	$	High
Install/upgrade signs with new fluorescent sheeting (regulatory or warning)*	R	All crashes	0.15	$	High
Install dynamic/variable speed warning signs*	R	Driver behavior	0.3	$	High
Extend pedestrian crossing time	SI	Pedestrian	N/A	$	High
Pedestrian phase recall	SI	Pedestrian	N/A	$	High
Extend green time for bikes	SI	Bicycle	N/A	$	High
Extend yellow and all-red time	SI	All crashes	N/A	$	High
Lane narrowing	R	All crashes	N/A	$-$$	Low

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
Bicycle crossing (solid green paint)	UI	Bicycle	N/A	$	Medium
Bicycle signal/exclusive bike phase	SI	Bicycle	N/A	$-$$	Low
ADA-compliant directional curb ramps and audible push buttons	SI	Pedestrian	N/A	$-$$	Low
Curb radius reduction	SI, UI	All crashes	N/A	$$	Low
Approach curvature	UI, SI	All crashes	N/A	$$$	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

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 6. City of Foster City Policy and Program Recommendations

Category	Near-Term Recommendations	Long-Term or Ongoing Recommendations
Local Culture Shift (LCS)	LCS1: Transportation Safety Advisory Committee participation	LCS2: High-Visibility Media Campaign
Local Enforcement Coordination (LEC)		LEC2: Speed Monitoring Awareness Radar Trailer
Local Funding (LF)	LF1: Dedicated Funding	LF2: Equitable Investment LF3: Prioritize Investments
Local Education / Outreach (LEO)		LEO1: Roadway Safety Education in Schools LEO3: Educational Materials for New Facilities
Local Planning/ Evaluation (LPE)		LPE1: Annual Review LPE2: Plan Update LPE4: Safe Routes to School LPE8: Speed Limits/Speed Management Plan

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: City of Foster City 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: City of Foster City Public Works

LONG-TERM OR ONGOING ACTIONS

LCS2: High-Visibility Media Campaign

Coordinate with County Public Health and the City of Foster City 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, Sustainability Department, SMCOE, City of Foster City Police Department, City of Foster City Public Works

LEC2: Speed Monitoring Awareness Radar Trailer

Coordinate with Foster City 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: City of Foster City Police Department
Coordinating partners: City of Foster City Public Works

LF2: Equitable Investment

Prioritize citywide 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: City of Foster City 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: City of Foster City 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, Sustainability Department, SVBC

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: City of Foster City Public Works

LPE1: Annual Review

Provide an annual review of plan implementation progress. This review includes an update and presentation to City Council as well as a written update to the TSAC so that C/CAG may compile county plan implementation status.
Lead agency: City of Foster City 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: City of Foster City Public Works

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 City.
Lead agency: SMCOE
Coordinating partners: City of Foster City Public Works

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: City of Foster City Public Works

IMPLEMENTATION & MONITORING

A key part of achieving Foster City's vision is consistently evaluating roadway safety performance and tracking progress towards the goals. The City of Foster City will develop a process to regularly collect data and information around the performance measures that can be used to assess changes city-wide and at the top priority locations.

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

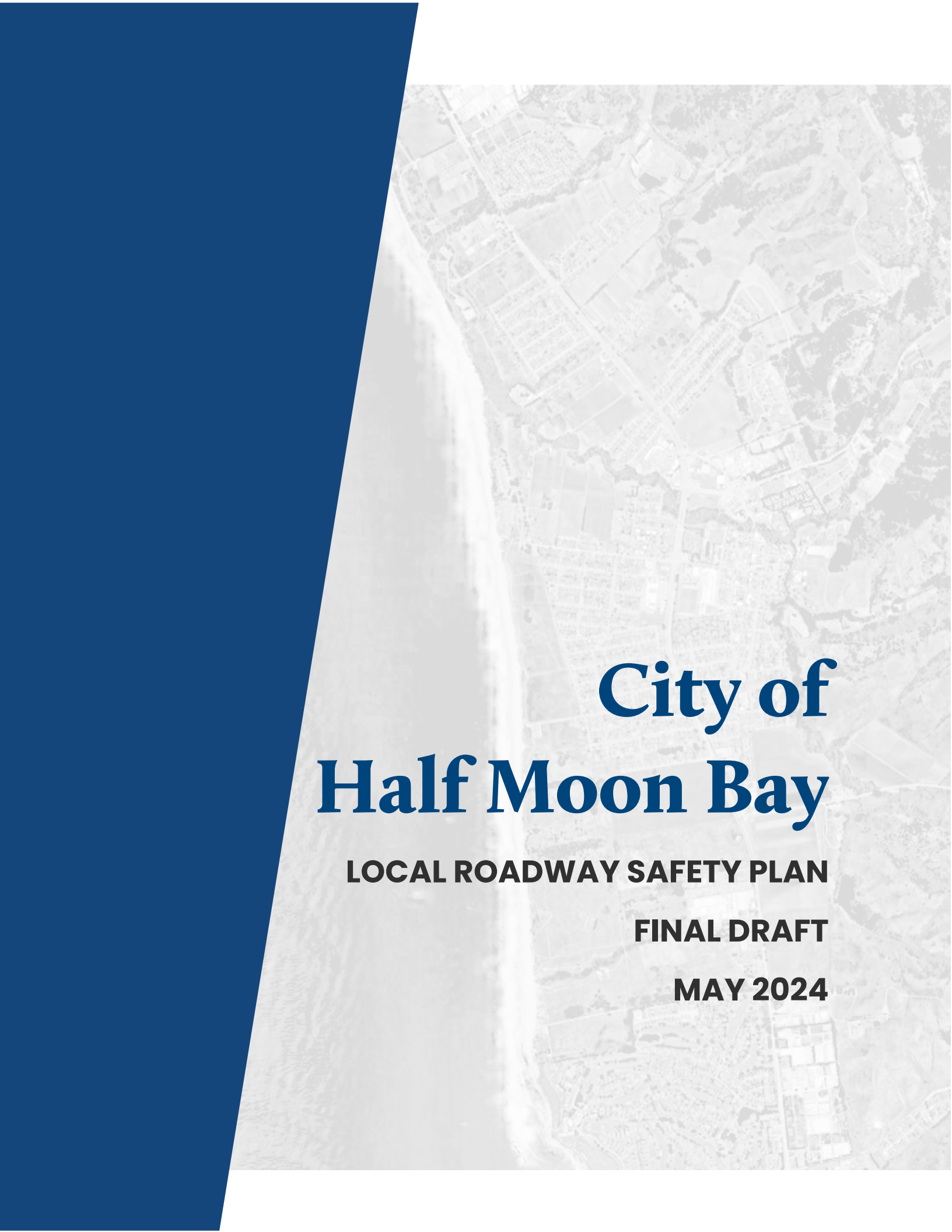
This section identifies recommendations for Foster City and other county-level safety partners to implement the plan. These are aligned with the Safe System Approach and include a framework to measure plan progress over time.

Table 7. Foster City Goals and Measures of Success

GOAL	MEASURE OF SUCCESS
1. Regularly monitor crashes to respond to safety problems and changing conditions. Prioritize locations with high crash rates for safety improvements.	• 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 • Implementation of a high-visibility media campaign • Report-backs to the City Council and TSAC regarding community engagement, including information about outreach to disadvantaged communities where applicable • Number of trainings city staff have participated in regarding Safe System elements, available tools, or practices • Improved data availability or maintenance to enhance safety analysis and practice
2. Provide opportunities for community engagement to identify issues and inform safety solutions across the community.	• 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 City Council and TSAC regarding community engagement, including information about outreach to disadvantaged communities where applicable. • Expansion of SRTS and Roadway Safety Education in Schools programs to more schools within the City • Community engagement included as part of all C/CAG-funded safety project development activities • Number of engagement touchpoints and number of community member interactions citywide for safety plans or projects. • Percent of school district participation in SRTS and roadway safety education opportunities

City of Foster City

San Mateo C/CAG Countywide LRSP



City of Half Moon Bay

LOCAL ROADWAY SAFETY PLAN

FINAL DRAFT

MAY 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 City'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 City 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.

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INTRODUCTION

This chapter serves as a standalone local roadway safety plan (LRSP) for the City of Half Moon Bay. 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 City will revisit and update this LRSP at least every five years.

The City of Half Moon Bay has a 2023 population of 11,226 per California Department of Finance. The city has 30 total centerline miles per Caltrans 2022 California Public Road Data. From 2018 through 2022, there were 145 reported crashes on surface streets in the City and 17 fatal/severe injury crashes. In that time period, pedestrians were involved in 9 percent of all reported crashes and 18 percent of fatal/severe injury crashes. Bicyclists were involved in 10 percent of all reported crashes and 12 percent of fatal/severe injury crashes. LRSP provides Safe System-aligned strategies tailored to Half Moon Bay's crash history and local priorities, as well as performance measures to evaluate progress.

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

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

VISION AND GOALS

The City of Half Moon Bay vision for roadway safety is:

- Eliminate all traffic fatalities and reduce the number of non-fatal crashes by 50 percent by 2050.

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

1. Regularly review crash history and community needs to identify and prioritize opportunities to reduce crash risk for roadway users of all ages and abilities.
2. Embrace the Safe System approach to promote engineering and non-engineering strategies in the community.
3. Monitor implementation of the City of Half Moon Bay LRSP to track progress towards goals.

PLAN DEVELOPMENT

Existing Safety Efforts

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

Table 1. City of Foster City 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
City of Half Moon Bay Bicycle and Pedestrian Master Plan	This plan identifies needs and prioritizes improvements to the City of Half Moon Bay's pedestrian and bicycle facilities and programs. Informed by existing infrastructure and current safety issues, this plan recommends improvements to address current and future bike/ped demand based on current conditions and anticipated infill development. This plan also provides a blueprint for the City to implement a complete bicycle and pedestrian network over time. Finally, the plan provides the City with the necessary tools to apply for a grant funding for implementation. The plan should be revised over time as new conditions and opportunities arise.	Safe Roads, Safe Road Users, Safe Speeds
Capital Improvement Project—Neighborhood Traffic Safety Program	This program involves the implementation of a neighborhood traffic-calming and safety program and will provide a source of funding to address neighborhood concerns.	Safe Roads, Safe Road Users, Safe Speeds

Program Name	Program Description	Safe System Elements
Capital Improvement Project—Bicycle and Pedestrian Connectivity and Safety Program	This program is intended to fund bicycle and pedestrian improvements identified in the Bicycle and Pedestrian Master Plan as part of other defined projects. Funds may also be used as a matching source for potential grant opportunities. Examples of elements funded through this program include bike lane striping and regulatory/wayfinding signage.	Safe Roads, Safe Road Users, Safe Speeds

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 Foster City'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
- Sustainability Department
- 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
- Foster City Police Department

Community Engagement and Input

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

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 City's plan. These events focus on jurisdiction-specific issues and on countywide concerns. The table below lists the events, organized by themed engagement phases, and is followed by the community input themes we heard.

Table 2. Community Engagement Phases and Events

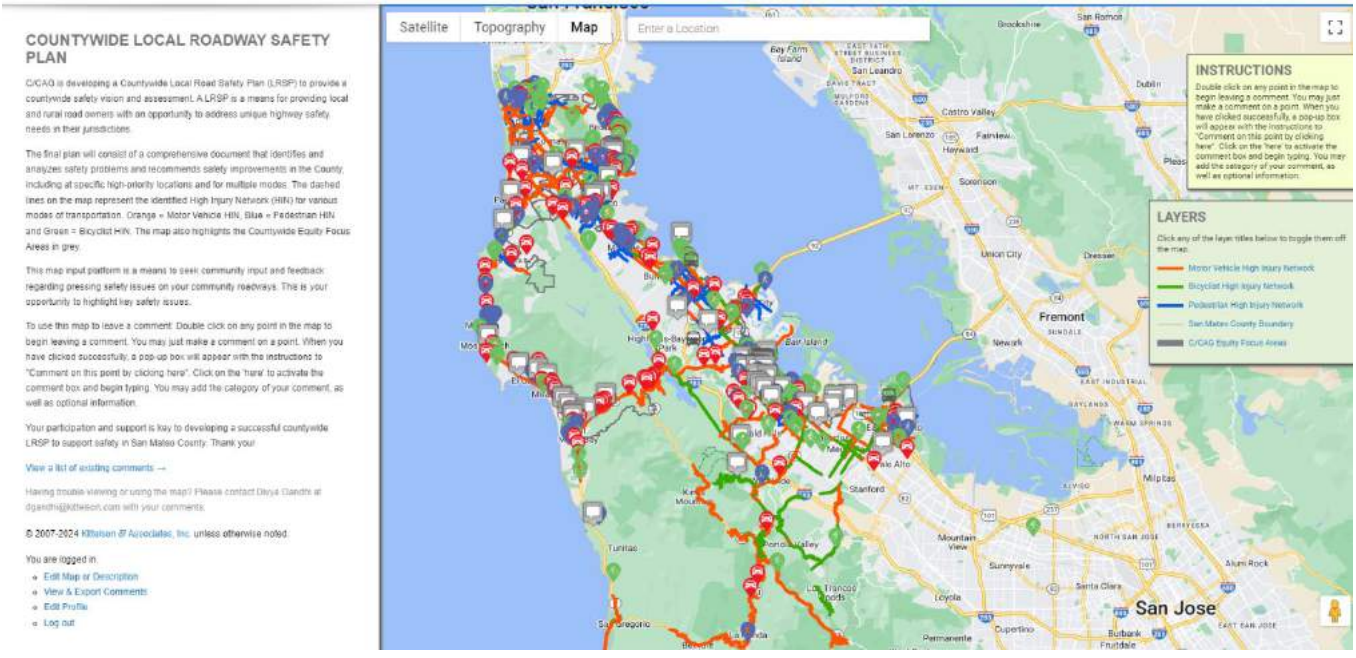
Date	Event	Location
August 10, 2023	**Countywide Virtual Kickoff Meeting:** Shared the purpose and timing of the plan	Virtual meeting (recorded and posted to plan website)
August 16, 2023	**Phase 1 Pop-up/Tabling Event:** Shared crash data analysis; received input on locations and safety concerns	East 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

Figure 1. A pop-up event at the Half Moon Bay Farmers Market

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 50). 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 44 comments made within the City of Foster City in addition to the conversations and feedback recorded at the Phase 1 event in August. The comments included the following:

Biking Concerns/Requests

- Add new bike infrastructure such as protected bike lanes, separated bike lanes, road diets, bike tunnels, and bike bridges.
- Upgrade or general maintenance concerns of existing bike infrastructure including restriping bike lanes and removing debris along bike paths.
- Concerns regarding conflicts with motor vehicles including high traffic volumes and congestion, vehicle speeds, right of way issues, and turning conflicts at intersections.

Pedestrian Concerns/Requests

- Add new pedestrian infrastructure or upgrade existing infrastructure such as building new and/or continuous sidewalks, widening existing sidewalks, providing pedestrian refuge islands, midblock crossings, and high visibility crosswalks.
- Requests to provide safe crossing paths across highways.
- Signage requests including installing STOP signs at unsignalized intersections, installing rectangular rapid flashing beacons, push buttons for WALK signs and increasing pedestrian walk times and modifying signals to include a leading pedestrian interval (especially at schools).
- Concerns regarding conflicts with motor vehicles including speeding, running STOP signs and conflicts at intersections.
- Pedestrian visibility concerns: street lighting is absent or insufficient.
- Concerns regarding speeding bikes, creating potential conflicts with pedestrians.

Traffic Enforcement Concerns

- Multiple concerns regarding running STOP signs, red lights, and illegal turning movements.
- Concerns regarding speeding observed at multiple locations – requests for traffic calming especially in school zones.

Roadway Infrastructure/ Traffic Operations Concerns

- Primary concerns include traffic congestion, and narrow lanes.
- Concerns regarding maintenance of roadway infrastructure including high friction of the roadway surfaces, potholes, improving visibility at intersections, repairing roadways from storm damage.
- Requests to separate traffic in opposing directions to prevent head-on crashes.
- Requests to improve emergency vehicle access and to make the roadway infrastructure in the city ADA compliant.
- Install street lighting to increase visibility along roadways.

The location and modal emphasis of comments in Half Moon Bay is presented in Figure 51. The comments received are provided in Appendix A. The project team also identified common themes in the responses made countywide which may be relevant to the City. Those are presented in the Community Engagement section of the Countywide LRSP.

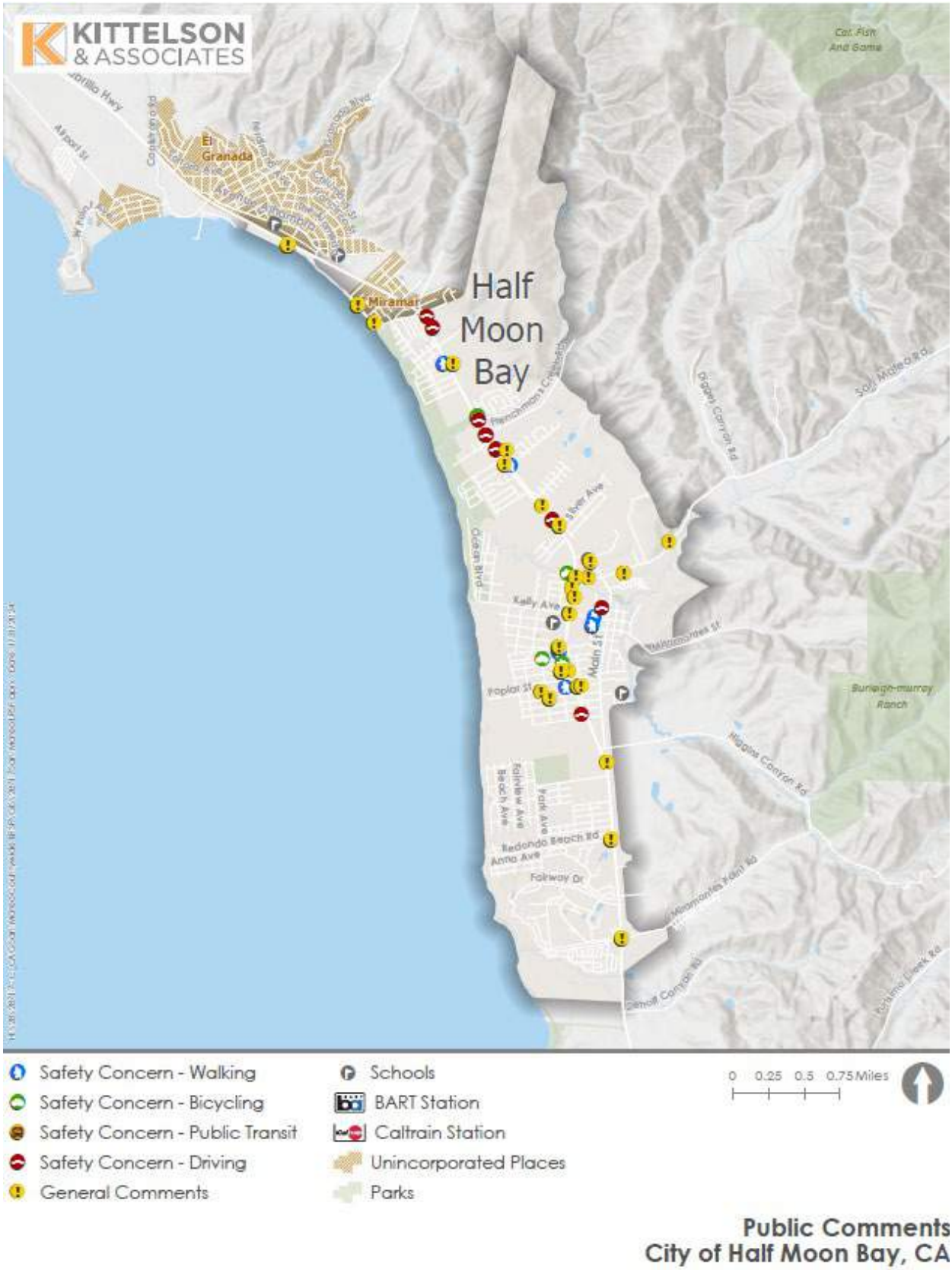
PHASE 2 COMMUNITY ENGAGEMENT FEEDBACK

The project team held an event at the Belmont Farmers' Market in January 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 B. The following themes were identified for locations in the City of Half Moon Bay:

Motor Vehicle Comments

- Concerns about speeding on roadways, specifically between Highway 1 and Main Street
- Desire for improvements to encourage slower speeds

Figure 3. Webmap Comments in Half Moon Bay



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 System[1] (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. For a more complete description of trends and findings, refer to Appendix C.

Emphasis Areas

The project team analyzed crash data in Half Moon Bay and compared countywide trends to establish emphasis areas. Emphasis areas are crash dynamic, behavioral, or road user characteristics that the City 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 City of Half Moon Bay:

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 Half Moon Bay, pedestrians and bicyclists were involved in 18 percent and 12 percent of the 17 reported F/SI crashes—higher than their overall share of all injury crashes (9 percent and 10 percent, total).
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 Half Moon Bay, two of the three fatal/severe injury pedestrian crashes (67 percent) occurred in dark conditions. Among crashes of all modes, 24 percent of fatal/severe injury crashes occurred in dark conditions.
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. **Vulnerable age groups (youth and aging).** Countywide across all modes, crash victims between the 15 to 34 years old are more likely to be injured including F/SI as a result of traffic safety than other groups. Victims between the ages 50 – 69 and 75 to 84 are also more likely to be severely injured than other groups. In Half Moon Bay, 8 crashes or 6 percent of all reported injury crashes involve at fault drivers who are under 30 years old.

[1] Transportation Injury Mapping System, http://tims.berkeley.edu

5. **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 Half Moon Bay, "Too fast for conditions" was the top-cited violation among motor vehicle crashes (in 37 percent of injury crashes).
6. **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.
7. **Alcohol involvement.** Countywide, one in ten (10 percent) of motor vehicle injury crashes and one in five F/SI motor vehicle crashes (19 percent) involved alcohol. In Half Moon Bay, 13 percent of all reported injury crashes involve impaired driving.

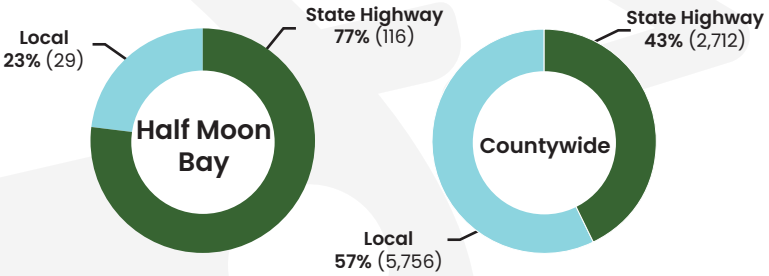
The next pages present summary findings from a crash data review that compares the City of Half Moon Bay to countywide trends in these emphasis areas. It includes summary statistics related to the above-cited emphasis areas but also shows:

- The share of local crashes that occurred on or at a State Highway facility compared to Countywide levels.
- The most frequently reported local 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 locally, bicyclist crashes account for a higher share of F/SI crashes than among all injury levels.
- The share of local and Countywide crashes occurring in dark conditions for crashes of all injury levels and for F/SI crashes (organized by mode).
- Reported pedestrian and bicyclist crashes summarized by the most common preceding movements countywide, with a comparison of those movements' share of local crashes to Countywide shares.
- The local and Countywide share of crashes involving drugs or alcohol and involving drivers under age 30.

Half Moon Bay—Crash History

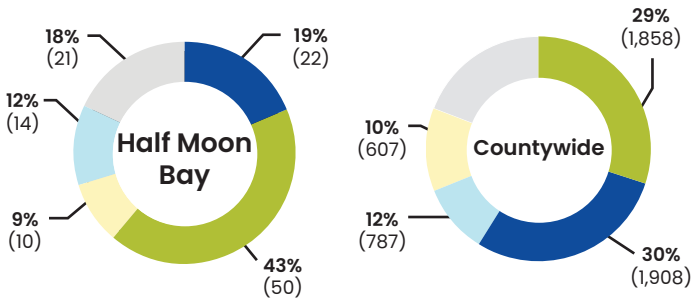
Total Crashes

In Half Moon Bay, 145 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 Half Moon Bay compares:



Mode Involvement

Pedestrian Crashes (8)

	Fatal/all injury crashes	Fatal/severe injury crashes
Half Moon Bay	9% (13)	18% (3)
Countywide	13% (1,073)	23% (208)

Bicycle Crashes (5)

	Fatal/all injury crashes	Fatal/severe injury crashes
Half Moon Bay	10% (15)	12% (2)
Countywide	13% (1,067)	20% (176)

Motor Vehicle[1] Crashes (56)

	Fatal/all injury crashes	Fatal/severe injury crashes
Half Moon Bay	81% (117)	71% (12)
Countywide	75% (6,324)	57% (515)

13% (19)

of reported collisions in Half Moon Bay involved drugs or alcohol

6% (8)

of reported collisions in Half Moon Bay involved young drivers[1]

8% (625) Compared to the countywide total, where 8% (625) of reported collisions involved drugs or alcohol

5% (472) Compared to the countywide total, where 5% (472) of reported collisions involved young drivers[2]

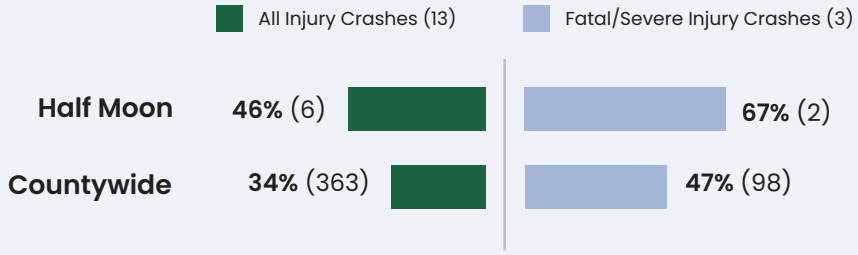
1. *Motor crashes include motor vehicles and motorcyclists.*
2. *Young driver crashes are crashes that involve at fault drivers who are under 30 years old.*

Half Moon Bay—Crash History

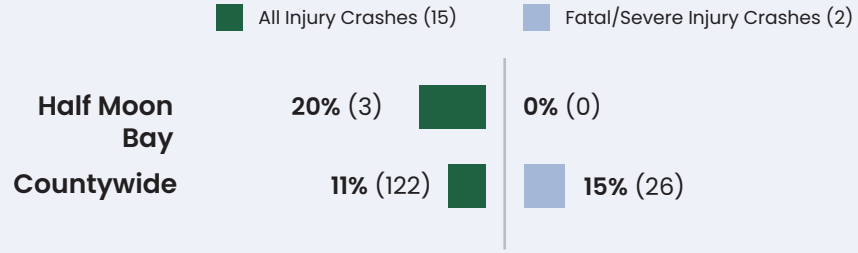
Dark Conditions

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

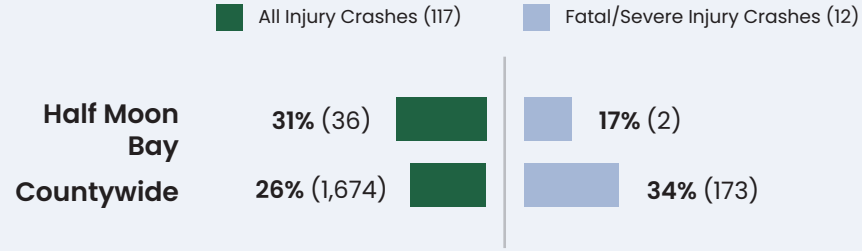
Share of Pedestrian Crashes in Dark Conditions (6)



Share of Bicyclist Crashes in Dark Conditions (3)

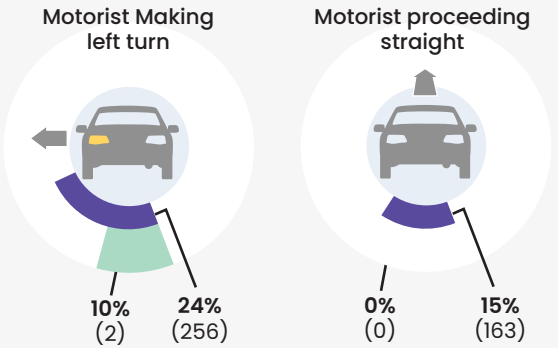


Share of Motor Vehicle Crashes in Dark Conditions (36)

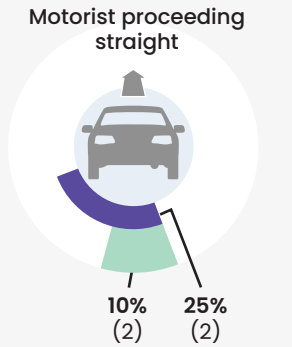


Reported Pedestrian Crashes (3)

Pedestrian Crossing at Intersection

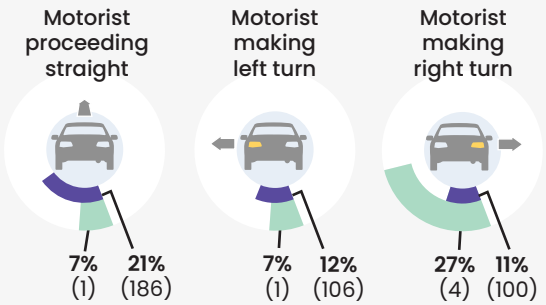


Pedestrian Crossing Not at a Crosswalk

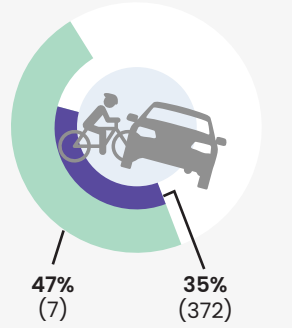


Reported Bicycle Crashes (2)

Bicyclist Proceeding Straight



Perpendicular Bicyclist Crashes



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 3 and Figure 4 show the HIN segments identified within the City.

Table 3. Countywide HIN Segments in Half Moon Bay

Roadway name	All County Jurisdiction(s) including this HIN Roadway	Total Length, all jurisdictions included (mi)	Motor Vehicle HIN	Bicyclist HIN	Pedestrian HIN
SR 1	Half Moon Bay, Pacifica, Unincorporated	30.4	X	X	
San Mateo Rd	Half Moon Bay, Unincorporated	6.6	X		
Main St	Redwood City, Half Moon Bay	2.0	X		

Figure 4. Countywide HIN within the City of Half Moon Bay

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 City 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 5, Figure 6, and Figure 7).

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

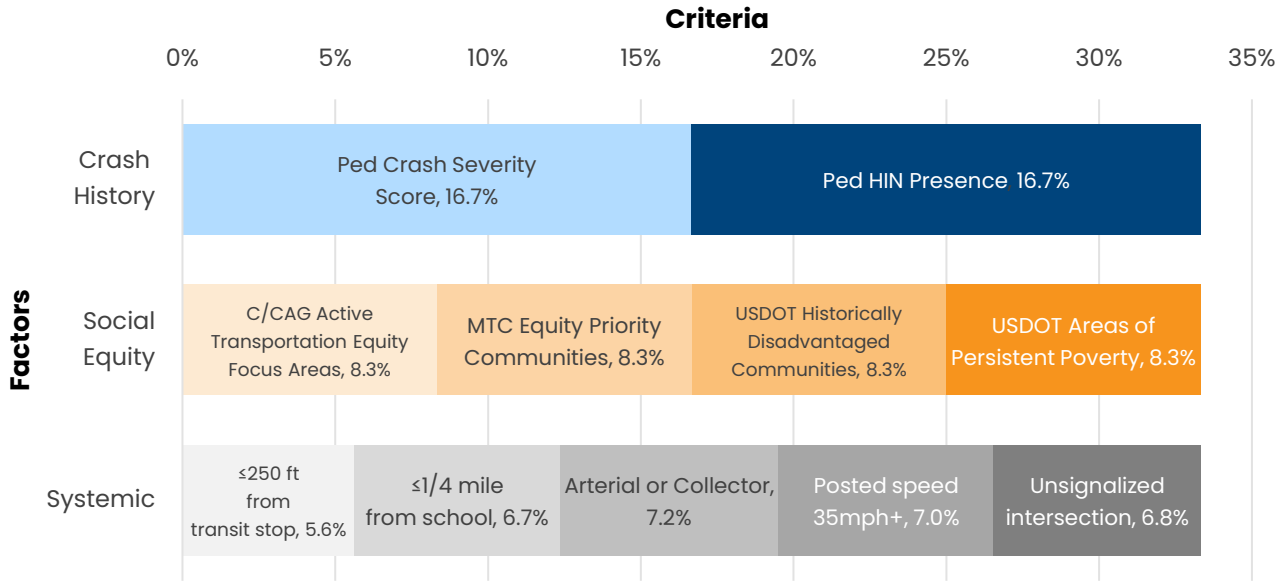


Figure 6. Bicycle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)

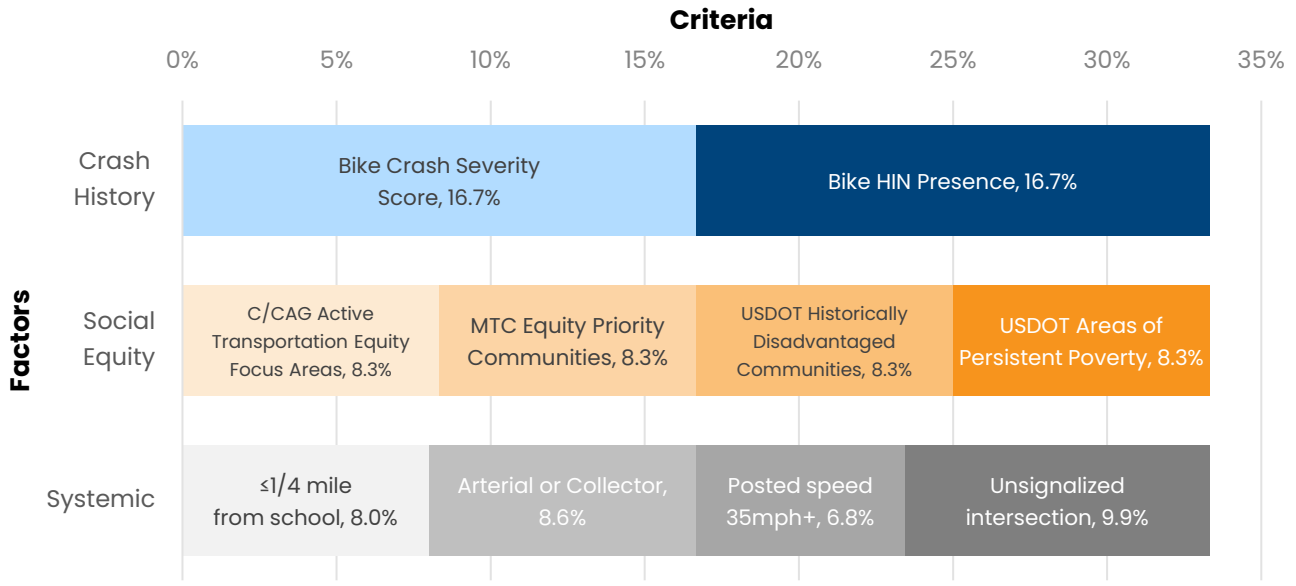
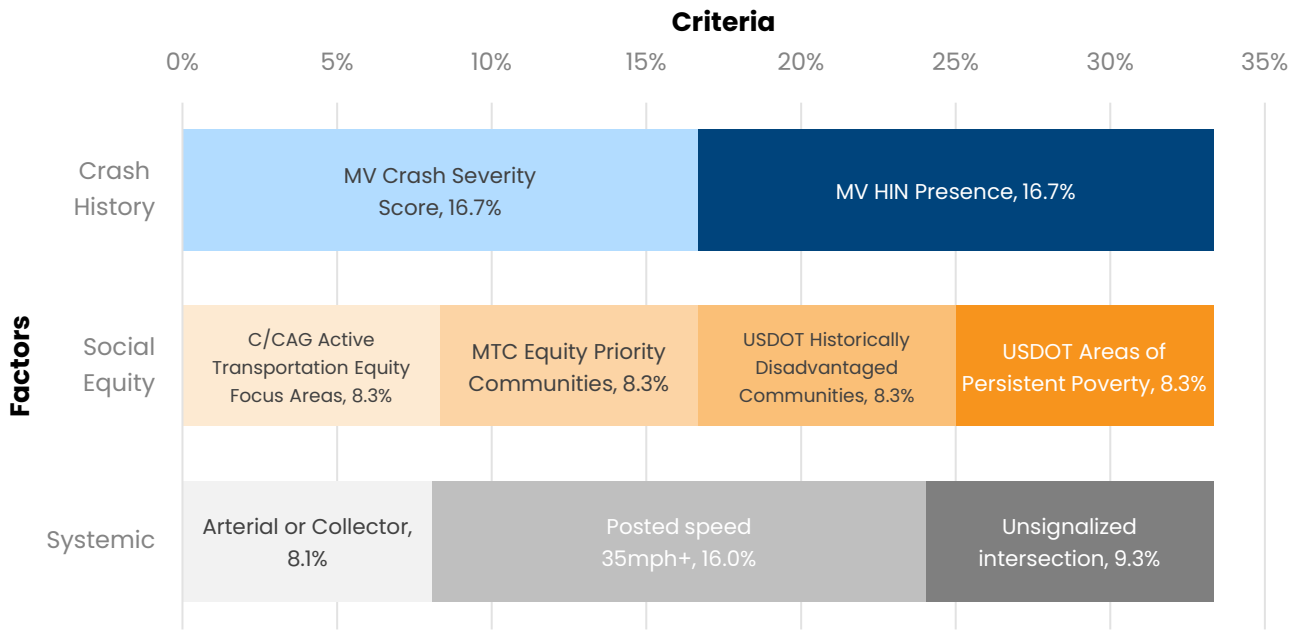


Figure 7. Motor Vehicle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)



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 City 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 D. Figure 8 also shows the locations.

Table 4. Priority Locations

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
1	Highway 1 and Poplar St	Intersection	Yes	**X**	**X**	**X**
2	Highway 1 and Ruisseau Francais Ave	Intersection	Yes	**X**	**X**	**X**
3	Main St and Lewis Foster Dr	Intersection	No	**X**	**X**	**X**
4	Highway 1 and Miramontes Point Rd	Intersection	Yes			**X**
5	Highway 1 and Fairway Dr	Intersection	Yes			**X**
6	Highway 1 and Mirada Rd	Intersection	Yes			**X**
7	Highway 1 and Redondo Beach	Intersection	Yes			**X**
8	Highway 1 and Roosevelt Blvd	Intersection	Yes			**X**
9	Highway 1 and Filbert St	Intersection	Yes			**X**
10	Highway 1 and Spindrift Way	Intersection	Yes			**X**
11	Filbert St and Purissima St and Main St	Intersection	No			**X**

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
12	Highway 1 and Seymour St	Intersection	Yes			**X**
13	Church St and Kelly Ave	Intersection	No			**X**
14	Highway 1 and Highway 92	Intersection	Yes	**X**	**X**	**X**
15	Kelly Ave	Corridor	No	**X**	**X**	**X**
16	Main St	Corridor	No	**X**	**X**	**X**
17	Poplar St, from Highway 1 to Railroad Ave	Corridor	No	**X**	**X**	**X**
18	Highway 1, from Miramontes Point Rd to Main St South	Corridor	Yes	**X**	**X**	**X**
19	Highway 1, from Main Spindrift Way to Russeau Francais Ave	Corridor	Yes	**X**	**X**	**X**
20	Wavecrest Rd, from Highway 1 to the Coastal Trail	Corridor	No	**X**	**X**	**X**
21	Miramontes Ave, from Alsace Lorraine to east end	Corridor	No			**X**

Figure 8: Half Moon Bay Priority Locations

IMPROVEMENTS – ENGINEERING, POLICY & PROGRAMS

This section presents Safe System-aligned recommendations that can create levels of redundancy for traffic safety in the City of Half Moon Bay. First are engineering recommendations: identified project scopes and 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 City departments and partners in pursuit of the plan's vision and goals.

Project Scopes

With the development of this plan the project team worked with the City 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 City could consider at these locations. The City 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 City-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:

- Kelly Ave E to W City limit. Recommended improvements include:
    - Separated bike lanes

  - Midblock pedestrian crossing with enhanced safety features (flashing beacons, curb extensions, advance "yield" lines)
  - Dynamic/variable speed warning signs
- Main St N to City limit. Recommended improvements include:
  - Separated bike lanes
  - Pedestrian crossing with enhanced safety features (Rectangular Rapid Flashing Beacon, curb extensions, advance "yield" lines) at Main St/Spruce St
  - Raised pedestrian crossings at three locations
  - Dynamic/variable speed warning signs

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

Engineering Countermeasure Toolbox

This section presents Safe System-aligned engineering recommendations that can create levels of redundancy for traffic safety in the City of Half Moon Bay. 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 City departments and partners in pursuit of the plan's vision and goals.

Table 5. City of Half Moon Bay 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
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 raised pavement markers and striping*	SI	Wet, night, all	0.1	$	High
Install flashing beacons as advance warning (SI)*	SI	Rear end, broadside	0.3	$-$$	Medium
No right turn on red	SI	Pedestrian crashes, signalized local/arterial intersections	N/A	$	Medium

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
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
Install pedestrian crossing*	SI	Pedestrian crashes, signalized local/arterial intersections	0.25	$	High
Install pedestrian scramble*	SI	Pedestrian crashes, signalized local/arterial intersections	0.4	$	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 painted safety zone	SI	Pedestrian crashes, signalized local/arterial intersections	N/A	$	High
Install Protected Intersection Elements	SI	Pedestrian crashes, signalized local/arterial intersections	N/A	$-$$$	Low

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
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	$$$	Low
Convert intersection to roundabout (from all-way stop)*	UI	All crashes	Varies	$$$	Low
Convert intersection to roundabout (from stop or yield control on minor road)*	UI	All crashes	Varies	$$$	Low
Covert intersection to mini-roundabout*	UI	All crashes	0.3	$$	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
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

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
Install flashing beacons at stop-controlled intersection*	UI	Broadside, rear end	0.15	$$$	High
Install pedestrian signal or pedestrian hybrid beacon*	UI	Pedestrian and bicycle	0.3	$$$	High
Install transverse rumble strips on approaches*	UI	All crashes	0.2	$	High
Install splitter islands on the minor road approaches*	UI	All crashes	0.4	$	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 raised pedestrian crossing*	R	Pedestrian and bicycle	0.35	$	Medium
Remove or relocate fixed objects outside of clear recovery zone*	R	Hit object	035	$-$$	High
Install delineators, reflectors, and/or object marker*	R	All crashes	0.15	$	High
Install/upgrade signs with new fluorescent sheeting (regulatory or warning)*	R	All crashes	0.15	$	High
Install dynamic/variable speed warning signs*	R	Driver behavior	0.3	$	High

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
Extend pedestrian crossing time	SI	Pedestrian	N/A	$	High
Pedestrian phase recall	SI	Pedestrian	N/A	$	High
Extend green time for bikes	SI	Bicycle	N/A	$	High
Extend yellow and all-red time	SI	All crashes	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
ADA-compliant directional curb ramps and audible push buttons	SI	Pedestrian	N/A	$-$$	Low
Curb radius reduction	SI, UI	All crashes	N/A	$$	Low
Splitter islands	UI, SI	All crashes	N/A	$$	Medium
Approach curvature	UI, SI	All crashes	N/A	$$$	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

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 6. City of Half Moon Bay Policy and Program Recommendations

Category	Near-Term Recommendations	Long-Term or Ongoing Recommendations
Local Culture Shift (LCS)		LCS2: High-Visibility Media Campaign LCS4: Implement Car-Free Zones
Local Enforcement Coordination (LEC)		LEC2: Speed Monitoring Awareness Radar Trailer
Local Funding (LF)	LF1: Dedicated Funding	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 Review LPE2: Plan Update LPE3: Safety and Equity Impacts Evaluation LPE4: Safe Routes to School LPE8: Speed Limits/Speed Management Plan

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: City of Half Moon Bay 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: City of Half Moon Bay Public Works

LONG-TERM OR ONGOING ACTIONS

LCS2: High-Visibility Media Campaign

Coordinate with County Public Health and the San Matteo County Sheriff's Office 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, Sustainability Department, SMCOE, City of Half Moon Bay Public Works

LCS4: Implement Car-Free Zones

More effectively target resources to pedestrian crash problems in a limited geographic area. Realizing these zones requires upfront analysis and planning, countermeasure development, and implementation. Implementation can focus on addressing particular problems or on increasing general safety in specific areas during windows of peak pedestrian activity. (For example: Friday nights in commercial districts, Sundays on recreational routes/areas, etc.)
Lead agency: City of Half Moon Bay Public Works

LEC2: Speed Monitoring Awareness Trailer

Coordinate with the San Matteo County Sheriff's Office 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: County Sheriff's Office
Coordinating partners: City of Half Moon Bay Public Works

LF2: Equitable Investment

Prioritize citywide 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: City of Half Moon Bay 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: City of Half Moon Bay 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, Sustainability Department, 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: City of Half Moon Bay 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: City of Half Moon Bay Public Works

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: City of Half Moon Bay Public Works

Coordinating partners: C/CAG, County Public Health

LEO5: Safe City Fleets

Provide educational materials for City staff who drive City vehicles and integrate safety awareness training into contracting process with vendors who provide City services. Other measures include installing safety features (such as pedestrian/obstacle detection and speed tracking) on City vehicles and reporting on correction plans against unsafe driving.

Lead agency: City of Half Moon Bay Public Works

LPE1: Annual Review

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

Lead agency: City of Half Moon Bay 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: City of Half Moon Bay 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 City 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 City.

Lead agency: SMCOE

Coordinating partners: City of Half Moon Bay Public Works

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: City of Half Moon Bay Public Works

IMPLEMENTATION & MONITORING

A key part of achieving Half Moon Bay's vision is consistently evaluating roadway safety performance and tracking progress towards the goals. The City of Half Moon Bay will develop a process to regularly collect data and information around the performance measures that can be used to assess changes city-wide and at the top priority locations.

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

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

Table 7. City of Half Moon Bay Goals and Measures of Success

GOAL	MEASURE OF SUCCESS
1. Regularly review crash history and community needs to identify and prioritize opportunities to reduce crash risk for roadway users of all ages and abilities.	• 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
2. Embrace the Safe System Approach to promote engineering and non-engineering strategies in the community.	• Percent of school district participation in SRTS and roadway safety education opportunities • Number of trainings city staff have participated in regarding Safe System elements, available tools, or practices • Improved data availability or maintenance to enhance safety analysis and practice
3. Monitor implementation of the Half Moon Bay LRSP to track progress towards goals.	• See above in this table

City of Half Moon Bay

San Mateo C/CAG Countywide LRSP

Town of Hillsborough

LOCAL ROADWAY SAFETY PLAN

FINAL DRAFT

MAY 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.

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INTRODUCTION

This chapter serves as a standalone local roadway safety plan (LRSP) for the Town of Hillsborough. 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 Hillsborough has a 2023 population of 10,962 per California Department of Finance. The Town has 82 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, pedestrians were involved in 11 percent of all reported crashes and 20 percent of fatal/severe injury crashes. Bicyclists were involved in 18 percent of all reported crashes and 40 percent of fatal/severe injury crashes. The LRSP provides Safe System-aligned strategies tailored to Hillsborough's crash history and local priorities, as well as performance measures to evaluate progress.

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

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 AND GOALS

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

- Eliminate all traffic fatalities and reduce the number of non-fatal crashes by 50 percent by 2050.

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

1. Regularly review crash history and community needs to identify and prioritize opportunities to reduce crash risk for roadway users of all ages and abilities.
2. Implement safety countermeasures systemically and as part of all projects to target emphasis areas and underserved communities.
3. Promote plan recommendations with identified safety partners to incorporate roadway safety through safety projects and educational campaigns in Hillsborough.
4. Provide opportunities for community engagement to identify issues and inform safety solutions across the community.
5. Embrace the Safe System Approach to promote engineering and non-engineering strategies in the community.
6. Identify opportunities to incorporate social equity into safety improvements.
7. Monitor implementation of the Hillsborough LRSP to track progress towards goals.

PLAN DEVELOPMENT

Existing Safety Efforts

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

Table 1. Town of Hillsborough 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
Eucalyptus Pathway	The Town has an ongoing project, identified through prior planning processes to construct a 1,900-foot-long ADA-accessible path. The Town has received funding from San Mateo County Transportation Authority and the project is under construction.	Safe Roads

Program Name	Program Description	Safe System Elements
Pedestrian Master Plan	The Town is currently preparing its Bicycle and Pedestrian Pathway Master Plan. The Plan will be a guidance document for the Town to identify bicycle- and pedestrian-friendly pathways.	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 Hillsborough'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
- Sustainability Department
- 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
- Hillsborough Police Department

Community Engagement and Input

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

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, and is followed by the community input themes we heard.

Table 2. Community Engagement Phases and Events

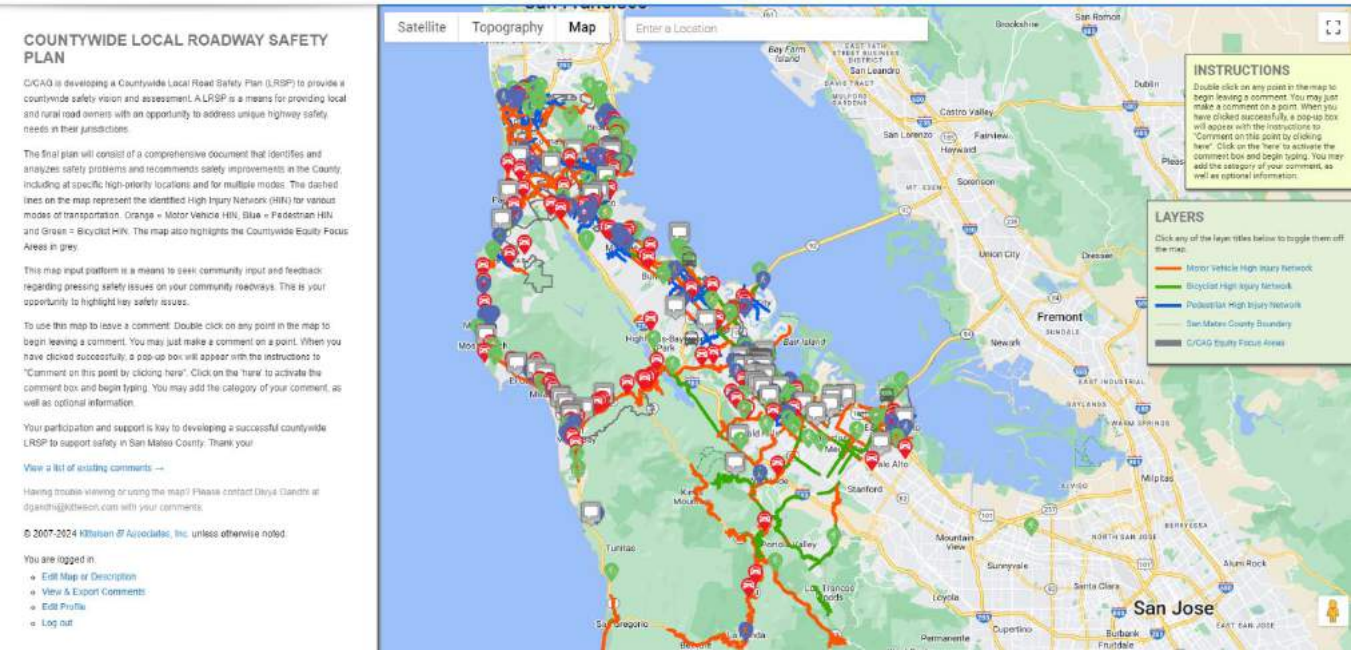
Date	Event	Location
August 10, 2023	**Countywide Virtual Kickoff Meeting:** Shared the purpose and timing of the plan	Virtual meeting (recorded and posted to plan website)
August 16, 2023		East Palo Alto

Date	Event	Location
August 19, 2023	**Phase 1 Pop-up/Tabling Event:** Shared crash data analysis; received input on locations and safety concerns	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 1. 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.

Countywide, there were a total of 528 comments recorded by 352 respondents. There was one comment made within the Town which was a comment that there is a general lack of coordination between cities in roadway safety planning. That comments is provided in Appendix A.

The Town may continue to monitor its SeeClickFix reports to monitor issues identified by residents and visitors.

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 System[1] (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. For a more complete description of trends and findings, refer to Appendix C.

Emphasis Areas

The project team analyzed crash data in Hillsborough 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 Hillsborough:

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 Hillsborough, among five reported F/SI crashes, a pedestrian was involved in one and bicyclists were involved in two. There was one recorded pedestrian F/SI crash and two recorded bicyclist F/SI crashes (out of 5 F/SI crashes in the 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 Hillsborough, 9 or 33 percent of motor vehicle crashes occurred in dark conditions.
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

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

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 Hillsborough, "Too fast for conditions" was cited for 4 out of 38 reported injury crashes (11 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.
6. **Alcohol involvement.** Countywide, one in ten (10 percent) of motor vehicle injury crashes and one in five F/SI motor vehicle crashes (19 percent) involved alcohol. In Hillsborough, 13 percent of all reported injury crashes involve impaired driving.

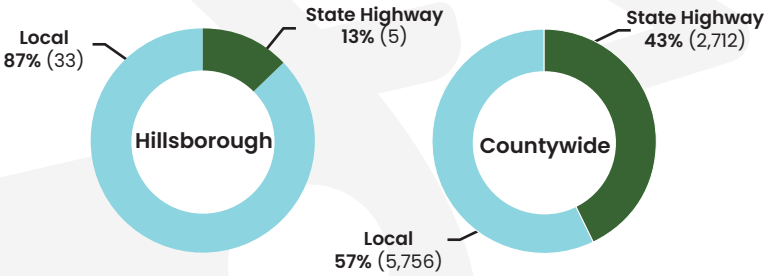
The next pages present summary findings from a crash data review that compares the Town of Hillsborough to countywide trends in these emphasis areas. It includes summary statistics related to the above-cited emphasis areas but also shows:

- The share of local crashes that occurred on or at a State Highway facility compared to Countywide levels.
- The most frequently reported local 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 locally, bicyclist crashes account for a higher share of F/SI crashes than among all injury levels.
- The share of local and Countywide crashes occurring in dark conditions for crashes of all injury levels and for F/SI crashes (organized by mode).
- Reported pedestrian and bicyclist crashes summarized by the most common preceding movements countywide, with a comparison of those movements' share of local crashes to Countywide shares.
- The local and Countywide share of crashes involving drugs or alcohol and involving drivers under age 30.

Hillsborough—Injury & Fatal Crash History

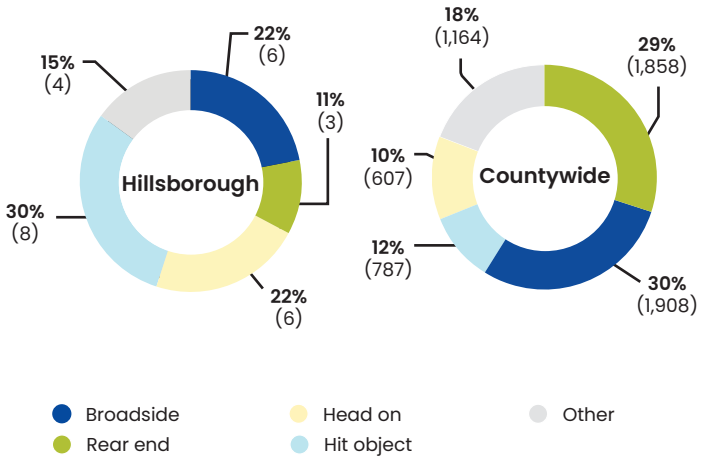
Total Crashes

In Hillsborough, 38 injury crashes, including 1 fatal crash 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 Hillsborough compares:

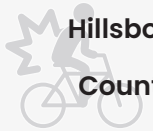


Mode Involvement

Pedestrian Crashes (4)

	All Injury Crashes	Fatal/Severe Injury Crashes
Hillsborough	11% (4)	20% (1)
Countywide	13% (1,073)	23% (208)

Bicycle Crashes (7)



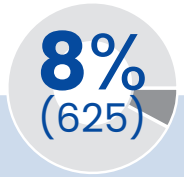
	All Injury Crashes	Fatal/Severe Injury Crashes
Hillsborough	18% (7)	40% (2)
Countywide	13% (1,067)	20% (176)

Motor Vehicle[1] Crashes (27)

	All Injury Crashes	Fatal/Severe Injury Crashes
Hillsborough	71% (27)	40% (2)
Countywide	75% (6,324)	57% (515)

13% (5)

of reported collisions in Hillsborough involved drugs or alcohol



Compared to the countywide total, where 8% (625) of reported collisions involved drugs or alcohol

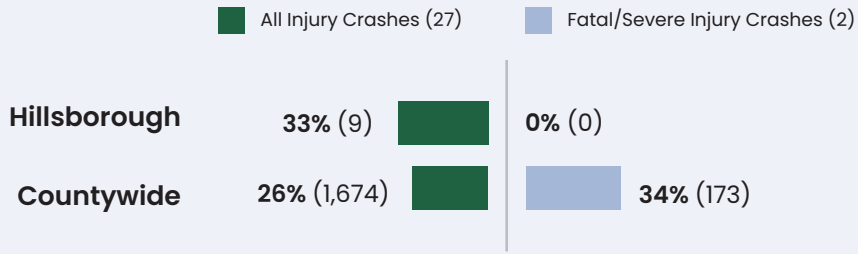
1. *Motor crashes include motor vehicles and motorcyclists.*
2. *Young driver crashes are crashes that involve at fault drivers who are under 30 years old.*

Hillsborough—Injury & Fatal Crash History

Dark Conditions

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

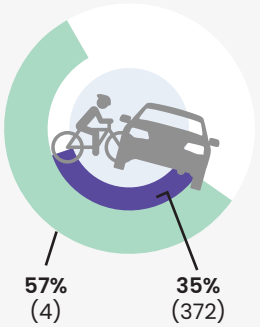
Share of Motor Vehicle Crashes in Dark Conditions (9)



Reported Bicycle Crashes (7)

Bicyclist Proceeding Straight

Perpendicular Bicyclist Crashes



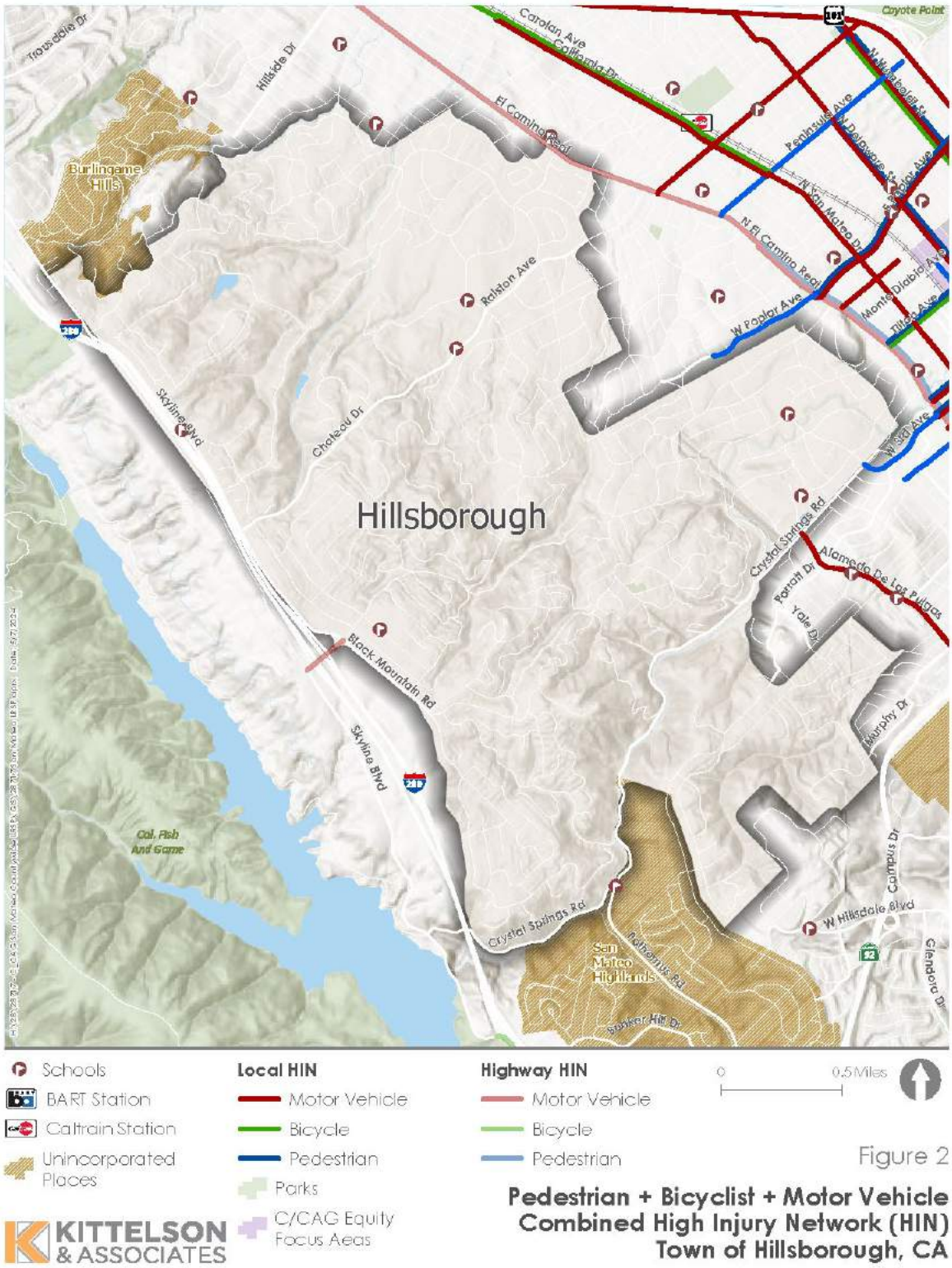
Countywide High Injury Network

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 3 and Figure 2 show the HIN segments identified within the Town.

Table 3. Countywide HIN Segments in Hillsborough

Roadway name	All County Jurisdiction(s) including this HIN Roadway	Total Length, all jurisdictions included (mi)	Motor Vehicle HIN	Bicyclist HIN	Pedestrian HIN
Golf Course Dr	Hillsborough, Unincorporated	0.2	**X**		

Figure 2. Countywide HIN within the Town of Hillsborough



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 3, Figure 4, and Figure 5).

Figure 3. Pedestrian Prioritization Factor/Criteria Weighting (Sum to 100 Percent)

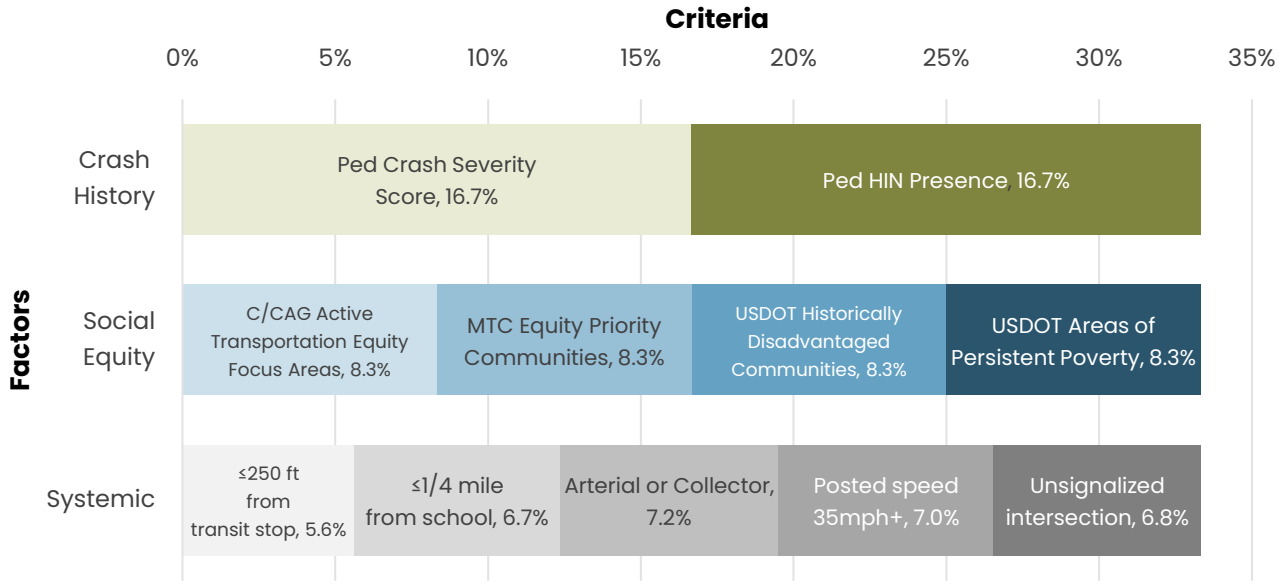


Figure 4. Bicycle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)

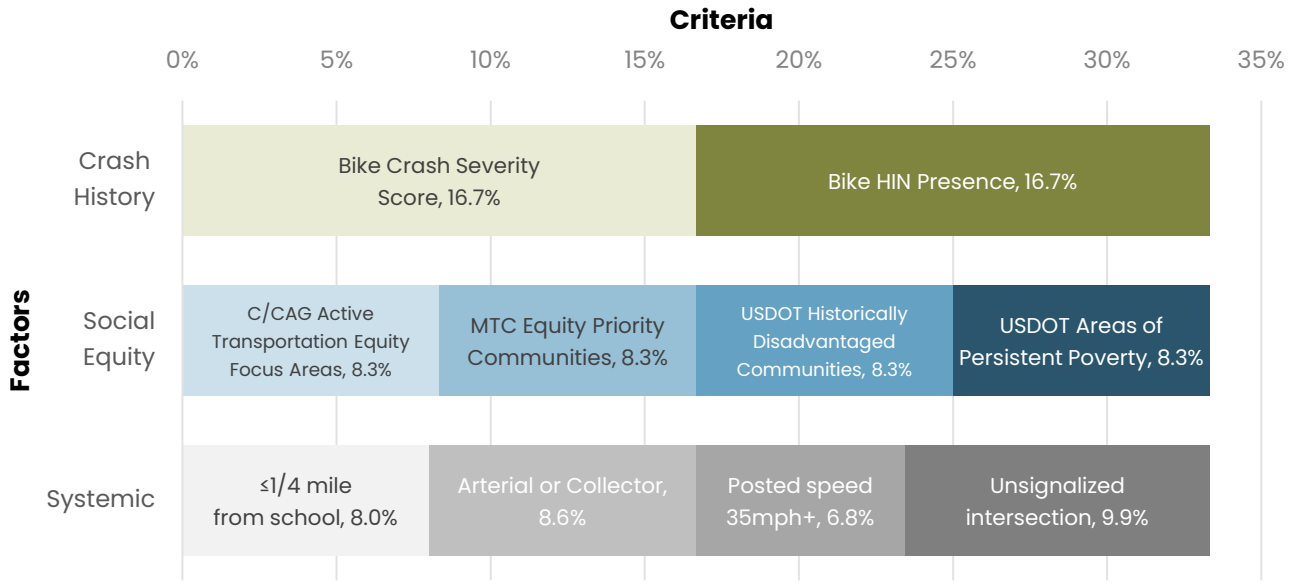
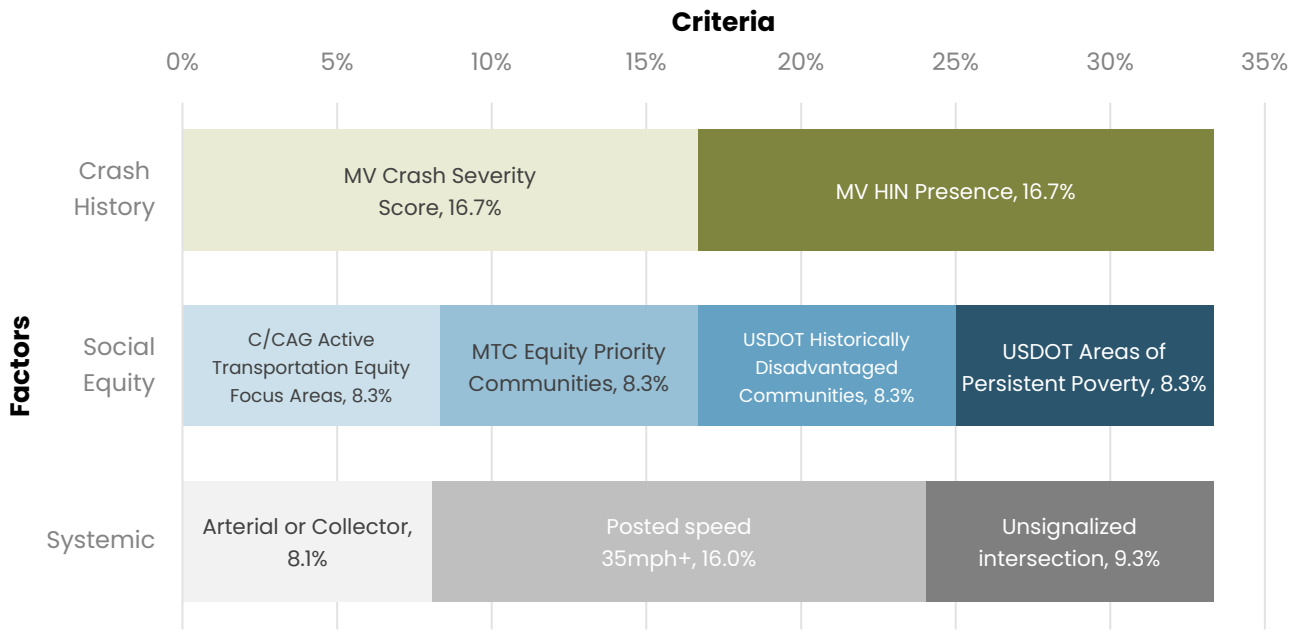


Figure 5. Motor Vehicle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)



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 D. Figure 6 also shows the locations.

Table 4. Priority Locations

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
1	Skyline Blvd and Skyfarm Dr	Intersection	No	**X**	**X**	**X**
2	Hayne Rd and Golf Course Dr	Intersection	No	**X**	**X**	
3	Skyline Blvd and Butternut Dr	Intersection	No	**X**	**X**	**X**
4	Skyline Blvd and Rowan Tree Ln	Intersection	No	**X**	**X**	**X**
5	El Cerrito Ave and Gramercy Dr	Intersection	No	**X**	**X**	**X**
6	Santa Inez Ave and Arlington Ln	Intersection	No	**X**		
7	Black Mountain Rd and Denise Dr	Intersection	No	**X**		
8	Black Mountain Rd and Wedgewood Dr	Intersection	No	**X**		**X**
9	Merner Rd and Crystal Springs Rd	Intersection	No	**X**	**X**	**X**
10	Crystal Springs Ter and Crystal Springs Rd	Intersection	No	**X**	**X**	**X**

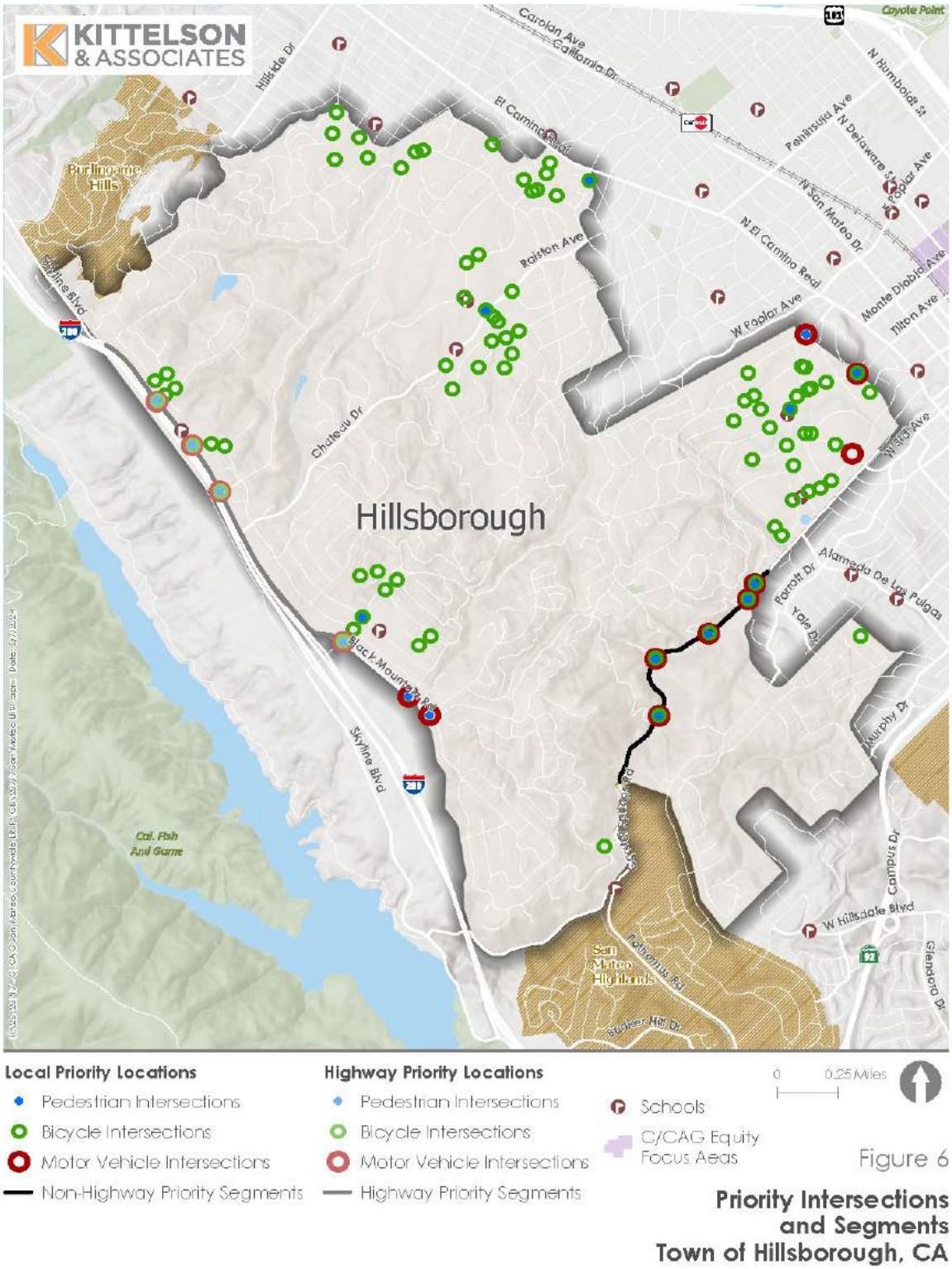
ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
11	Crystal Springs Rd and Ridgeway Rd	Intersection	No	**X**	**X**	**X**
12	Woodridge Rd and Crystal Springs Rd	Intersection	No	**X**	**X**	**X**
13	Crystal Springs Rd and El Cerrito Ave	Intersection	No	**X**	**X**	**X**
14	Stonehedge Rd and Baywood Ave	Intersection	No	**X**		
15	Hayne Rd and Golf Course Dr	Intersection	Yes			**X**
16	Kammerer Ct and Bellevue Ave	Intersection	No		**X**	**X**
17	Black Mountain Rd and Denise Rd	Intersection	No			**X**
18	Barbara Way and Hayne Rd	Intersection	No			**X**
19	El Cerrito Ave and Stonehedge Rd	Intersection	No		**X**	**X**
20	Eucalyptus Ave and Ralston Ave	Intersection	No		**X**	**X**
21	Stonepine Rd and Barroilhet Ave	Intersection	No		**X**	
22	Ralston Ave and Chateau Dr	Intersection	No		**X**	
23	Homeplace Ct and Barroilhet Ave	Intersection	No		**X**	
24	Eucalyptus Ave and Tamarack Dr	Intersection	No		**X**	
25	Stonepine Rd and Stonepine Ct	Intersection	No		**X**	
26	Tamarack Dr and Farmhill Ct	Intersection	No		**X**	
27	Tartan Trail Rd and Lakeview Dr	Intersection	No		**X**	
28	Downey Way and Acorn Dr	Intersection	No		**X**	
29	Fagan Dr and Margo Ln	Intersection	No		**X**	
30	Fagan Dr and Jackling Dr	Intersection	No		**X**	
31	Irwin Dr and Forest View Ave	Intersection	No		**X**	

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
32	Forest View Ave and Denham Ct	Intersection	No		**X**	
33	Carmelita Ave and Armsby Dr	Intersection	No		**X**	
34	Armsby Dr and Reynolds Ct	Intersection	No		**X**	
35	Eucalyptus Ave and Geri Ln	Intersection	No		**X**	
36	El Cerrito Ave and Waverly Pl	Intersection	No		**X**	
37	Warm Canyon Way and Remillard Dr	Intersection	No		**X**	
38	Hayne Rd and Darrell Rd	Intersection	No		**X**	
39	Remillard Dr and Mosswood Rd	Intersection	No		**X**	
40	Barbara Way and Hayne Rd	Intersection	No		**X**	
41	Camphor Ct and Rowan Tree Ln	Intersection	No		**X**	
42	Sherwood Ct and De Sabla Rd	Intersection	No		**X**	
43	Roehampton Rd and Richmond Rd	Intersection	No		**X**	
44	El Cerrito Ave and Poett Rd	Intersection	No		**X**	
45	Roblar Ave and Milford Ave	Intersection	No		**X**	
46	Laureldale Rd and Bridge Rd	Intersection	No		**X**	
47	Roehampton Rd and Poett Rd	Intersection	No		**X**	
48	Santa Inez Ave and Santa Maria Ln	Intersection	No		**X**	
49	Stonehedge Rd and St Francis Rd	Intersection	No		**X**	
50	Roblar Ave and El Cerrito Ave	Intersection	No		**X**	
51	Roblar Ave and Severn Ave	Intersection	No		**X**	
52	Roblar Ave and Ericson Rd	Intersection	No		**X**	
53	El Cerrito Ave and Wickham Pl	Intersection	No		**X**	

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
54	Fallenleaf Dr and Bridge Rd	Intersection	No		**X**	
55	Homs Ct and El Cerrito Ave	Intersection	No		**X**	
56	Stonehedge Rd and Bridge Rd	Intersection	No		**X**	
57	Floribunda Ave and Pepper Ave	Intersection	No		**X**	
58	Floribunda Ave and Highgate Ln	Intersection	No		**X**	
59	Fairway Cir and Floribunda Ave	Intersection	No		**X**	
60	Pepper Ave and Summerholme Pl	Intersection	No		**X**	
61	Newhall Rd and Willow Ave	Intersection	No		**X**	
62	Alberta Way and Roberts Way	Intersection	No		**X**	
63	Alberta Way and Hayne Rd	Intersection	No		**X**	
64	Robinwood Ln and Hayne Rd	Intersection	No		**X**	
65	Roberts Way and	Intersection	No		**X**	
66	Butternut Dr and Privet Dr	Intersection	No		**X**	
67	Churchill Dr And	Intersection	No		**X**	
68	Privet Dr and Churchill Dr	Intersection	No		**X**	
69	Grevillea Ct and Butternut Dr	Intersection	No		**X**	
70	Rowan Tree Ln and Darrell Rd	Intersection	No		**X**	
71	Poett Rd and Roblar Ave	Intersection	No		**X**	
72	Redwood Dr and Sierra Dr	Intersection	No		**X**	
73	Bridge Rd and Redwood Dr	Intersection	No		**X**	
74	Fallenleaf Dr and Uplands Dr	Intersection	No		**X**	
75	Uplands Dr and Normandy Ct	Intersection	No		**X**	
76	Uplands Dr and Redwood Dr	Intersection	No		**X**	
77	Uplands Dr and Rockridge Rd	Intersection	No		**X**	

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
78	Rockridge Rd and Greenbriar Way	Intersection	No		**X**	
79	Rockridge Rd and Creekwood Way	Intersection	No		**X**	
80	Barroilhet Ave and Conifer Ln	Intersection	No		**X**	
81	Eucalyptus Ave and Barroilhet Ave	Intersection	No		**X**	
82	Woodland Dr and Tournament Dr	Intersection	No		**X**	
83	Fairway Cir and Fairway Cir	Intersection	No		**X**	
84	Floribunda Ave and Walnut Ave	Intersection	No		**X**	
85	Eucalyptus Ave and New Place Rd	Intersection	No		**X**	
86	Eucalyptus Ave and Floribunda Ave	Intersection	No		**X**	
87	Floribunda Ave and Madrone Pl	Intersection	No		**X**	
88	Eucalyptus Ave and Bayberry Pl	Intersection	No		**X**	
89	Parkside Ave and Ralston Ave	Intersection	No		**X**	
90	Eucalyptus Ave and Tevis Pl	Intersection	No		**X**	
91	Skyline Blvd (SR 35), N town limit to Hayne Rd	Corridor	Yes	**X**	**X**	**X**
91	Crystal Springs Rd, El Cerrito Rd to S town limit	Corridor	No	**X**	**X**	**X**

Figure 6: Hillsborough Priority Locations



IMPROVEMENTS – ENGINEERING, POLICY & PROGRAMS

This section presents Safe System-aligned recommendations that can create levels of redundancy for traffic safety in the Town of Hillsborough. 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.

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 considering a Town-approved list of 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:

- El Cerrito Ave and Gramercy Dr. Recommended improvements include:
    - Installation of larger stop signs on all approaches
- Crystal Springs Rd—El Cerrito Ave to south town limit. Recommended improvements include:
    - Upgraded, larger stop signs and other warning or regulatory signs
    - Dynamic/variable speed warning signs

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

Engineering Countermeasure Toolbox

This section presents Safe System-aligned engineering recommendations that can create levels of redundancy for traffic safety in the Town of Hillsborough. 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 Hillsborough Countermeasure Toolbox

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
Install flashing beacons as advance warning (SI)*	UI, R	Rear end, broadside	0.3	$-$$	Medium
Install advance stop bar before crosswalk (bicycle box)*	UI	Pedestrian crashes, signalized local/arterial intersections	0.15	$	High
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
Install dynamic/variable speed warning signs*	R	Driver behavior	0.3	$	High

*****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 above2: $ = ≤$50,000; $$ = $50,000 - $200,000; $$$ = > $200,000

Proposed Policy, Program, and Guidelines Recommendations

In addition to the engineering countermeasures and projects recommended above, the Town 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 Town's Safe System Approach.

Table 6. Town of Hillsborough Policy and Program Recommendations

Category	Near-Term Recommendations	Long-Term or Ongoing Recommendations
Local Culture Shift (LCS)	LCS1: Transportation Safety Advisory Committee Participation	LCS2: High-Visibility Media Campaign
Local Enforcement Coordination (LEC)		LEC1: Law Enforcement Training LEC2: Speed Monitoring Awareness Radar Trailer
Local Funding (LF)	LF1: Dedicated Funding	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 LEO6: Conspicuity Enhancements and Education
Local Planning/ Evaluation (LPE)		LPE1: Annual Review LPE2: Plan Update LPE4: Safe Routes to School LPE5: Data Quality Improvements LPE6: Crash Data Enhancements LPE7: Big Data LPE8: Speed Limits/Speed Management Plan

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 Hillsborough 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 Hillsborough Public Works

LONG-TERM OR ONGOING ACTIONS

LCS2: High-Visibility Media Campaign

Coordinate with County Public Health and the Town of Hillsborough 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, Sustainability Department, SMCOE, Town of Hillsborough Police Department, Town of Hillsborough Public Works

LEC1: Law Enforcement Training

Coordinate with the Town's Police Department to identify opportunities for integrating safety into training for new offices (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 Hillsborough Public Works

LEC2: Speed Monitoring Awareness Trailer

Coordinate with Hillsborough 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 Hillsborough Police Department
Coordinating partners: Town of Hillsborough 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 Hillsborough 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, Sustainability Department, 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 Hillsborough 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 Hillsborough Public Works

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 Hillsborough Public Works
Coordinating partners: C/CAG, County Public Health

LEO5: Safe City Fleets

Provide educational materials for Town staff who drive Town vehicles and integrate safety awareness training into contracting process with vendors who provide Town services. Other measures include installing safety features (such as pedestrian/obstacle detection and speed tracking) on Town vehicles and reporting on correction plans against unsafe driving.
Lead agency: Town of Hillsborough Public Works

LEO6: Conspicuity Enhancements and Education

Educate pedestrians, bicyclists, and other vulnerable users in the importance of wearing reflective clothing and traveling in well-lit areas. Additional measures could include distributing reflective clothing to residents.
Lead agency: Town of Hillsborough Public Works

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 Hillsborough 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 Hillsborough Public Works

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 Hillsborough 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

Lead agency: C/CAG
Coordinating partners: County Sheriff's Office, Local Jurisdictions, Local Police Departments, Town of Hillsborough

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 Hillsborough

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 Hillsborough Public Works

IMPLEMENTATION & MONITORING

A key part of achieving Hillsborough's vision is consistently evaluating roadway safety performance and tracking progress towards the goals. The Town of Hillsborough 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 Hillsborough can initiate immediately, and longer-term actions, which may require coordination and additional staff time.

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

Table 7. Town of Hillsborough Goals and Measures of Success

GOAL	MEASURE OF SUCCESS
1. Regularly review crash history and community needs to identify and prioritize opportunities to reduce crash risk for roadway users of all ages and abilities.	• 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
2. Implement safety countermeasures systemically and as part of all projects to target emphasis areas and underserved communities.	• 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
3. Promote plan recommendations with identified safety partners to incorporate roadway safety through safety projects and educational campaigns in Hillsborough.	• 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
4. Provide opportunities for community engagement to identify issues and inform safety solutions across the community.	• 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

GOAL	MEASURE OF SUCCESS
	• Improved data availability or maintenance to enhance safety analysis and practice
5. Embrace the Safe System Approach to promote engineering and non-engineering strategies in the community. 6. Identify opportunities to incorporate social equity into safety improvements. 7. Monitor implementation of the Hillsborough LRSP to track progress towards goals.	• See above in this table

Town of Hillsborough

San Mateo C/CAG Countywide LRSP

City of San Carlos

LOCAL ROADWAY SAFETY PLAN

FINAL DRAFT

MAY 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 City'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 City 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.

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INTRODUCTION

This chapter serves as a standalone local roadway safety plan (LRSP) for the City of San Carlos. 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 San Mateo City and County Association of Governments (C/CAG) will revisit and update this LRSP at least every five years.

The City of San Carlos has a 2023 population of 29,496 per California Department of Finance. The city has 89 total centerline miles per Caltrans 2022 California Public Road Data. From 2018 through 2022, there were 281 reported crashes on surface streets in the City and 32 fatal/severe injury crashes In that time period, pedestrians were involved in 14 percent of all reported crashes and 28 percent of all fatal/severe injury crashes. Bicyclists were involved in 14 percent of all reported crashes and 13 percent of all fatal/severe injury crashes. The LRSP provides Safe System-aligned strategies tailored to San Carlos's crash history and local priorities, as well as performance measures to evaluate progress.

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

Upon C/CAG Board and San Carlos City Council adoption and affirmation of the plan's vision and goals in 2024, this plan will be posted online by the City for public viewing.

VISION & GOALS

The City of San Carlos's vision for roadway safety is:

- Eliminate all traffic fatalities and reduce the number of non-fatal crashes by 50 percent by 2050.
- Promote a culture of roadway safety in San Carlos's departments, businesses, and residents.

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

1. Regularly review crash history and community needs to identify and prioritize opportunities to reduce crash risk for roadway users of all ages and abilities.
2. Implement safety countermeasures systemically and as part of all projects to target emphasis areas and underserved communities.
3. Promote plan recommendations with identified safety partners to incorporate roadway safety through safety projects and educational campaigns in San Carlos.
4. Provide opportunities for community engagement to identify issues and inform safety solutions across the community.
5. Embrace the Safe System approach to promote engineering and non-engineering strategies in the community.
6. Identify opportunities to incorporate social equity into safety improvements.
7. Monitor implementation of the San Carlos LRSP to track progress towards goals.

PLAN DEVELOPMENT

Existing Safety Efforts

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

Table 1. City of San Carlos 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. The City's audits are included on its Bicycle and Pedestrian Master Plan website.	Safe Roads Safe Speeds Safe Road Users
Bicycle and Pedestrian Master Plan	The 2020 Bicycle and Pedestrian Master Plan establishes a long-term vision for improving walking and bicycling in San Carlos and provides a strategy to develop a comprehensive bicycling and	

Program Name	Program Description	Safe System Elements
	walking network that provides access to transit, schools, and downtown.	
2017 Neighborhood Traffic Management Program (NTMP)	The City's 2017 NTMP helps the City achieve an efficient multi-modal transportation system and maintain safe streets by providing a process for identifying traffic-calming and speed reduction measures to reduce speeds, improve pedestrian safety, reduce cut-through traffic, and reduce collisions and noise and air pollution.	

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 San Carlos'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:

Figure 1. A Phase 1 pop-up event held at the San Carlos Block Party.

- City/County Association of Governments of San Mateo County (C/CAG)
- County Public Health
- Sustainability Department
- 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
- San Mateo County Sheriff's Office

Community Engagement and Input

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

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 City's plan. These events focus on jurisdiction-specific issues and on countywide concerns. The table below lists the events, organized by themed engagement phases, and is followed by the community input themes we heard.

Table 2. Community Engagement Phases and Events

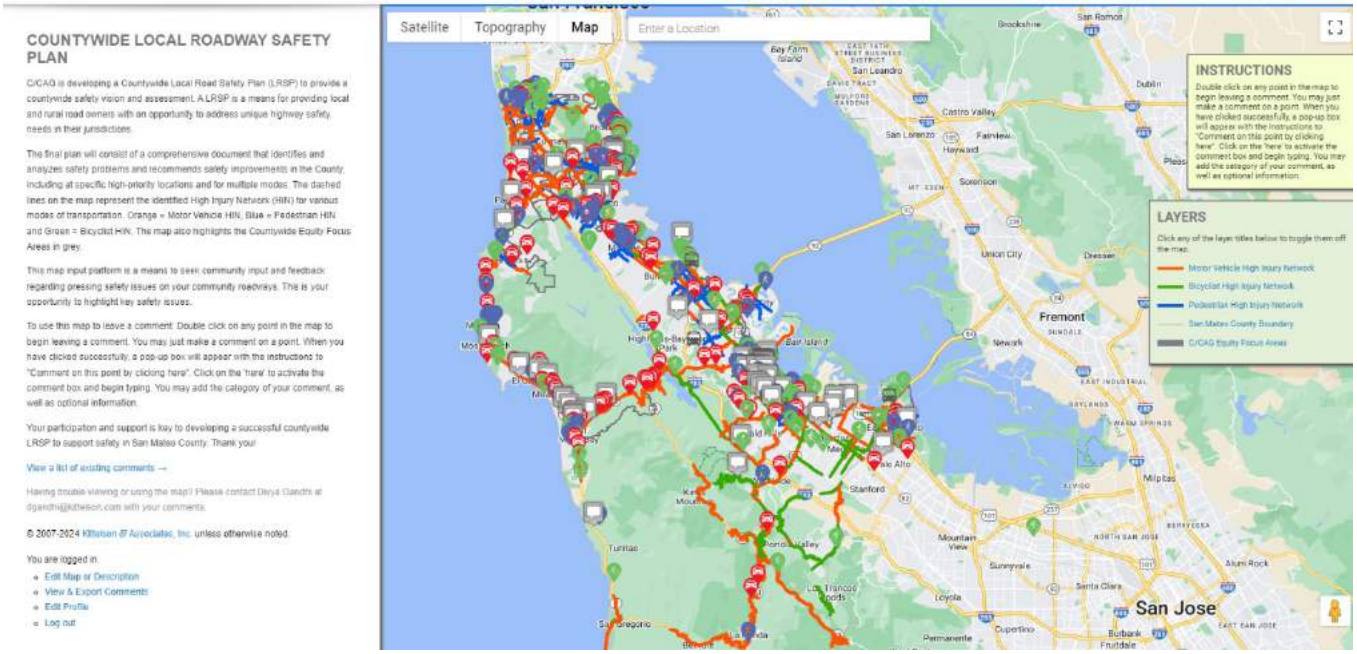
Date	Event	Location
August 10, 2023	**Countywide Virtual Kickoff Meeting:** Shared the purpose and timing of the plan	Virtual meeting (recorded and posted to plan website)
August 16, 2023	**Phase 1 Pop-up/Tabling Event:** Shared crash data analysis; received input on locations and safety concerns	East 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 024	**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). 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



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Countywide, there were a total of 528 comments recorded by 352 respondents. There were 69 comments made within the City of San Carlos in addition to the conversations and feedback recorded at the Phase 1 event in August. The comments received are provided in Appendix A. The comments included the following:

COMMUNITY ENGAGEMENT FEEDBACK

Biking Concerns/Requests

- Add new bike infrastructure such as protected bike lanes, separated bike lanes, road diets and bike paths on overpasses/underpasses.
- Requests for maintenance of existing bike infrastructure such as repaving bike lanes.
- Requests for a more connected bike network.
- Concerns regarding conflicts with motor vehicles including high traffic volumes and congestion, vehicle speeds, right of way issues, and turning conflicts at intersections.
- Remove on-street parking to make more way for bikes along the roadway.

- Request to provide modal filters: to allow only bicycles and pedestrians on certain streets.

Pedestrian Concerns/Requests

- Add new pedestrian infrastructure or upgrade existing infrastructure such as building new sidewalks, widening existing sidewalks, raised pedestrian crossing, pedestrian refuge islands, and high visibility crosswalks.
- Support for additional pedestrian signals and signage to enhance pedestrian safety.
- Concerns regarding conflicts with motor vehicles including right of way issues, speeding, and running STOP signs.
- Concerns regarding curb ramps being insufficient for wheelchair or other mobility challenged roadway users.

Traffic Enforcement Concerns

- Multiple concerns regarding running STOP signs.
- Concerns regarding speeding observed at multiple locations.
- Concerns regarding illegal parking along roadways and on sidewalks.

Roadway Infrastructure/ Traffic Operations Concerns

- Concerns regarding narrow lanes and steep slopes in the city.
- Support for additional signals and signs to reduce vehicle conflict points at intersections.
- Requests to convert two-way streets to one-way streets.
- Clear sight triangles to improve visibility on intersection approaches.
- Request to provide more parking downtown.

The location and modal emphasis of comments in San Carlos is presented in Figure 70. The project team also identified common themes in the responses made countywide which may be relevant to the City. Those are presented in the Community Engagement section of the Countywide LRSP.

PHASE 2 COMMUNITY ENGAGEMENT FEEDBACK

The project team held an event at the Belmont Farmers' Market in January 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. During the Belmont Farmers' Market outreach, community members shared feedback on locations specific to San Carlos. The following themes were identified for locations in the City of San Carlos:

General Comments

- Concerns that some roadways are too narrow for traveling
- Concerns that some three- or four-way intersections are confusing to navigate

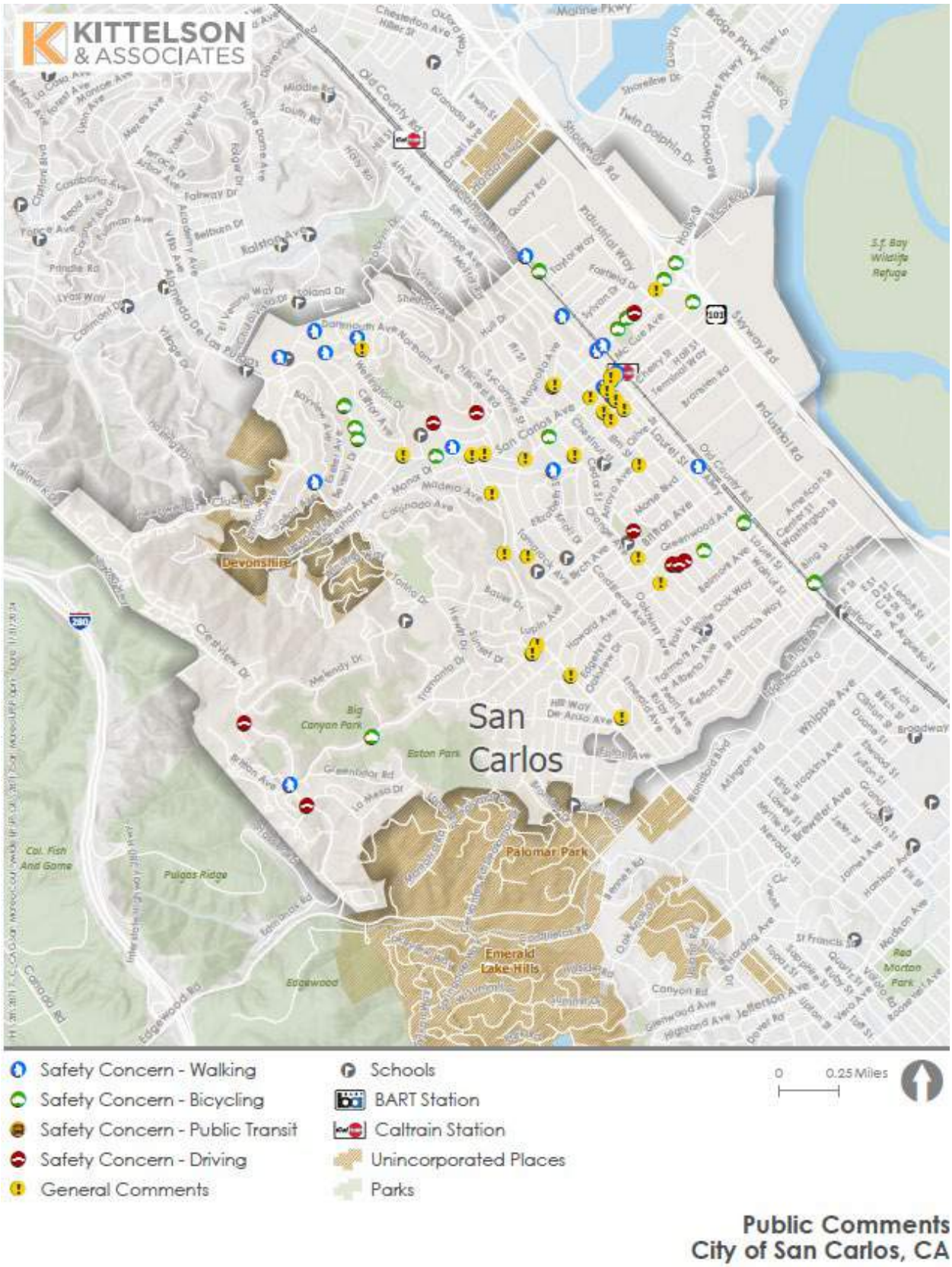
Bicycle Comments

- Desire for separated bike lanes, specifically on hilly street like Brittan Avenue

Motor Vehicle Comments

- Concerns about congestion on roadways that connect to highways, such as Windsor Drive
- Concerns about speeding on roadways, such as Industrial Road

Figure 3. Webmap Comments in San Carlos



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 System[1] (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 freeway 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. Near-miss data could serve as a good surrogate measure for safety but are very difficult to accurately define and record systematically. Some agencies have successfully used video-based conflict monitoring algorithms to capture near-miss information at select locations. The techniques show promise for identifying conflicts that correlate to crashes, but the ability to scale the technology is still unclear.[2]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. For a more complete description of trends and findings, refer to Appendix B.

Emphasis Areas

The project team analyzed crash data in San Carlos and compared countywide trends to establish emphasis areas. Emphasis areas are crash dynamic, behavioral, or road user characteristics that the City 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 City of San Carlos:

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 San Carlos, pedestrians and bicyclists were involved in 28 percent and 13 percent of the 32 reported F/SI crashes. The pedestrian share is higher than their overall share of all injury crashes (14 percent).
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 San Carlos, 28 percent of the two fatal/severe injury crashes occurred in dark conditions.
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.

[1] Transportation Injury Mapping System, http://tims.berkeley.edu

[2] For example, the Pennsylvania Department of Transportation evaluated the technology as part of its SMART intersections project. More information is available online at https://www.penndot.pa.gov/ProjectAndPrograms/Planning/Research-And-Implementation/Documents/Smart%20Intersections.pdf

4. **Vulnerable age groups (youth and aging).** Countywide across all modes, crash victims between the 15 to 34 years old are more likely to be injured including F/SI as a result of traffic safety than other groups. Victims between the ages 50 – 69 and 75 to 84 are also more likely to be severely injured than other groups. In San Carlos, 21 crashes or 7 percent of all reported injury crashes involve at fault drivers who are under 30 years old.
5. **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 San Carlos, "Too fast for conditions" was the top-cited violation among motor vehicle crashes (in 30 percent of injury crashes).
6. **Alcohol involvement.** Countywide, one in ten (10 percent) of motor vehicle injury crashes and one in five F/SI motor vehicle crashes (19 percent) involved alcohol. In San Carlos, 7percent of all reported injury crashes involve impaired driving.

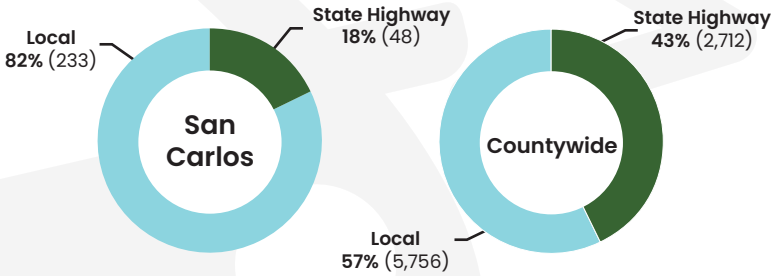
The next pages present summary findings from a crash data review that compares the City of San Carlos to countywide trends in these emphasis areas. It includes summary statistics related to the above-cited emphasis areas but also shows:

- The share of local crashes that occurred on or at a State Highway facility compared to Countywide levels.
- The most frequently reported local 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 locally, bicyclist crashes account for a higher share of F/SI crashes than among all injury levels.
- The share of local and Countywide crashes occurring in dark conditions for crashes of all injury levels and for F/SI crashes (organized by mode).
- Reported pedestrian and bicyclist crashes summarized by the most common preceding movements countywide, with a comparison of those movements' share of local crashes to Countywide shares.
- The local and Countywide share of crashes involving drugs or alcohol and involving drivers under age 30.

San Carlos—Crash History

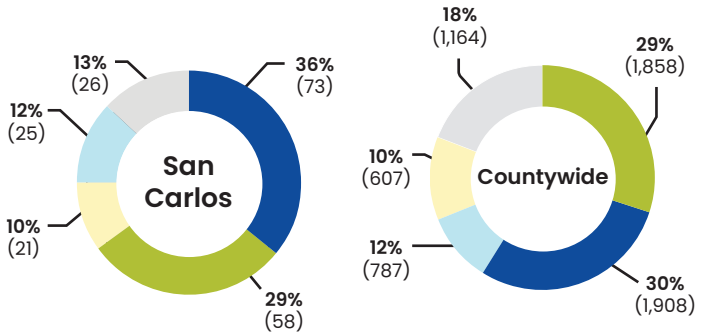
Total Crashes

In San Carlos, 281 fatal and injury crashes were reported on at-grade facilities between 2018 – 2022, where:



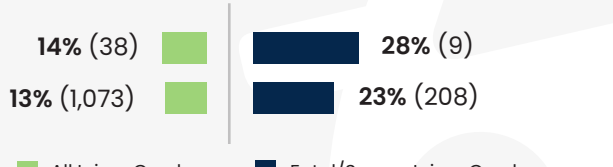
Most Frequent Collision Types

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

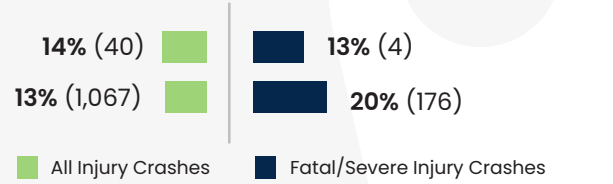


Mode Involvement

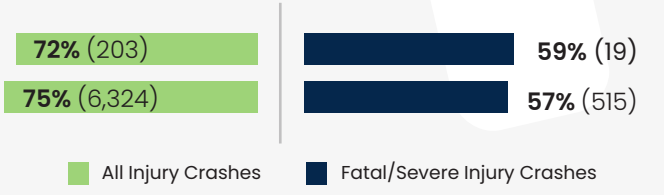
Pedestrian Crashes (38)



Bicycle Crashes (40)



Motor Vehicle[1] Crashes (203)



7% (21)
of reported collisions in San Carlos involved drugs or alcohol

Compared to the countywide total, where 8% (625) of reported collisions involved drugs or alcohol

5% (15)
of reported collisions in San Carlos involved young drivers[1]

Compared to the countywide total, where 5% (472) of reported collisions involved young drivers[2]

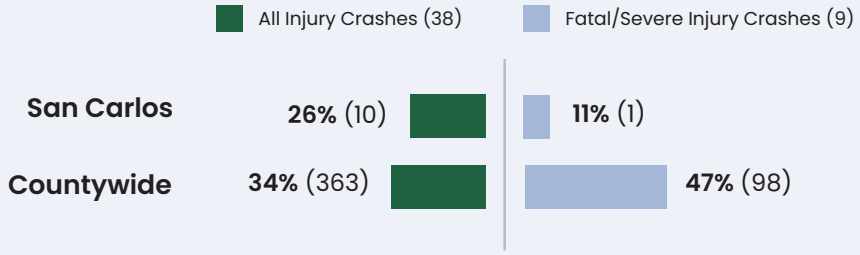
1. *Motor crashes include motor vehicles and motorcyclists.*
2. *Young driver crashes are crashes that involve at fault drivers who are under 30 years old.*

San Carlos—Crash History

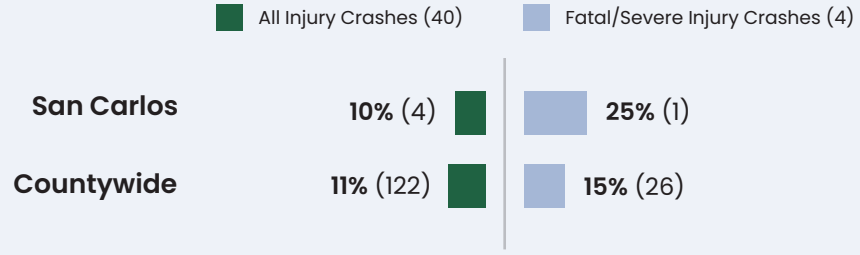
Dark Conditions

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

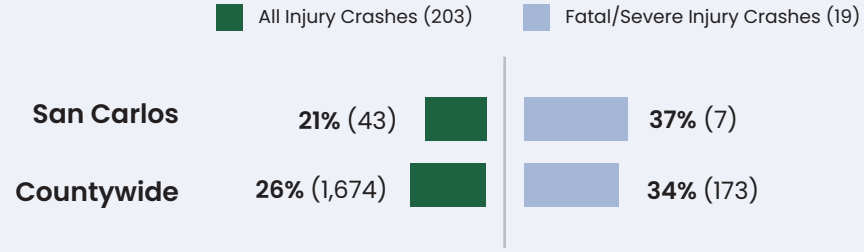
Share of Pedestrian Crashes in Dark Conditions (10)



Share of Bicyclist Crashes in Dark Conditions (4)

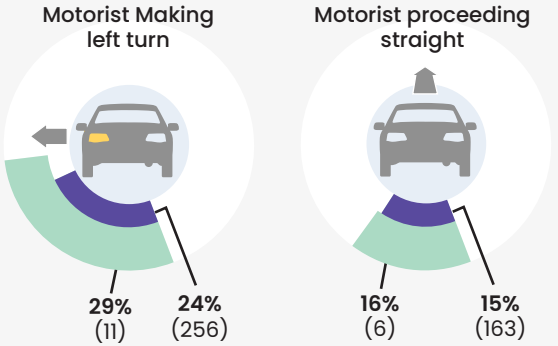


Share of Motor Vehicle Crashes in Dark Conditions (43)

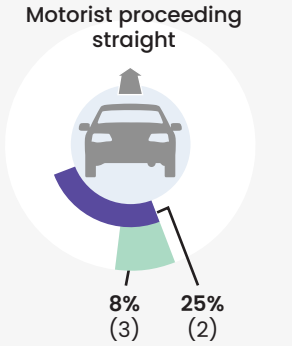


Reported Pedestrian Crashes (38)

Pedestrian Crossing at Intersection

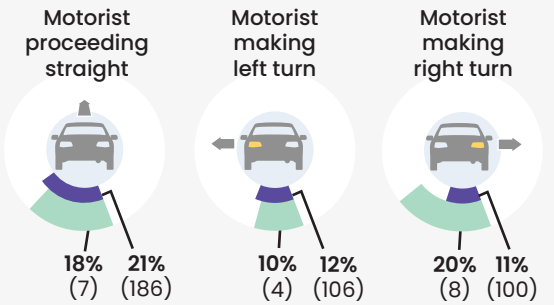


Pedestrian Crossing Not at a Crosswalk

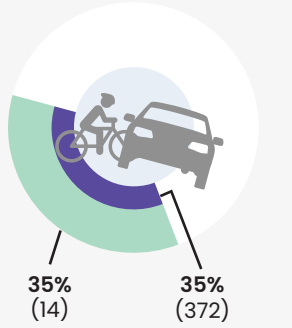


Reported Bicycle Crashes (40)

Bicyclist Proceeding Straight



Perpendicular Bicyclist Crashes



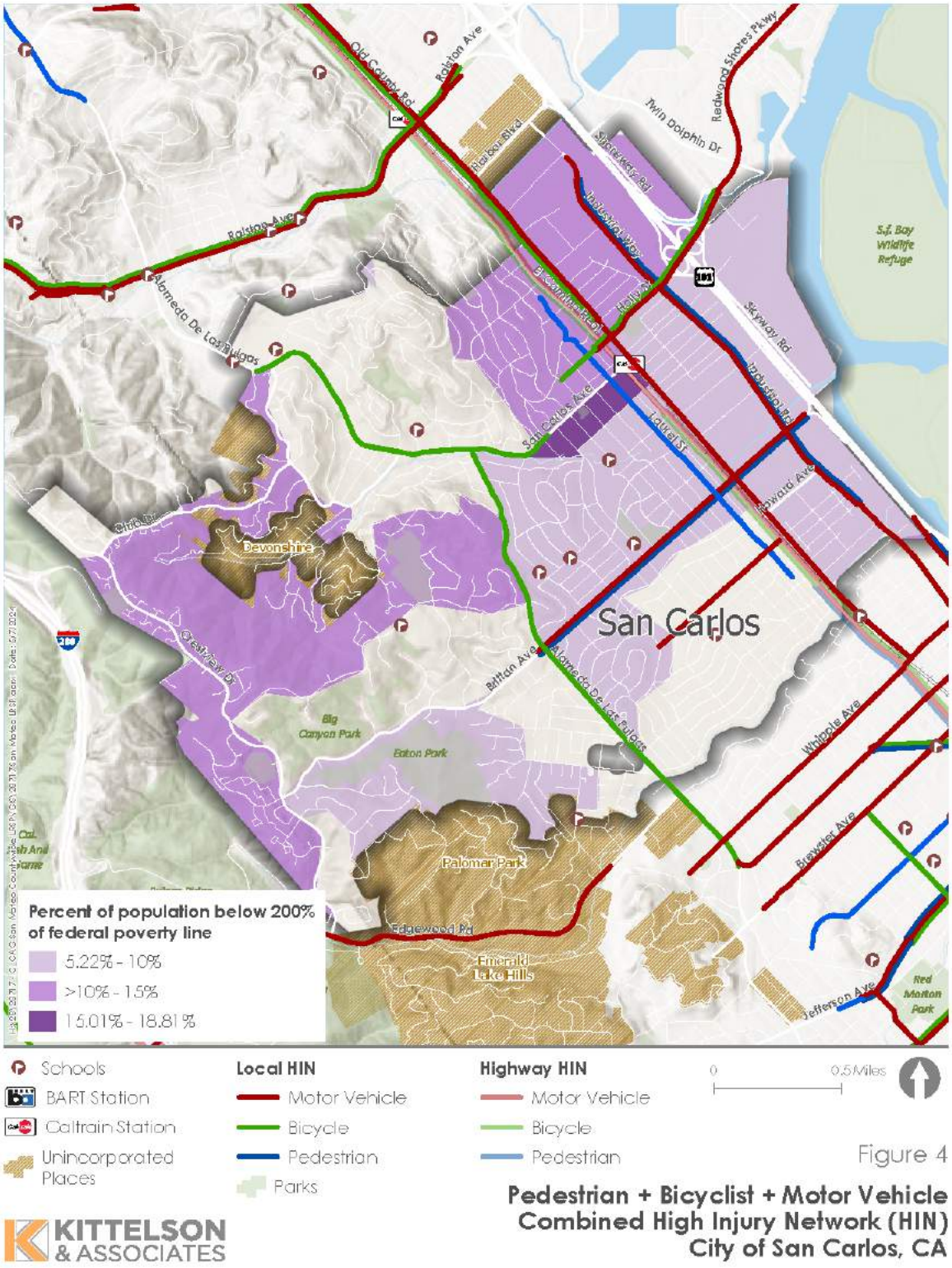
Countywide High Injury Network

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 3 and Figure 4 show the HIN segments identified within the City.

Table 3. Countywide HIN Segments in San Carlos

Roadway name	All County Jurisdiction(s) including this HIN Roadway	Total Length, all jurisdictions included (mi)	Motor Vehicle HIN	Bicyclist HIN	Pedestrian HIN
Belmont Ave	San Carlos	0.6	X		
Brittan Ave	San Carlos	1.4	X		X
Laurel St	San Carlos	1.5			X
San Carlos Ave	San Carlos	1.4		X	
El Camino Real	San Carlos, Atherton, Menlo Park, Redwood City, Millbrae, San Bruno, Belmont, San Mateo, Burlingame, South San Francisco, Colma, Unincorporated	23.5	X	X	X
Alameda de las Pulgas	San Carlos, Atherton, Redwood City, Belmont, San Mateo, Unincorporated	6.7	X	X	X
Old County Rd	San Carlos, Belmont, Harbor/Industrial	3.4	X	X	
Holly St	San Carlos, Redwood City	1.0	X	X	
Industrial Rd	San Carlos, Redwood City	2.4	X		X

Figure 4. Countywide HIN within the City of San Carlos



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 City 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 5, Figure 6,and Figure 7).

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

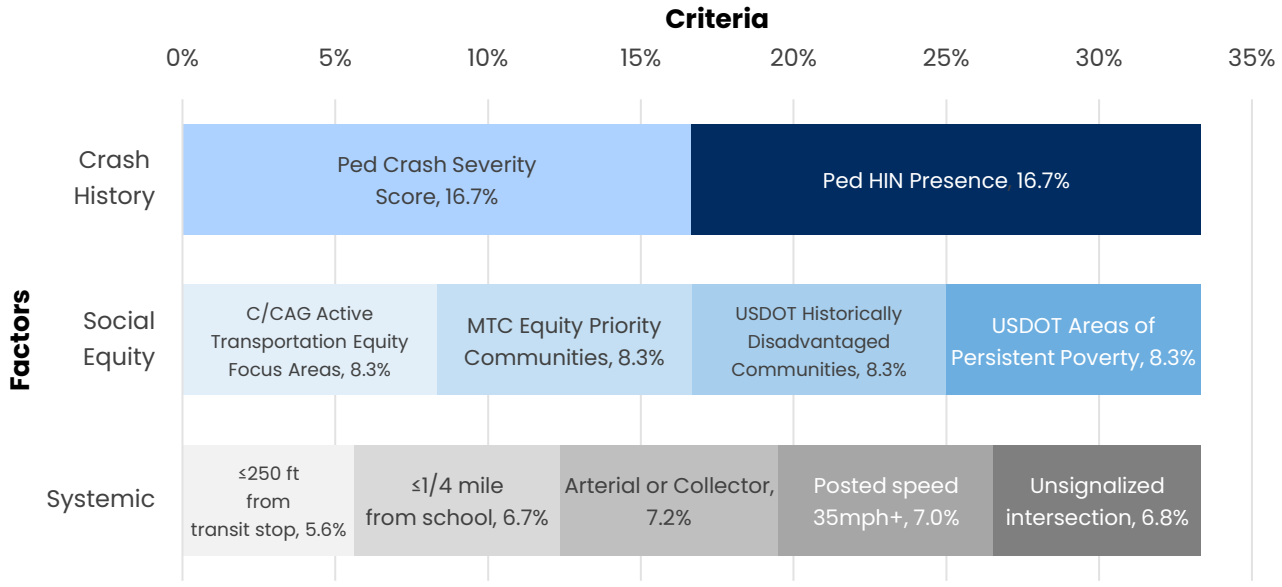


Figure 6. Bicycle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)

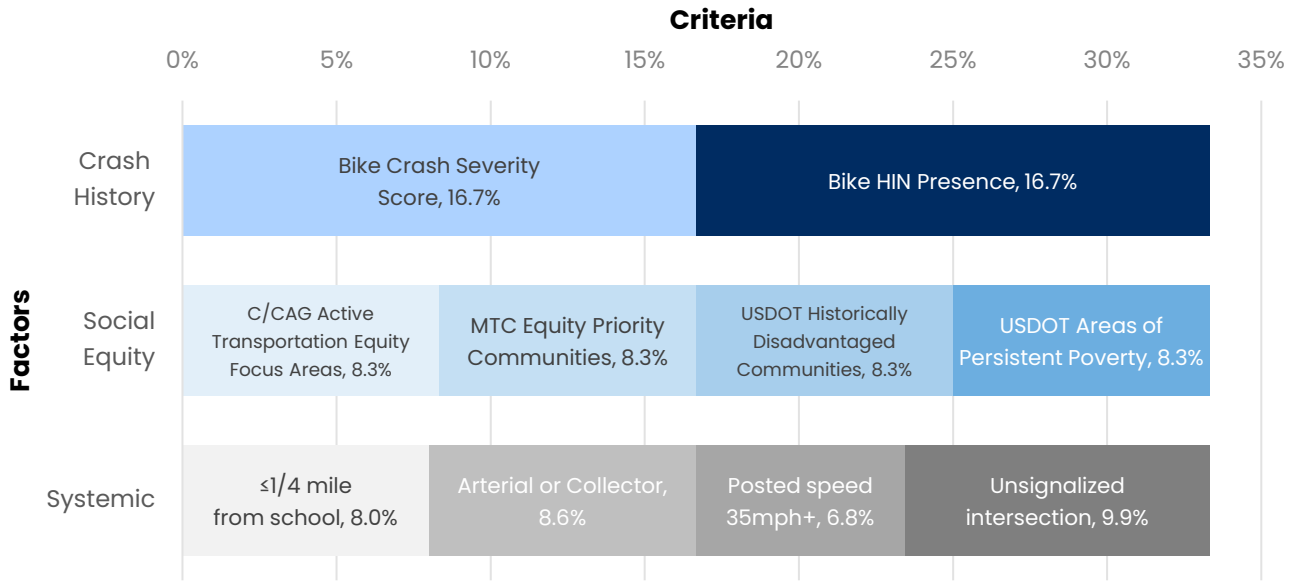
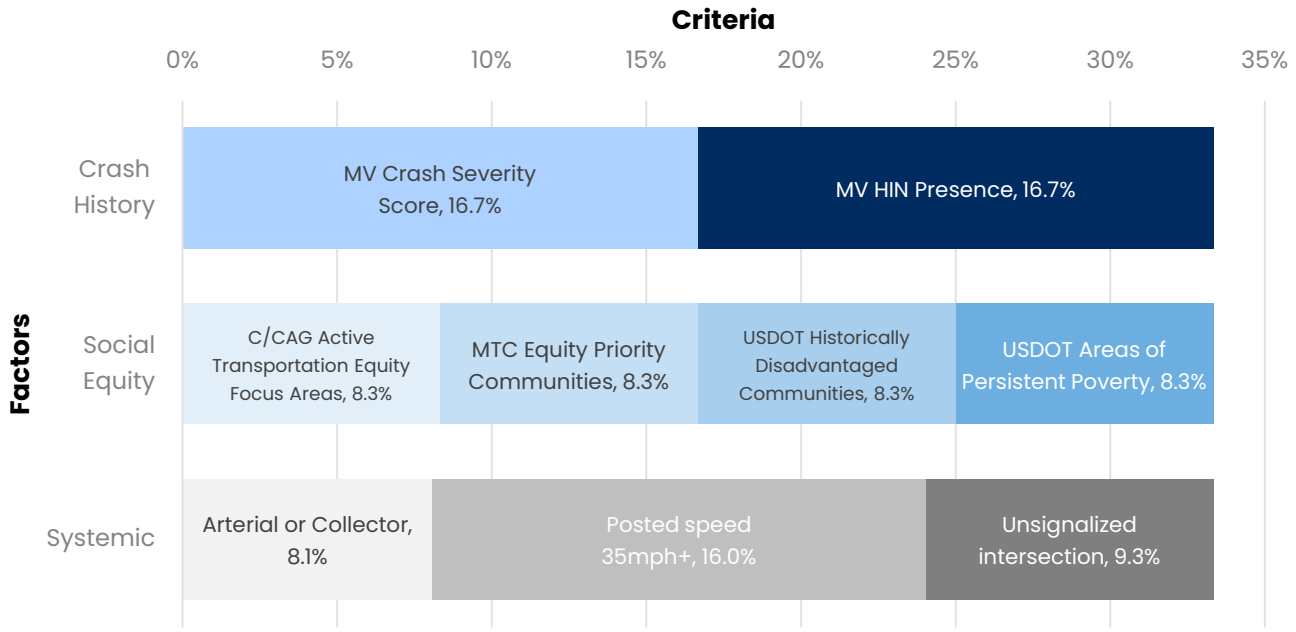


Figure 7. Motor Vehicle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)



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 City 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 C. Figure 8 also shows the locations.

Table 4. Priority Locations

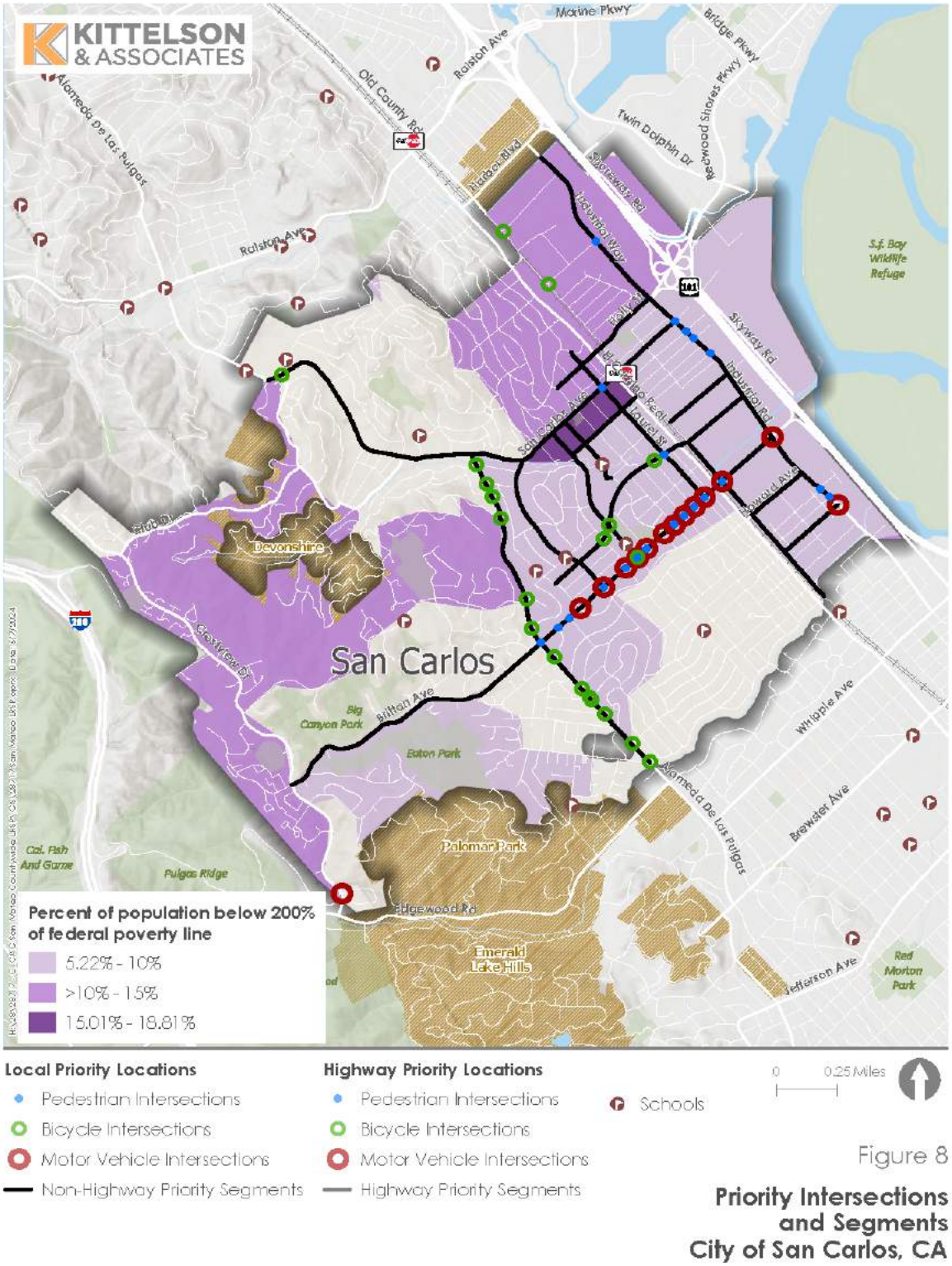
ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
1	Brittan Ave and Cordilleras Ave	Intersection	No	**X**		**X**
2	Brittan Ave and Cedar St	Intersection	No	**X**	**X**	**X**
3	Brittan Ave and Elm St	Intersection	No	**X**		**X**
4	Greenwood Ave and Tamarack Ave	Intersection	No	**X**		
5	Brittan Ave and Rosewood Ave	Intersection	No	**X**		**X**
6	Woodland Ave and Brittan Ave	Intersection	No	**X**		
7	Brittan Ave and Chestnut St	Intersection	No	**X**		
8	Brittan Ave and Orange Ave	Intersection	No	**X**		**X**
9	Walnut St and Brittan Ave	Intersection	No	**X**		**X**
10	Brittan Ave and Old County Rd	Intersection	No	**X**		**X**

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
11	Industrial Rd and Brittan Ave	Intersection	No	**X**		
12	Laurel St and Brittan Ave	Intersection	No	**X**		**X**
13	Industrial Rd and Washington St	Intersection	No	**X**		**X**
14	Edmonds Rd and Edmond Dr	Intersection	No	**X**		
15	Alameda De Las Pulgas and San Carlos Ave	Intersection	No	**X**		
16	Tanklage Rd and Industrial Rd	Intersection	No	**X**		
17	Cambridge St and San Carlos Ave	Intersection	No	**X**		
18	Circle Star Way and G St	Intersection	No	**X**		
19	Brittan Ave and Hudson Ct	Intersection	No	**X**		
20	Upland Ave and San Carlos Ave	Intersection	No	**X**		
21	Brittan Ave and Dayton Ave	Intersection	No			**X**
22	Brittan Ave and Brook St	Intersection	No			**X**
23	Industrial Rd and San Carlos Ave	Intersection	No			**X**
24	American St and Industrial Rd	Intersection	No			**X**
24	Industrial Rd and Montgomery Ln	Intersection	No			**X**
25	Terminal Way and Industrial Rd	Intersection	No			**X**
26	Center St and Industrial Rd	Intersection	No			**X**
27	Industrial Way and Taylor Way	Intersection	No			**X**
28	Industrial Rd and Cherry Ln	Intersection	No			**X**
29	San Carlos Ave and Laurel St	Intersection	No			**X**
30	Brittan Ave and Alameda De Las Pulgas	Intersection	No			**X**

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
31	Rockridge Rd and Alameda De Las Pulgas	Intersection	No		**X**	
32	Lupin Ave and Alameda De Las Pulgas	Intersection	No		**X**	
33	San Carlos Ave and Club Dr	Intersection	No		**X**	
34	Alameda De Las Pulgas and Alma St	Intersection	No		**X**	
35	Alameda De Las Pulgas and Graceland Ave	Intersection	No		**X**	
36	Old Country Rd and Taylor Way	Intersection	No		**X**	
37	Alameda De Las Pulgas and Carmelita Ave	Intersection	No		**X**	
38	Alameda De Las Pulgas and St Francis Way	Intersection	No		**X**	
39	Alameda De Las Pulgas and Pine Ave	Intersection	No		**X**	
40	Quarry Rd and Old Country Rd	Intersection	No		**X**	
41	Alameda De Las Pulgas and Madera Ave	Intersection	No		**X**	
42	Eaton Ave and Alameda De Las Pulgas	Intersection	No		**X**	
43	Alameda De Las Pulgas and Oakview Dr	Intersection	No		**X**	
44	Hill Way and Alameda De Las Pulgas	Intersection	No		**X**	
45	Alameda De Las Pulgas and Wildwood Ave	Intersection	No		**X**	
46	Ridge Rd and Alameda De Las Pulgas	Intersection	No		**X**	
47	Orange Ave and Arroyo Ave	Intersection	No		**X**	
48	Arroyo Ave and Walnut St	Intersection	No		**X**	
49	Cedar St and Arroyo Ave	Intersection	No		**X**	
50	Brittan Ave, from Industrial Rd to Crestview Dr	Corridor	Yes	**X**	**X**	**X**

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
51	San Carlos Ave, from city limits W of Cranfield to E of Industrial Rd	Corridor	No		**X**	**X**
52	Industrial Rd, from city limits N of Quarry to Center St	Corridor	No	**X**		**X**
53	Alameda De Las Pulgas, from San Carlos Ave to Eaton Ave	Corridor	No		**X**	**X**
54	Old County Rd, from Commercial St to city limit S of Bing St	Corridor	No	**X**		**X**
55	Arroyo Ave, from Tamarack Ave to Industrial Rd	Corridor	No		**X**	**X**
56	Cedar St, from San Carlos Ave to Brittan Ave	Corridor	No	**X**	**X**	**X**
57	Laurel St, from Bush St to Brittan Ave	Corridor	No	**X**		**X**
58	Holly St, from Magnolia Ave to Industrial Rd	Corridor	No			
59	Cherry St, from Cedar St to El Camino Real	Corridor	No			
60	Cordilleras Ave, from San Carlos Ave to Brittan Ave	Corridor	No	**X**		**X**
61	Howard Ave, from Old County Rd to Industrial Ave	Corridor	No			
62	Chestnut St, from San Carlos Ave to Woodland Ave	Corridor	No			
63	Bransten St, from Old County Rd to Industrial Rd	Corridor	No			
64	Commercial Ave, from Old County Rd to Industrial Rd	Corridor	No			
65	Washington St, from Old County Rd to Industrial Rd	Corridor	No	**X**		

Figure 8: San Carlos Priority Locations



IMPROVEMENTS – ENGINEERING, POLICY & PROGRAMS

This section presents Safe System-aligned recommendations that can create levels of redundancy for traffic safety in the City of San Carlos. First are engineering recommendations: identified project scopes and 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 City departments and partners in pursuit of the plan's vision and goals.

Project Scopes

With the development of this plan the project team worked with the City 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 City could consider at these locations. The City 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 City-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:

- Brittan Ave—Crestview Dr to Industrial Rd. Recommended improvements include:
  - Pedestrian crossing signs and markings
  - Signs with fluorescent sheeting (regulatory or warning)
  - Dynamic/variable speed warning signs
  - Edgeline rumble strips/stripes (outside of residential areas)
  - Separated bike lanes
  - Improved signal hardware (lenses, backplates with retroreflective borders, mounting, size, and number)
  - Installation of advance stop bar before crosswalk (bicycle box)
  - Modified signal phasing to include leading pedestrian interval
  - Reduction in travel lanes
- San Carlos Ave—city limits to Industrial Rd. Recommended improvements include:
  - Improved signal hardware (lenses, backplates with retroreflective borders, mounting, size, and number)
  - Installation of advance stop bar before crosswalk (bicycle box)
  - Modified signal phasing to include a leading pedestrian interval
  - Dynamic/variable speed warning signs
  - Separated bike lanes

Another corridor of interest for City concept advancement is Alameda de las Pulgas. Development of that project scope is beyond the scope of this plan but represents a next step for the City. For more information on the location, cost, and crash diagnostics of these project scopes, see Appendix D.

Engineering Countermeasure Toolbox

This section presents Safe System-aligned engineering recommendations that can create levels of redundancy for traffic safety in the City of San Carlos. 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 City departments and partners in pursuit of the plan's vision and goals.

Table 5. City of San Carlos 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

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
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 raised pavement markers and striping*	SI	All crashes	0.1	$	High
Install flashing beacons as advance warning*	SI	Rear-end, broadside	0.3	$-$$	Medium
No right turn on red	SI	Pedestrian crashes, signalized local/arterial intersections	N/A	$	Medium
Centerline hardening or continuous raised median	SI	All crashes	0.46	$	Medium
Convert intersection to roundabout (from signal)*	SI	Signalized local/arterial intersections	Varies	$-$$$	Low
Install pedestrian countdown signal heads*	SI	Pedestrian crashes, signalized local/arterial intersections	0.25	$	High
Install pedestrian crossing*	SI	Pedestrian crashes,	0.25	$	High

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
		signalized local/arterial intersections			
Install pedestrian scramble*	SI	Pedestrian crashes, signalized local/arterial intersections	0.4	$	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 painted safety zone	SI	Pedestrian crashes, signalized local/arterial intersections	N/A	$	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
Convert intersection to roundabout (from all-way stop)*	UI	All crashes	Varies	$$$	Low

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
Convert intersection to roundabout (from STOP or yield control on minor road)*	UI	All crashes	Varies	$$$	Low
Convert intersection to mini-roundabout*	UI	All crashes	0.3	$$	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	$-$$$	Medium
Install/upgrade larger or additional STOP signs or other intersection warning or regulatory signs*	UI	Turning crashes related to lack of driver awareness	0.15	$	High
Upgrade intersection pavement markings*	UI	Turning crashes related to lack of driver awareness	0.25	$	High
Install flashing beacons at stop-controlled intersection*	UI	Broadside, rear end	0.15	$$$	High
Install pedestrian signal or pedestrian hybrid beacon*	UI	Pedestrian and bicycle	0.3	$$$	High
Install transverse rumble strips on approaches	UI	All crashes	0.2	$	High

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
(outside of residential areas)*					
Install splitter islands on the minor road approaches*	UI	All crashes	0.4	$	Medium
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 (outside of residential areas)*	R	All crashes	0.15	$-$$$	High
Install separated bike lanes*	R	Pedestrian and bicycle	0.45	$-$$	Low
Install/upgrade pedestrian crossing (with enhanced safety features)*	R	Pedestrian and bicycle	0.35	$$-$$$	Medium
Install raised pedestrian crossing*	R	Pedestrian and Bicycle	0.35	$	Medium
Remove or relocated fixed objects outside of clear recovery zone*	R	Hit object	0.35	$-$$	High
Install delineators, reflectors, and/or object marker*	R	All crashes	0.15	$	High
Install/upgrade signs with new fluorescent sheeting (regulatory or warning)*	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

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
Pedestrian phase recall	SI	Pedestrian	N/A	$	High
Extend green time for bikes	SI	Bicycle	N/A	$	High
Extend yellow and all-red time	SI	All crashes	N/A	$	High
Lane narrowing	R	All crashes	N/A	$-$$	Low
Bicycle crossing (solid green paint)	UI	Bicycle	N/A	$	Medium
Bicycle signal/exclusive bike phase	SI	Bicycle	N/A	$-$$	Low
Curb extensions	UI	All crashes	N/A	$-$$	Low
ADA-compliant directional curb ramps and audible push buttons	SI	Pedestrian	N/A	$-$$	Low
Curb radius reduction	SI, UI	All crashes	N/A	$$	Low
Splitter islands	UI, SI	All crashes	N/A	$$	Medium
Approach curvature	US, SI	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 above2: $ = ≤$50,000; $$ = $50,000 - $200,000; $$$ = > $200,000

Proposed Policy, Program, and Guidelines Recommendations

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 6. City of San Carlos Policy and Program Recommendations

Category	Near-Term Recommendations	Long-Term or Ongoing Recommendations
Local Culture Shift (LCS)	LCS1: Transportation Safety Advisory Committee Participation	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)	LF1: Dedicated Funding	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 Fleet
Local Planning/ Evaluation (LPE)		LPE1: Biennial Review LPE2: Plan Update LPE4: Safe Routes to School LPE8: Speed Limits/Speed Management Plan

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)
- 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: City of San Carlos 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: City of San Carlos Public Works

LONG-TERM OR ONGOING ACTIONS

LCS2: High-Visibility Media Campaign

Coordinate with County Public Health and the San Matteo County Sheriff's Office 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, Sustainability Department, SMCOE, City of San Carlos 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: City of San Carlos Public Works

LCS4: Implement Car-Free Zones

More effectively target resources to pedestrian crash problems in a limited geographic area. Realizing these zones requires upfront analysis and planning, countermeasure development, and implementation. Implementation can focus on addressing particular problems or on increasing general safety in specific areas during windows of peak pedestrian activity. (For example: Friday nights in commercial districts, Sundays on

recreational routes/areas, etc.)
Lead agency: City of San Carlos Public Works

LEC2: Speed Monitoring Awareness Trailer

Coordinate with San Matteo County Sheriff's Office 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: County Sheriff's Office
Coordinating partners: City of San Carlos Public Works

LF2: Equitable Investment

Prioritize citywide 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: City of San Carlos 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: City of San Carlos 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, Sustainability Department, 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: City of San Carlos 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: City of San Carlos Public Works

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: City of San Carlos Public Works
Coordinating partners: C/CAG, County Public Health

LEO5: Safe City Fleets

Provide educational materials for City staff who drive City vehicles and integrate safety awareness training into contracting process with vendors who provide City services. Other measures include installing safety features (such as pedestrian/obstacle detection and speed tracking) on City vehicles and reporting on correction plans against unsafe driving.
Lead agency: City of San Carlos Public Works

LPE1: Biennial Review

Provide a biennial review of plan implementation progress. This review includes an update and presentation to City Council as well as a written update to the TSAC so that C/CAG may compile county plan implementation status.
Lead agency: City of San Carlos Public Works

LPE2: Plan Update

Update the plan, likely as part of a Countywide plan update, 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: 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 City.
Lead agency: SMCOE
Coordinating partners: City of San Carlos Public Works

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: City of San Carlos Public Works

IMPLEMENTATION & MONITORING

A key part of achieving San Carlos's vision is consistently evaluating roadway safety performance and tracking progress towards the goals. The City of San Carlos will develop a process to regularly collect data and information around the performance measures that can be used to assess changes city-wide and at the top priority locations.

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

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

Table 7. City of San Carlos Goals and Measures of Success

GOAL	MEASURE OF SUCCESS
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.	• Number of LRSP project locations advanced through project development, reported at the agency level • Three-year total reported crashes, fatal/severe injury crashes, crashes by mode, and crashes by emphasis areas identified
3. Advance the active transportation efforts of the City and regional agencies to achieve the greenhouse gas (GHG) reduction.	• 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 City 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 City
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.	• Community engagement included as part of all C/CAG-funded safety project development activities • Number of engagement touchpoints and number of community member interactions citywide for safety plans or projects. • Report-backs to the City Council and TSAC regarding community engagement, including information about outreach to disadvantaged communities where applicable

GOAL	MEASURE OF SUCCESS
6. Embrace the Safe System Approach to promote engineering and non-engineering strategies in the community.	• Percent of school district participation in SRTS and roadway safety education opportunities • Number of trainings city staff have participated in regarding Safe System elements, available tools, or practices • Improved data availability or maintenance to enhance safety analysis and practice
7. Monitor implementation of the San Carlos LRSP to track progress towards goals.	• See above in this table

City of San Carlos

San Mateo C/CAG Countywide LRSP

Town of Woodside

LOCAL ROADWAY SAFETY PLAN

FINAL DRAFT

MAY 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.

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INTRODUCTION

This chapter serves as a standalone local roadway safety plan (LRSP) for the Town of Woodside. 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 Woodside has a 2023 population of 5,128 per California Department of Finance. The town has 45 total centerline miles per Caltrans 2022 California Public Road Data. From 2018 through 2022, there were 185 reported crashes on surface streets in the Town and 44 fatal/severe injury crashes. In that time period, pedestrians were involved in 1 percent of all reported crashes and 2 percent of fatal/severe injury crashes. Bicyclists were involved in 39 percent of all reported crashes and 48 percent of fatal/severe injury crashes. The LRSP provides Safe System-aligned strategies tailored to Woodside's crash history and local priorities, as well as performance measures to evaluate progress.

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

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 Woodside vision for roadway safety is:

- Achieve 50 percent reduction in fatal and severe injury crashes by 2050.

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

1. Regularly review crash history and community needs to identify and prioritize opportunities to reduce crash risk for roadway users of all ages and abilities.
2. Reduce the number of annual fatal and severe injury crashes across all public Town roadways.
3. Implement safety countermeasures systemically to target emphasis areas.
4. Partner with other local agencies to incorporate roadway safety into all actions.
5. Provide opportunities for citizen engagement in identifying issues and inform solutions for roadway safety across the community.
6. Embrace the Safe System approach to promote engineering and non-engineering strategies in the community.
7. Identify opportunities to incorporate social equity into safety improvements.
8. Monitor implementation to track progress towards goals.

PLAN DEVELOPMENT

Existing Safety Efforts

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

Table 1. Town of Woodside 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
Roadway lighting and conspicuity improvements	The Town has made or will make the following lighting and conspicuity enhancements: • Installed lighted crosswalks • Made striping improvements • Added pedestrian markings where applicable • Increased pedestrian warning signs	Safe Roads, Safe Road Users, Safe Vehicles

Program Name	Program Description	Safe System Elements
General roadway design improvements	The Town has made or will make the following general design improvements: • Added curb ramps • Added pathways • Reduced crosswalk lengths where appropriate	Safe Roads, Safe Vehicles, Safe Speeds

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 Woodside'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
- Sustainability Department
- 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
- San Mateo County Sheriff's Office

Figure 1. A pop-up event held by the project team at the Woodside Public Library

Community Engagement and Input

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

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, and is followed by the community input themes we heard.

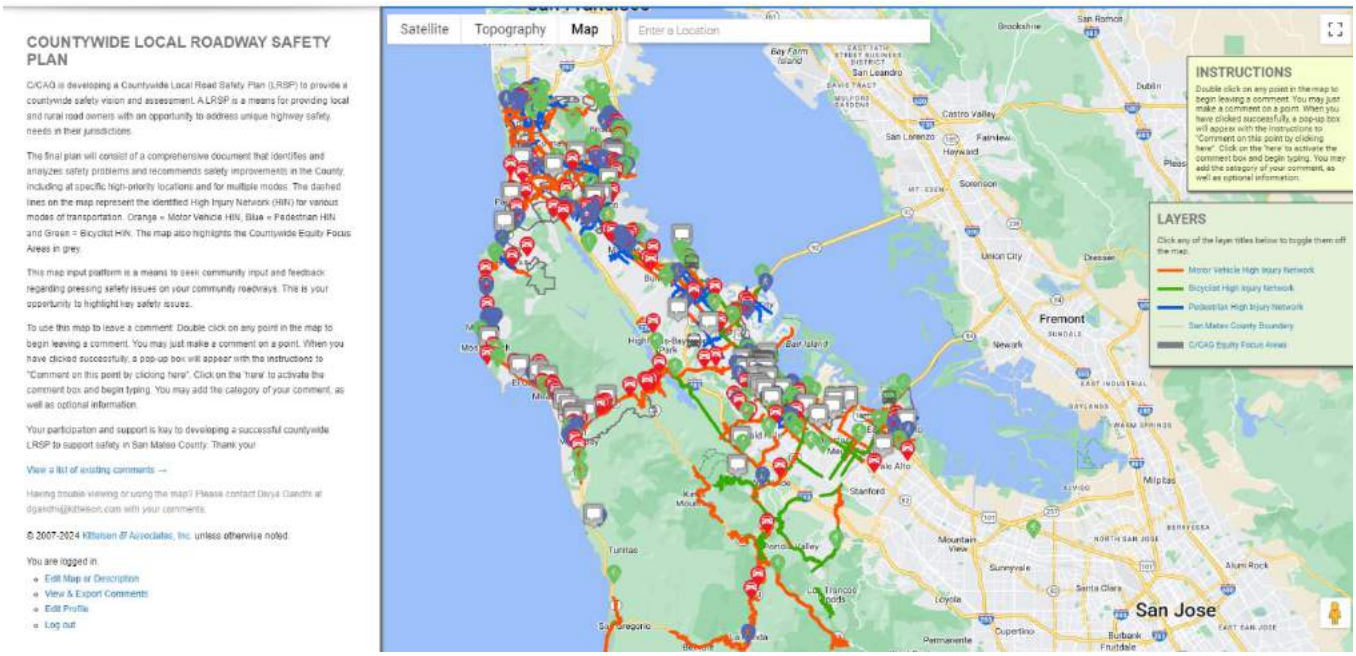
Table 2. Community Engagement Phases and Events

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 76). 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



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Countywide, there were a total of 528 comments recorded by 352 respondents. There were five comments made within the Town of Woodside in addition to the conversations and feedback recorded at the Phase 1 event in August. The comments included the following:

The location and modal emphasis of comments in Woodside is presented in Figure 3. The comments received are provided in Appendix A. The project team also 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.

Pedestrian Concerns/Requests

- Add new pedestrian infrastructure or upgrade existing infrastructure such as building new sidewalks and high visibility crosswalks.
- Conflicts with motor vehicles due to speeding, running STOP signs and right of way issues.
- Concerns regarding speeding bicycles and creating potential conflicts with pedestrians.

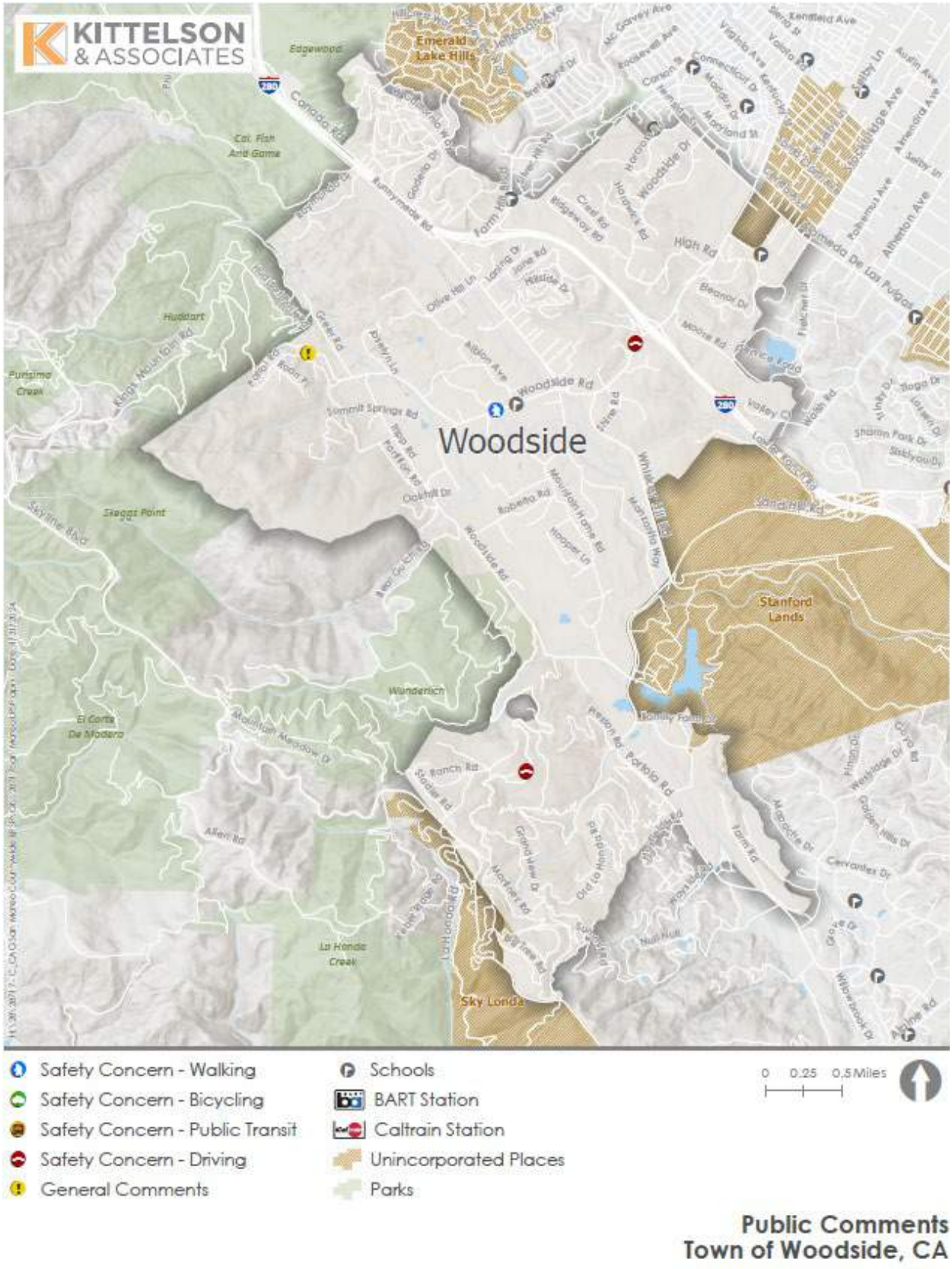
Traffic Enforcement Concerns

- Concerns regarding speeding and running STOP signs.

Roadway Infrastructure/ Traffic Operations Concerns

- Concerns regarding high traffic volumes and traffic congestion.

Figure 3. Webmap Comments in Woodside



PHASE 2 COMMUNITY ENGAGEMENT FEEDBACK

The project team held an event at the Woodside Public Library in December 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 B. The following themes were identified:

General Comments

- Desire for improved bus service in the Town (e.g., more frequent buses)
- Desire to reduce intersection footprint so crosswalks are shorter distances and vehicles can slow down when making turns
- Desire to create more separation for people walking, biking, and driving

Pedestrian Comments

- Desire for sidewalks, specifically on Woodside Road
- Desire for crosswalks at key destinations, such as schools, parks, and town center, especially along Woodside Road
- Concerns that existing crosswalks around schools are not visible enough for children to cross safely

Bicycle Comments

- Desire for multiuse paths, shoulders, and/or bike lanes to separate bicycles and motor vehicles

Motor Vehicle Comments

- Desire for signage and other improvements on winding roadways to alert drivers of curves and encourage slower speeds, specifically on Old La Honda Road, Kings Mountain Road, and Woodside Road
- Desire for signals and signs at crosswalks, such as Canada Road
- Concerns that parking/access management delays traffic, specifically at Canada Road and Woodside Road

Countermeasure Comments

- Desire for urban and rural countermeasures
- Desire for additional lighting / flashing lights at intersections, especially around schools and commercial areas
- Desire for larger or additional signs, especially at crosswalks
- No desire for curb extensions or pedestrian refuge islands, especially on narrow roads

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 System[1] (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 freeway were removed 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. For a more complete description of trends and findings, refer to Appendix C.

Emphasis Areas

The project team analyzed crash data in Woodside 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 Woodside:

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 Woodside, pedestrians and bicyclists were involved in 2 percent and 48 percent of the 44 reported F/SI crashes—higher than their overall share of all injury crashes (0.5 percent and 39 percent, total). Bicyclists were involved in 72 reported injury crashes and 21 reported F/SI crashes.
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 Woodside, 7 or 32 percent of the fatal/severe injury motor vehicle crashes occurred in dark conditions.
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. **Vulnerable age groups (youth and aging).** Countywide across all modes, crash victims between the 15 to 34 years old are more likely to be injured including F/SI as a result of traffic safety than other groups. Victims between the ages 50 – 69 and 75 to 84 are also more likely to be severely injured than other groups. In Woodside, 4 crashes or 2 percent of all reported injury crashes involve at fault drivers who are under 30 years old.

[1] Transportation Injury Mapping System, http://tims.berkeley.edu

5. **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 Woodside, "Too fast for conditions" was the top-cited violation among motor vehicle crashes (in 46 percent of injury crashes).
6. **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.
7. **Alcohol involvement.** Countywide, one in ten (10 percent) of motor vehicle injury crashes and one in five F/SI motor vehicle crashes (19 percent) involved alcohol. In Woodside, 6 percent of all reported injury crashes involve impaired driving.

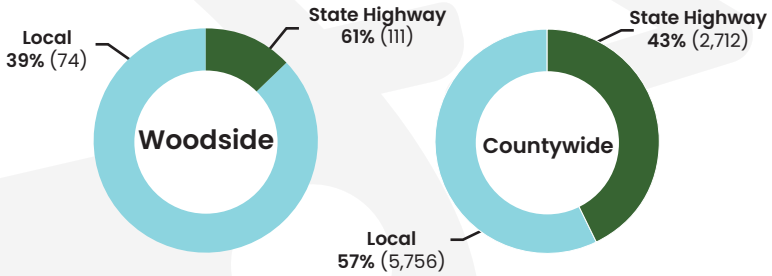
The next pages present summary findings from a crash data review that compares the Town of Woodside to countywide trends in these emphasis areas. It includes summary statistics related to the above-cited emphasis areas but also shows:

- The share of local crashes that occurred on or at a State Highway facility compared to Countywide levels.
- The most frequently reported local 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 locally, bicyclist crashes account for a higher share of F/SI crashes than among all injury levels.
- The share of local and Countywide crashes occurring in dark conditions for crashes of all injury levels and for F/SI crashes (organized by mode).
- Reported pedestrian and bicyclist crashes summarized by the most common preceding movements countywide, with a comparison of those movements' share of local crashes to Countywide shares.
- The local and Countywide share of crashes involving drugs or alcohol and involving drivers under age 30.

Woodside—Crash History

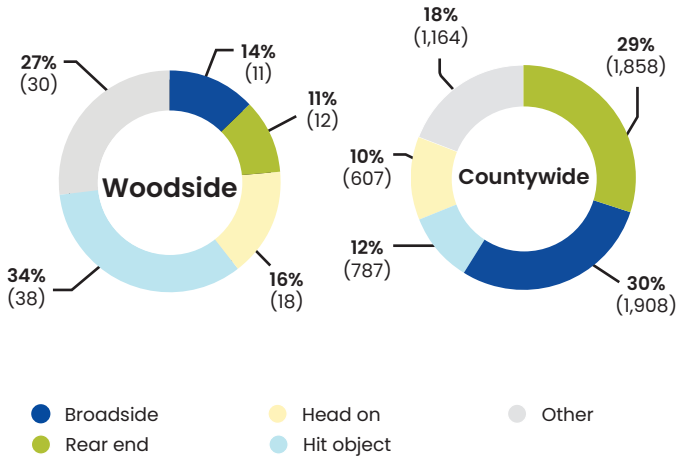
Total Crashes

In Woodside, 185 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 Woodside compares:



Mode Involvement

Pedestrian Crashes (1)

	All Injury Crashes	Fatal/Severe Injury Crashes
Woodside	1% (1)	2% (1)
Countywide	13% (1,073)	23% (208)

Bicycle Crashes (72)

	All Injury Crashes	Fatal/Severe Injury Crashes
Woodside	39% (72)	48% (21)
Countywide	13% (1,067)	20% (176)

Motor Vehicle[1] Crashes (112)

	All Injury Crashes	Fatal/Severe Injury Crashes
Woodside	61% (112)	50% (22)
Countywide	75% (6,324)	57% (515)

6% (12)

of reported collisions in Woodside involved drugs or alcohol

8% (625) Compared to the countywide total, where 8% (625) of reported collisions involved drugs or alcohol

2% (4)

of reported collisions in Woodside involved young drivers[1]

5% (472) Compared to the countywide total, where 5% (472) of reported collisions involved young drivers[2]

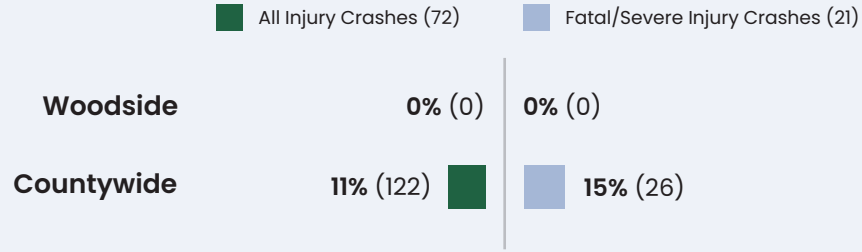
1. *Motor crashes include motor vehicles and motorcyclists.*
2. *Young driver crashes are crashes that involve at fault drivers who are under 30 years old.*

Woodside—Crash History

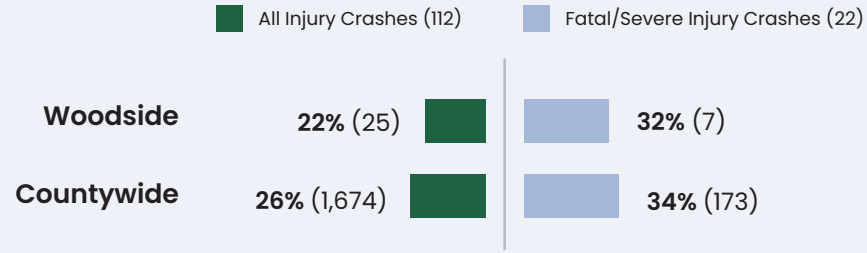
Dark Conditions

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

Share of Bicyclist Crashes in Dark Conditions (0)

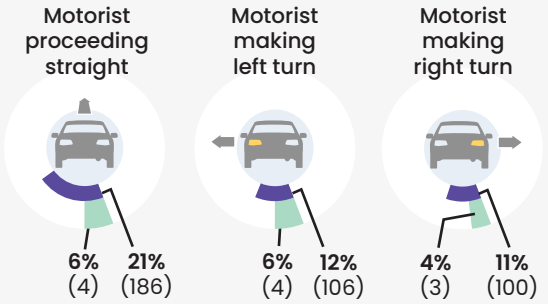


Share of Motor Vehicle Crashes in Dark Conditions (25)

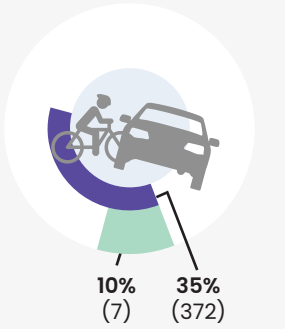


Reported Bicycle Crashes (72)

Bicyclist Proceeding Straight



Perpendicular Bicyclist Crashes



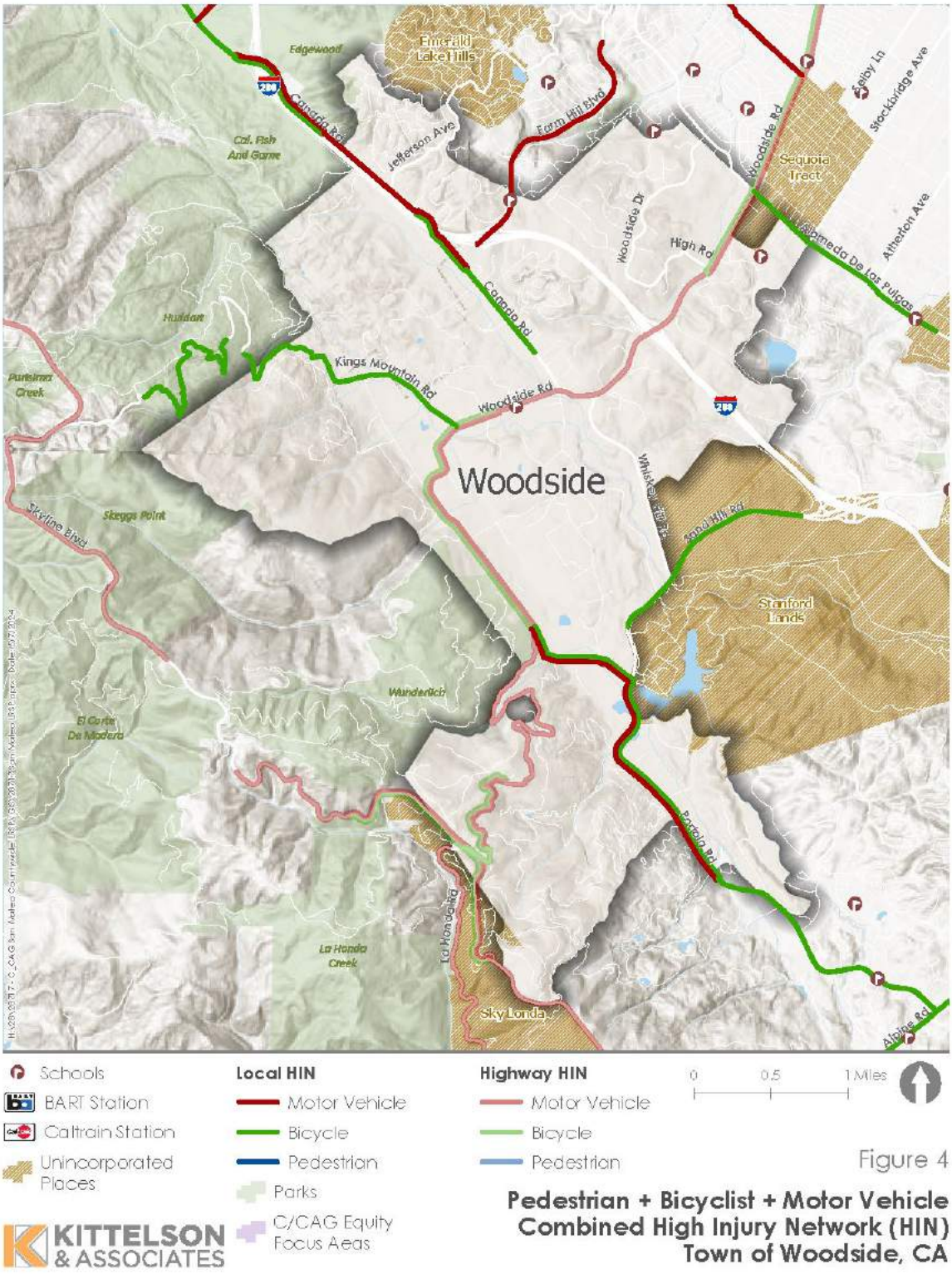
Countywide High Injury Network

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 88 and Figure 78 show the HIN segments identified within the Town.

Table 3. Countywide HIN Segments in Woodside

Roadway name	All County Jurisdiction(s) including this HIN Roadway	Total Length, all jurisdictions included (mi)	Motor Vehicle HIN	Bicyclist HIN	Pedestrian HIN
Portola Rd	Portola Valley, Woodside, Unincorporated	4.2	X	X	
SR 84	Woodside, Menlo Park	2.6	X		
SR 35	Woodside, Pacifica, San Bruno, South San Francisco, Daly City, Unincorporated	25.3	X	X	
Farm Hill Blvd	Woodside, Redwood City	1.8	X		
Woodside Rd	Woodside, Redwood City, Unincorporated	7.0	X	X	
Canada Rd	Woodside, Unincorporated	7.1	X	X	
Kings Mountain Rd	Woodside, Unincorporated	3.5		X	
La Honda Rd	Woodside, Unincorporated	14.0	X	X	

Figure 4. Countywide HIN within the Town of Woodside



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 5, Figure 6, and Figure 7).

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

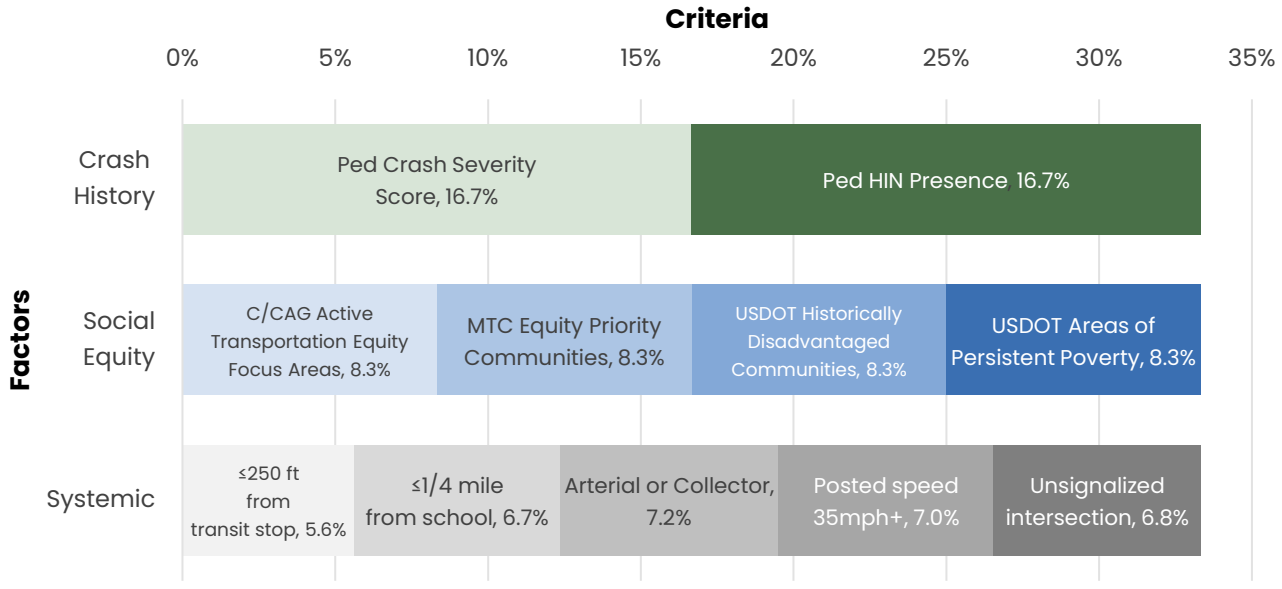


Figure 6. Bicycle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)

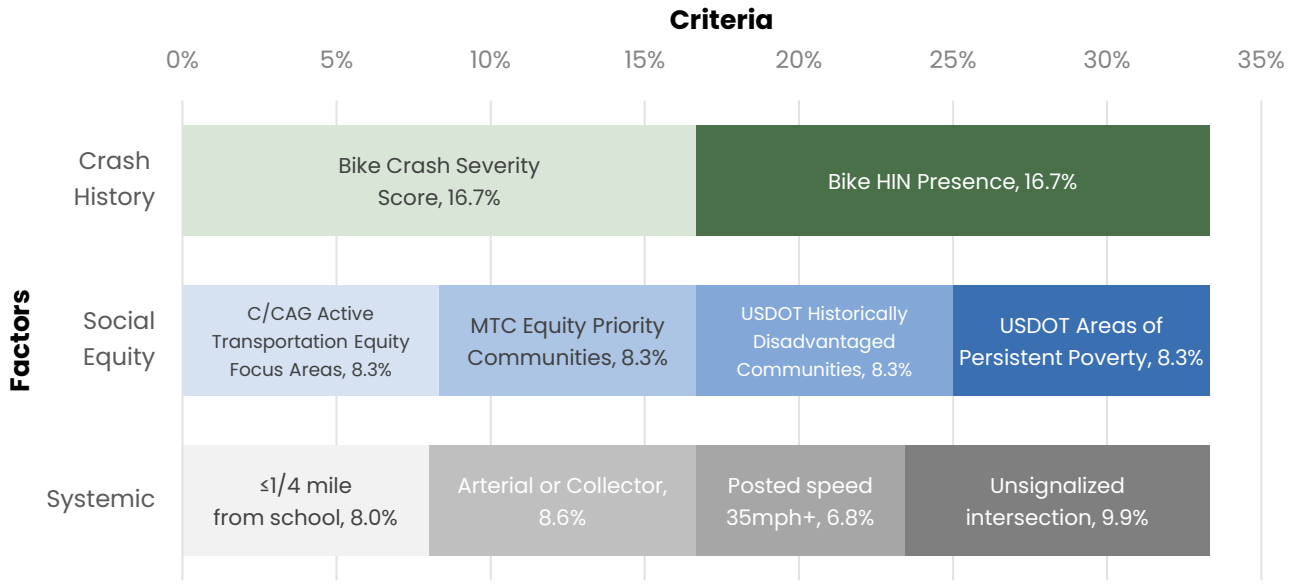
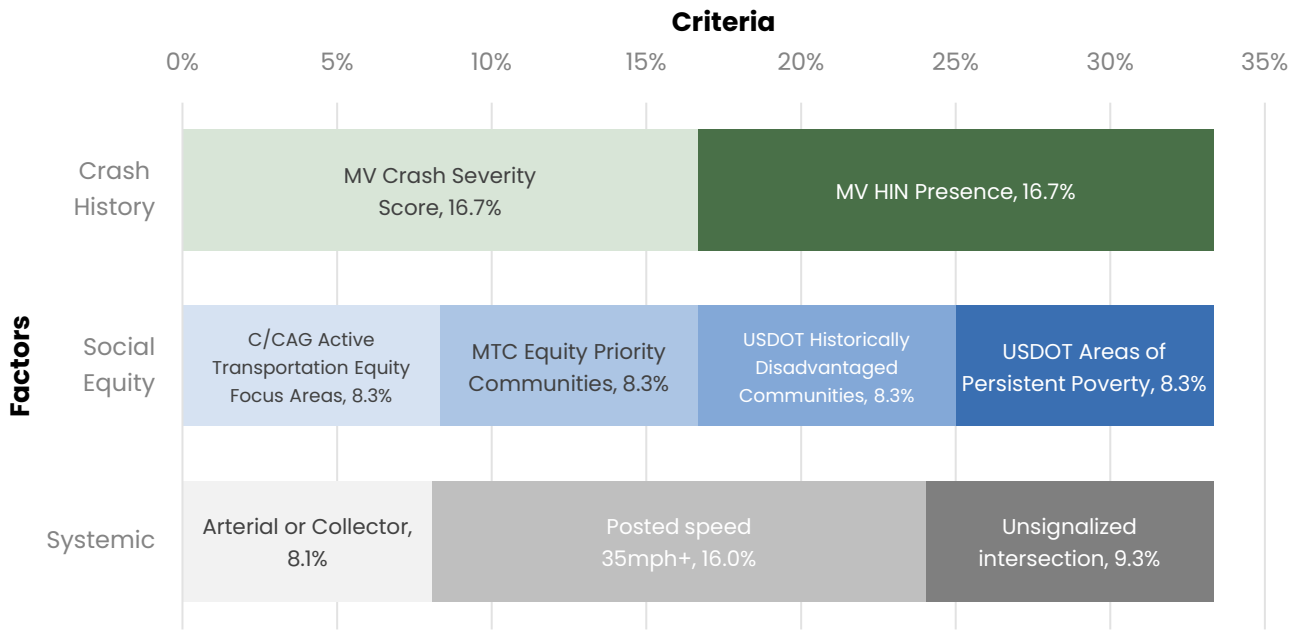


Figure 7. Motor Vehicle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)



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 D. Figure 8 also shows the locations.

Table 4. Priority Locations

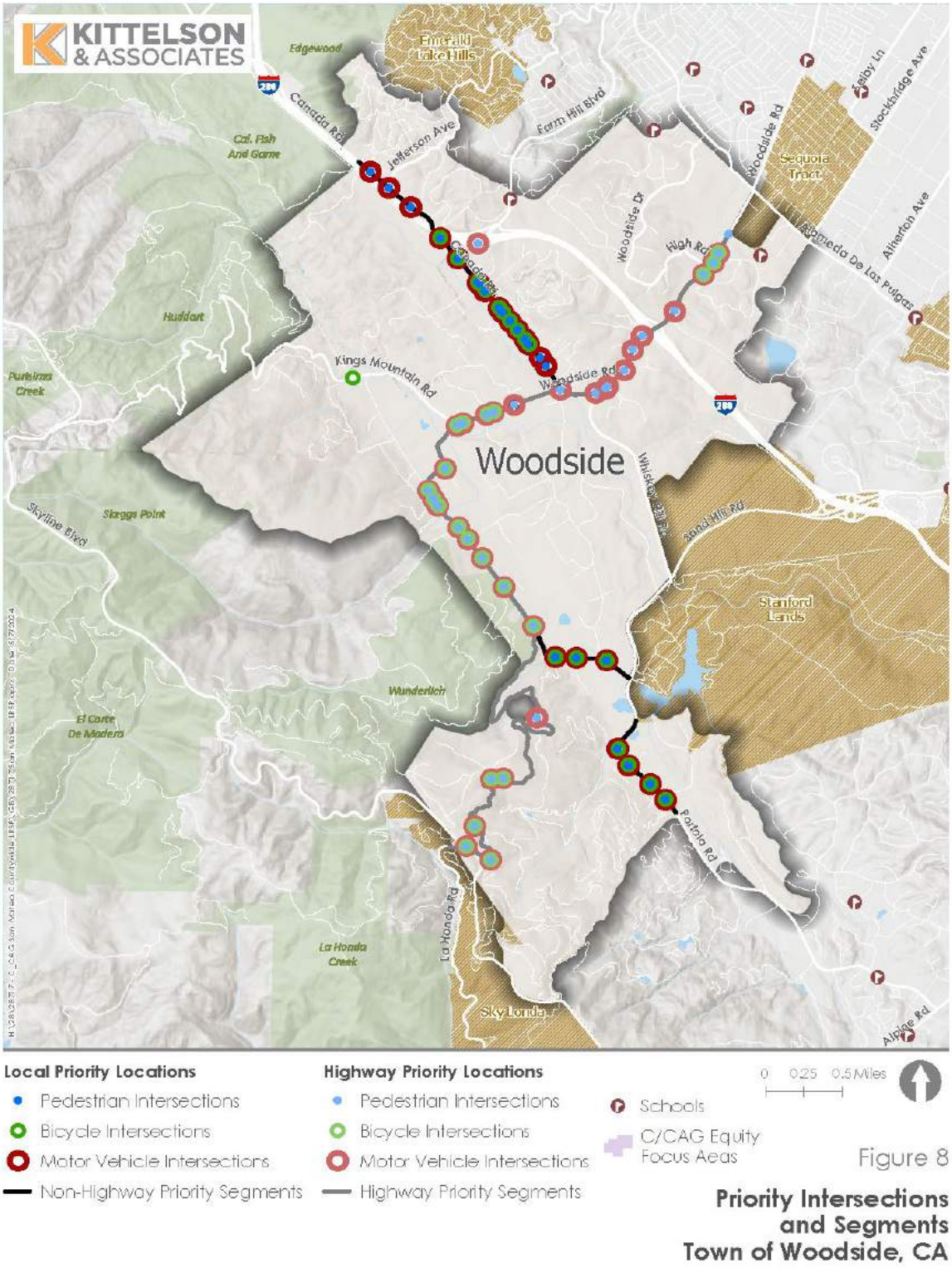
ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
1	Woodside Rd and Lindenbrook Rd	Intersection	Yes	**X**		**X**
2	Martinez Rd and La Honda Rd	Intersection	Yes	**X**	**X**	**X**
3	Portola Rd and Old La Honda Rd	Intersection	No	**X**	**X**	**X**
4	Woodside Rd and Northgate Dr	Intersection	Yes	**X**	**X**	**X**
5	Interstate Highway 280 Hwy and Farm Hill Blvd	Intersection	Yes	**X**		**X**
6	La Honda Rd and Portola Rd	Intersection	Yes	**X**	**X**	**X**
7	La Honda Rd and Skyline Blvd	Intersection	Yes	**X**	**X**	**X**
8	La Honda Rd and Fox Hill Rd	Intersection	Yes	**X**		**X**
9	Portola Rd and Mountain Home Rd	Intersection	No	**X**	**X**	**X**

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
10	La Honda Rd and Grandview Dr	Intersection	Yes	**X**	**X**	**X**
11	Portola Rd and Home Rd	Intersection	No	**X**	**X**	**X**
12	Woodside Rd and Bear Gulch Rd	Intersection	Yes	**X**	**X**	**X**
13	Canada Rd and Woodside Rd	Intersection	Yes	**X**		**X**
14	High Rd and Woodside Rd	Intersection	Yes	**X**	**X**	**X**
15	Miramontes Rd and Woodside Rd	Intersection	Yes	**X**	**X**	**X**
16	Woodside Rd and Fox Hollow Rd	Intersection	Yes	**X**	**X**	**X**
17	Woodside Rd and Oakhill	Intersection	Yes	**X**	**X**	**X**
18	Portola Rd and Montecito Rd	Intersection	No	**X**	**X**	**X**
19	Canada Rd and Corto Ln	Intersection	No	**X**	**X**	**X**
20	Canada Rd and Olive Hill Ln	Intersection	No	**X**	**X**	**X**
21	Portola Rd and Phillip Rd	Intersection	No	**X**	**X**	**X**
22	Skywood Way and La Honda Rd	Intersection	Yes	**X**	**X**	**X**
23	Tripp Rd and Woodside Rd	Intersection	Yes	**X**	**X**	**X**
24	Portola Rd and Forest View Rd	Intersection	No	**X**	**X**	**X**
25	Southgate Dr and State Highway 84 Hwy	Intersection	Yes	**X**	**X**	**X**
26	Smoke Tree Ln and Woodside Rd	Intersection	Yes	**X**	**X**	**X**
27	Canada Rd and Eucalyptus Ct	Intersection	No	**X**	**X**	**X**
28	Canada Rd and Bardet Rd	Intersection	No	**X**	**X**	**X**
29	Canada Rd and Arbor Ct	Intersection	No	**X**	**X**	**X**

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
30	Canada Rd and Alta Vista Rd	Intersection	No	**X**	**X**	**X**
31	Canada Rd and Neuman Ln	Intersection	No	**X**	**X**	**X**
32	Canada Rd and Runnymede Rd	Intersection	No	**X**	**X**	**X**
33	Why Worry Ln and Woodside Rd	Intersection	Yes	**X**	**X**	**X**
34	Woodside Rd and Roberta Rd	Intersection	Yes	**X**	**X**	**X**
35	La Honda Rd and Friars Ln	Intersection	Yes	**X**	**X**	**X**
36	Kings Mountain Rd and Woodside Rd	Intersection	Yes	**X**	**X**	**X**
37	Woodside Rd and Martin Ln	Intersection	Yes	**X**	**X**	**X**
38	Woodside Rd and Bridle Ln	Intersection	Yes	**X**	**X**	**X**
39	Woodside Rd and Montelena Ct	Intersection	Yes	**X**	**X**	**X**
40	Canada Rd and Mission Trail Rd	Intersection	No	**X**	**X**	**X**
41	Canada Rd and Glenwood Ave	Intersection	No	**X**	**X**	**X**
42	Canada Rd and Laning Dr	Intersection	No	**X**	**X**	**X**
43	Tadin Ln and Portola Rd	Intersection	No	**X**	**X**	**X**
44	Woodside Rd and Albion Ave	Intersection	Yes	**X**		**X**
45	Moore Rd and State Highway 84 Hwy	Intersection	Yes	**X**		**X**
46	Whiskey Hill Rd and Woodside Rd	Intersection	Yes	**X**		**X**
47	Quail Meadows Dr and Woodside Rd	Intersection	Yes	**X**		**X**
48	Woodside Rd and Hobart Heights Rd	Intersection	Yes	**X**		**X**

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
49	Shine Rd and Woodside Rd	Intersection	Yes	**X**		**X**
50	Canada Ln and Canada Rd	Intersection	No	**X**		**X**
51	Woodside Rd and Haciendas Dr	Intersection	Yes	**X**		**X**
52	Dean Rd and Canada Rd	Intersection	No	**X**		**X**
53	Canada Rd and Monticello Ct	Intersection	No	**X**		**X**
54	Canada Rd and Jefferson Ave	Intersection	No	**X**		**X**
55	Canada Rd and Godetia Dr	Intersection	No	**X**		**X**
56	Churchill Ave and Woodside Rd	Intersection	Yes			**X**
57	Kings Mountain Rd and Greer Rd	Intersection	No		**X**	
58	Portola Rd, Family Farm Rd to E town limit	Corridor	No	**X**	**X**	**X**
59	Canada Rd, W town limit to Woodside Rd (SR84)	Corridor	No	**X**	**X**	**X**
60	Portola Rd, Woodside Rd (SR84) to E town limit	Corridor	No	**X**	**X**	**X**
61	Woodside Rd, E town limit to Haciendas Dr	Corridor	Yes	**X**	**X**	**X**
62	Woodside Rd, Haciendas Dr to Mountain Home Rd	Corridor	Yes	**X**		**X**
63	Woodside Road, Mountain Home Road to Kings Mountain Road	Corridor	Yes	**X**	**X**	**X**
64	Woodside Rd/La Honda Rd, Kings Mountain Rd to S town limit	Corridor	Yes	**X**	**X**	**X**

Figure 8: Woodside Priority Locations



IMPROVEMENTS – ENGINEERING, POLICY & PROGRAMS

This section presents Safe System-aligned recommendations that can create levels of redundancy for traffic safety in the Town of Woodside. 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.

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:

- Canada Rd—W town limit to Woodside Rd (SR 84). Recommended improvements include:
    - Dynamic/variable speed warning signs
    - Separated bike lanes
    - Two pedestrian crossings with enhanced safety features (flashing beacons, curb extensions, advance "yield" lines)

- Woodside Rd—Mountain Home Rd to Kings Mountain Rd. Recommended improvements include:
  - Upgraded signs with new fluorescent sheeting (regulatory or warning)
  - Dynamic/variable speed warning signs
  - Separated bike lanes

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

Engineering Countermeasure Toolbox

This section presents Safe System-aligned engineering recommendations that can create levels of redundancy for traffic safety in the Town of Woodside. 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 Woodside Countermeasure Toolbox

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
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
Install raised pavement markers and striping*	SI	All crashes	0.1	$	High
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
Install Protected Intersection Elements	SI	Pedestrian crashes, signalized local/arterial intersections	N/A	$-$$$	Low
Install pedestrian crossings (signs and markings only)*	UI	Pedestrians and bicycle	0.25	$-$$$	High
Install pedestrian crossings (with enhanced safety features)*	UI	Pedestrians and bicycle	0.35	$-$$$	Medium
Install/upgrade larger or additional STOP signs or other intersection warning or regulatory signs*	UI	Turning crashes related to lack of driver awareness	0.15	$	High
Upgrade intersection pavement markings*	UI	Turning crashes related to lack of driver awareness	0.25	$	High
Install pedestrian signal or pedestrian hybrid beacon*	UI	Pedestrian and bicycle	0.3	$$$	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

Countermeasure Name	Applicable Location(s)[1]	Crash Types Applicable	Crash Reduction Factor (If Available)	Cost (if available)[2]	Systemic Opportunity?
Install separated bike lanes*	R	Pedestrian and bicycle	0.45	$-$$	High
Install/upgrade pedestrian crossing (with enhanced safety features)*	R	Pedestrian and bicycle	0.35	$$-$$$	Medium
Remove or relocated fixed objects outside of clear recovery zone*	R	Hit object	0.35	$-$$	High
Install delineators, reflectors, and/or object marker*	R	All crashes	0.15	$	High
Install/upgrade signs with new fluorescent sheeting (regulatory or warning)*	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
Pedestrian phase recall	SI	Pedestrian	N/A	$	High
Extend green time for bikes	SI	Bicycle	N/A	$	High
Extend yellow and all-red time	SI	All crashes	N/A	$	High
Lane narrowing	R	All crashes	N/A	$-$$	Low
Bicycle crossing (solid green paint)	UI	Bicycle	N/A	$	Medium
ADA-compliant directional curb ramps and audible push buttons	SI	Pedestrian	N/A	$-$$	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 above2: $ = ≤$50,000; $$ = $50,000 - $200,000; $$$ = > $200,000

Proposed Policy, Program, and Guidelines Recommendations

In addition to the engineering countermeasures and projects recommended above, the Town 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 Town's Safe System Approach.

Table 6. Town of Woodside Policy and Program Recommendations

Category	Near-Term Recommendations	Long-Term or Ongoing Recommendations
Local Culture Shift (LCS)	LCS1: Transportation Safety Advisory Committee Participation	LCS2: High-Visibility Media Campaign LCS3: Communication Protocol
Local Enforcement Coordination (LEC)		LEC2: Speed Monitoring Awareness Radar Trailer
Local Funding (LF)	LF1: Dedicated Funding	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 Fleet LEO6: Conspicuity Enhancements and Education
Local Planning/ Evaluation (LPE)		LPE1: Annual Review LPE2: Plan Update LPE4: Safe Routes to School LPE8: Speed Limits/Speed Management Plan

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 Woodside 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 Woodside Public Works

LONG-TERM OR ONGOING ACTIONS

LCS2: High-Visibility Media Campaign

Coordinate with County Public Health and the San Matteo County Sheriff's Office 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, Sustainability Department, SMCOE, Town of Woodside 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 Woodside Public Works

LEC2: Speed Monitoring Awareness Trailer

Coordinate with San Matteo County Sheriff's Office 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: County Sheriff's Office
Coordinating partners: Town of Woodside 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 Woodside 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 Woodside Public Works

LEO1: Roadway Safety Education in School

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, Sustainability Department, 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 Woodside 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 Woodside Public Works

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 Woodside
Coordinating partners: C/CAG, County Public Health

LEO5: Safe City Fleets

Provide educational materials for Town staff who drive Town vehicles and integrate safety awareness training into contracting process with vendors who provide Town services. Other measures include installing safety features (such as pedestrian/obstacle detection and speed tracking) on Town vehicles and reporting on correction plans against unsafe driving.
Lead agency: Town of Woodside Public Works

LEO6: Conspicuity Enhancements and Education

Educate pedestrians, bicyclists, and other vulnerable users in the importance of wearing reflective clothing and traveling in well-lit areas. Additional measures could include distributing reflective clothing to residents.
Lead agency: Town of Woodside Public Works

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 Woodside 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 Woodside Public Works

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 Woodside Public Works

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 Woodside Public Works

IMPLEMENTATION & MONITORING

A key part of achieving Woodside vision is consistently evaluating roadway safety performance and tracking progress towards the goals. The Town of Woodside 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 Woodside can initiate immediately, and longer-term actions, which may require coordination and additional staff time.

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

Table 7. Town of Woodside Goals and Measures of Success

GOAL	MEASURE OF SUCCESS
1. Regularly monitor crashes to respond to safety problems and changing conditions. Prioritize locations with high crash rates for safety improvements. 2. Reduce the number of annual fatal and severe injury crashes across all public Town roadways.	• 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
3. Implement safety countermeasures systemically to target emphasis areas. 4. Provide opportunities for community engagement in roadway capital improvement projects to identify safety solutions. 5. Identify opportunities to incorporate social equity into safety improvements. 6. Partner with other local agencies to incorporate roadway safety into all actions.	• 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
7. Embrace the Safe System Approach to promote engineering and non-engineering strategies in the community.	• 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 Woodside LRSP to track progress towards goals.	• See above in this table

Town of Woodside

San Mateo C/CAG Countywide LRSP

San Mateo C/CAG Countywide LRSP

Kittelson & Associates, Inc.