City of East Palo Alto

LOCAL ROADWAY SAFETY PLAN

DRAFT

MARCH 2024

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GLOSSARY OF TERMS

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

Emphasis Areas represent types of roadway users, locations, or collisions with safety issues identified based on local trends that merit special focus in the 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.

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.

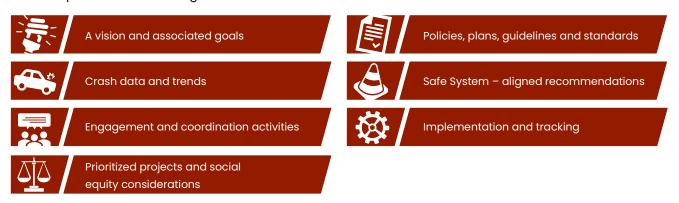
However, because every community has unique safety challenges, this LRSP includes individually tailored emphasis areas, crash trends, prioritized project lists, project scope recommendations, Safe System-aligned recommendations, and implementation/monitoring recommendations. A living document, this LRSP 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 Systemaligned 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:



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
- Office of Sustainability
- San Mateo County Office of Education (SMCOE)
- San Mateo County Transportation Authority (SMCTA)
- California Highway Patrol
- Metropolitan Transportation Commission (MTC)
- Silicon Valley Bicycle Coalition (SVBC)
- Caltrans
- 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.

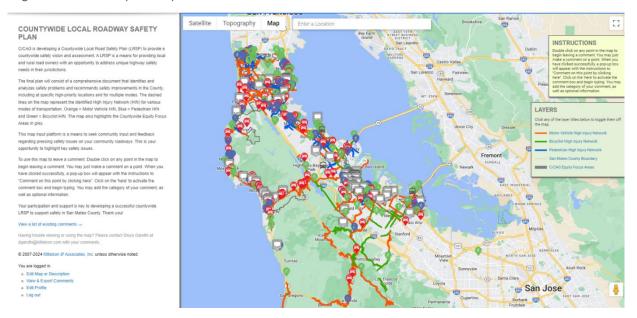
Table 2. Community Engagement Phases and Events

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:	East Palo Alto		
August 19, 2023	Shared crash data analysis; received input on locations and	Half Moon Bay Farmers Market		
August 20, 2023	safety concerns	Foster City Summer Days		
August 27, 2023		San Carlos Block Party		
August – September, 2023	Phase I Concurrent Online Input	Online webmap (countywide input)		
December 17, 2023	Phase 2 Pop-up/Tabling Event:	Belmont Farmers' Market		
December 20, 2023	Shared draft prioritized locations and types of engineering	Woodside Public Library		
January 9, 2024	recommendations; received	Colma BART Station		
January 16, 2024	comments on locations and votes/input on types of	Atherton Library		
January 18, 2024	treatments and desired locations	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.



- 3 Safety Concern Walking
- Safety Concern Bicycling
- Safety Concern Public Transit
- Safety Concern Driving
- General Comments

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

0 0.25 Miles



Figure 3

CRASH DATA & TRENDS

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

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

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

- 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.
- 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.

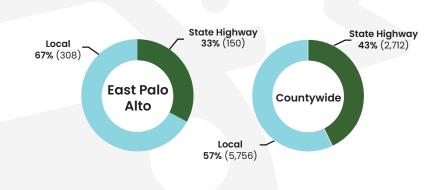
The next pages present summary findings from a crash data review that compares the City of East Palo Alto to countywide trends in these emphasis areas. It includes summary statistics related to the above-cited emphasis areas but also shows:

- 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

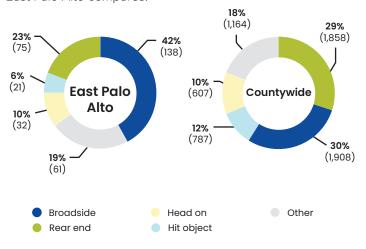
Total Crashes

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:





^{2.} Young driver crashes are crashes that involve at fault drivers who are under 30 years old.

Mode Involvement Pedestrian Crashes (56) **East Palo Alto 12%** (56) **27%** (13) 23% (208) **13%** (1,073) Countywide All Injury Crashes Fatal/Severe Injury Crashes Bicycle Crashes (75) **East Palo Alto** 21% (10) **16%** (75) 13% (1,067) Countywide 20% (176) All Injury Crashes Fatal/Severe Injury Crashes Motor Vehicle¹ Crashes (327) **East Palo Alto 71%** (327) **52%** (25) **75%** (6,324) 57% (515) Countywide All Injury Crashes Fatal/Severe Injury Crashes



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 drivers¹

5% (472)

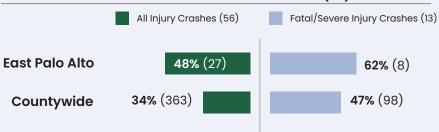
Compared to the countywide total, where 5% (472) of reported collisions involved young drivers²

East Palo Alto—Crash History

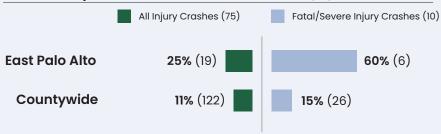
Dark Conditions

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:

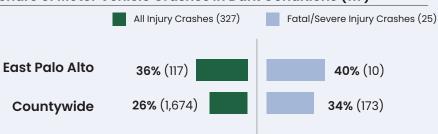
Share of Pedestrian Crashes in Dark Conditions (27)



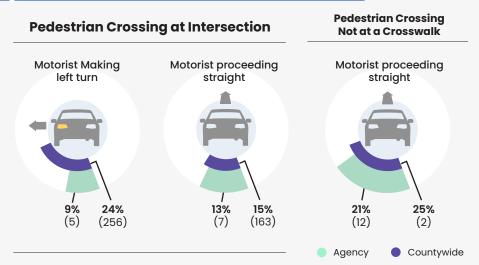
Share of Bicyclist Crashes in Dark Conditions (19)



Share of Motor Vehicle Crashes in Dark Conditions (117)

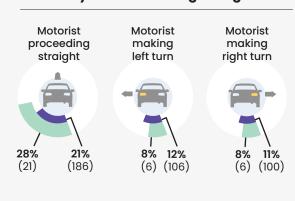


Reported Pedestrian Crashes (56)

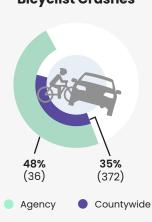


Reported Bicycle Crashes (75)

Bicyclist Proceeding Straight



Perpendicular Bicyclist Crashes

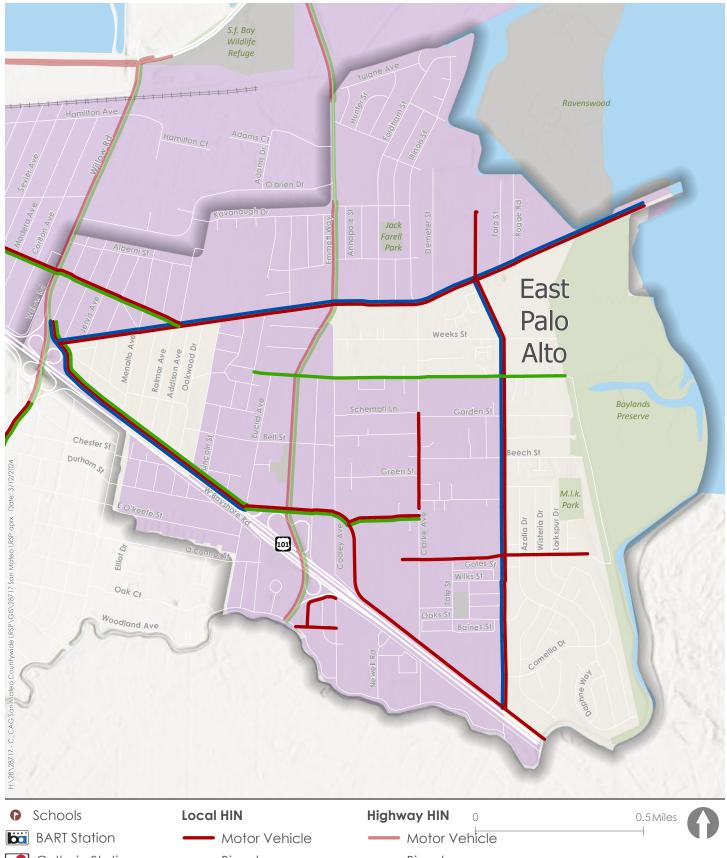


Countywide High Injury Network

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 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	х		
Clarke Ave	East Palo Alto	0.3	X		
Donohoe St	East Palo Alto	0.5	x	х	
O'Conner St	East Palo Alto	0.6	х		
Pulgas Ave	East Palo Alto	1.5	X	х	x
Runnymede St	East Palo Alto	0.9		х	
Scofield St	East Palo Alto	0.1	X		
Newbridge St	East Palo Alto, Menlo Park	1	х	х	
University Ave	East Palo Alto, Menlo Park	2.1	х	х	
Willow Rd	East Palo Alto, Menlo Park	2.3	х	х	
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		х





Local HINMotor VehicleBicyclePedestrianC/CAG Equity

Focus Aeas

Highway HIN 0
Motor Vehicle
Bicycle
Pedestrian

Figure 4

Pedestrian + Bicyclist + Motor Vehicle Combined High Injury Network (HIN) City of East Palo Alto, CA

PROJECT IDENTIFICATION & PRIORITIZATION

Methodology

Using the results of the crash data analysis and adding a focus on social equity, the project team identified priority locations for the 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)

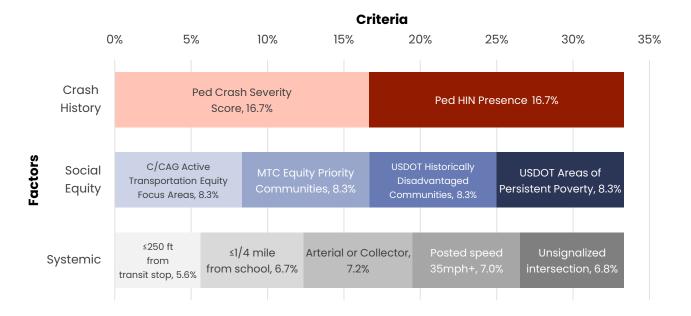


Figure 6. Bicycle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)

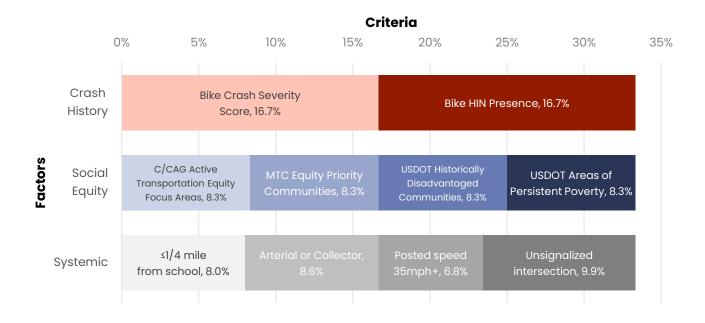
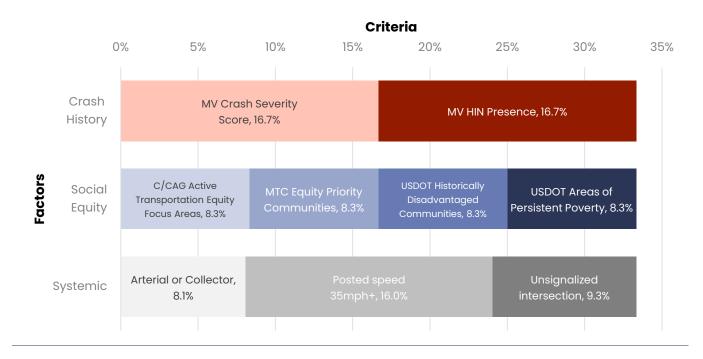


Figure 7. Motor Vehicle Prioritization Factor/Criteria Weighting (Sum to 100 Percent)



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	Х	х	
3	University Ave and Adams Dr	Intersection	Yes	X	X	
4	University Ave and Michigan Ave	Intersection	Yes	х	Х	
5	Bay Rd and University Ave	Intersection	Yes	х	х	х
6	Notre Dame Ave and University Ave	Intersection	Yes	х	х	
7	University Ave and Kavanaugh Dr	Intersection	Yes	х	Х	
8	University Ave and Sacramento St	Intersection	Yes	х	Х	
9	Donohoe St and University Ave	Intersection	Yes	х	х	
10	O'Brien Dr and University Ave	Intersection	Yes	х	х	
11	Cooley Ave and University Ave	Intersection	Yes	X	х	

ID	Location	Corridor/ Intersection	State Highway?	Motor Vehicle Emphasis	Bicycle Emphasis	Pedestrian Emphasis
12	University Ave and Runnymede St	Intersection	Yes	Yes 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	х		X
16	Glen Way and Bay Rd	Intersection	No	x		X
17	Bay Rd and Palo Alto Verde Ave	Intersection	No	Х	х	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	х		Х
21	Bay Rd and Addison Ave	Intersection	No	х	х	Х
22	Oakwood Dr and Bay Rd	Intersection	No	х		Х
23	Pulgas Ave and Bay Rd	Intersection	No	х		
24	Bay Rd and Fordham St	Intersection	No	х		Х
25	Bay Rd and Ralmar Ave	Intersection	No		Х	Х
26	Clarke Ave and Illinois St	Intersection	No			Х
27	Newbridge St and Menalto Ave	Intersection	No		х	
28	Newbridge St and Poplar Ave	Intersection	No		х	
29	Bay Rd and Addison Ave	Intersection	No		х	
30	Mello St and Newbridge St	Intersection	No		х	
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	х	x	х
34	Newbridge St, Bay Rd to W city limits	Corridor	No		х	х



Local Priority Locations

- Pedestrian Intersections
- Bicycle Intersections
- Motor Vehicle Intersections
- Non-Highway Priority Segments

Highway Priority Locations

- Pedestrian Intersections
- Bicycle Intersections
- Motor Vehicle Intersections
- Highway Priority Segments

0 0.25 Miles
Schools



Figure 8

Priority Intersections and Segments City of East Palo Alto, CA



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:
 - o Intersection lighting at the eastern side of the intersection
 - o Raised median refuge islands at the north leg
 - o Pedestrian crossings with enhanced safety features (curb extensions and advance "yield" lines)

- o 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
 - o Centerline hardening or continuous raised median at the north and south legs
 - o Advance stop bar before crosswalk at the north and south legs
 - o 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; AII = AII 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, Office of Sustainability, 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, Office of Sustainability, 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

Lead agency: C/CAG

City as part of its scope.

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

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

MEASURE OF SUCCESS

- 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