San Mateo Countywide Local Roadway Safety Plan

C/CAG Congestion Management and Environmental Quality

March 25, 2024

Presentation Topics

1. What is a Local Roadway Safety Plan?
2. Commitment to Vision Zero
3. Plan Development
4. Safety Analysis
5. Priority Projects
6. Recommendations
7. Evaluation & Implementation
8. Next Steps

What is a Local Road Safety Plan?

A Local Road Safety Plan (LRSP):
- Follows Federal and State commitment to **Safe System approach**
- Provides an assessment of **historical** and **existing** roadway traffic safety
- Identifies **actions** and **prioritized project** lists
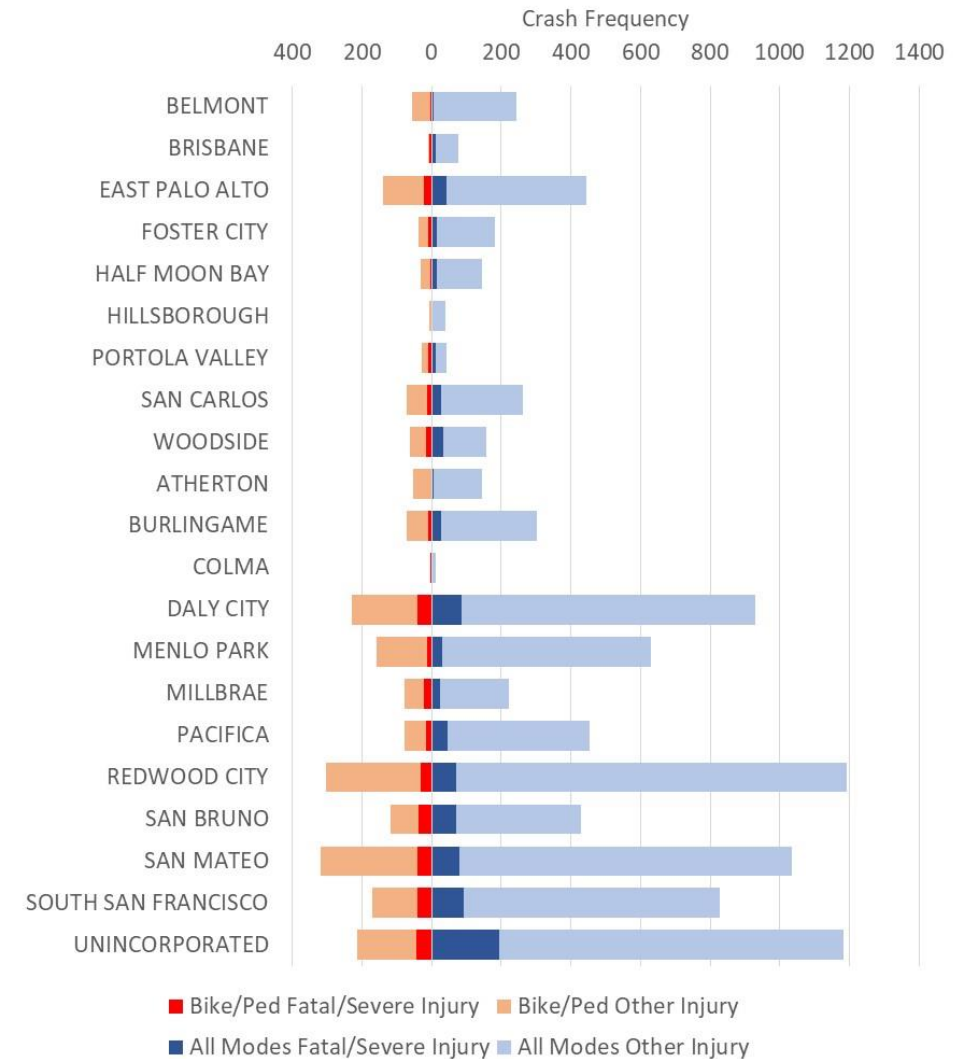- Identifies **implementation partners** (e.g., departments and community organizations)

Safe System Approach
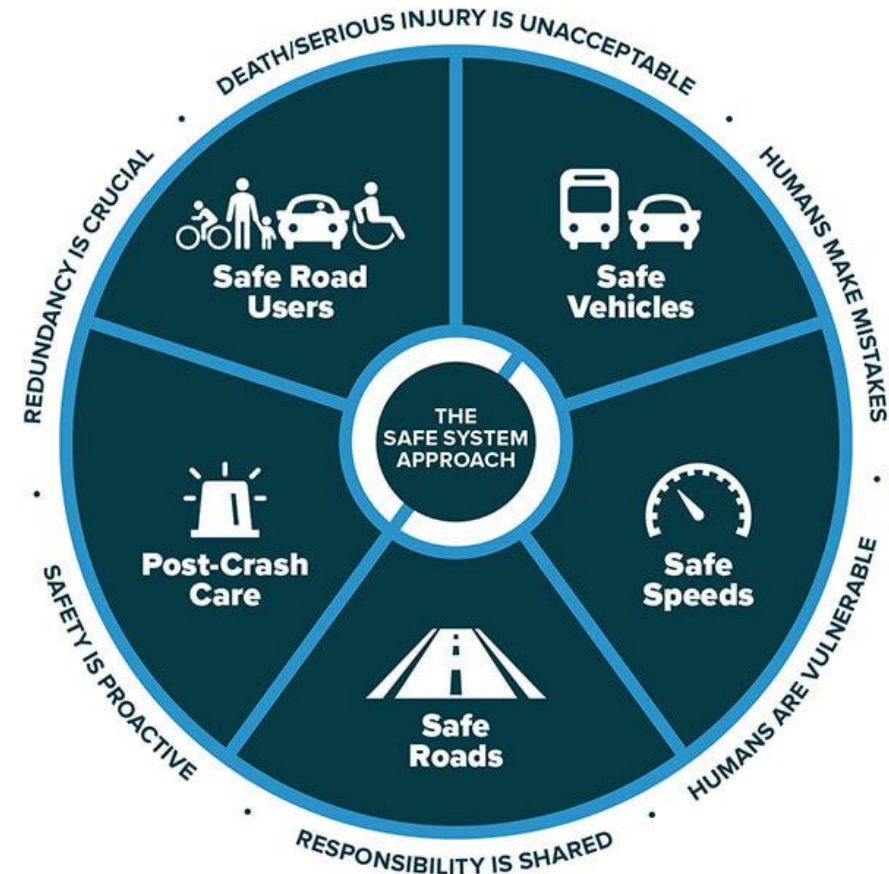
Source: FHWA.

What is a Local Road Safety Plan?

- Purpose
  - Set a regionwide vision to advance roadway safety, while **also developing LRSPs for local agencies without one**
  - Position all local agencies for OBAG, Caltrans HSIP, and USDOT SS4A funding

- **Ten** jurisdictions do not have an existing or ongoing safety plan:

  - Atherton
  - Belmont
  - Brisbane
  - Colma
  - East Palo Alto
  - Foster City

  - Half Moon Bay
  - Hillsborough
  - San Carlos
  - Woodside

Crash Frequency

Legend:
- Bike/Ped Fatal/Severe Injury
- Bike/Ped Other Injury
- All Modes Fatal/Severe Injury
- All Modes Other Injury

Reported Injury/Fatal Crash Frequency, 2017-2021

C/CAG
City/County Association of Governments
of San Mateo County

Commitment to Vision Zero

- The Countywide Plan aggregates and lists communities' visions and goals.

- Plan to eliminate fatal/severe injuries by 2050.

- *What does this change?*
  - Expectation to center safety **in all actions**
  - Alignment with State and Federal **expectations / requirements**

- *Recommendations to evolve from "business as usual"*
  - Collaborate across departments/agencies
  - Participate in County working group
  - Adopt local resolutions to support this vision
  - Identify and adopt short- and long-term actions

Plan Development – Advisory Group

- Engaged stakeholders and public throughout the plan development process

Plan Development – Community Input

AUG 10
Virtual meeting (recorded and posted to plan website)

AUG 16
East Palo Alto

AUG 19
Half Moon Bay Farmers Market

AUG 20
Foster City Summer Days

AUG 27
San Carlos Block Party

AUG – SEP
Online webmap (countywide input)

DEC 17
Belmont Farmers Market

DEC 20
Woodside Public Library

JAN 9
Colma BART Station

JAN 16
Atherton Library

JAN 18
Brisbane Farmers' Market

FEB 7
Portola Valley Bicycle, Pedestrian, & Traffic Safety Committee

MAR – APR
Various

2023

2024

Countywide Virtual Kickoff Meeting
Sharing the purpose and timing of the plan

Phase 1 Pop-up/Tabling Event
Shared crash data analysis; received input on locations and safety concerns

Phase 1 Concurrent Online Input

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

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.

- Hosted events in communities without existing plans
- Asked for community feedback on:
  - Safety concerns and priorities
  - Locations
  - Safety analysis results
  - Priority locations
  - Engineering recommendations

C/CAG
City/County Association of Governments
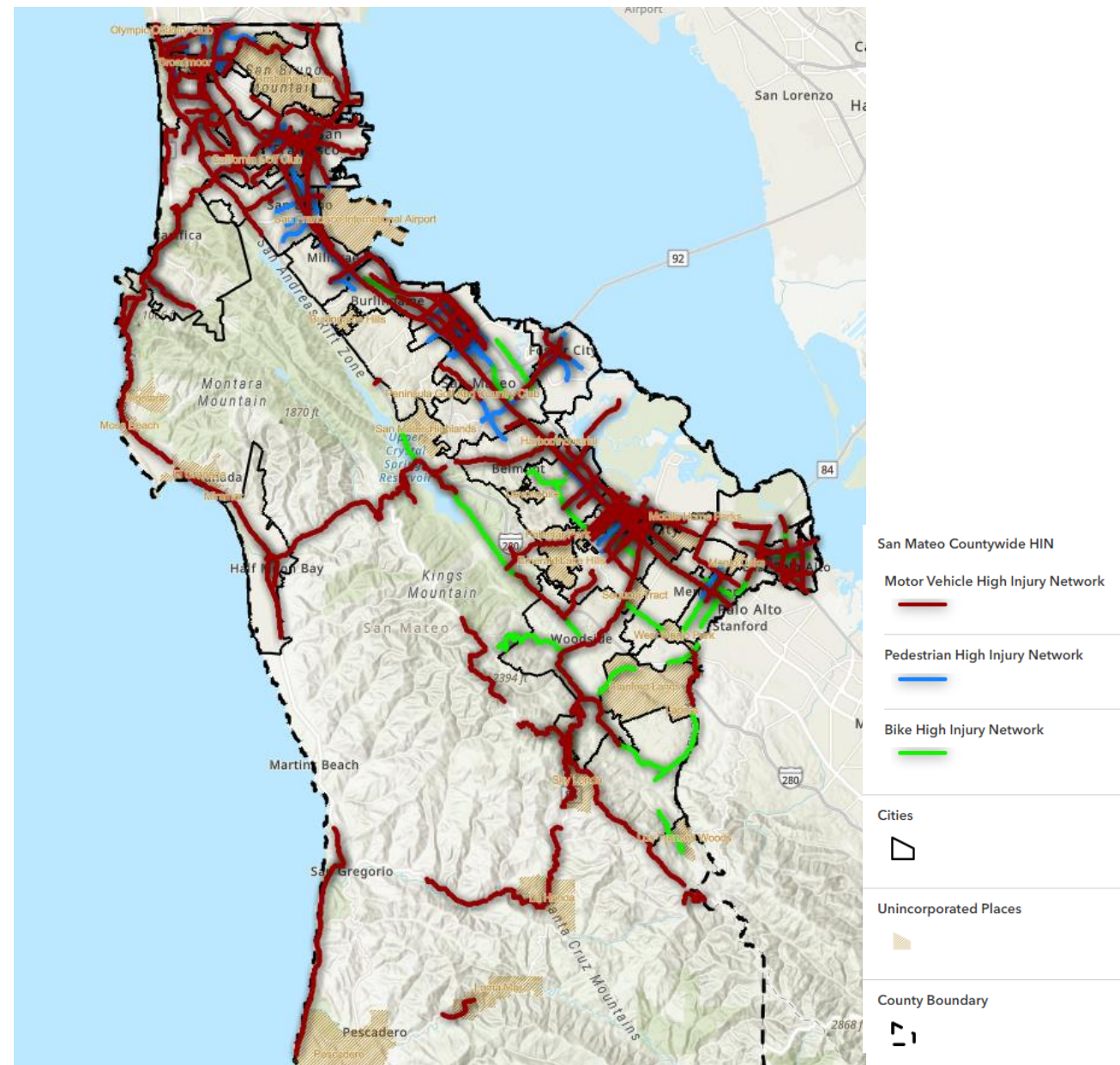of San Mateo County

Plan Development – Community Engagement

- Online map for comments
  - 528 comments by 352 respondents on safety concerns and priorities
- 11 in-person engagement events
  - Over 200 comments on priority locations and proposed countermeasures
- Comments included in the plan document and provided as appendices for agencies
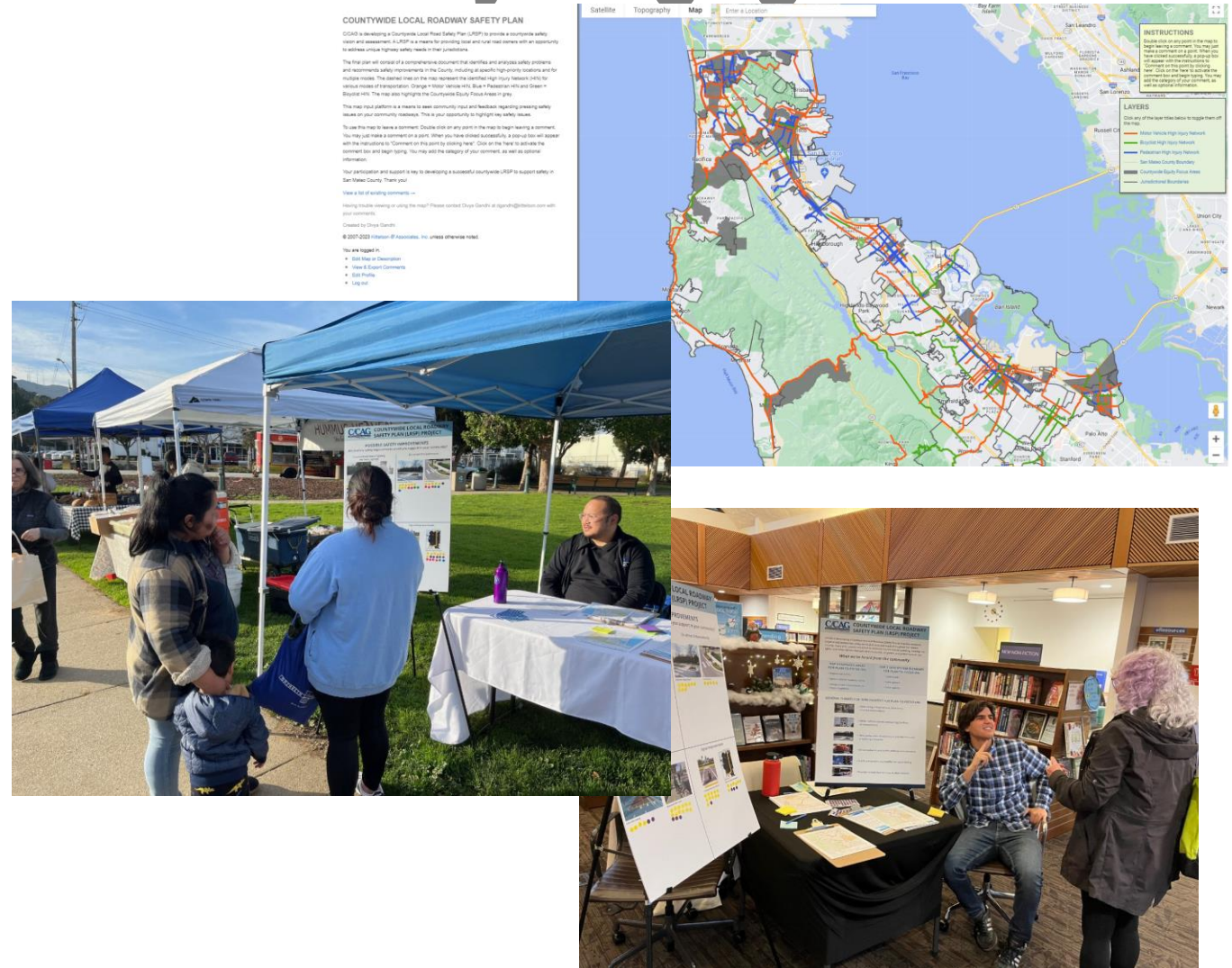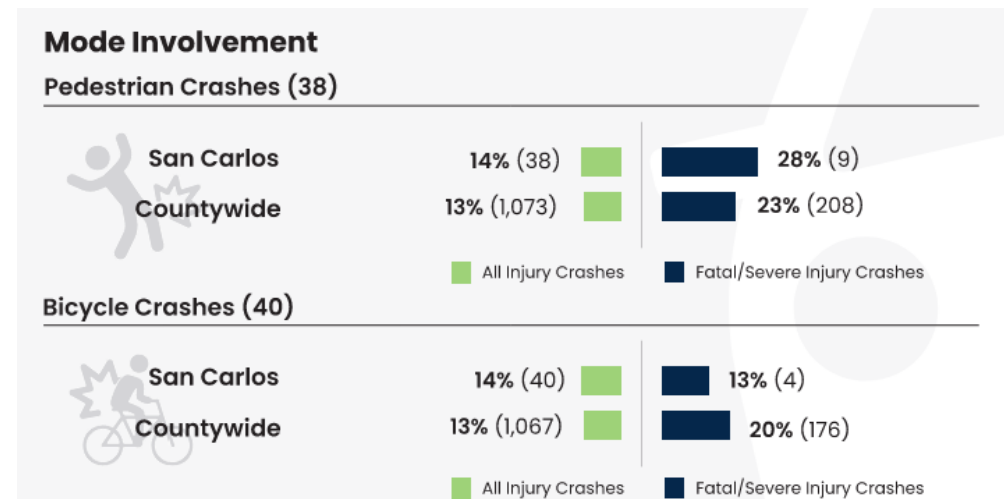
Safety Analysis

- Analyzed 5 years of crash data (2018-2022)

- Countywide High Injury Network identified for **motor vehicles**, **pedestrians** and **bicyclists**
  - Based on county crash patterns
  - Detailed findings provided for jurisdictions without a plan

- Emphasis Areas
  - Behavior, environmental, and user characteristics associated with fatal/severe injury crashes
  - Provide starting point for project identification and grant opportunities

San Mateo Countywide HIN

Motor Vehicle High Injury Network

Pedestrian High Injury Network

Bike High Injury Network

Cities

Unincorporated Places

County Boundary

C/CAG
City/County Association of Governments
of San Mateo County
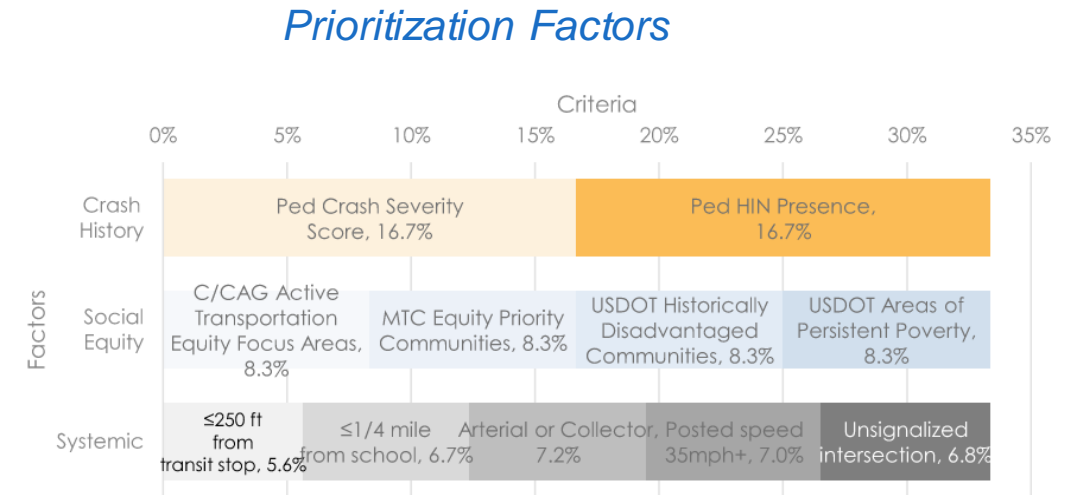
Safety Analysis - Emphasis Areas

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

- Each jurisdiction included a selection from the list at left based on local trends.

Example Emphasis Area comparison (San Carlos)

Mode Involvement

Pedestrian Crashes (38)

		All Injury Crashes	Fatal/Severe Injury Crashes
San Carlos	14% (38)		28% (9)
Countywide	13% (1,073)		23% (208)

Bicycle Crashes (40)

		All Injury Crashes	Fatal/Severe Injury Crashes
San Carlos	14% (40)		13% (4)
Countywide	13% (1,067)		20% (176)

C/CAG
City/County Association of Governments
of San Mateo County

Priority Projects - Methodology

- Factors for priority project lists (equally weighted)
  - **Crash History** – highest reported five-year crash frequency and severity
  - **Social Equity** – where project would benefit disadvantaged populations and align with future grant opportunities
  - **Systemic Factors** – roadway and land use characteristics associated with crash frequency and severity

- Priority locations identified for each agency
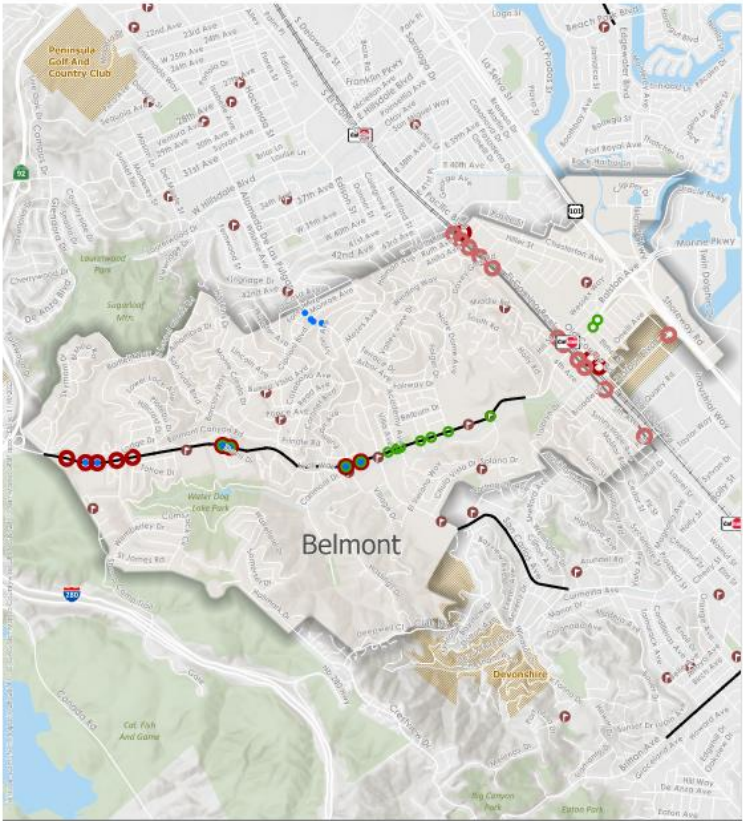
- Priority bus stops identified for SamTrans

Prioritization Factors

Criteria

| | 0% | 5% | 10% | 15% | 20% | 25% | 30% | 35% |

Crash History
- Ped Crash Severity Score, 16.7%
- Ped HIN Presence, 16.7%

Social Equity
- C/CAG Active Transportation Equity Focus Areas, 8.3%
- MTC Equity Priority Communities, 8.3%
- USDOT Historically Disadvantaged Communities, 8.3%
- USDOT Areas of Persistent Poverty, 8.3%

Systemic
- ≤250 ft from transit stop, 5.6%
- ≤1/4 mile from school, 6.7%
- Arterial or Collector, 7.2%
- Posted speed 35mph+, 7.0%
- Unsignalized intersection, 6.8%

Factors

C/CAG
City/County Association of Governments
of San Mateo County

Priority Projects (Belmont example)

Belmont Bike Priority Intersections

ID	Location	State Hwy	Bike Crash History Score (0 to 1)	Bike Risk Factors Score (0 to 1)	Social Equity Score (0 to 1)	Bike Total Score (0 to 3)	Jurisdiction Bike Rank	Jurisdiction MV Rank	Jurisdiction Ped Rank	MV Crash Sev Score	Ped Crash Sev Score	Bike Crash Sev Score	Overall Crash Sev Score
1	Merry Moppet Ln And Ralston Ave	No	0.5	1.0	0.0	1.5	BEL_1	BEL_14	BEL_8	0	0	11	11
2	Pullman Ave And Lyall Way	No	0.5	1.0	0.0	1.5	BEL_2	BEL_7	BEL_5	247	11	0	258
3	Davis Dr And Ralston Ave	No	0.5	1.0	0.0	1.5	BEL_2	BEL_12	BEL_6	11	0	0	11
4	Ralston Ave And Belmont Canyon Rd	No	0.5	1.0	0.0	1.5	BEL_2	BEL_14	BEL_6	0	0	0	0
5	Ralston Ave And Academy Ave	No	0.5	0.8	0.0	1.3	BEL_5	BEL_58	BEL_42	0	0	22	22
6	Ralston Ave And Maywood Dr	No	0.5	0.8	0.0	1.3	BEL_6	BEL_53	BEL_39	11	11	11	33
7	Ralston Ave And Furlong St	No	0.5	0.8	0.0	1.3	BEL_6	BEL_47	BEL_42	33	0	11	44
8	Ralston Ave And Villa Ave	No	0.5	0.8	0.0	1.3	BEL_6	BEL_58	BEL_42	0	0	11	11
9	Ralston Ave And Chula Vista Dr	No	0.5	0.8	0.0	1.3	BEL_9	BEL_48	BEL_21	22	11	0	33
10	Granada St And Ralston Ave	No	0.5	0.8	0.0	1.3	BEL_9	BEL_48	BEL_27	22	0	0	22
11	Notre Dame Ave And Ralston Ave	No	0.5	0.8	0.0	1.3	BEL_9	BEL_53	BEL_42	11	0	0	11
12	Ralston Ave And Misty Ln	No	0.5	0.8	0.0	1.3	BEL_9	BEL_53	BEL_42	11	0	0	11
13	Ralston Ave And Chevy St	No	0.5	0.8	0.0	1.3	BEL_9	BEL_58	BEL_42	0	0	0	0

Belmont Priority Segments

ID	Jurisdiction	Segment	State Highway Network	Length (Miles)	Motor Vehicle Priority Intersections Included	Bike Priority Intersections Included	Pedestrian Priority Intersections Included	Unique Priority Intersections Included (Any Mode)
BEL_1	Belmont	El Camino Real, North Road to F Street	Yes	1.6	11	0	0	11
BEL_2	Belmont	Ralston Avenue, Villa Street to west of South Road	No	0.8	0	7	0	7
BEL_3	Belmont	Ralston Avenue, Christian Drive to Villa Street	No	1.9	9	5	6	10

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

Highway Priority Intersections
- Pedestrian
- Bicycle Priority
- Motor Vehicle

- Schools
- Non-Highway Priority Segments
- Highway Priority Segments

Figure C-2

KITTELSON & ASSOCIATES

Priority Intersections and Segments
City of Belmont, CA

12

C/CAG
City/County Association of Governments
of San Mateo County

Recommendations

- Include roadway and intersection treatments
- Targeted to match fatal/severe injury patterns
- Can be applied "systemically" – in locations with high risk even if crashes haven't occurred

Example Countermeasures

Location Type [1]	Countermeasure	Crash Types	Cost
all	Lighting [2]	Nighttime	$$
SI	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number [2]	Signalized Local/Arterial Intersections	$
SI	Install left-turn lane and add turn phase [2]	Signalized Local/Arterial Intersections	$- $$
SI	Convert signal to mast arm (from pedestal-mounted) [2]	Signalized Local/Arterial Intersections	$$$

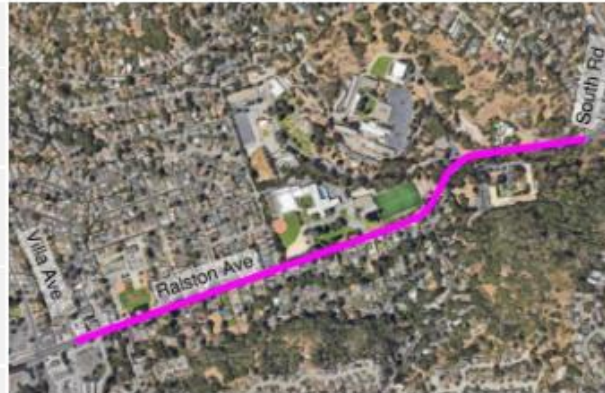*Rectangular Rapid Flashing Beacon (RRFB's)*

Separated Bike Lanes

C/CAG
City/County Association of Governments
of San Mateo County

Recommendations – Project Scopes (Belmont Example)

LOCATION 1: RALSTON AVENUE – VILLA AVENUE TO CITY LIMITS

Roadway Segment Length	0.8 miles
Jurisdiction Motor Vehicle Priority Intersections Included[1]	0
Jurisdiction Pedestrian Priority Intersections Included [1]	0
Jurisdiction Bike Priority Intersection Included [1]	7
Five-year Severity Score[1]	713
Benefit	$5,874,779
Cost	$139,887
B/C Ratio	42.00
# of Recommended Treatments	6

Potential Countermeasure[2]	Location	Benefit	Unit Cost	Total Cost	B/C
NS06: Install/Upgrade Larger or Additional Stop Signs or Other Intersection Warning or Regulatory Signs	All extents	$999,810	$7,425 per Intersection	$22,275	44.88
NS20PB: Install Pedestrian Crossings (Signs and Markings Only)	– West or East Leg of Ralston Ave/Avon St – East Leg of Ralston Ave/Chewy St – West or East Leg of Ralston Ave/Notre Dame High School Western Dwy – West or East Leg of Ralston Ave/Notre Dame High School Eastern Dwy	$559,650	$19,923 per Intersection	$79,691	7.02
R26: Install Dynamic/Variable Speed Warning Signs	All extents	$1,999,620	$35,640 per Mile	$14,256	140.27
R33PB: Install Separated Bike Lanes	All extents	$2,014,740	$1,485,000 per Mile	$1,188,000	1.70
R35PB: Install/Upgrade Pedestrian Crossing (with Enhanced Safety Features)	Install pedestrian crossings with RRFBs and advance "yield" lines at the following locations: – West Leg of Ralston Ave/Notre Dame – West Leg of Ralston Ave/Chula Vista Dr	$1,567,020	$222,750 per Intersection	$445,500	3.52
R36PB: Install Raised Pedestrian Crossing	– East Leg of Ralston Ave/Maywood Dr – West Leg of Ralston Ave/Chula Vista Dr	$1,567,020	$44,550 per Crossing	$89,100	17.59
Total (NS06, NS20PB, R36PB)		$3,172,651	N/A	$191,066	16.60

[2] HSM and CMF guidance limit the number of treatments to 3 in calculating benefit/cost ratio. Individual benefit-cost values are provided for reference, but for the total b/c ratio, we only applied the **three bolded** countermeasures.

14

Recommendations – Policy/Program

- Target fatal/severe injury patterns
- Examples include:
  - Public service announcements regarding dangers of red light running and stop sign violations
  - Targeted education campaigns for distracted driving
  - Safe Routes to School

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

C/CAG
City/County Association of Governments
of San Mateo County

Evaluation and Implementation

- Plan provides measures of success
- Each measure is aligned to plan goals
- Each jurisdiction can work from their plan to implement and update

Example 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.	■ 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.

C/CAG
City/County Association of Governments
of San Mateo County

Next Steps

- Draft plan available for public input
- Upcoming Board and Committee Meetings:
  - CMP TAC – March 21, 2024
  - CMAQ – March 25, 2024
  - BPAC – March 28, 2024
  - Board – April 11, 2024
- Final LRSP presented to committees in May
- Final Adoption – June 13, 2024
- Pursuing SS4A Planning and Demonstration Grant

C/CAG
City/County Association of Governments
of San Mateo County

SS4A – Planning and Demonstration Grant

- Grants range from $100K - $10M
  - 20% local match required
- Eligible Activities:
  - **Supplemental Planning** – Road Safety Audits, Follow-up data collection and safety analysis, roadway safety planning
  - **Demonstration** – Feasibility studies, MUTCD studies, operational and technology pilot programs

*Example of a Feasibility Study –
Using Temporary Paint and Plastic Delineator
Posts To Alter Roadway Cross Section*

C/CAG
City/County Association of Governments
of San Mateo County