



Local Roadway Safety Plan #2

Town Council Meeting

June 8, 2022



Council Feedback

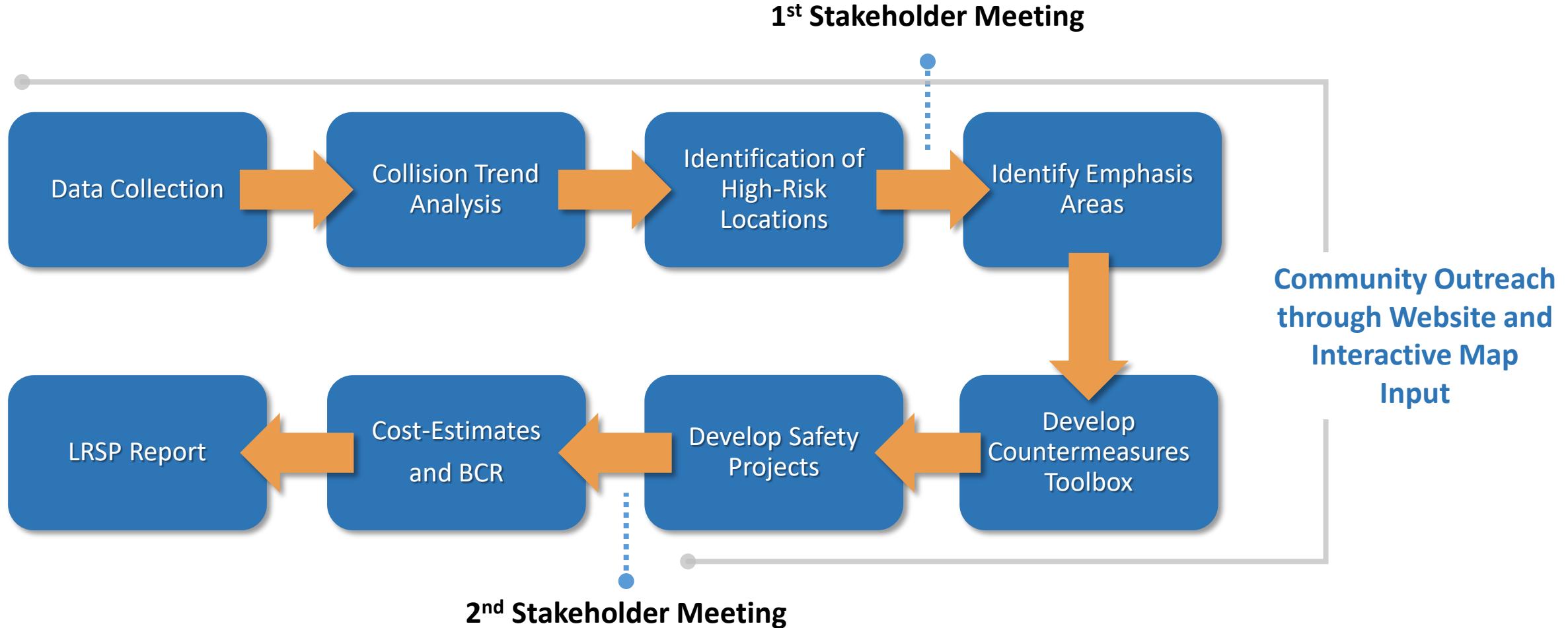
- How did we get here?
 - *Collision Analysis*
 - *Community Input*
 - *Identify High-Injury Intersections and Roadway Segments*
- What is being recommended?
 - *Priority Emphasis Areas*
 - Do these emphasis areas align with Council expectations, or are there any other emphasis areas we need to consider?
 - *Countermeasure Toolbox*
 - Do these solutions align with Council expectations, or are there any other solutions that we need to consider?
 - *Safety Projects*
 - Do you have feedback for the project team on the proposed projects?

Agenda

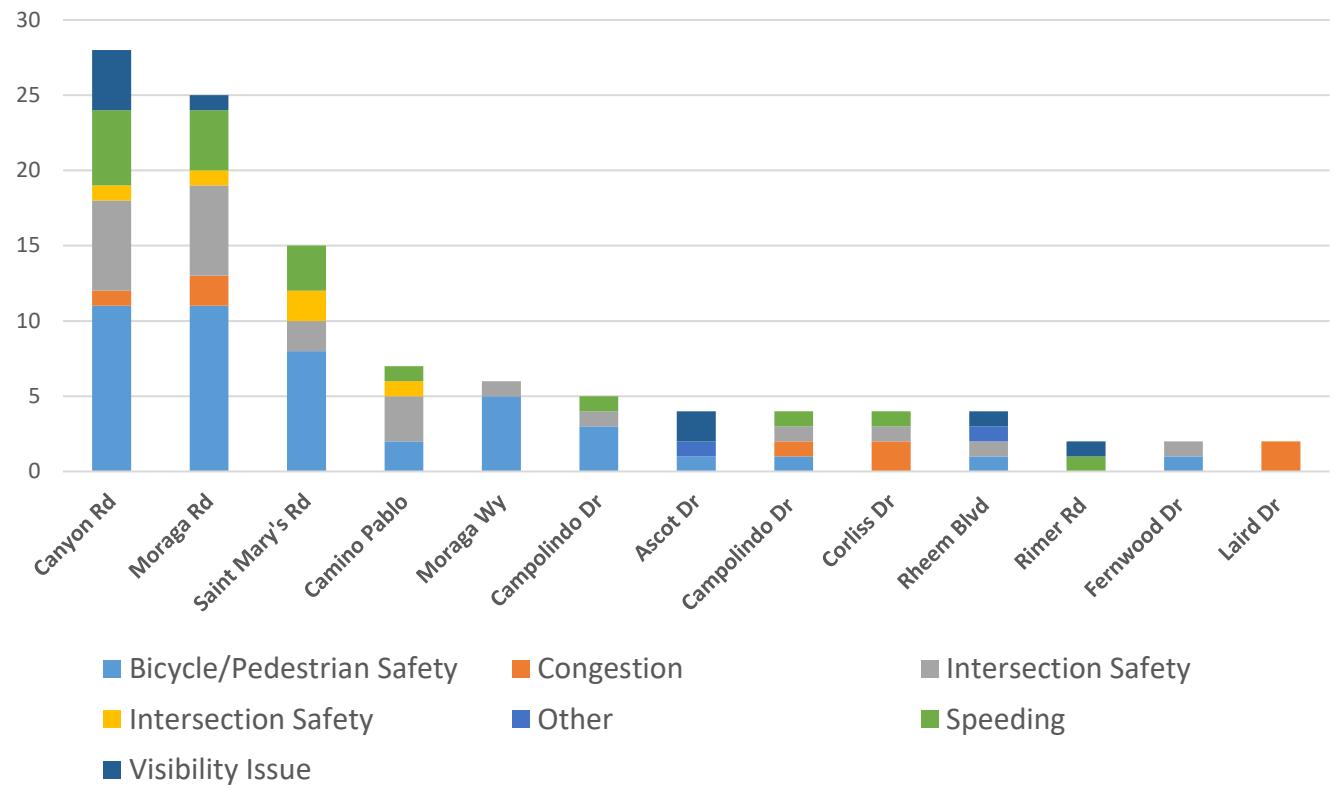
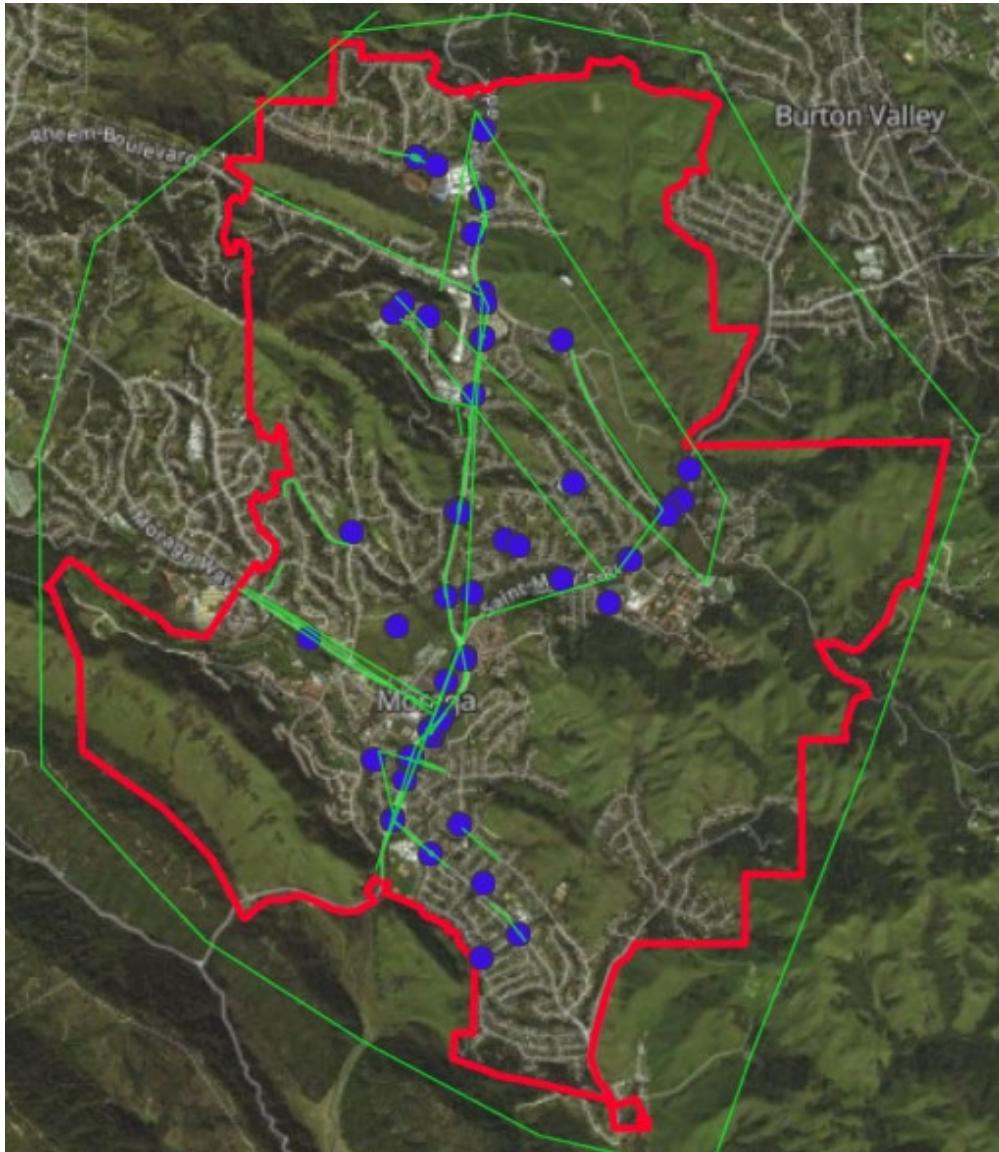
- Project Status and Milestones
- Community Input
- Collision Analysis Findings
- Priority Emphasis Areas
- Draft Engineering and Non-Engineering Countermeasures
- Draft Safety Projects
- Implementation
- Questions to Council
- Open Discussion/Comments



Project Status and Milestones

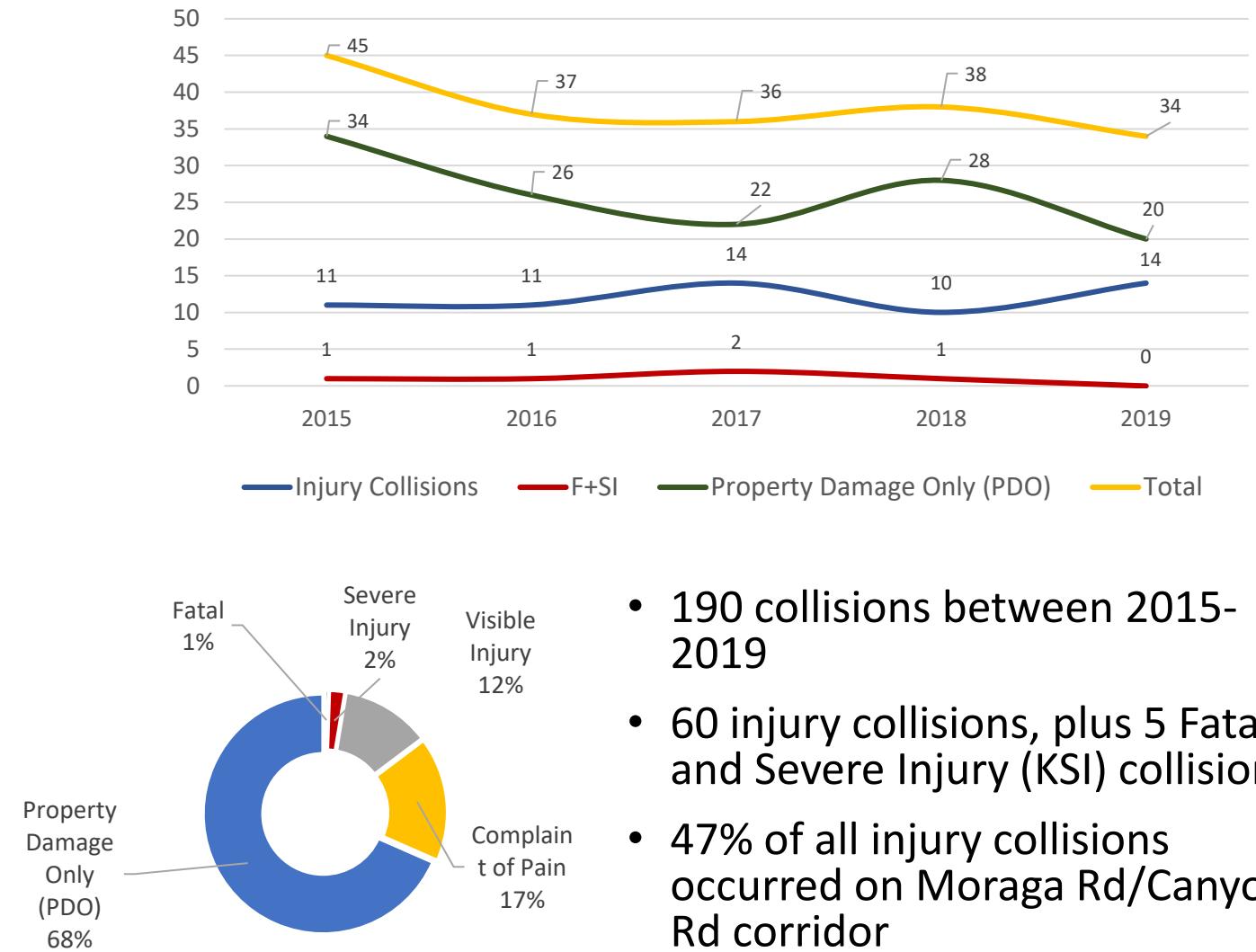
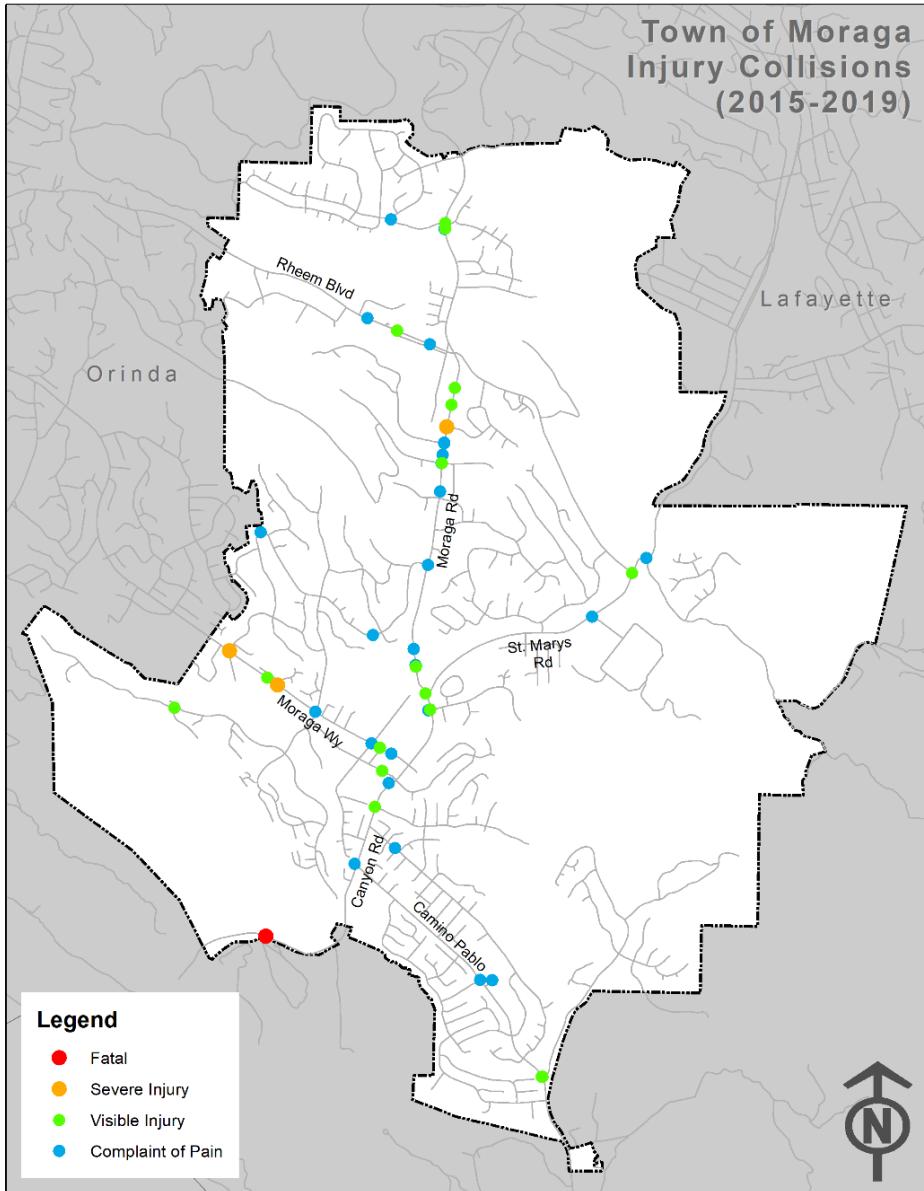


Community Input



- 128 comments received
- Map was promoted on Town website and social media

Collision Analysis Findings



Equivalent Property Damage Only (EPDO) Score

Collision Severity	EPDO Score
Fatal and Severe Injury Combined	165
Visible Injury	11
Complaint of Pain	6
Property Damage Only (PDO)	1

EPDO Score =

$(165 \times \# \text{ of Fatal Collisions}) +$

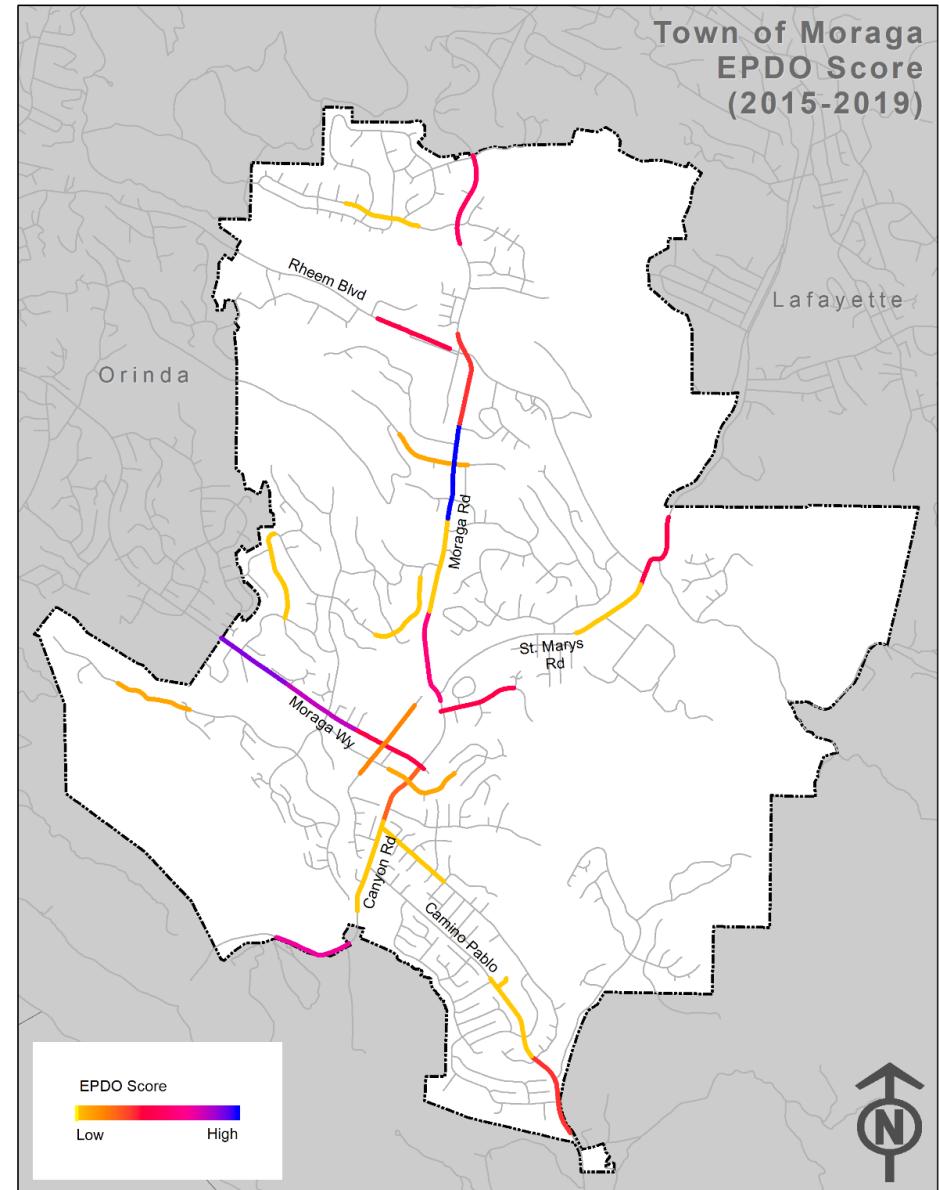
$(165 \times \# \text{ of Severe Injury Collisions}) +$

$(11 \times \# \text{ of Other Visible Injury Collisions}) +$

$(6 \times \# \text{ of Complaint of Pain Collisions}) +$

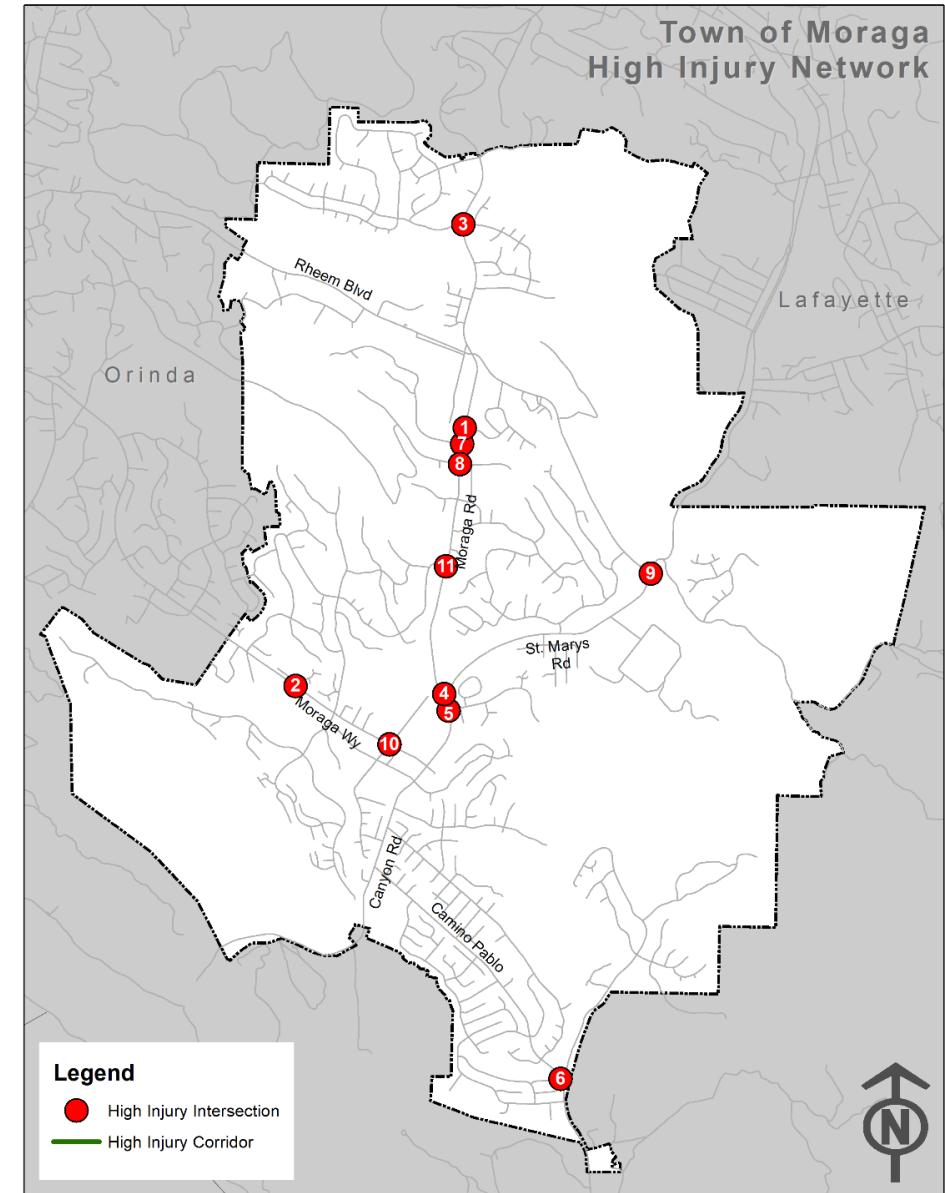
$(1 \times \# \text{ of PDO Collisions})$

(Source: Local Roadway Safety Manual 2020, Caltrans)



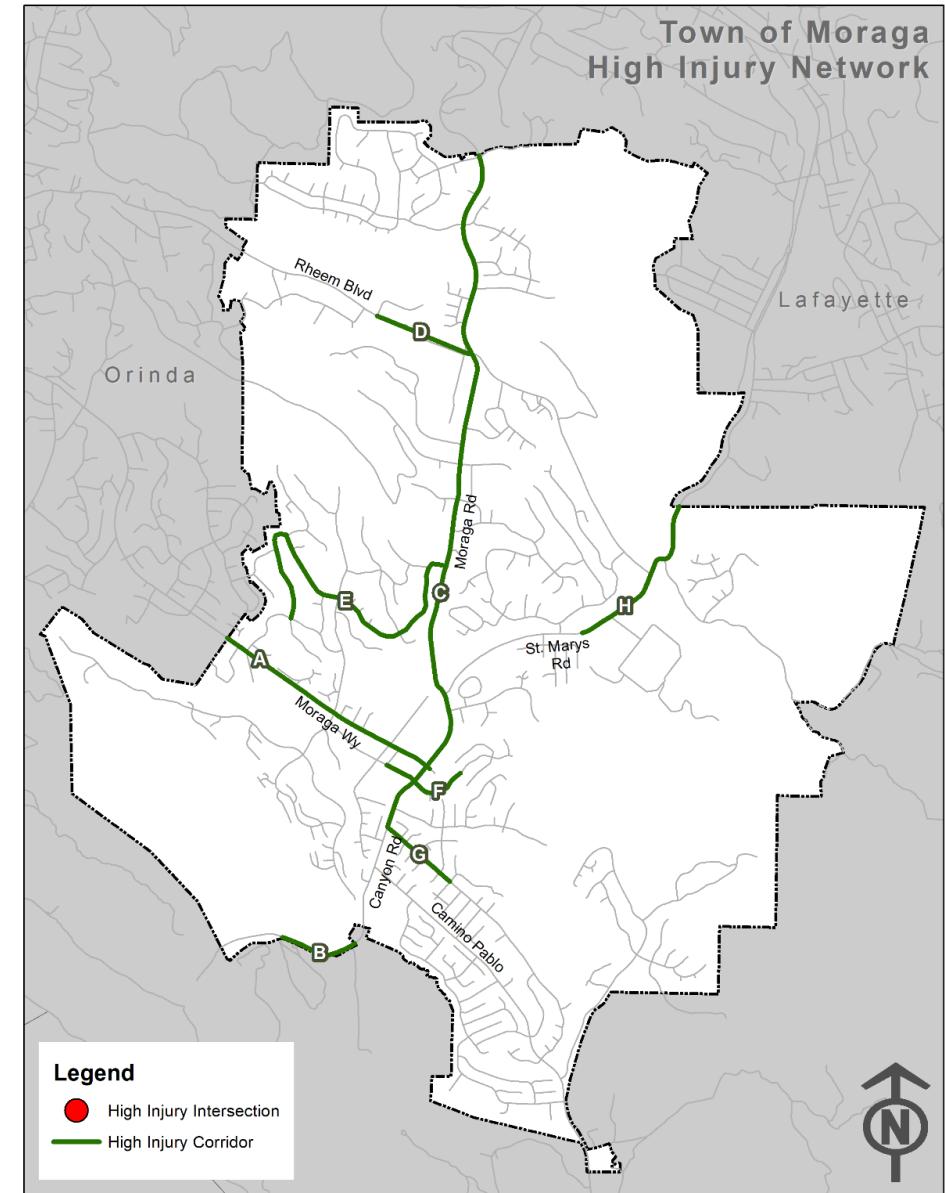
High-Injury Intersections

ID	Intersection	Total Collisions	F+SI Collisions	EPDO Score
1	Moraga Rd at Lucas Dr	6	2	374
2	Moraga Wy at Moraga Valley Ln	1	1	165
3	Moraga Rd at Campolindo Dr	3	0	28
4	Moraga Rd at St. Mary's Rd	3	0	28
5	Moraga Rd at Alta Mesa	3	0	23
6	Camino Pablo at Sanders Ranch Rd	2	0	22
7	Moraga Rd at Ascot Dr	3	0	18
8	Moraga Rd at Donald Dr	2	0	17
9	Rheem Blvd at St. Mary's Rd	2	0	17
10	Moraga Wy at School St	2	0	12
11	Moraga Rd at Corliss Dr	1	0	6



High-Injury Corridors

ID	Intersection	Total Collisions	F+SI Collisions	Length (miles)	EPDO Score
A	Moraga Wy: Town Limit to Moraga Rd	5	1	1.0	199
B	Canyon Rd: 300' E of Valle Vista Staging Area to Town Limit (East)	1	1	0.3	165
C	Moraga Rd/Canyon Rd: Larch Ln to Town Limit (North)	10	0	3.1	85
D	Rheem Blvd: La Salle Dr to Moraga Rd	2	0	0.4	12
E	Corliss Dr/Sullivan Dr: Hardie Dr to Moraga Rd	2	0	1.6	12
F	Country Club Dr: Viader Dr to 875' E of Southard Ct	1	0	0.4	11
G	Larch Ave: Canyon Rd to Baitx Ave	1	0	0.4	6
H	St. Mary's Rd: 500' E of Stafford Rd to Town Limit	1	0	0.8	6



List of Priority Emphasis Areas

- Intersection Safety
 - Collisions within 250 feet of intersections

31% Broadside Collisions	47% Involved Pedestrian or Bike	42% Occurred on Moraga Rd
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- Address Hit Object Collisions

38% Occurred at Night	2 of 5 KSI Collisions	50% Roadway Segments
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- Address Broadside Collisions and Automobile Right of Way Violations

79% At Intersections	36% Involved a Bicycle	64% Involved Another Vehicle
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- Improve Bicycle and Pedestrian Safety

10% KSI Collisions	85% At Intersections	30% Occurred on Moraga Rd
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- Address Nighttime Collisions

38% Involved Alcohol	27% Improper Turning Violations	36% Involved Pedestrian or Bike
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- Improve Safety Around Schools

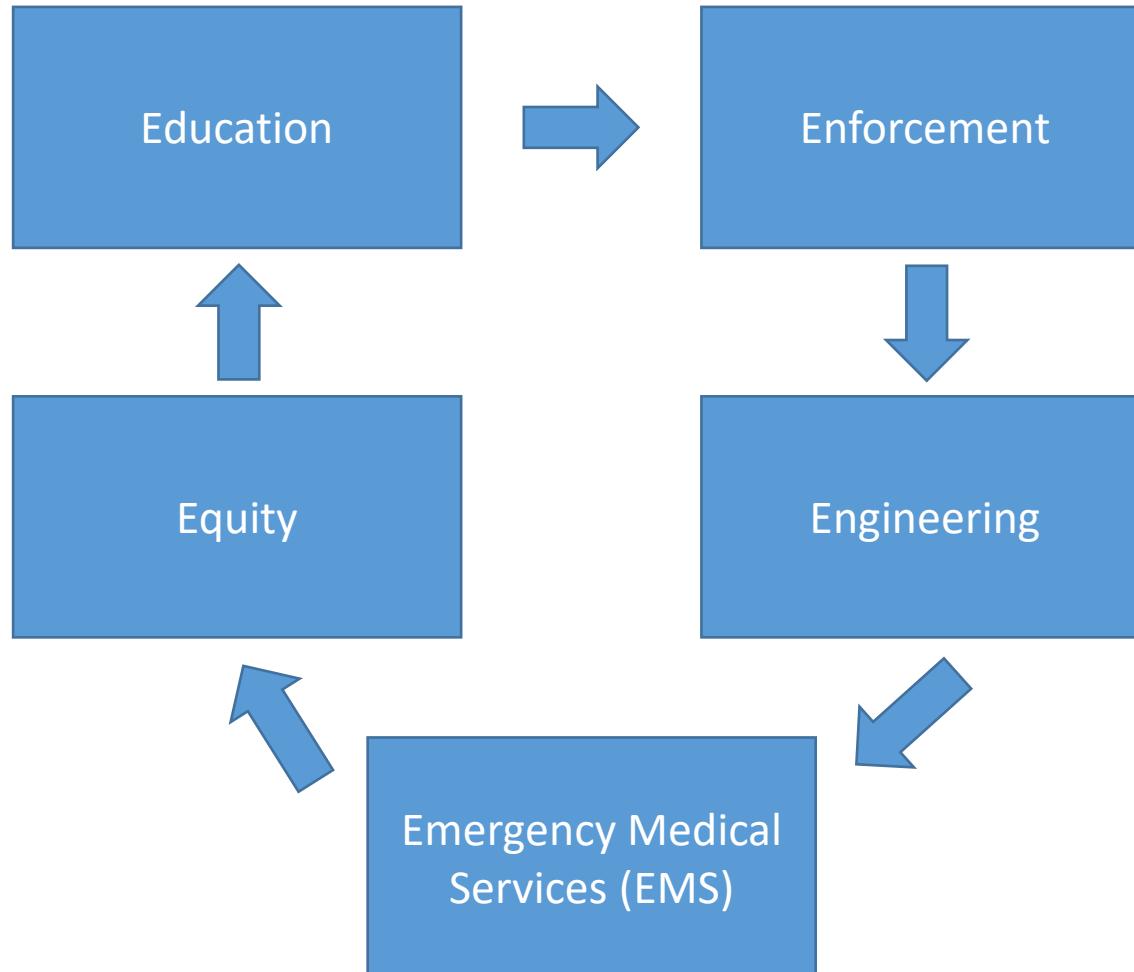
38% Involved Bike or Pedestrian	46% Occurred between 7am-9am or 4pm-6pm	31% Hit Object Collisions
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- Address Improper Turning Violations

38% Involved Fixed Object	38% Occurred at Night	75% At Intersections
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The 5 E's of Traffic Safety

- Conduct focused public information and education campaigns
- Create pocket guides and informational fliers with pedestrian laws, stop sign violations, etc.
- Safe Routes to School education programs
- Consideration of impact of collisions on disadvantaged communities



- Improve deployment to collision sites
- Ensure emergency routes are defined and clear

- Targeted enforcement at high risk intersections
- Place high priority on enforcement of violation type that contribute to the most fatalities and severe injuries
- HSIP eligible countermeasures
- E.g.: Improve intersection lighting, install median refuge island, install bulb outs, improving signs and striping

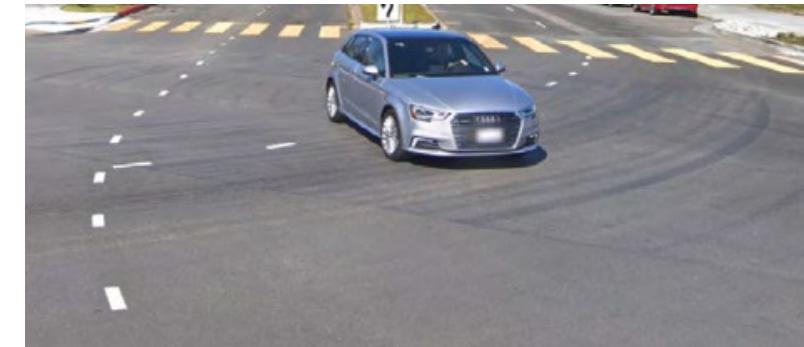
Draft Signalized Intersection Improvements



S02: Improve Signal Hardware



S11: Improve pavement friction



S09: Install raised pavement markers



S12: Install raised median on approaches



S20PB: Advance Stop Bar (Bicycle Box)



S21PB: Modify signal phasing to implement a Leading Pedestrian Interval (LPI)

Draft Unsignalized Intersection Improvements



NS01: Add intersection lighting



NS06: Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs



NS09: Install flashing beacons at or in advance of intersection



NS07: Upgrade intersection pavement markings



NS21PB: Install/upgrade pedestrian crossing (with enhanced safety features)



NS22PB: Install Rectangular Rapid Flashing Beacon

Draft Roadway Segment Improvements



R22: Install/Upgrade signs with new fluorescent sheeting (regulatory or warning)



R26: Install dynamic/variable speed warning signs



R34PB: Install sidewalk/pathway



R35PB: Install/upgrade pedestrian crossing (with enhanced safety features)



R33PB: Install Separated Bike Lane



R23: Install chevron signs on horizontal curves

Non-Engineering Strategies

- Education
 - Public information campaigns against unsafe driving habits
 - Bicycle/pedestrian education campaigns and/or Safe Routes to School
- Enforcement
 - Targeted enforcement
 - Advanced Roadside impaired Driving Enforcement (ARIDE) training
- EMS
 - Install emergency vehicle pre-emption systems
 - Traffic Incident Management Training
- Other
 - Prepare a Town-wide Traffic Calming Plan

Draft Safety Projects

Location	CM1	CM2	CM3	Cost per Location	Total Cost	B/C Ratio
Project 1 – Non-Signalized Intersections (Install/Upgrade Larger Stop Signs or other Intersection Regulatory/Warning Signs, Flashing Beacon as Advance Warning, and Install Rectangular Rapid Flashing Beacon						
Moraga Rd at Lucas Dr	NS06		NS22PB	\$127,792		
Moraga Wy at Moraga Valley Ln	NS06	NS09		\$80,892		
Moraga Rd at Alta Mesa	NS06	NS09		\$80,542		
Camino Pablo at Sanders Ranch Rd	NS06			\$8,512	\$461,342	27.05
Rheem Blvd at St. Mary's Rd	NS06	NS09		\$82,502		
Moraga Rd at Corliss Dr	NS06	NS09		\$81,102		
Project 2: Pedestrian Set Aside Application						
Moraga Wy: Town Limit to Moraga Rd	R35PB			\$31,220		
Moraga Rd/Canyon Rd: Larch Ln to Town Limit (North)	R35PB			\$129,570		
Rheem Blvd: La Salle Dr to Moraga Rd	R35PB			\$31,920	\$243,712	N/A*
Moraga Wy at Moraga Valley Rd	NS21PB			\$39,802		
Moraga Rd at Corliss Dr	NS21PB			\$11,200		

Draft Safety Projects

Location	CM1	CM2	CM3	Cost per Location	Total Cost	B/C Ratio
Project 3: Signalized Intersections (Improve Signal Timing, Install Raised Pavement Markers, and Install Leading Pedestrian Interval)						
Moraga Rd at Campolindo Dr	S21PB	S09	S03	\$16,450	\$82,712	26.26
Moraga Rd at St. Mary's Rd	S21PB	S09	S03	\$16,240		
Moraga Rd at Ascot Dr	S21PB	S09	S03	\$16,870		
Moraga Rd at Donald Dr	S21PB	S09	S03	\$16,870		
Project 4: Non-Signalized Intersections (High Friction Surface Treatments and Intersection Lighting)						
Moraga Rd at Lucas Dr	NS12			\$147,854	\$458,370	28.41
Moraga Wy at Moraga Valley Ln	NS12	NS01		\$310,516		

Draft Safety Projects

Location	CM1	CM2	CM3	Cost per Location	Total Cost	B/C Ratio
Project 5: Roadway Segments: Install/Upgrade Signs with Fluorescent Sheeting and Install Delineators/Reflectors/Object Markers						
Moraga Wy: Town Limit to Moraga Rd	R22	R27		\$36,610		
Canyon Rd: 300' E of Valle Vista Staging Area to Town Limit (East)	R22	R27		\$18,410		
Moraga Rd/Canyon Rd: Larch Ln to Town Limit (North)	R22	R27		\$117,145		
Rheem Blvd: La Salle Dr to Moraga Rd	R22	R27		\$7,595	\$227,220	18.72
Country Club Dr: Viader Dr to 875' E of Southard Ct	R22	R27		\$12,915		
Larch Ave: Canyon Rd to Baitx Ave	R22	R27		\$10,185		
St. Mary's Rd: 500' E of Stafford Rd to Town Limit	R22	R27		\$13,440		
Corliss Dr/Sullivan Dr: Hardie Dr to Moraga Rd	R22	R27		\$10,920		

Draft Safety Project #1

Flashing Beacon as Advance Warning

Example

Moraga Rd at Lucas Dr



Example
Rheem Blvd approaching St Mary's Rd



Draft Safety Project #2



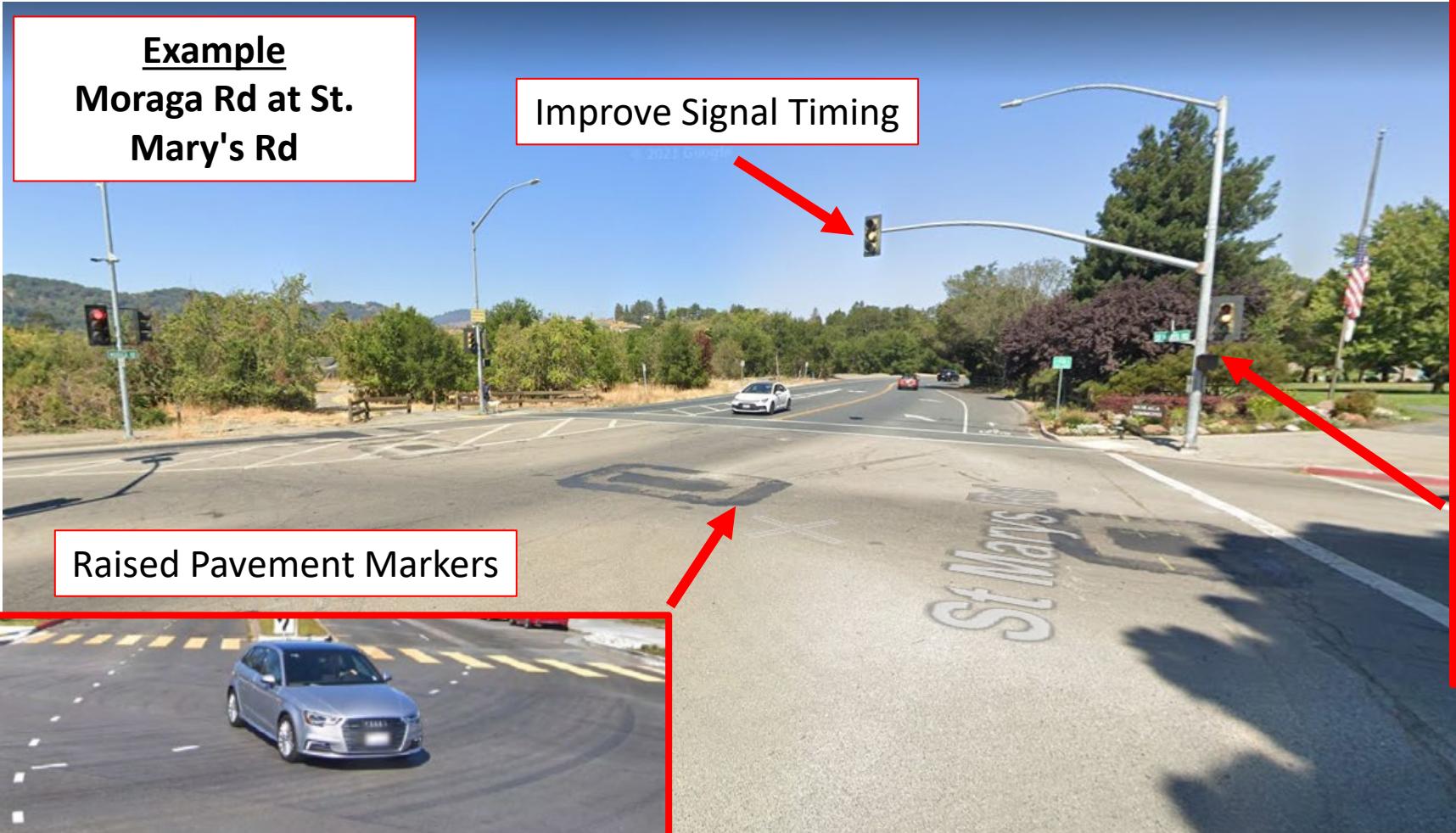
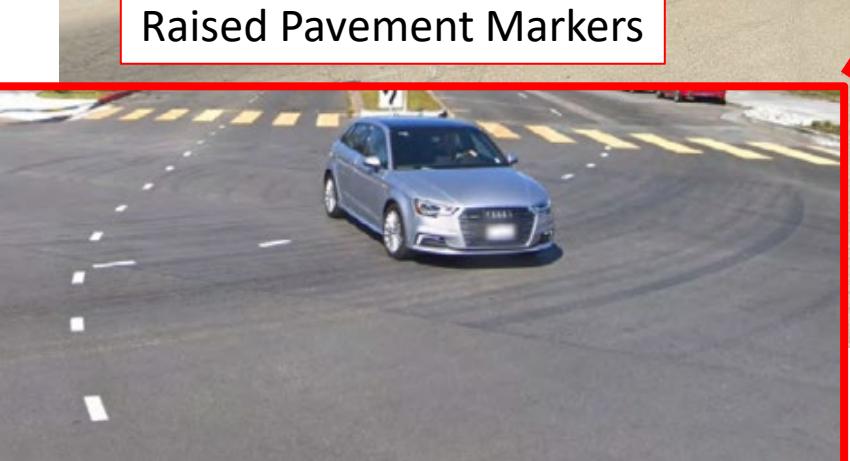
Draft Safety Project #3

Example
Moraga Rd at St.
Mary's Rd

Improve Signal Timing

Raised Pavement Markers

Leading Pedestrian
Interval

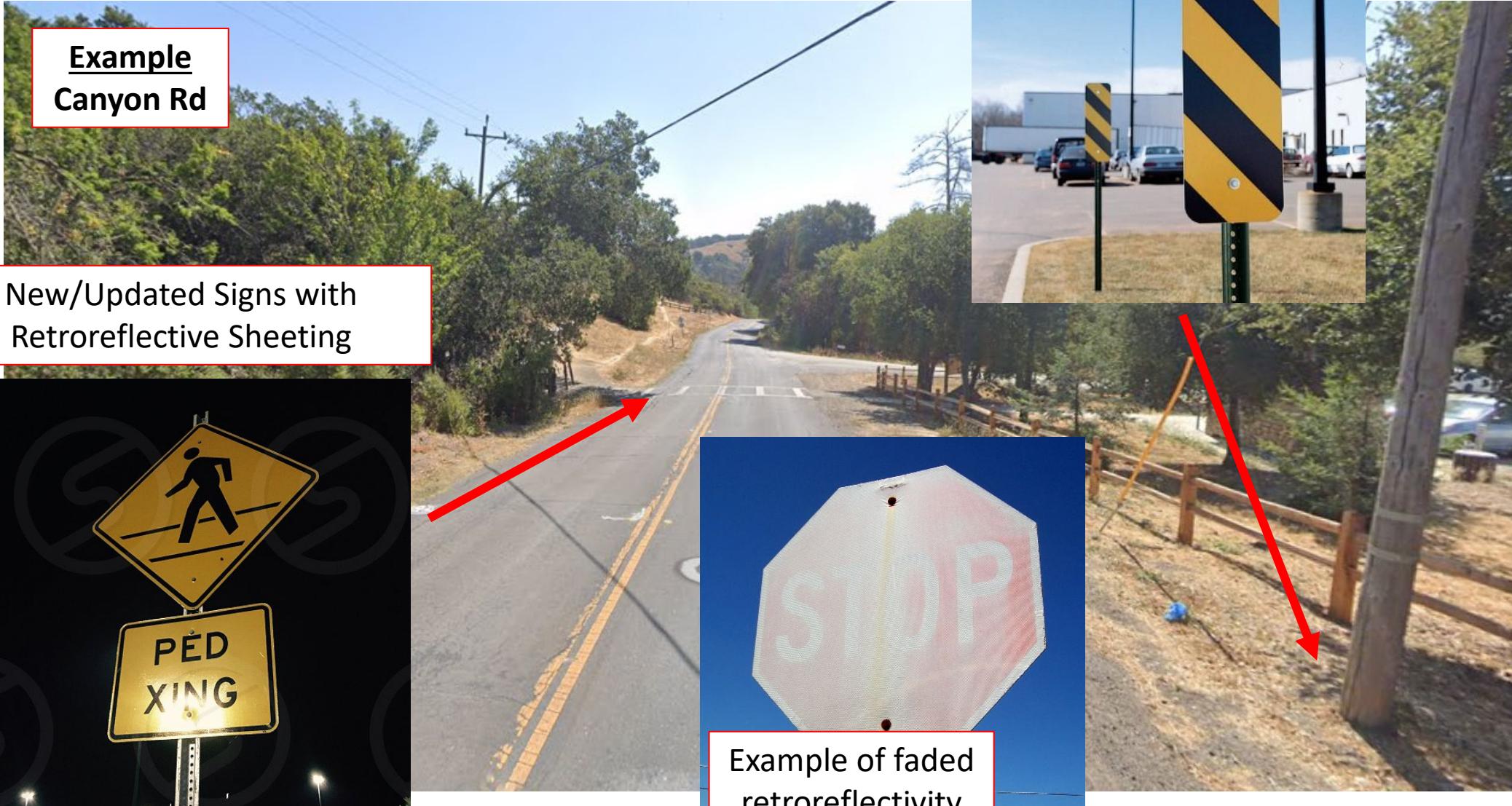


Draft Safety Project #4



Draft Safety Project #5

Install Delineators, Reflectors, or Object Markers



Other Examples – School Zone Crossings

Los Gatos, CA



- High visibility crosswalk
- Advance stop bar
- Rectangular Rapid Flashing Beacons
- Median refuge island

Other Examples – School Zone Crossings

Dinuba, CA



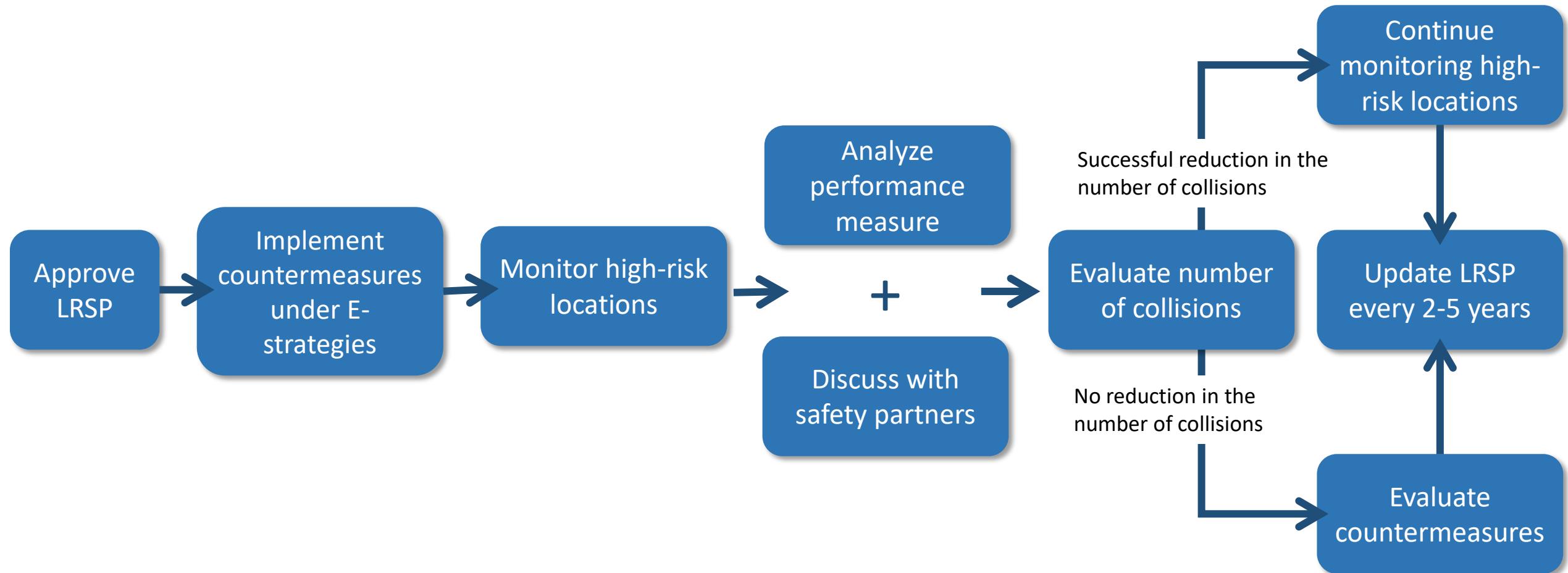
- Rectangular Rapid Flashing Beacons
- Intersection bulb-outs
- Median refuge island
- Yellow high visibility crosswalk

Sunnyvale, CA



- Yellow high visibility crosswalk
- Advance stop bar

Implementation



Questions to Council

- Does Council have any feedback on the high-injury intersections or roadway segments?
- Are there any questions or feedback on the priority emphasis areas?
- Are there any questions or feedback on the recommended countermeasures for the high-injury intersections or roadway segments?
 - *How about the non-engineering strategies?*
- Are there any questions or feedback on the safety projects?

The background of the slide is an aerial photograph of a suburban landscape. In the center, there is a cluster of houses and buildings, including a large industrial or office complex with several red-roofed buildings. The area is surrounded by rolling hills and fields. The foreground is a darker, semi-transparent blue layer that contains the text.

Thank you!
Questions and Feedback