Lafayette Local Road Safety Plan

Task Force Meeting # 4

03/22/2023

Agenda

- Recap of Meeting #3
- **Updates on**
  - Priority Locations Map
  - Safety Countermeasure Toolbox
- **Step 5: Prioritize and Incorporate Strategies**
- **Step 6: Evaluate and Update**
- Draft LRSP Report Outline
- Next Steps

Source: FHWA

New to the Task Force

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Recap of Meeting #3 on 2/1/2023

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The LRSP Development Process

Step 2: Analyze Safety Data

- Updated Priority Locations
  - High Injury Network
  - Holistic Approach

Source: FHWA

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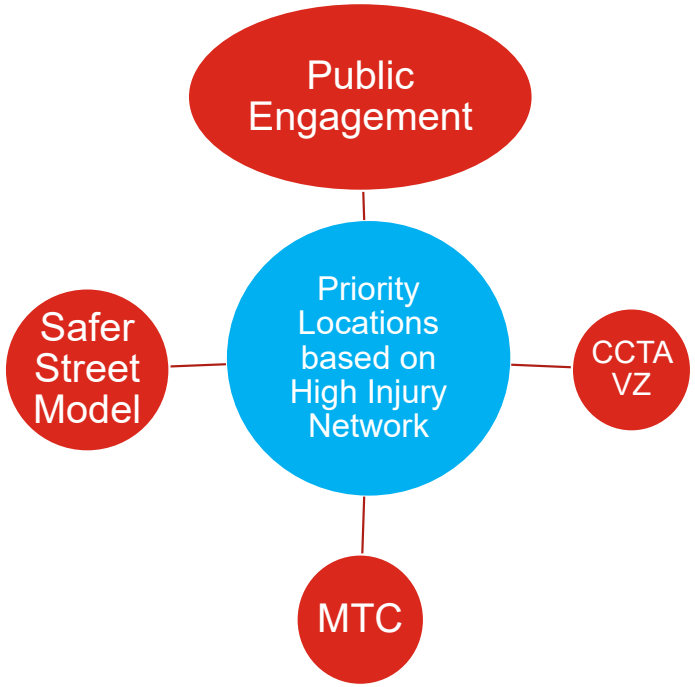
Priority Locations

Priority Locations			HIN	Public Engagement	Safer Streets Model	CCTA VZ	MTC
1	**Olympic Blvd**	between Reliez Station Rd & Newell Ct	X	X	X	X	
2	**Moraga Rd**	between Mount Diablo Blvd & Old Jonas Hill Rd	X	X	X	X	
3	**School St**	between Moraga Rd & Topper Ln	X	X			
4	**Reliez Valley Rd**	between the northern city limit & Sterling Heights Ln	X		X		
5	**Moraga Blvd**	between Moraga Rd & Victoria Ave	X	X			
6	**Mount Diablo Blvd**	between Willow Dr & Pleasant Hill Rd	X	X			X
7	**Pleasant Hill Rd**	between Springhill Rd & Taylor Blvd/Townsend Pl	X			X	X
8	**Deer Hill Rd**	between Happy Valley Rd & Miller Dr	X				
9	**Pleasant Hill Rd**	between Mount Diablo Blvd to Olympic Blvd	X	X	X	X	X
10	**Mount Diablo Blvd**	between Acalanes Rd & Risa Rd	X				X



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Priority Locations

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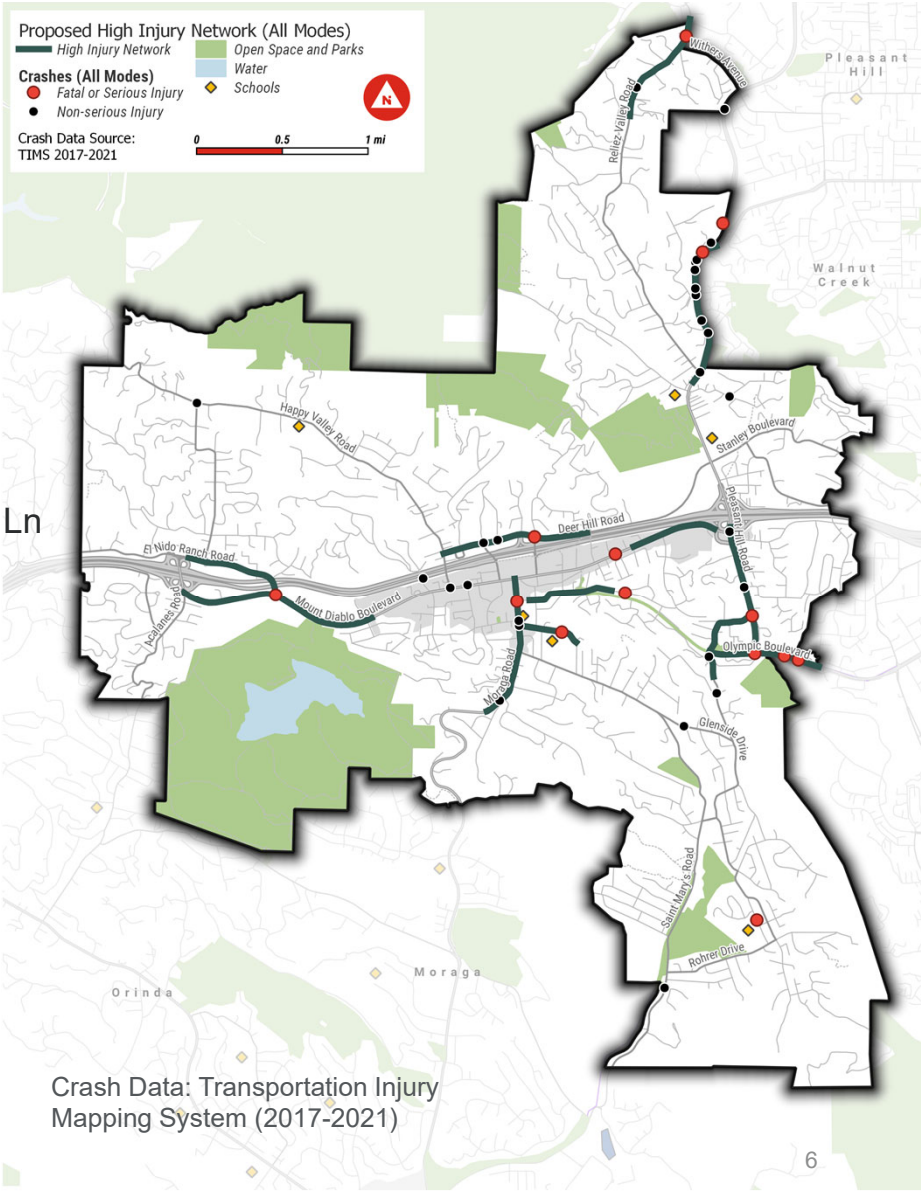

Crash Data: Transportation Injury Mapping System (2017-2021)

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The LRSP Development Process

Step 3: Determine Emphasis Areas

- Help address key safety issues city-wide
- Proactive approach
- Specific populations, travel behaviors, and roadway design

Source: FHWA

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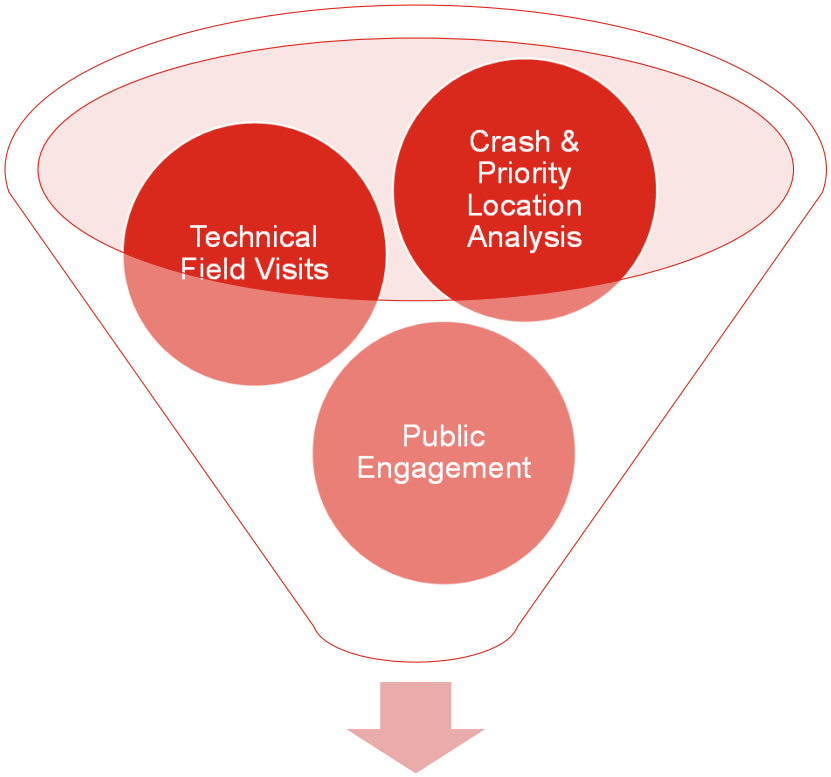
Emphasis Areas

How are emphasis area developed?

- Based on crash patterns/trends
- Field observations
- Public engagement



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Emphasis Areas

Emphasis Areas	Crash/Location Analysis	Field Visit	Public Engagement	CCTA VZ	MTC
Speeds	X	X	X	X	X
Unsignalized intersections	X	X	X		
Lane Departure	X	X	X		X
Failure to yield	X	X	X		
Improper turning	X		X	X	
Bus Stop at Intersection	X			X	
Vulnerable users - bicyclist	X	X	X	X	X
Vulnerable users - pedestrian	X	X	X		X
Distracted driving			X		
Trail Crossing		X	X	X	

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The LRSP Development Process

Step 4: Identify Strategies

- Public engagement
- Safe System Approach Framework
- Draft Safety Measure Toolbox
- Additional strategies

Source: FHWA

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Draft Safety Countermeasure Toolbox

Countermeasures selected based on:

Reviewed: public Inputs & recent recommendations

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FHWA Proven Countermeasures & CCTA Toolbox

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Cross-referenced: Caltrans HSIP Countermeasures

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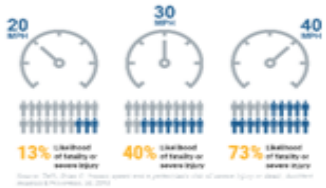
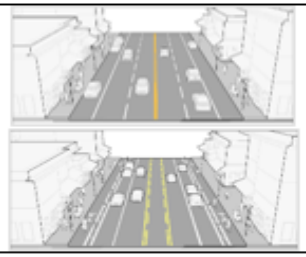
Draft Safety Countermeasure Toolbox

Sample

Speed Management				
Tool	Speed Limit Reduction	Roadway Reconfigurations	Coordinated Signal Operation	Speed humps & Raised Crossings (Not on HSIP funding list)
			 Source: CCTA VZ	
Purpose	Reduce vehicle speeds to reduce the severity of crashes.	Reduce the speed of traffic, crossing distances, and/or provide additional space for other uses of the roadway.	Interconnected signal systems provide coordination between adjacent signals to better facilitate travel through a corridor. When implemented, the number of stops is reduced, and therefore the opportunity to run red lights is also reduced.	Reduce vehicle speeds, increase driver yielding, and improve safety for people crossing.

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Additional Strategies

- Appropriate Speed Limits for All Road Users
- Mode shift strategies
- Campaign to increase attention and awareness
- Educational campaigns (such as through Safe Route to School program)
- Data collection and database to determine crash risk and appropriate treatment
  - Speeding
  - Presence of pedestrian and bicycle facilities
  - Road grades, curves, and width

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Questions?

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Updates from Meeting #3

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Priority Locations

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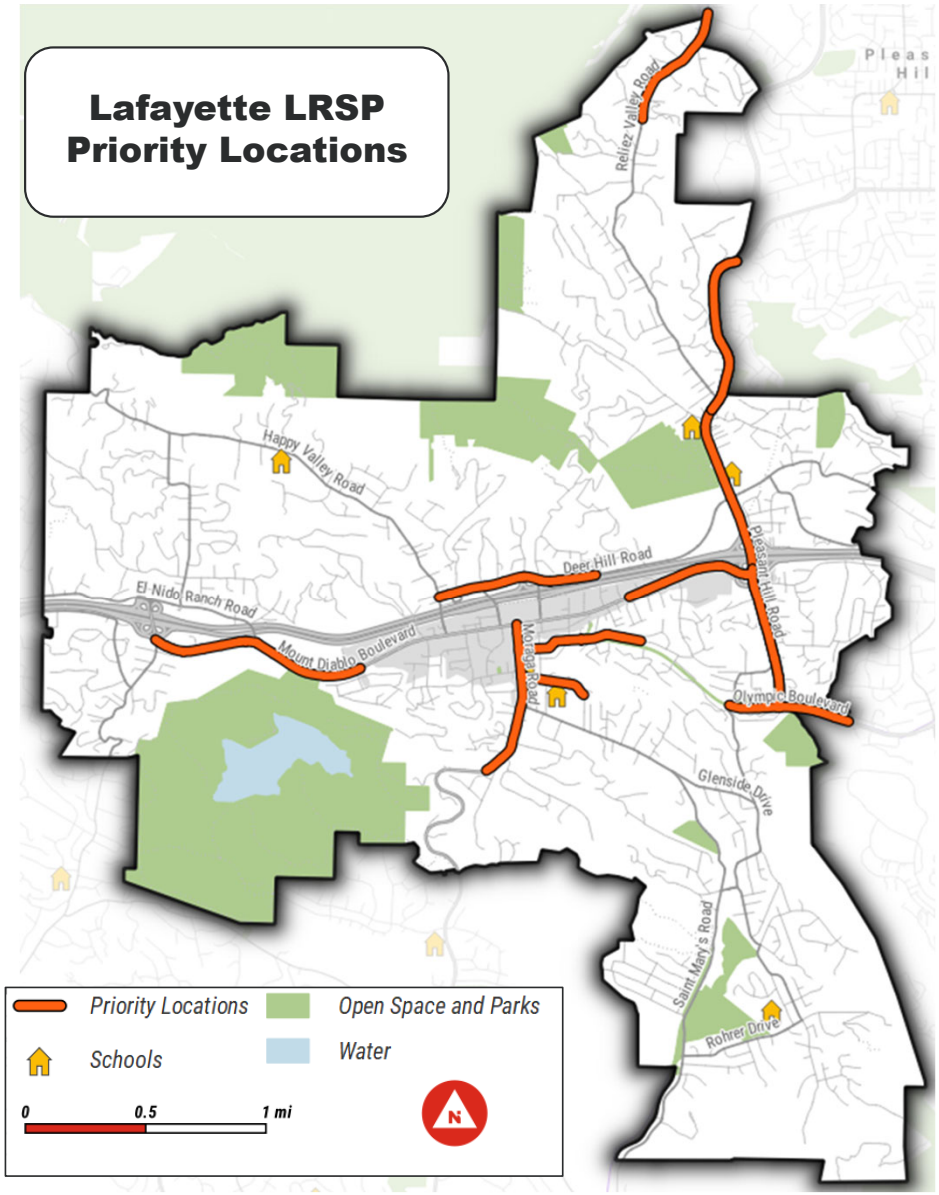

Safety Countermeasure Toolbox

- Updated Lafayette LRSP Safety Countermeasure Toolbox

Caltrans or FHWA research

Countermeasure	Effectiveness			Relevant Application			
	Crash Reduction Factor (CRF)	Emphasis Area	Safe System Framework Metric Addressed	Roadway Type	Signalized	Non-Signalized	Segments
Speed Management							
Speed Humps	40%	Speeds	Reduce Speeds	Local			x
Convert 12-foot lanes to 11-foot lanes	24%	Bicyclist Pedestrian Speeds	Increasing Attentiveness Reduce Speeds	All			x
Convert 12-foot lanes to 10-foot lanes	48%						

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Safety Countermeasure Toolbox

- Safe System Framework Metric
  - Anticipating Human Error

Separating users in space

Separating users in time

Increasing attentiveness and awareness

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Source for all images: Toole Deign

Safety Countermeasure Toolbox

- Safe System Framework Metric
  - Accommodating Human Injury Tolerance

Managing Speed

Reducing Impact Forces

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Source for all images: Toole Deign

Questions?

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Step 5:

Prioritize and Incorporate Strategies

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The LRSP Development Process

Step 5: Prioritize and Incorporate Strategies

- Understand the different types of strategies
- How to prioritized
- How will they get implemented

Source: FHWA

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Task Force Goals and Objectives

- Created at the start of LRSP
  - Goal 1: **Engage** with different groups to understand safety factors
  - Goal 2: **Promote** a safety culture throughout
  - Goal 3: **Implement** a data-driven approach
  - Goal 4: **Prioritize** actions and recommendations to advance Lafayette's Vision Zero goals
  - Goal 5: **Produce** a plan to build safer streets for all

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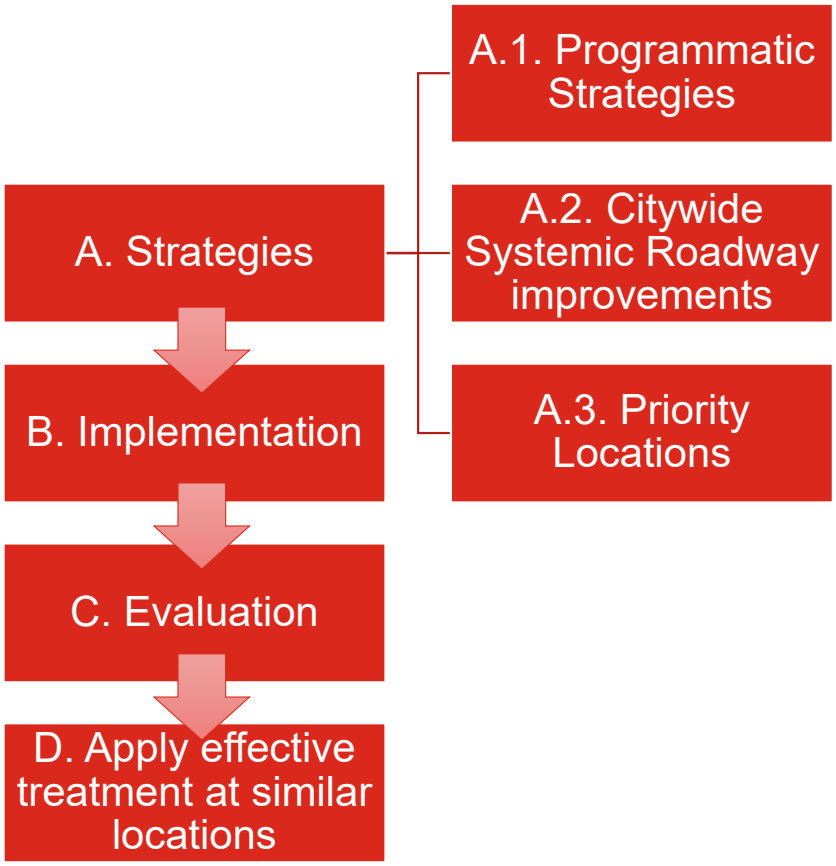
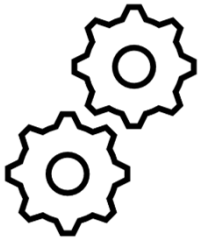
Step 5. Prioritize and Incorporate Strategies





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A.1. Programmatic Strategies

- Strategies Identified in Task Force Meeting #3
  - Appropriate Speed Limits for All Road Users
  - Mode shift strategies
  - Campaign to increase attention and awareness
  - Educational campaigns (such as through a Safe Route to School program)
  - Data collection and database to determine crash risk and appropriate treatment
    - Speeding
    - Presence of pedestrian and bicycle facilities
    - Road grades, curves, and width

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A.1. Programmatic Strategies

Why are the strategies important?

- Manage congestion
- Safe and equitable commute for all modes
- Set up for success in roadway redesign projects

Source: City of Lafayette

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A.1. Programmatic Strategies

- Question: How can we ensure strategies are actionable?

Strategies	Who should be involved	Evaluation
Appropriate Speed Limits for All Road Users • Establishing consistent speed limits on roads with conflicting information (ex. Olympic Blvd) • Incorporate roadway design to promote lower speed		
Mode shift strategies • Identify opportunities to increase biking and walking • Opportunities to convert commute		• Measure before and after travel % • Ridership information • BART station bike parking
Holistic SRTS Strategies		
Data collection and database to determine crash risk and appropriate treatment • Start with what is available- CCTA Vision Zero data • Police department data collection		

Examples

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A.1. Programmatic Strategies

- What are some other strategies you would like to see?
- What will you do to make Lafayette safer?

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A.1. Programmatic Strategies

- Question for the Task Force targeted at meeting Vision Zero goals:
  - Do we want to identify “reach zero year”?
    - Many cities are using a 10-year time frame as their baseline.
    - This is beneficial in identifying short-term goals and long-term goals/measures of progress
    - Beneficial in grant funding
  - Establishes how often LRSP should be updated

Example

Vision Zero

Our goal: Zero traffic-related deaths and serious injuries by 2030.

Source: Denver Vision Zero

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A.2. Citywide Systemic Roadway Safety Infrastructure Improvements

- Citywide roadway safety infrastructure improvements where common safety risk factors exist
- Often do not require any further analysis or engineering to implement at specific locations
- Recommended to be implemented across Priority Locations and then citywide

Source: Toole Design

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A.2. Citywide Systemic Roadway Safety Infrastructure Improvements

Citywide	Limits	Who should be involved	Evaluation
Continue Safe Route to School effort • Provide safe options for people to walk and bike to school • Traffic calming measures around schools	School		
Missing link walkways	Citywide		
Increase walking or biking access to schools, transit, downtown, and trails	Citywide		• # of bike lane • Mode % traveling to schools • Bike parking usage
Leading pedestrian intervals (LPIs)			• # of intersections
Speed data collection			
Smart Signals Project			

Examples

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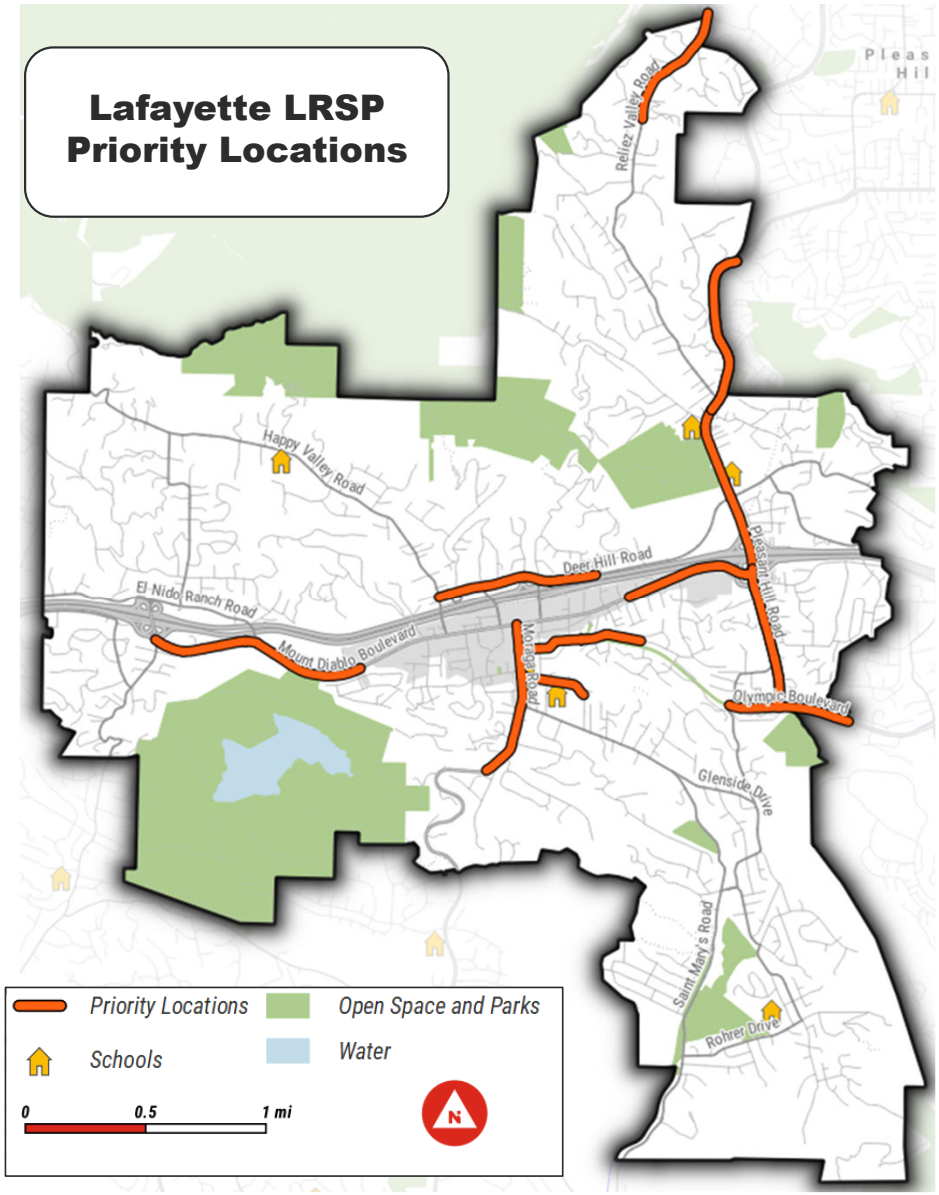
A.3. Roadway Safety Countermeasures for Priority Locations

i. Evaluate crash(es) and emphasis areas along the corridor

ii. Develop a list of possible roadway safety countermeasures to eliminate crash type

iii. Review countermeasures through the lens of the Safe System Approach framework



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A.3. Roadway Safety Countermeasures for Priority Locations

Corridor	Limits	# of Fatal	# of Seriously Injured	Vulnerable User Mode	Number of Webmap Unsafe Points
Olympic Blvd	Reliez Station Rd to East of Newell Ct	**2**	**1**	**Bike**	**37**
Moraga Rd	Mount Diablo Blvd to Old Jonas Hill Rd	**1**	**-**	**Pedestrian**	**220**
School St	Moraga Rd to Topper Ln	**1**	**-**	**Pedestrian**	**46**
Reliez Valley Rd	Gloria Terrace to Sterling Heights Ln	**1**	**-**	**Bike**	**1**
Moraga Blvd	Moraga Rd to Victoria Ave	**-**	**1**	**Bike**	**49**
Mount Diablo Blvd (East)	Willow Dr to Pleasant Hill Rd	**-**	**1**	**Pedestrian**	**12**
Pleasant Hill Rd	Olympic Blvd to Taylor Blvd	**-**	**1**	**Motorcycle**	**14**
Deer Hill Rd	Happy Valley Rd to Miller Dr	**-**	**1**	**-**	**32**
Pleasant Hill Rd	Mount Diablo to Olympic Blvd	**-**	**1**	**-**	**45**
Mount Diablo Blvd (West)	Acalanes Rd to Risa Rd	**-**	**1**	**-**	**66**

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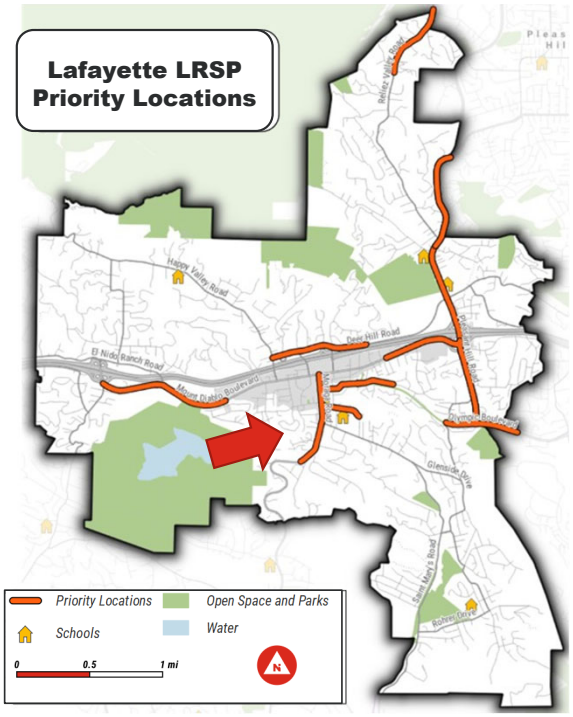
A.3. Roadway Safety Countermeasures for Priority Locations

Example: Moraga Road

- This is a four-lane street
- Speed limit of 25 mph and 20 mph near Lafayette Elementary School
- There are sidewalks along both sides from Mount Diablo Boulevard to Tanglewood Drive and only sidewalk on the east side from Tanglewood Drive to Old Jonas Hill Road
- There are no bicycle lanes
- Parking is available on certain parts of the street along the west side north of St Mary's Road
- This street is the main route for buses
- Part of Stanley Middle School and Lafayette Elementary School Rapid Implementation School Safety Plans



Observations from consultant field visit

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A.3. Roadway Safety Countermeasures for Priority Locations

i. Evaluate crash(es) and emphasis areas along the corridor

Example: Moraga Road

- Emphasis areas: Pedestrian and Intersections
- Crash concerns: Pedestrian crossing at crosswalks; Vehicle turning; Failure to yield

Project	Limits	# of Fatal	# of KSI	Total Crashes	Leading Crash Types	Violation Type	Modes Involved in Crashes	Intersection?	Signalized?
Moraga Road	Mount Diablo Boulevard to Old Jonas Hill Road	1	1	1 Fatal	Ped Crossing in Crosswalk at Intersection, MV Making Left Turn	Fail to yield to pedestrian	3 Pedestrian Crashes	Moraga Boulevard	Yes
				3 Complaint of Pain	Ped Crossing in Crosswalk at Intersection, MV Making Right Turn	Fail to yield to driver		Brook Street	
					Ped Crossing in Crosswalk at Intersection, MV Proceeding Straight	Other Improper Driving			
					Rear End, Multi-Motor Vehicle	Unsafe passing	1 Motorist Crashes	Segement	

Table shows crash along corridor from 2017-2021

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A.3. Roadway Safety Countermeasures for Priority Locations

ii. Develop a list of possible roadway safety countermeasures to eliminate crash type

Example: Moraga Road

- Review ideas shared by the public on webmap to get a sense of what the public wants
- Incorporate ideas that aligns with addressing crash risk and emphasis areas

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A.3. Roadway Safety Countermeasures for Priority Locations

ii. Develop a list of possible roadway safety countermeasures to eliminate crash type

Example: Moraga Road

Make left hand turns on/off Moraga (that are not at an intersection) safer- illegal (or put up a physical barrier).

Add lights (maybe solar?) to the bus stops along Moraga Rd so that bus drivers can see waiting passengers when its dark or when its dusk.

Lighted "right turn yield to peds" sign should be activated (lit) BOTH when people are walking across Mt Diablo Blvd AND when walking across Moraga Road.

Text bubbles shows ideas from project web map along Moraga Road (10/24/2022 - 12/4/2022)

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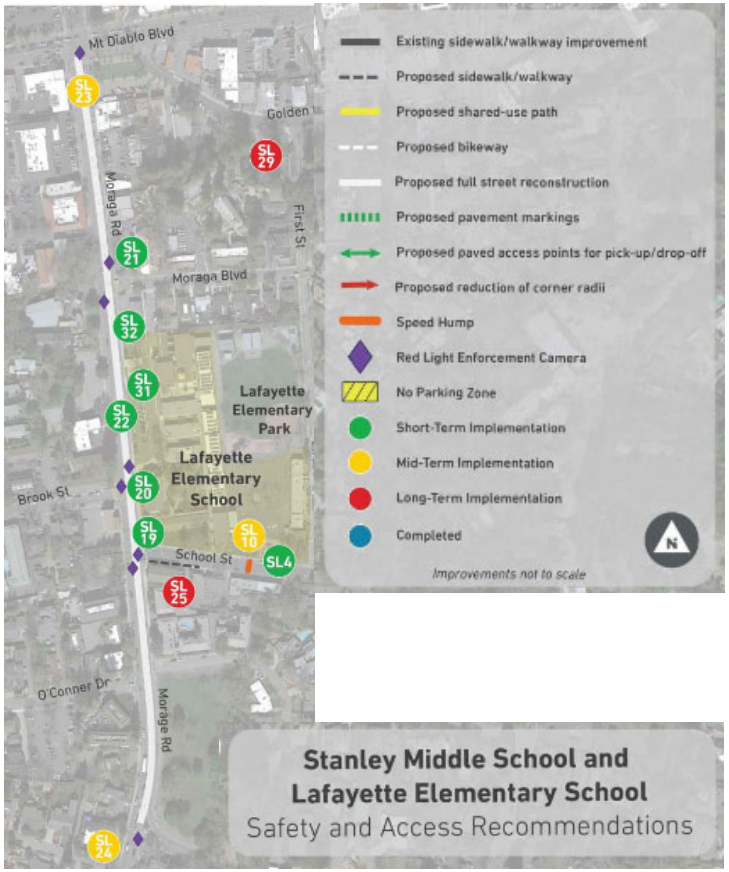
A.3. Roadway Safety Countermeasures for Priority Locations

ii. Develop a list of possible roadway safety countermeasures to eliminate crash type

Example: Moraga Road

- Stanley Middle School and Lafayette Elementary School Rapid Implementation School Safety Plans
- Published April 1, 2022
- Short-Term:
  - Added protected left turn phase at School St
  - Stop bar in-front of crosswalk
  - Leading pedestrian interval
- Mid- to Long-Term:
  - Center turn lane
  - Separated bike lanes adjacent to the school
  - Wider sidewalk adjacent to the school



Source: Stanley Middle School and Lafayette Elementary School Rapid Implementation School Safety Plans (page 14)

A.3. Roadway Safety Countermeasures for Priority Locations

ii. Develop a list of possible roadway safety countermeasures to eliminate crash type

Example: Moraga Road

- Determine if additional countermeasures are needed:
  - Does the planned/recommended project(s) address crash risk and the emphasis area identify?
  - Are there countermeasures that can be applied corridor-wide?
- Identify crash risk not addressed: ex. Moraga Road / Mt. Diablo Blvd
- Use Lafayette LRSP Safety Countermeasure Toolbox to obtain additional treatment if needed

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A.3. Roadway Safety Countermeasures for Priority Locations

ii. Develop a list of possible roadway safety countermeasures to eliminate the crash type

Example: Moraga Road

- Additional countermeasures from Lafayette LRSP Safety Countermeasure Toolbox

Intersection:

- Reduce Corner Radii
- Harden Centerlines
- Lighting
- Prohibit Right-Turn-on-Red

Pedestrian Facilities

- Pedestrian Scramble
- High-Visibility Continental Crosswalks
- Rectangular Rapid Flashing Beacons (RRFB)
- Curb Extensions
- Pedestrian Refuge Islands

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A.3. Roadway Safety Countermeasures for Priority Locations

iii. Review countermeasure(s) through the lens of the Safe System Approach framework

Example: Moraga Road

Separating users in space

Separating users in time

Increasing attentiveness and awareness

Managing Speed

Reducing Impact Forces

Image Source: Toole Design

A.3. Roadway Safety Countermeasures for Priority Locations

i. Evaluate crash(es) and emphasis areas along the corridor

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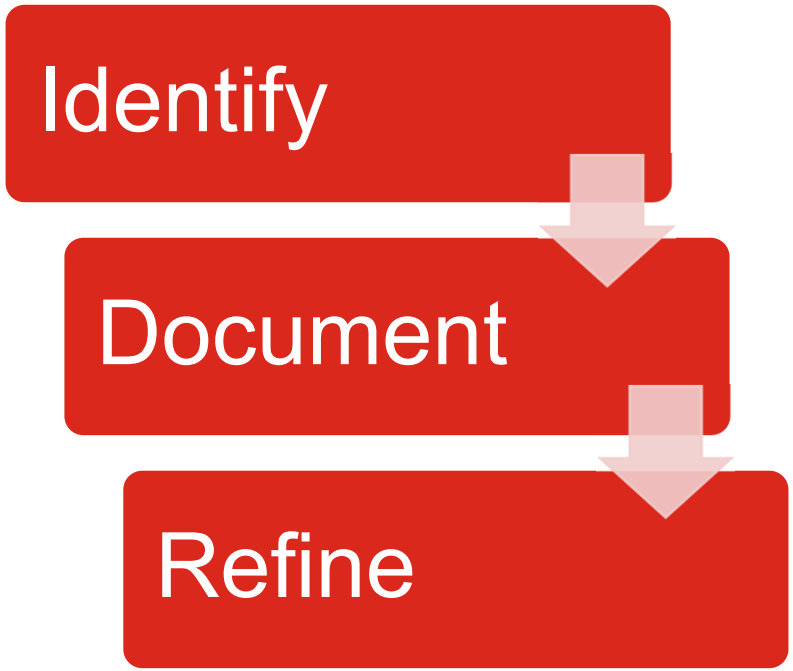

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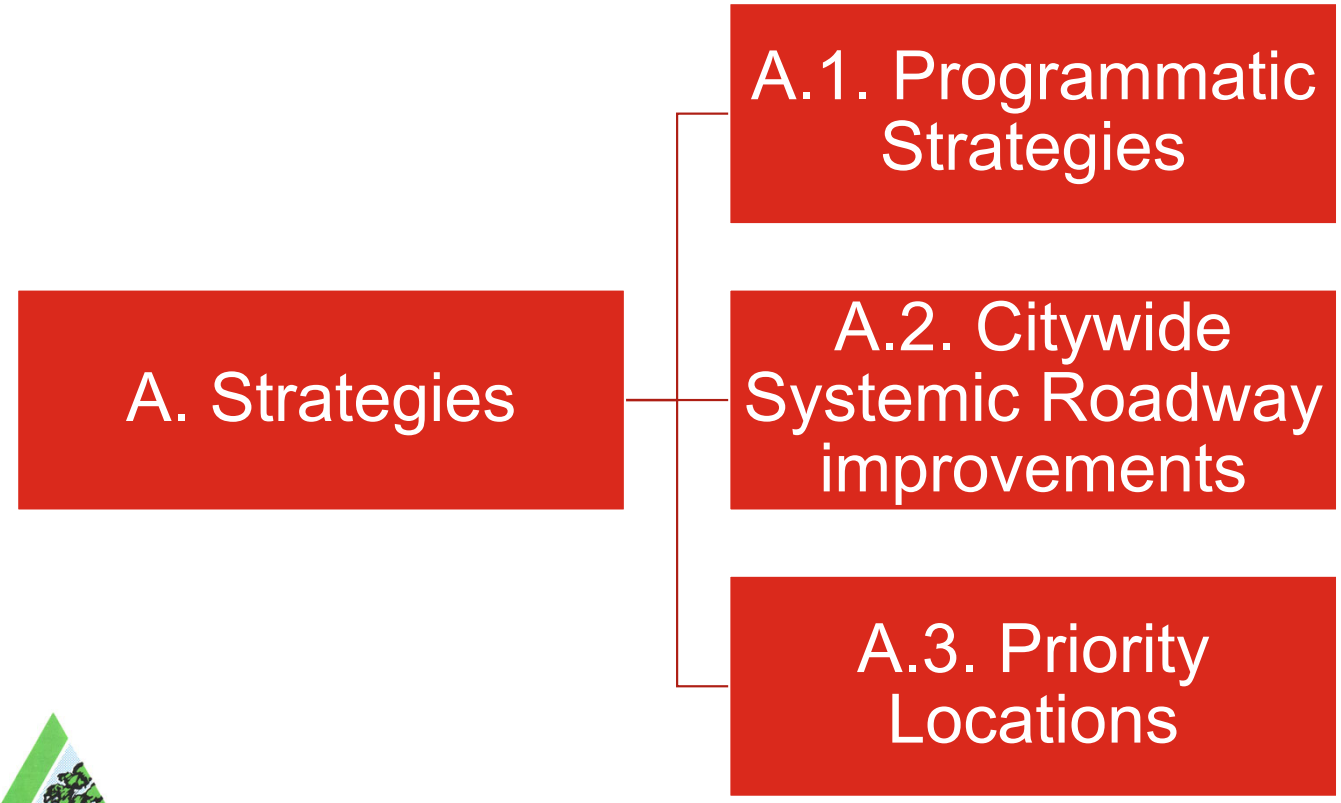
Step 5. Prioritize and Incorporate Strategies



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B. Implementation

- Further engineering studies and evaluations for <u>specific countermeasures</u>
- Larger corridor projects may be broken into smaller sub-projects,
- Countermeasures can be implemented systemically along multiple corridors

Source: FHWA

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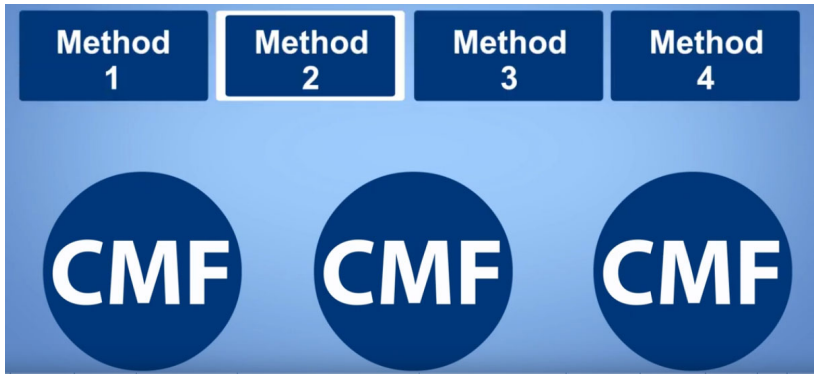
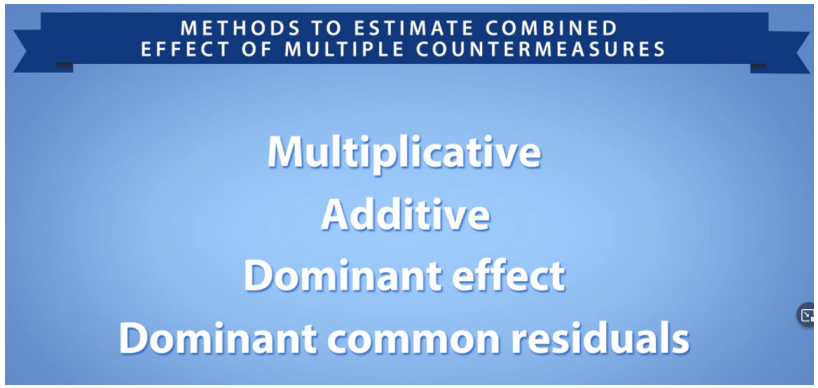
B. Implementation

- Use Crash Modification Factors (CMFs) to estimate if the roadway safety countermeasures selected will eliminate KSI crashes.
  a. Selecting a Method to Analyze Multiple CMFs
  b. Applying a Method to Analyze Multiple CMFs
- Identify safety countermeasures with the greatest safety benefit for a particular crash type or location using CMFs
- The goal of layering multiple safety countermeasures to get a CMF of zero





Source: FHWA

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C. Evaluation

- Quantitative
  - Reduction and elimination of KSI crashes
  - Speeding differential between operating speeds and posted speed limit
- Qualitative
  - Are safety improvements being made where need and impact are greatest and focused on eliminating fatal and serious injury crashes?
  - Has implementation effectively reduced the identified crash types?
  - Are deployed safety countermeasures improving safety as expected?

Source: FHWA

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C. Evaluation

- Safety plan monitoring examples:
  - Reduction and elimination of KSI crashes
    - Compared to the CMF estimate in B. Implementation
  - Number of completed safety projects on the Priority Locations
  - Number of school rapid implementations
  - Mode shift percentage to schools and transit
  - Number of miles of bicycle infrastructure
  - Number of miles of sidewalk installed

Source: FHWA

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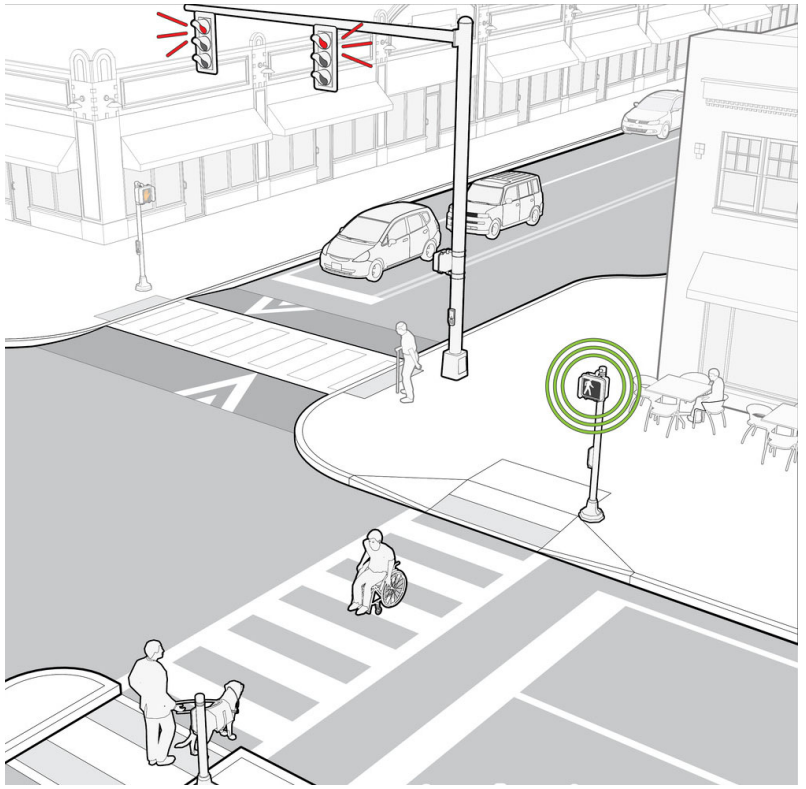
D. Apply effective treatment at similar locations

- Which safety countermeasures are working
- How well they are working
- Similar safety countermeasures can be implemented elsewhere



Source: Toole Design

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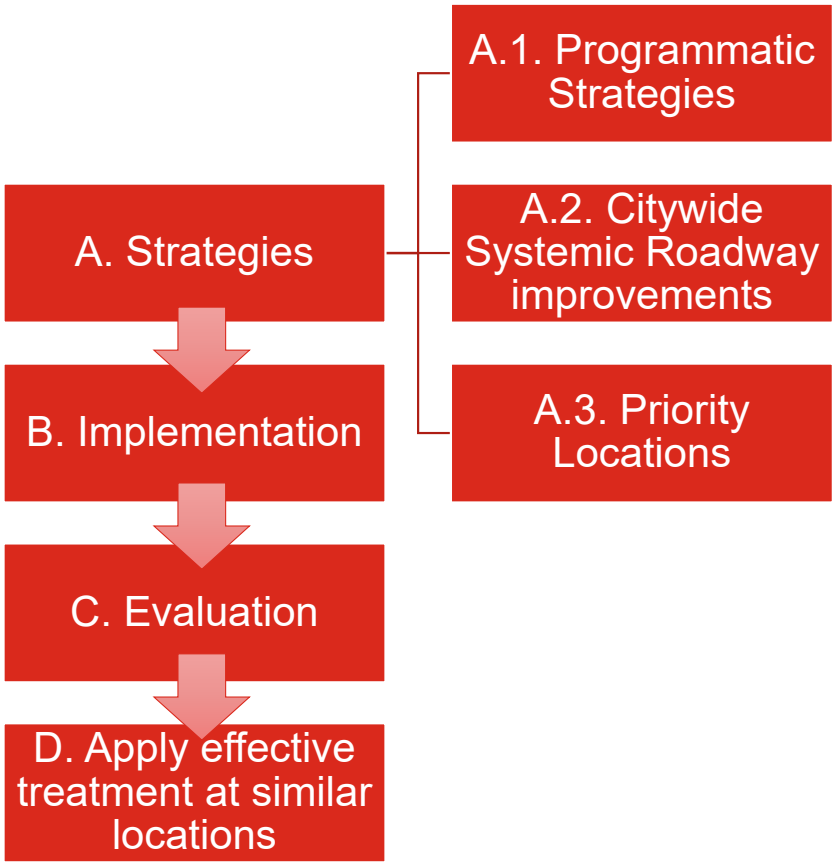
Step 5. Prioritize and Incorporate Strategies



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Questions?

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The LRSP Development Process

Between Step 5 and Step 6:

- Document → Draft LRSP Report
- Implement Solutions
- Then we can move on to Step 6
  - Evaluate
  - Determine what to update

Source: FHWA

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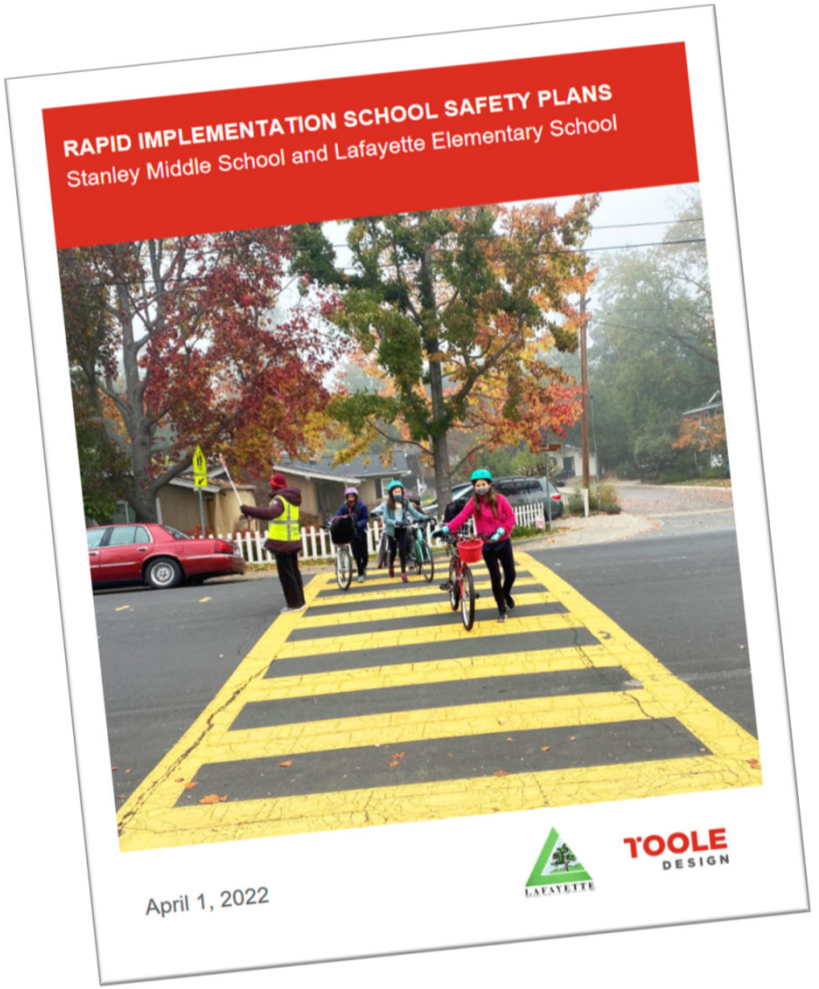
Draft LRSP Outline

- Key question:
  - How do you envision this report being used for you?
  - Top priorities
    - User Friendly
    - Graphical
  - Public engagement in one section or section throughout?
  - The LRSP Development Process wheel to guide the report?



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Draft LRSP Outline

- Executive Summary
- Introduction
  - Key Terms
  - Plan Purpose
  - What is a Local Road Safety Plan and Vision Zero?
  - Task Force
  - Goals and Objectives
  - Process
- Understanding Safety Issues in Lafayette
  - Crash Data Analysis
  - Priority Location Map
  - Public Engagement
- Emphasis Areas
- Safety Countermeasure Toolbox
- Project Development and Prioritization
- Recommendations

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Questions?

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Next Steps

- Draft LRSP Report
  - Will be shared with Task Force Members via email AND
  - Online PDF for comments (~2 weeks comment period)
- Transportation & Circulation Commission Meeting
  - Meeting #2 TBD?
    - Will present updates since the last meeting
    - Possible joint meeting with Task Force?
    - Discussion on the draft LRSP report

TOOLE DESIGN

LAFAYETTE

Questions?

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Thank you

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