



# Montclair

Local Roadway Safety Plan

February 6, 2023 | Montclair City Council  
Emily Finkel | Fehr & Peers



# Project Overview



# Project Goals

## Improve safety outcomes for people traveling in Montclair

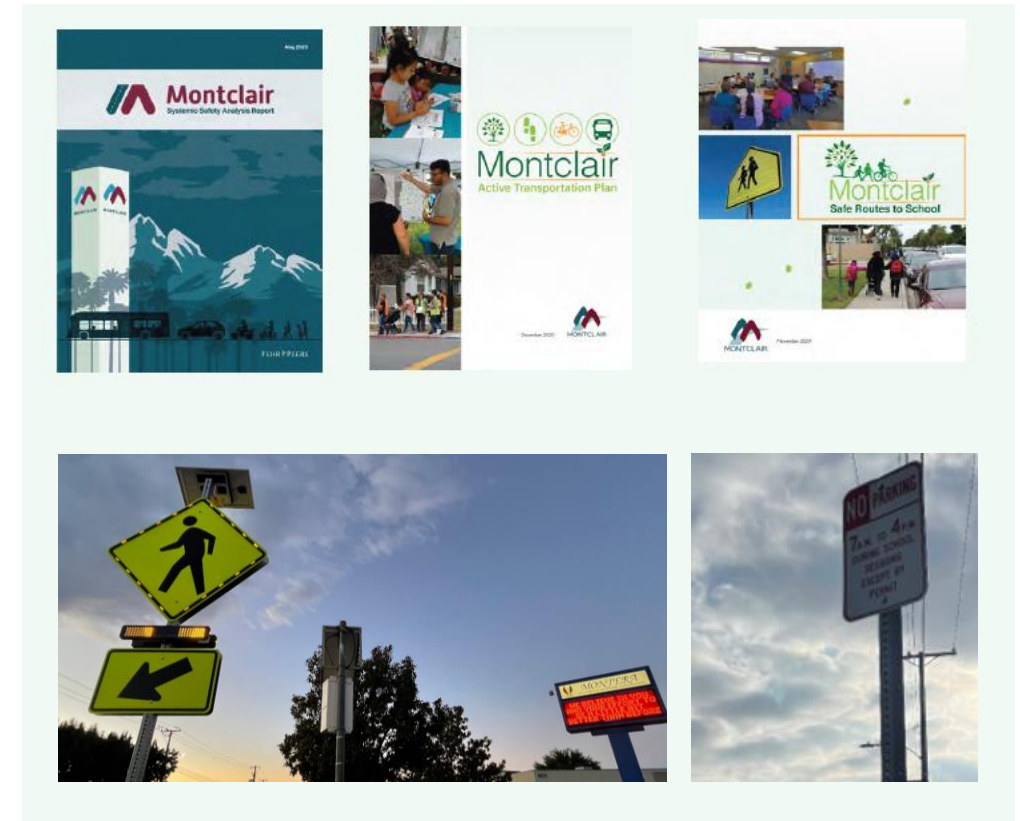
- Build on the work done through the Systemic Safety Analysis Report (2020)
- Identify additional priority projects
- Incorporate Safe System approach and non-engineering strategies into safety toolbox
- Meet Caltrans requirements for future HSIP applications
- Bring prior safety planning efforts together

Central & San Bernardino ↘



# Recent Safety Planning Work

- Systemic Safety Analysis Report (2019-2020)
- Safe Routes to School Plan (2020)
- Active Transportation Plan (2020)
- Complete Streets Safety Assessment (2021)
- Grant awards – HSIP Cycle 10 for Ramona Ave & Howard St roundabout
- Recent installation of projects:
  - Vernon Middle School: LED flashing stop sign at San Bernardino & Vernon
  - Monte Vista Elementary School: New signs and markings to support safe crossings, parking restrictions, and left turns on Orchard
  - Montera Elementary School: New Rectangular Rapid Flashing Beacon at crosswalk



# What is the Safe System Approach?

- Focus on all components and players in roadway system
- Understand mistakes will happen, and make sure that mistakes aren't fatal
- Industry best practice approach for roadway safety
- Adopted by Caltrans and USDOT



# Key Components of the Local Road Safety Plan



# Vision & Priorities

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## Montclair's Safety Vision Statement

Eliminate fatalities and serious injuries by 2050, through the proactive implementation of safety improvements for all people who travel on Montclair's streets.

### Priorities:

- Safe Roads – focus on design changes to factors contributing to the most severe collisions
- Safe Road Users – consider all modes and equitable strategies
- Safe Speeds – use roadway design, policy, education and enforcement tools
- Safe Vehicles – plan for connected and autonomous vehicle fleets
- Post-Crash Care – focus on collision response, collision site assessment, and collision reporting practices



# Safety Partners

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- Montclair Police Department
- Ontario-Montclair School District and Schools
- Caltrans
- SBCTA
- Omnitrans
- Community groups
- City partners





# Implementation Strategies

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- Reprioritize/modify CIP projects
- Incorporate safety into existing programs (e.g. maintenance)
- Incorporate LRSP goals into all roadway projects
- Implement interim projects
- Incorporate safety goals into citywide traffic impact analysis
- Bundle similar project types



# Additional Plan Components

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- Existing efforts summary
- Comparison of recent safety plans and how they fit together
- Prioritized project list, based on eligibility for CA safety funds
- Updated information on funding sources
- Safety data trends ←
- Non-engineering countermeasure toolbox ←
- Three new recommended projects ←



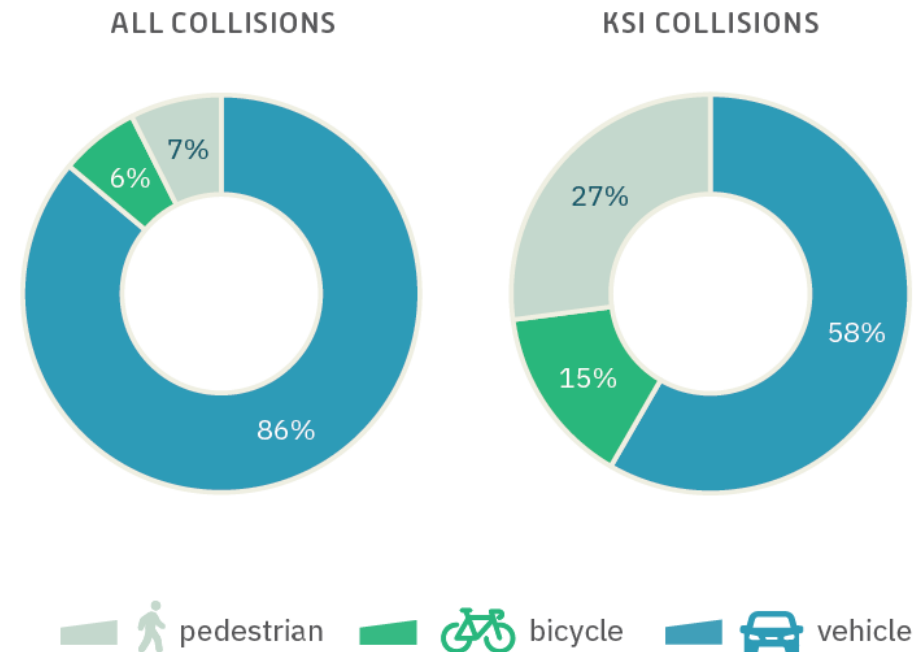
# Safety Data Trends



# Mode and Severity

- 1,114 injury collisions between 2015 and 2019
- 48 collisions resulted in a fatality or severe injury (aka “KSI”)
- More than 40% of KSI collisions involved someone walking or riding a bike, compared with 13% of collisions overall

Collisions by Mode  
2015-2019



# Driver Behavior

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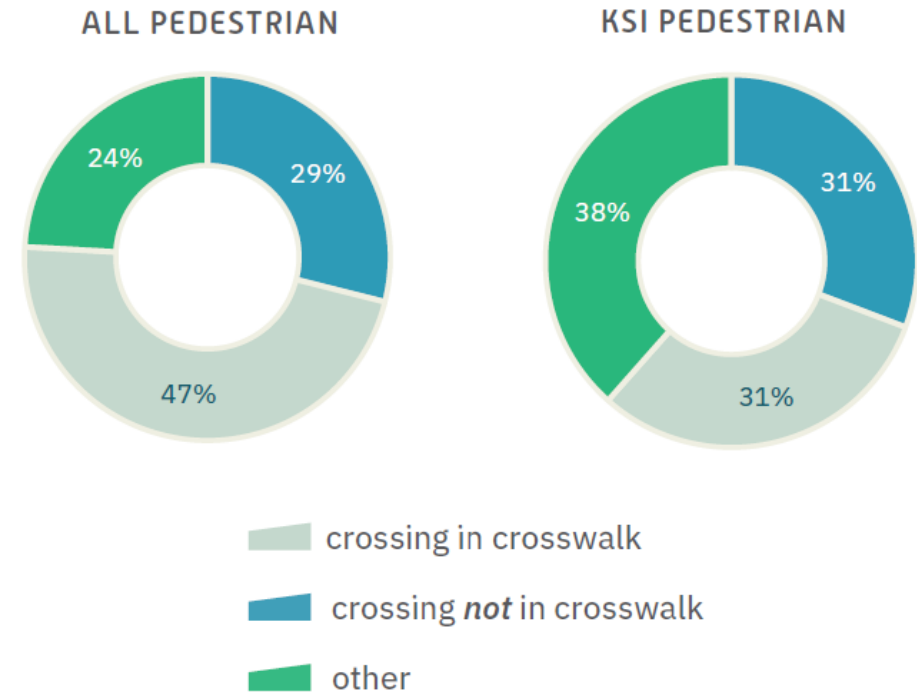
- Top violations:
  - Violating another driver's right-of-way
  - Disobeying traffic signals or stop signs
  - Driving at an unsafe speed
- Top collision types:
  - Broadside
  - Rear end
  - Head-on
- Driver movement:
  - Proceeding straight: 66%
  - Making left turn: 27%
  - Making right turn: 7%



# Pedestrian Collisions

- Pedestrians are hit most often while crossing in a crosswalk
- Pedestrians are killed or severely injured most often while walking in the road (not crossing)

Pedestrian Location, 2015-2019

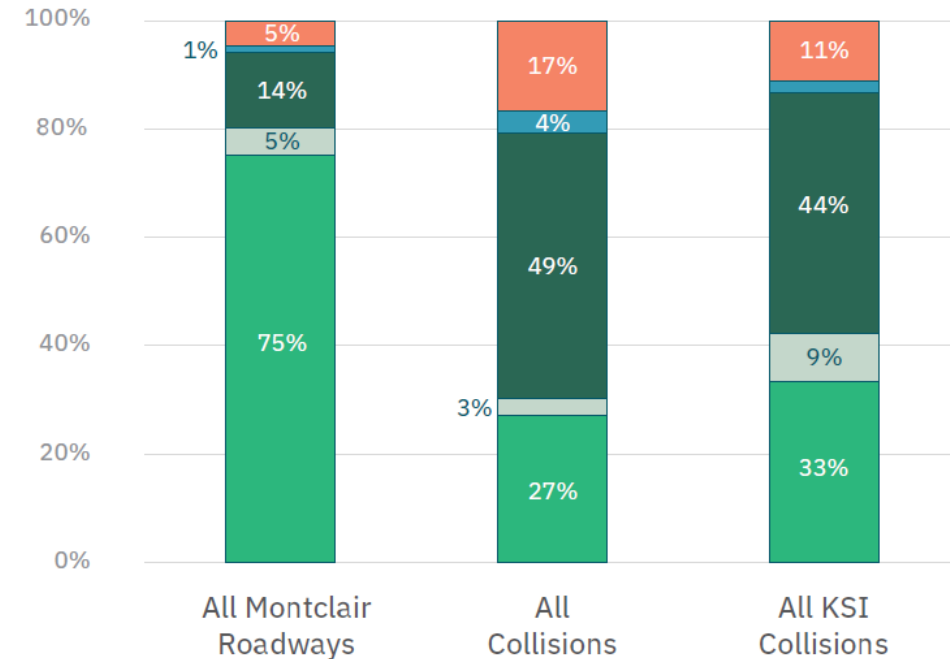


# Number of Lanes

- Streets with 4+ lanes account for 20% of all streets in Montclair, but that's where 72% of all injury collisions occur

Number of Lanes All Modes, 2015-2019

PERCENTAGE



LANES: 2 3 4 5 6

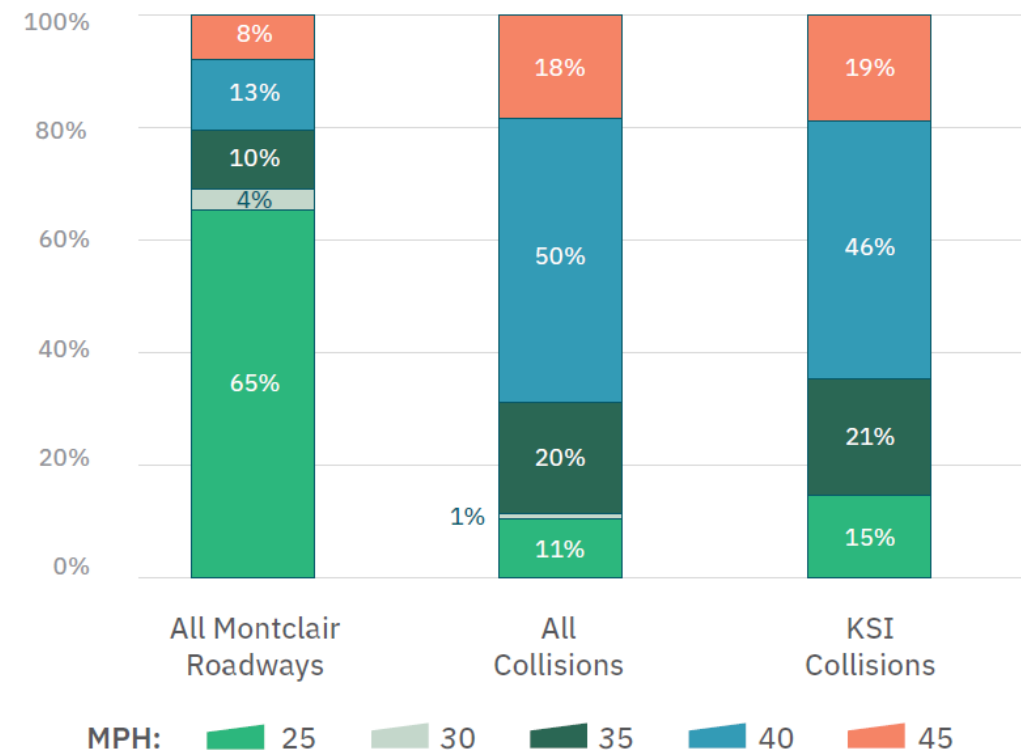


# Posted Speed

- Streets with 40+ posted speed account for 11% of all streets in Montclair, but that's where 68% of all injury collisions occur
- Pedestrians hit at 40 mph have a 20% chance of survival
- Pedestrians hit at 30 mph have a 60% chance of survival

Roadway Speed All Modes, 2015-2019

PERCENTAGE



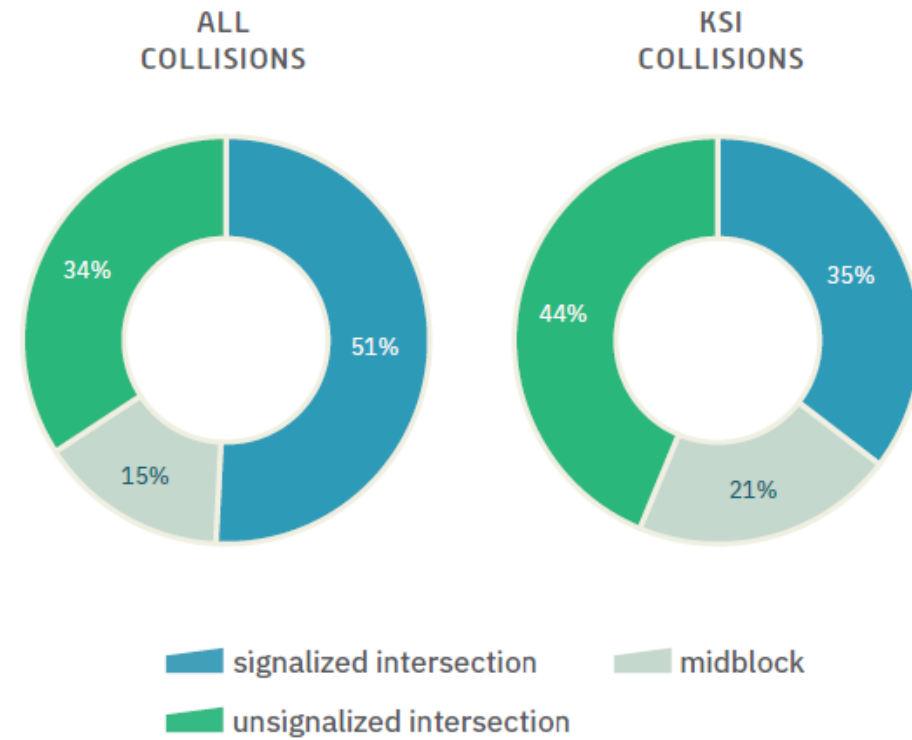


# Location

- Over half of injury collisions occur at signals, but largest share of severe and fatal occur at unsignalized intersections

	Location Type			
	Signal		Unsignalized Intersection	
	All Protected Lefts	Not All Protected	Non-Local	Local
Share of Roadway/ Intersections	28%	72%	22%	78%
Share of Collisions	29%	71%	72%	28%

Location Type, 2015-2019

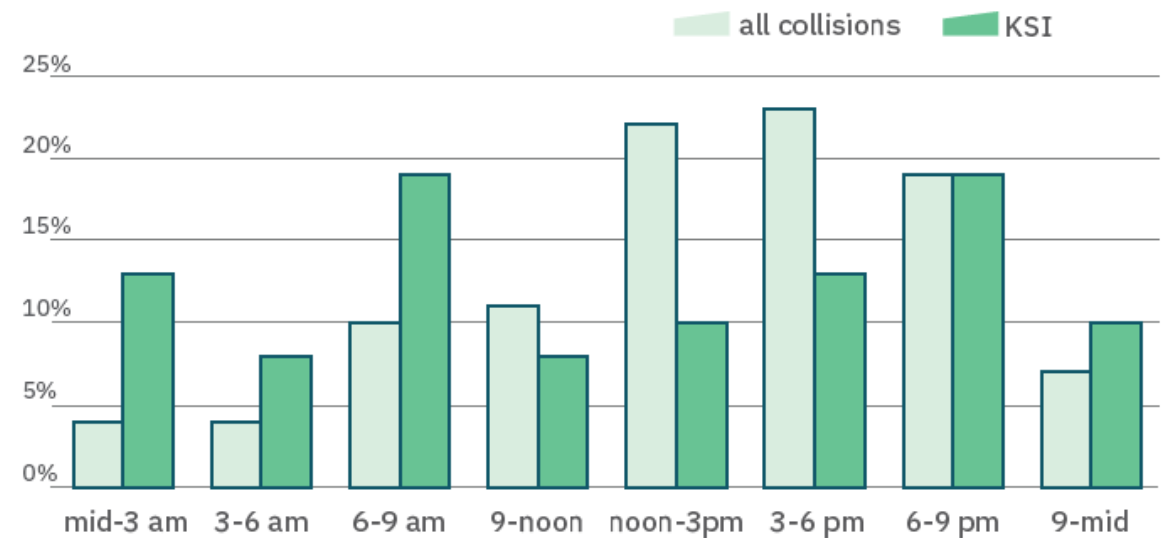


# Time of Day

- Most injury collisions occur during afternoon and early evening
- Severe and fatal collisions more likely overnight and during AM peak period

Time of Day, 2015-2019

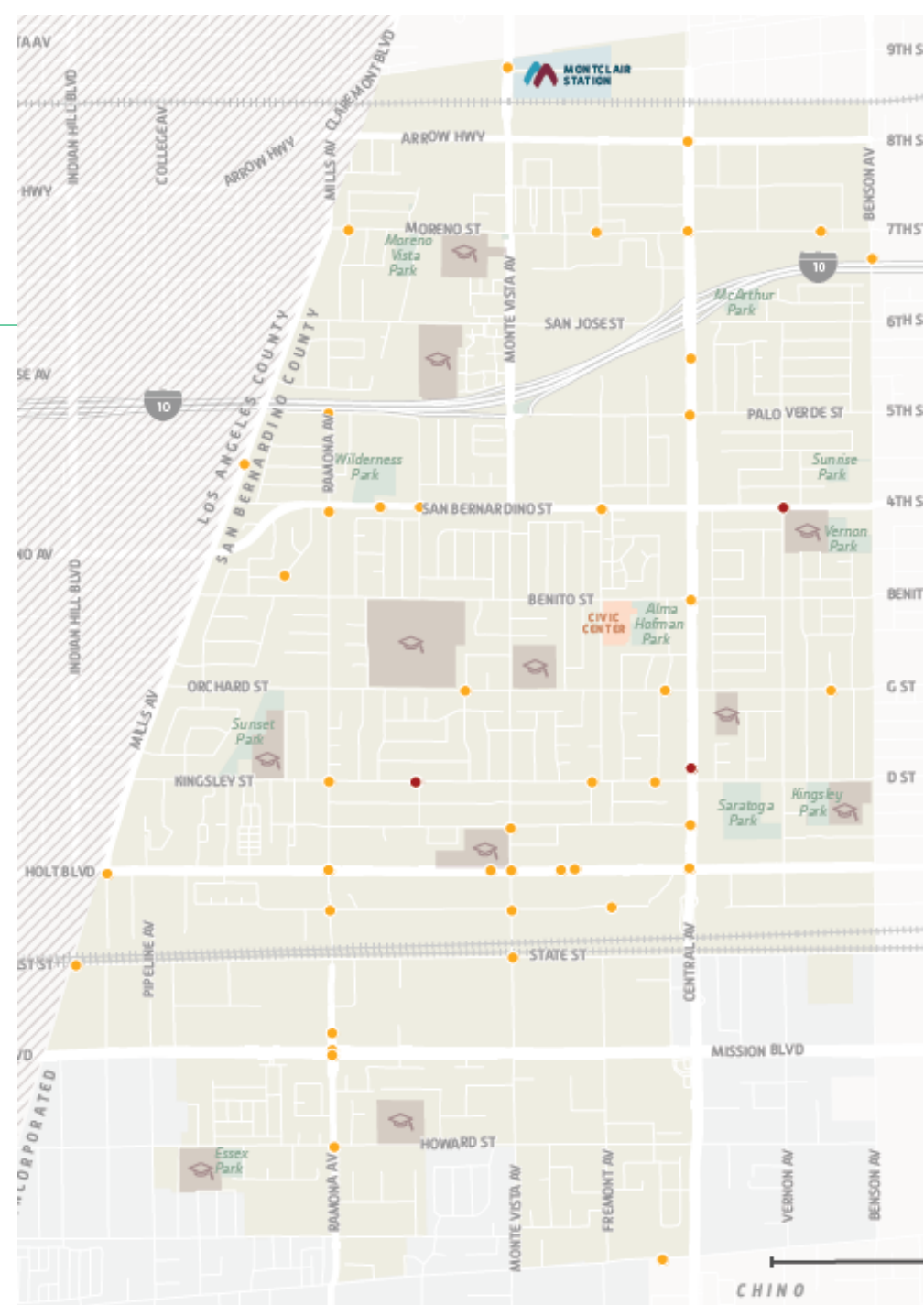
PERCENT OF COLLISIONS



# Hot Spots

## Priority Location Options, Intersections

Option	North/South Street	East/West Street	Collisions			
			Total	KSI	Bike	Ped
1	Ramona Avenue	Mission Boulevard	45	2	1	2
2	Monte Vista Avenue	State Street	29	1	1	0
3	Central Avenue	San Bernardino Street	29	0	4	2
4	Monte Vista Avenue	Palo Verde Street	27	0	1	2
5	Central Avenue	Moreno Street	27	1	1	4
6	Central Avenue	Holt Boulevard	26	1	2	0
7	Central Avenue	Kingsley Street	25	1	0	3
8	Ramona Avenue	Holt Boulevard	24	2	1	1
9	Central Avenue	Costco Drive	24	1	4	0
10	Central Avenue	Orchard Street	23	0	1	3



# Safety Project Development



# Project Locations

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- San Bernardino Street (Ramona to Benson)
  - 70 injury collisions
  - 40 mph with fewer than 10,000 daily vehicles
  - Opportunity for lane reconfiguration and enhancements at intersections
- Central Avenue (Orchard to Holt)
  - 83 injury collisions
  - Broadside collisions at intersections and driveways, several signals upgraded recently
  - Buffered bike lane (interim), protected left turns and striping upgrades
- Ramona Avenue (Kingsley to State)
  - 63 injury collisions
  - Top violation is unsafe speed
  - Mini roundabouts at Bandera and Kingsley, upgrades at Holt signal, “daylighting”



# Ramona Avenue

Kingsley Street to State Street

MONTCLAIR



**Add a High-Visibility Crosswalk**  
to the eastbound approach to help make drivers more aware of pedestrians

**Add New Intersection Lighting**  
to help illuminate road users under dark conditions

**Clear Intersection Sight Lines**  
by trimming back overgrown vegetation

**Supplement Botts' Dots with 8" Striping**  
to provide continuous lane demarcation



**Install an Advance Warning Flashing Beacon**  
on the eastbound approach to alert drivers of the upcoming intersection



**Restrict Right Turn On Red (RTOR)**  
on the eastbound approach to reduce conflicts between movements

**Stripe Outside Crosswalk Lines & Refresh Stamped Concrete Coloring**  
to increase crosswalk visibility



Kingsley St

Bandera St

Holt Bl

State St

CORRIDOR-WIDE



**Add or Extend Red Curb at Unsignalized Intersections**  
to improve sight lines



**Remove Stop Control and Install Mini Roundabout**  
to reduce broadside collisions



**Extend Pedestrian Crossing Time**  
to provide better access for people with limited mobility

**Upgrade Pedestrian Push Buttons**  
to improve accessibility

**Add Advance Stop Bars**  
to discourage crosswalk encroachment by drivers

**Extend Northbound Left Turn Phase Length**  
to reduce queuing and red-light running

**Supplement Botts' Dots with 8" Striping**  
to provide continuous lane demarcation



# Top Scoring Priority Project Locations from Prior Plans

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- Montera Elementary School
- Montclair High School
- Monte Vista Elementary School
- Central Avenue (Arrow Hwy to Palo Verde)
- Lehigh Elementary School
- Kingsley Elementary School
- Holt Boulevard between Monte Vista and Central



# Safety Countermeasure Toolbox





# Prior Work: Focus on Engineering

## Intersection & Roadway Design

LRSM Countermeasure

### Right Turn Lane and Phase

LRSM ID (S14) (NS14)

LOCATION-SPECIFIC



CRF 20%  
Crash Type

A **Right-Turn Only Lane and Phase** provides a green arrow phase for right-turning vehicles. A right-turn only lane and phase improves safety by removing conflicts between right-turning vehicles and bicyclists or pedestrians crossing the intersection.

Expected Life (Years)	20
Federal Funding Eligibility	90%
Systemic Opportunity	Low

### Road Diet

LRSM ID (R15)

SYSTEMIC



CRF 30%  
Crash Type

A **Road Diet** reduces roadway space dedicated to vehicle travel lanes to create room for bicycle facilities, wider sidewalks, or center turn lanes. A road diet improves safety by reducing vehicle speeds and creating designated space for all road users.

Expected Life (Years)	20
Federal Funding Eligibility	90%
Systemic Opportunity	Medium

### Roundabout

LRSM ID (NS4A)

LOCATION-SPECIFIC



CRF **Varies**  
Crash Type

A **Roundabout** is a large circular island, placed in the middle of an intersection, which direct flow in a continuous circular direction around the intersection. Roundabouts improve safety by reducing the number of conflict points and decreasing vehicle speeds.

Expected Life (Years)	20
Federal Funding Eligibility	100%
Systemic Opportunity	Low

### Speed Hump

LOCATION-SPECIFIC



A **Speed Hump** is a raised area of the road intended to encourage motorists to slow down on long stretches of local streets. A speed hump improves safety at intersections by preventing motorists from driving too fast on roadways with minimal intersection stop controls.

## Signals

LRSM Countermeasure

### Extend Pedestrian Crossing Time

LRSM ID (S3)

LOCATION-SPECIFIC



CRF 15%  
Crash Type

**Extending Pedestrian Crossing Time** increases the time allotted for pedestrians to cross an intersection. Extending pedestrian crossing time improves safety by providing vulnerable populations, such as children and the elderly, more time to cross and by decreasing the likelihood that vehicles with a green light will need to wait for a pedestrian to finish crossing the intersection.

Expected Life (Years)	10
Federal Funding Eligibility	50%
Systemic Opportunity	Very High

### Extend Yellow and All Red Time

LRSM ID (S3)

SYSTEMIC



CRF 15%  
Crash Type

**Extending Yellow and All Red Time** increases the time allotted for the yellow and all red lights during a signal phase. Extending yellow and red time improves safety by allowing drivers and bicyclists to safely cross through a signalized intersection before conflicting traffic movements are permitted to enter the intersection.

Expected Life (Years)	10
Federal Funding Eligibility	50%
Systemic Opportunity	Very High

### Leading Pedestrian Interval

LRSM ID (S3)

SYSTEMIC



CRF 15%  
Crash Type

A **Leading Pedestrian Interval (LPI)** adjusts a traffic signal to allow pedestrians a 3-7 second head start in crossing an intersection before vehicles are given a green light. An LPI improves safety by minimizing conflicts between pedestrians and vehicles and increasing pedestrian visibility.

Expected Life (Years)	10
Federal Funding Eligibility	50%
Systemic Opportunity	High

### Pedestrian Hybrid Beacon

LRSM ID (NS10)

LOCATION-SPECIFIC



CRF 55%  
Crash Type

A **Pedestrian Hybrid Beacon (PHB)**, also known as a HAWK, is a flashing light that is activated by a pedestrian pushing a button or some other form of detection. A PHB functions as a pedestrian-activated signal by requiring vehicles to stop and wait for a signal to proceed. A PHB improves pedestrian safety by providing a pedestrian a designated time to cross the street in locations that do not qualify for the installation of a traffic signal.

Expected Life (Years)	20
Federal Funding Eligibility	100%
Systemic Opportunity	Low



# Focus on Non-Engineering Strategies

## SAFE ROAD USERS

1. Education and Public Awareness Campaigns

2. Partner with Businesses on Hot Spot Corridors

3. High Visibility Enforcement for DUIs ★★★★★ ←

4. Pair education with Key Engineering Countermeasures

5. Safe Ride Home

6. Enforcement Priorities Mandate

## SAFE SPEEDS

7. Speed Limit Modification ★★★★★ ← AB 42

8. Safe Speeds Education Campaign ← resources

## SAFE VEHICLES

9. Emerging Technology, including Autonomous and Connected Vehicles

## POST-CRASH CARE

10. Rapid Response Safety Communication Protocol & Multi-Disciplinary Team

### CTW EFFECTIVENESS RATING

*Countermeasures That Work*,  
National Highway Traffic  
Safety Administration, 2017

### Equity Considerations



# Next Steps



# Grant funding for projects

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- Safe Streets and Roads for All – annual
- Highway Safety Improvement Program (HSIP) – 2024
- Active Transportation Program – 2023/24

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