Local Roadway Safety Plan

Stakeholder Meeting #2

FEHR & PEERS

Welcome and Introductions

City of Walnut Creek Staff

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City of Walnut Creek

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Fehr & Peers Project Team

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Project Manager

Today's Meeting

2:30 – 2:35 PM	Welcome and (Re)Introductions
2:35 – 2:40 PM	Where We Are in the Project
2:40 – 3:15 PM	Collision Profiles and Corresponding Engineering Countermeasures
3:15 - 3:30 PM	Non-Engineering Countermeasures and Safety Partnerships
3:30 – 4:00 PM	Proposed Improvements and Project Next Steps

MEETING GOAL

Develop a **common understanding of prevalent collision profiles** in Walnut Creek and **countermeasures that can be deployed** in response.

Where We Are in the Project

Overview

- Strategic Planning
  Vision Statement and Goals
- Partnerships
  Develop internal partnerships
- Discussion of Existing Efforts
- Systemic and Data-Driven Analysis
- Project Prioritization or Location-Specific Engineering Recommendations
- Strategies for Evaluation and Implementation
- Strategies for Education, Enforcement, and Emergency Services

LRSP Scope


we are here
GATHER & ANALYZE SAFETY DATA
COUNTERMEASURES AND PROJECTS
DRAFT THE LRSP
STAKEHOLDER ENGAGEMENT

Collision Profiles and Corresponding Engineering Countermeasures

Collision Profiles

- We used collision data to find the most common and pressing profiles of collisions in Walnut Creek
- The collisions that fall into these profiles account for 68% of injury collisions, and 78% of KSI collisions
- The data covers collisions resulting in injuries between the years of 2015 to 2021.

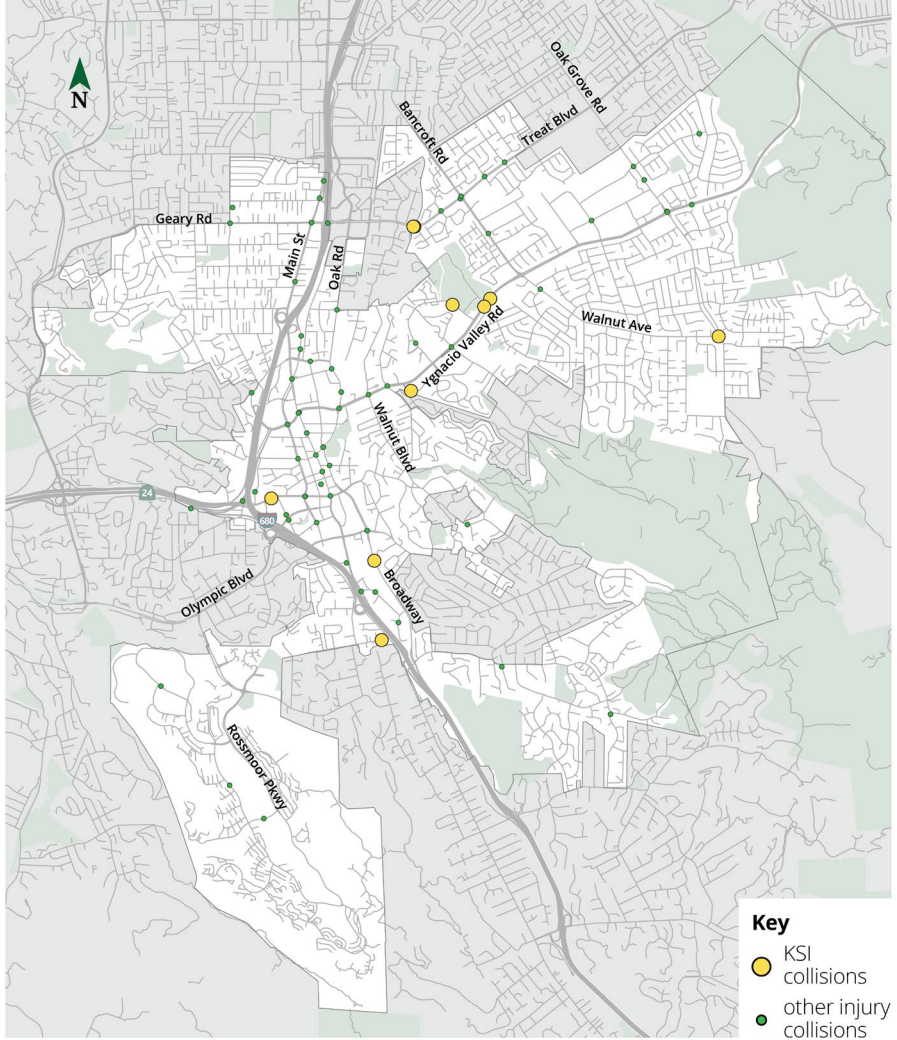
PROFILE 1

Driving Under the Influence

93 total collisions / 12 KSIs
7% of all collisions
20% of all KSIs

6 bike collisions / 2 KSIs
5% of all bike collisions
25% of all bike KSIs

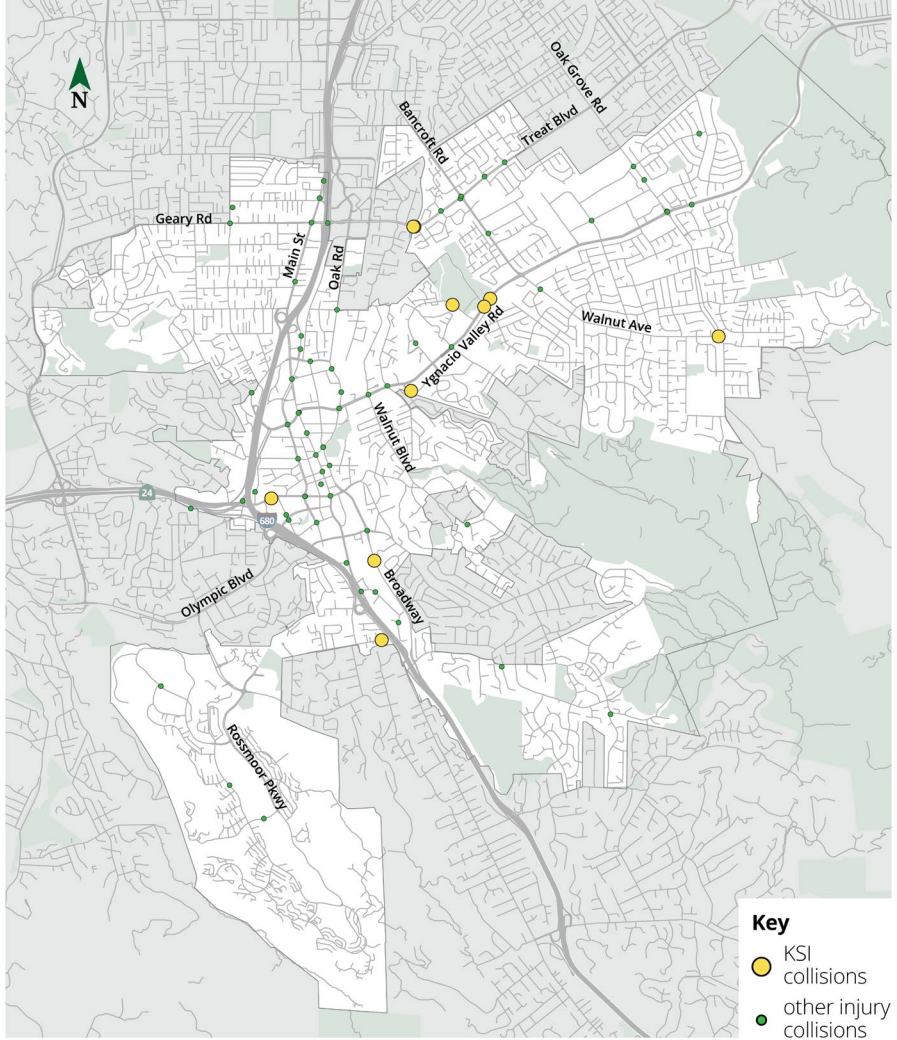
3 ped collisions / no KSIs
2% of all ped collisions



PROFILE 1

Driving Under the Influence

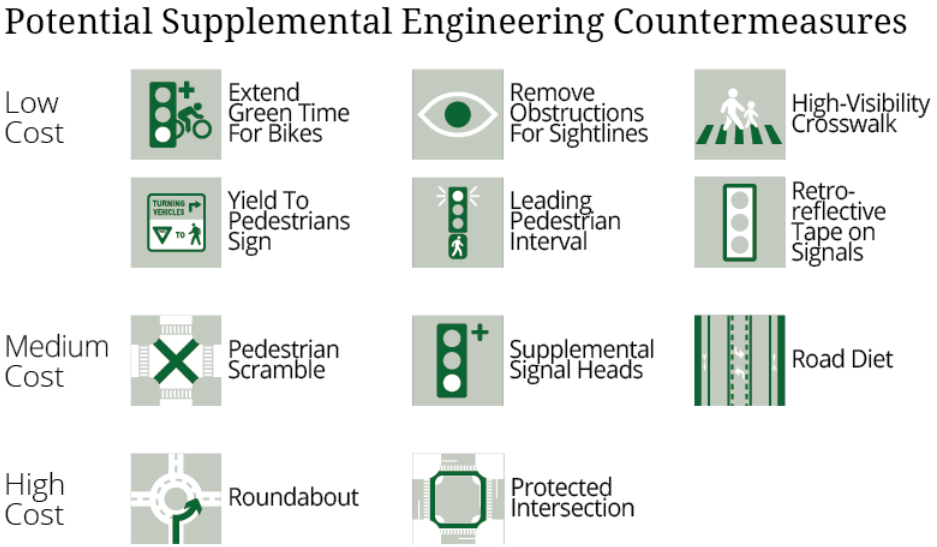
- Accounts for 20% of all KSI collisions in Walnut Creek.
- Not limited to any particular time, day of week, or part of the city.



PROFILE 1

Driving Under the Influence

Non-engineering interventions will be primary response, but may be supplemented with these engineering countermeasures to make roadways more forgiving in general.



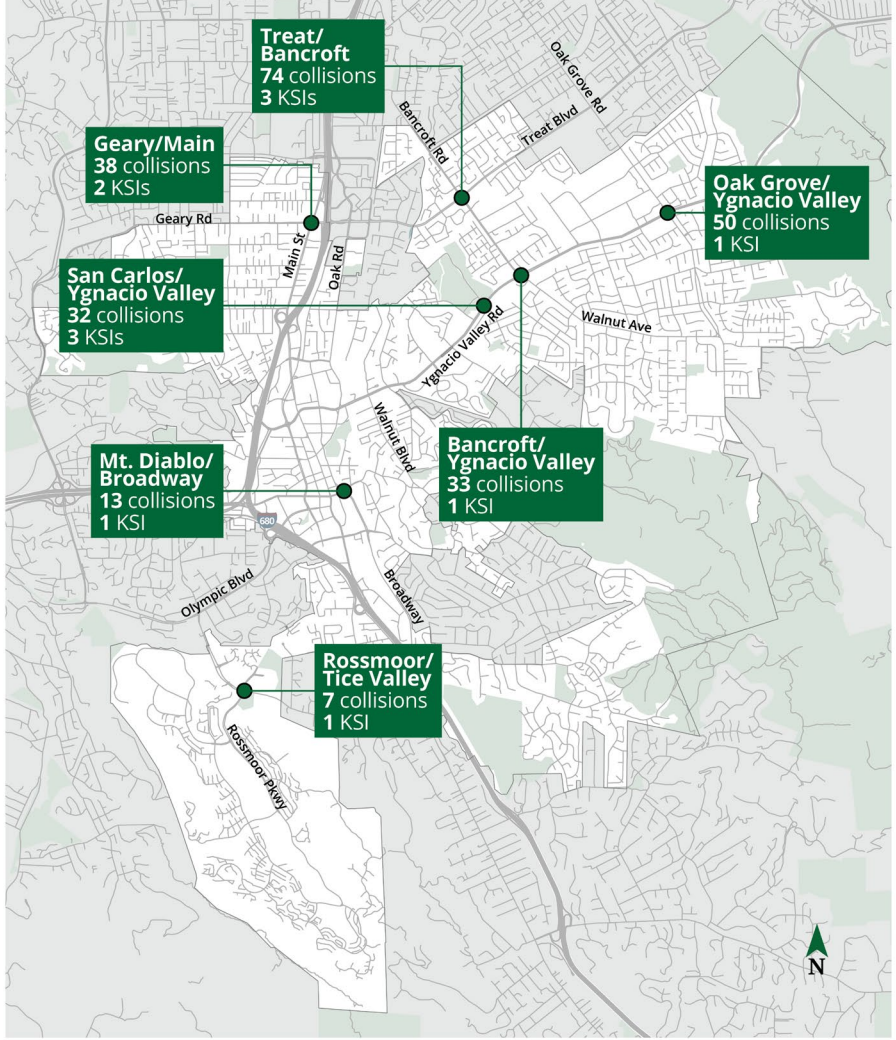
PROFILE 2

Large Intersections with Slip Lanes

247 total collisions / 12 KSIs
19% of all collisions
20% of all KSIs

12 bike collisions / 1 KSI
10% of all bike collisions
13% of all bike KSIs

15 ped collisions / 6 KSIs
9% of all ped collisions
30% of all ped KSIs

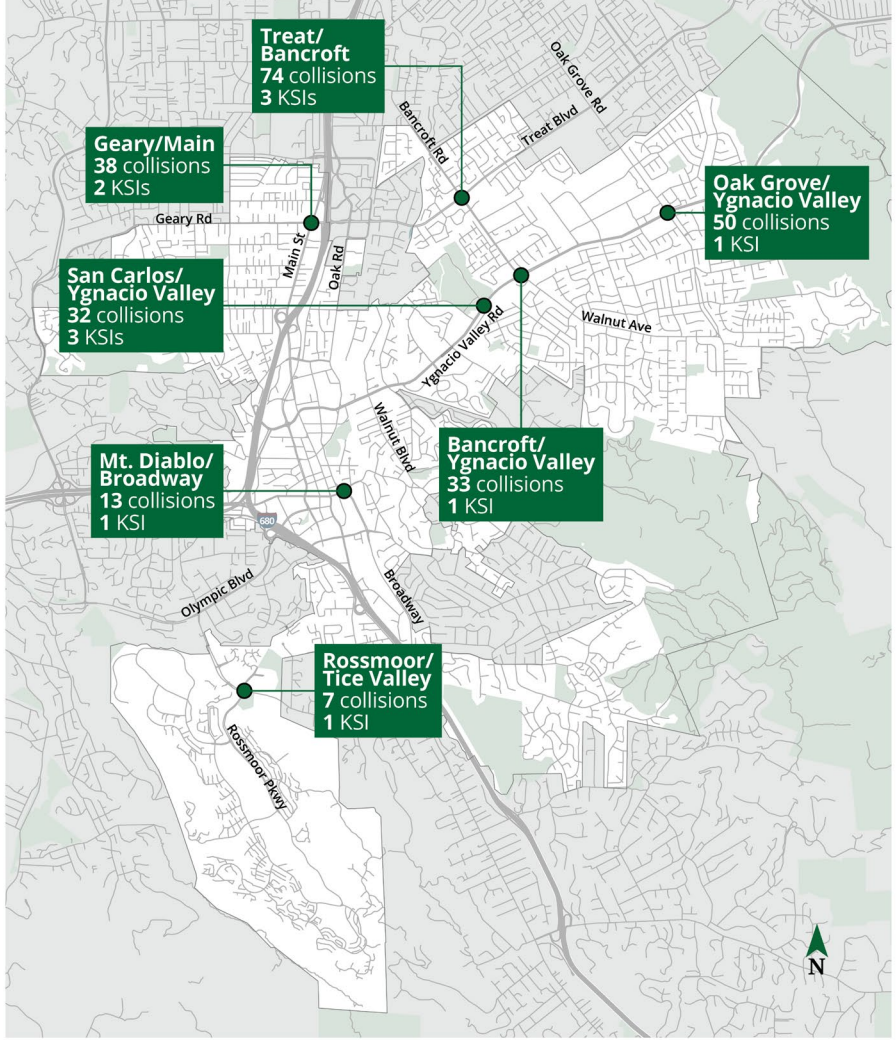


PROFILE 2

Large Intersections with Slip Lanes

A number of risk factors are present in the design of these intersections:

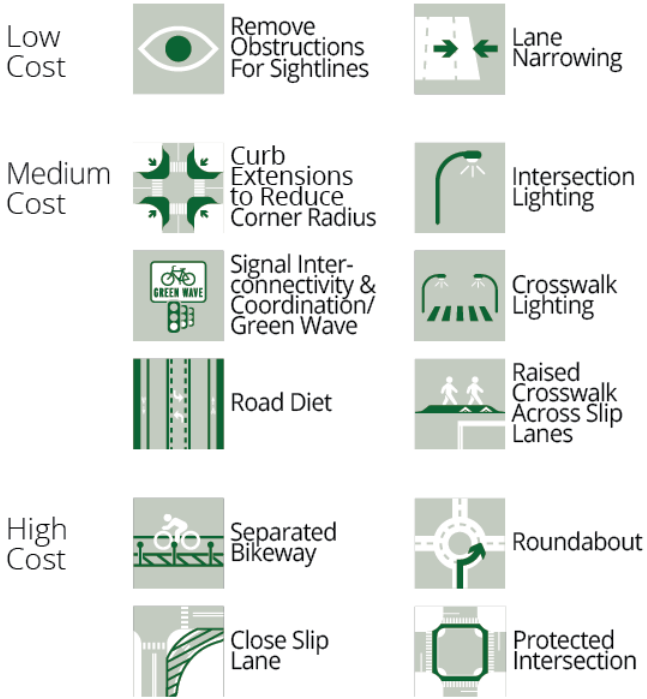
- Fast-moving traffic along wide roads
- Long pedestrian crossing distances
- Missing crosswalk legs.



PROFILE 2

Large Intersections with Slip Lanes

These countermeasures aim to slow traffic moving through the intersections and add redundancy to make the design more forgiving.

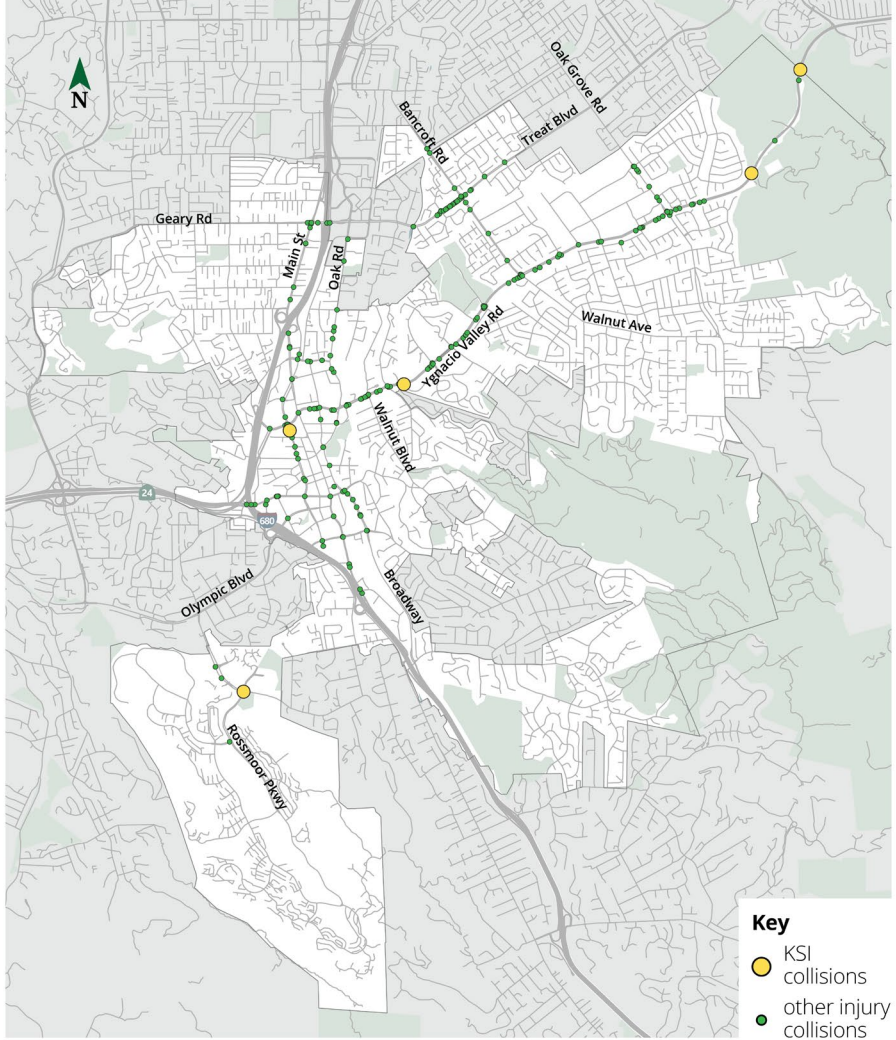


PROFILE 3

Speeding Along Large Roadways

295 vehicle collisions / 5 KSIs
28% of all vehicle collisions
16% of all vehicle KSIs

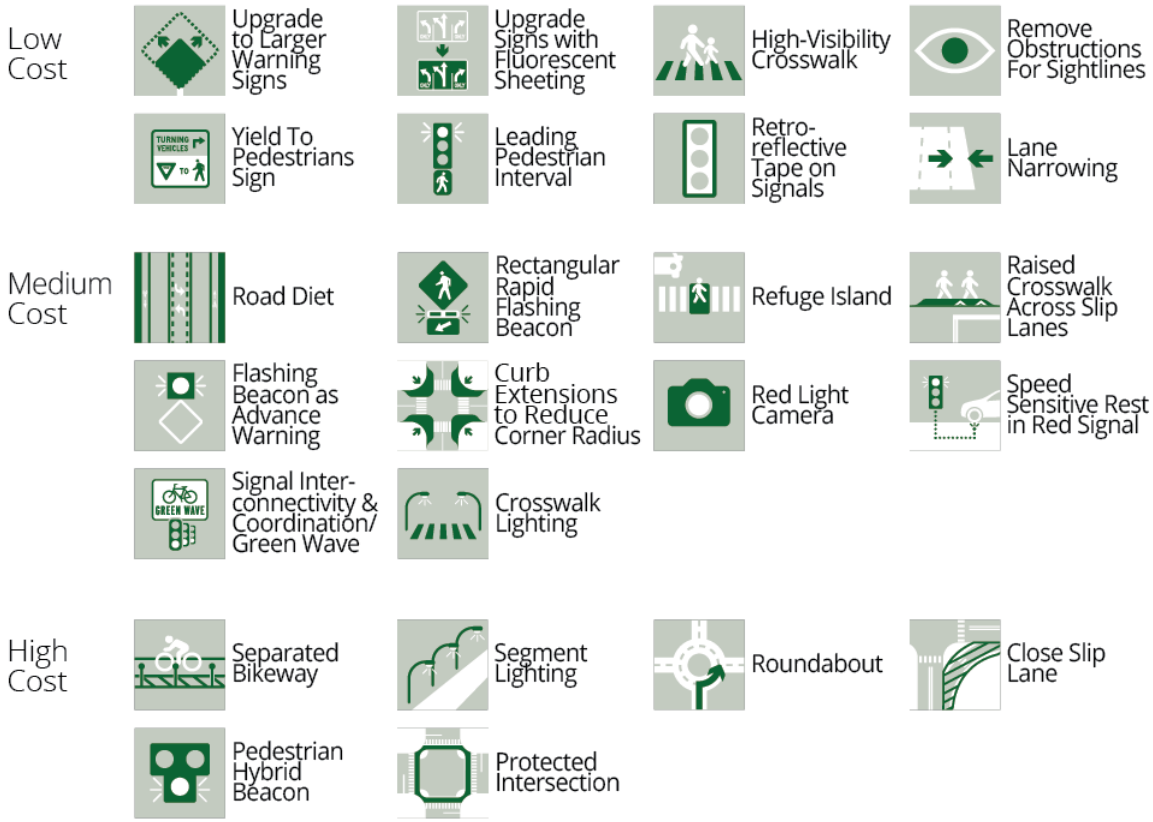
Wide roadways and high lane counts can contribute to excessive speeds, often despite presence of lower speed limits.



PROFILE 3

Speeding Along Large Roadways

These countermeasures aim to slow traffic in areas with pervasive speeding, as well as to calm traffic in areas where speed limits need to be lowered in light of the surrounding land use context, especially in conjunction with new AB 43 allowances.



PROFILE 4

Large Roadways Around Downtown

253 total collisions / 5 KSIs
19% of all collisions
8% of all KSIs

26 bike collisions / 1 KSI
22% of all bike collisions
13% of all bike KSIs

44 ped collisions / 2 KSIs
27% of all ped collisions
10% of all ped KSIs

PROFILE 4

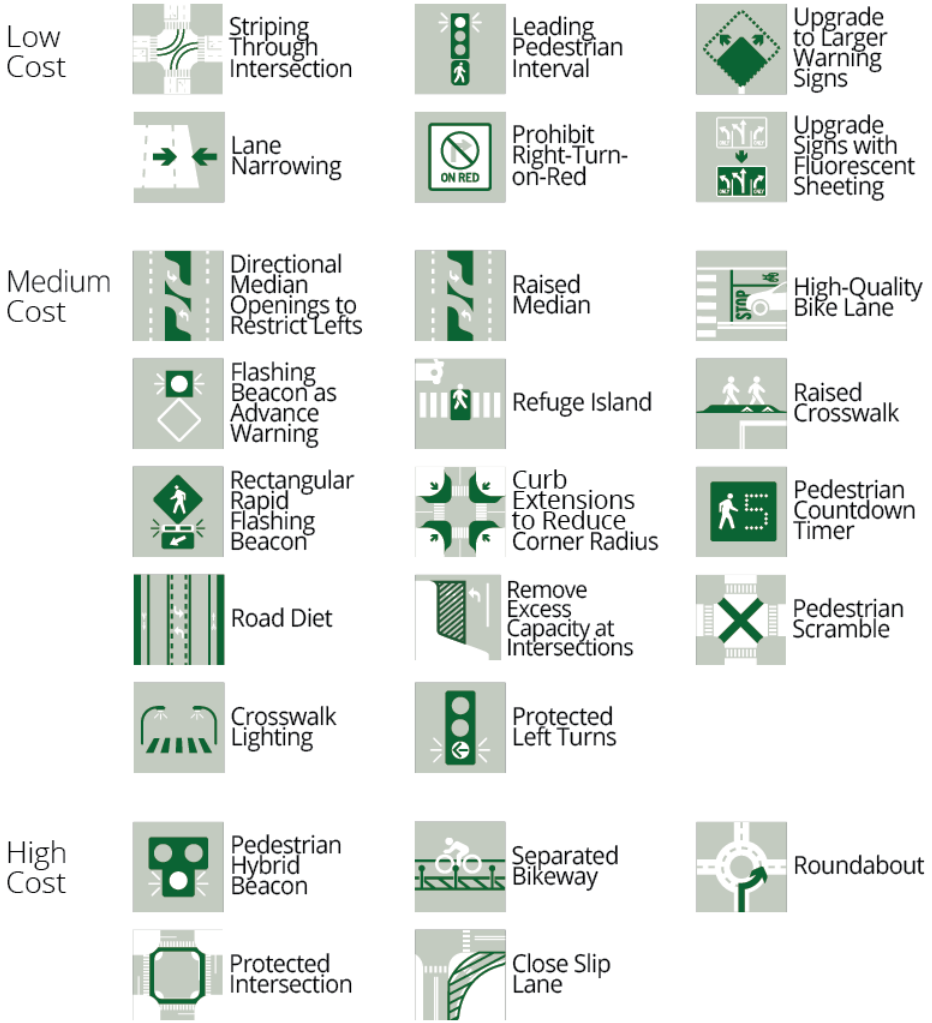
Large Roadways Around Downtown

- High traffic volumes of all modes mixing together spatially
- Complex surrounding context creates numerous points of conflict
- Wide, high-speed arterials are out of place with surrounding context and create risk

PROFILE 4

Large Roadways Around Downtown

These countermeasures aim to slow traffic moving through Downtown and add redundancy to make the design more forgiving.



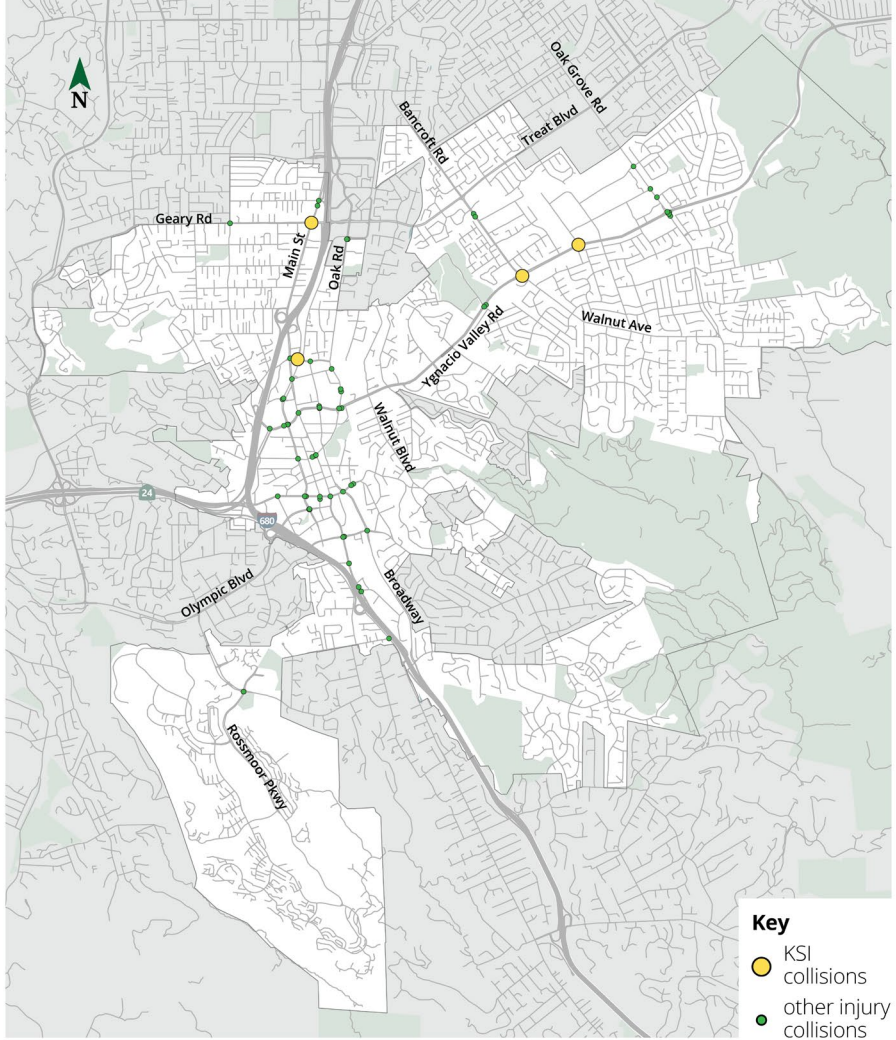
PROFILE 5

Intersections with Permissive Left Signals

206 total collisions / 4 KSIs
15% of all collisions
7% of all KSIs

17 bike collisions / no KSIs
15% of all bike collisions

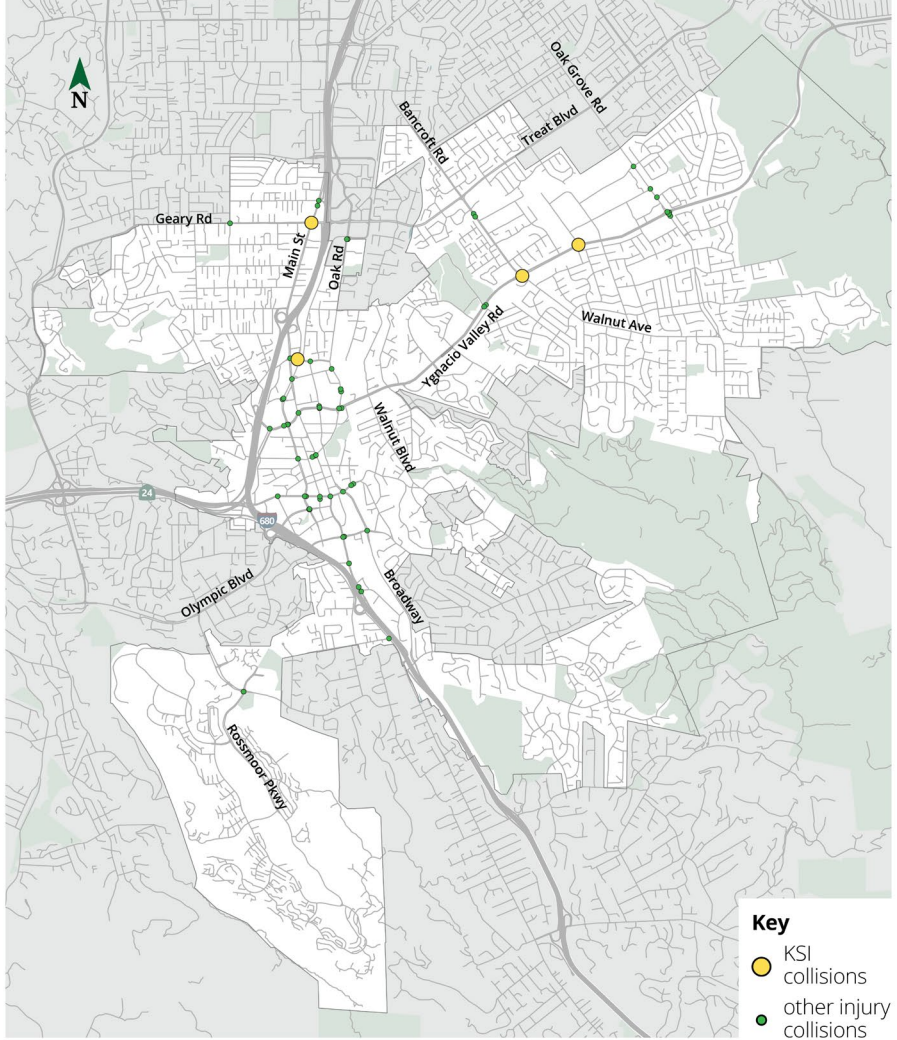
20 ped collisions / 1 KSI
12% of all ped collisions
5% of all ped KSIs



PROFILE 5

Intersections with Permissive Left Signals

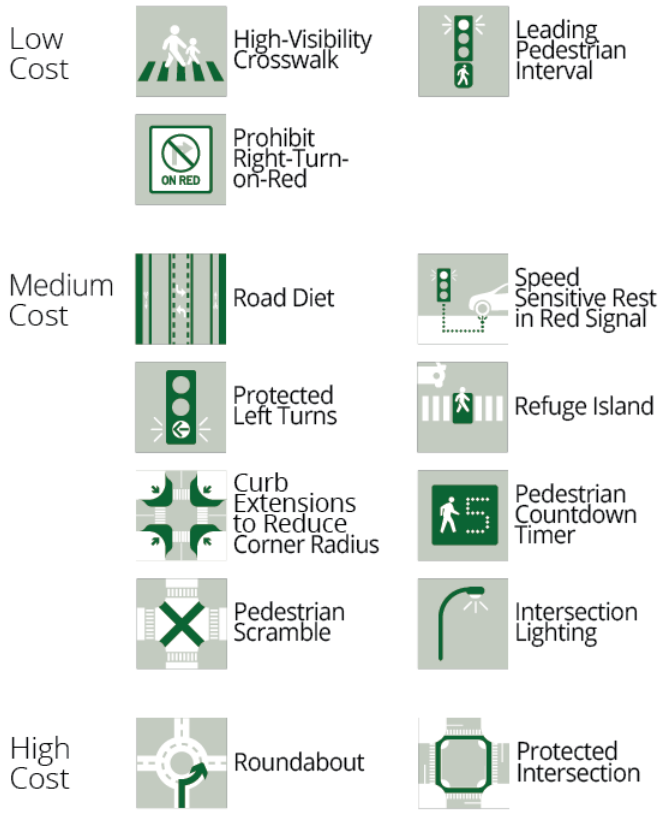
- Left-turns are generally acknowledged to be riskiest movement at intersections due to the number of conflict points
- Permissive lefts are especially hazardous due to high traffic volumes and speeds and potential confusion over right-of-way



PROFILE 5

Intersections with Permissive Left Signals

These countermeasures that modify signal operations, such as conversion to protected left turns, among others, can be introduced to alleviate these risks.



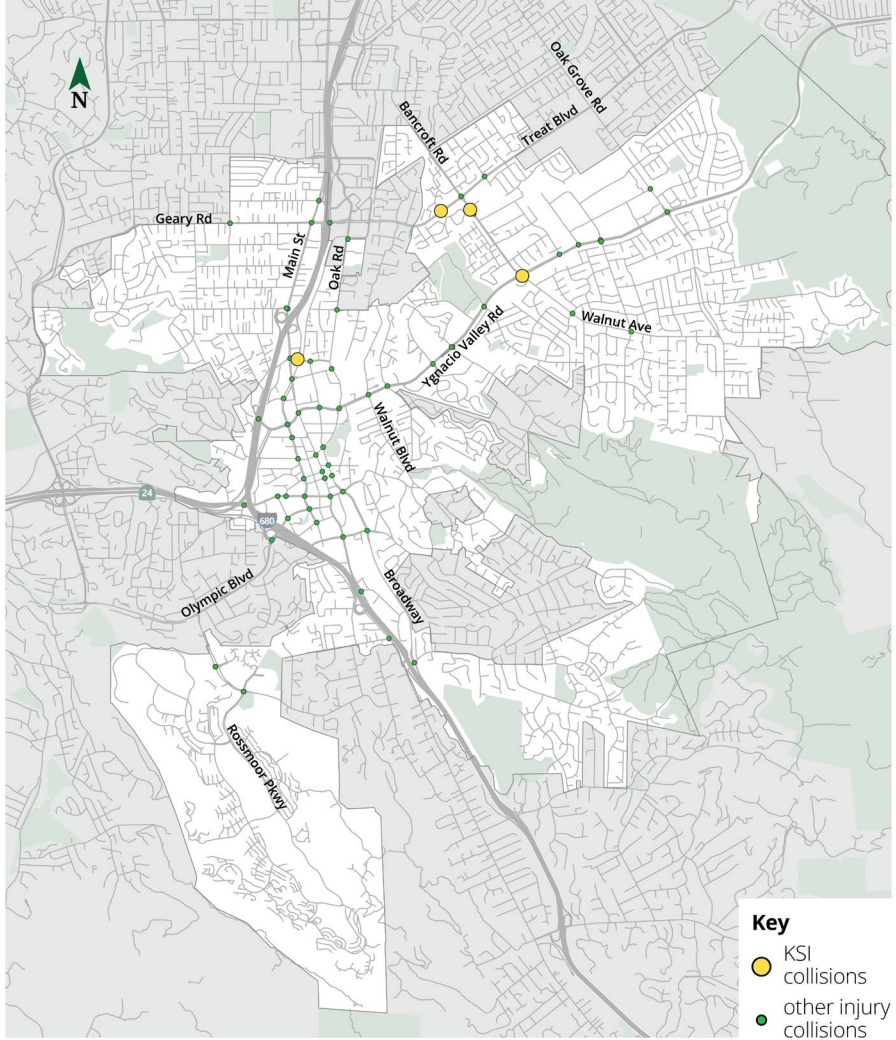
PROFILE 6

Red Light Running

133 total collisions / 4 KSIs
10% of all collisions
7% of all KSIs

10 bike collisions / 1 KSI
9% of all bike collisions
13% of all bike KSIs

3 ped collisions / 1 KSI
2% of all ped collisions
5% of all ped KSIs

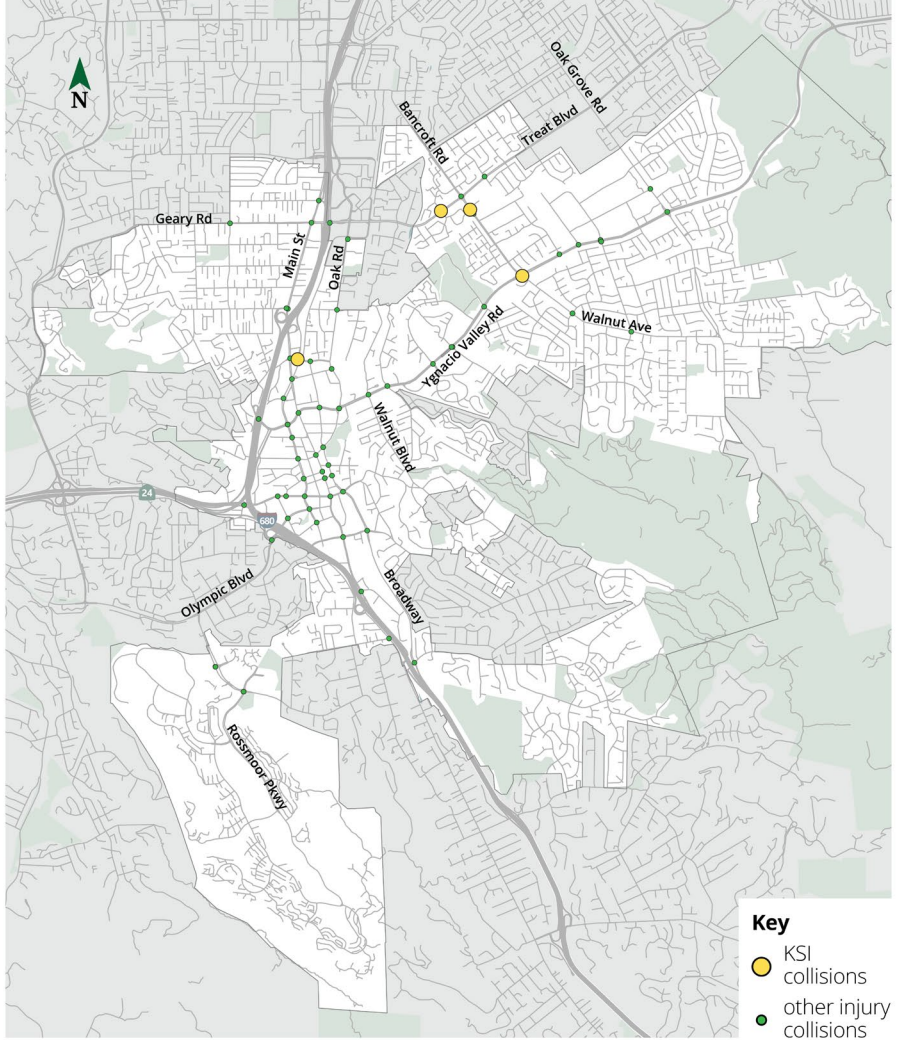


PROFILE 6

Red Light Running

A number of risk factors are present in the design of these intersections:

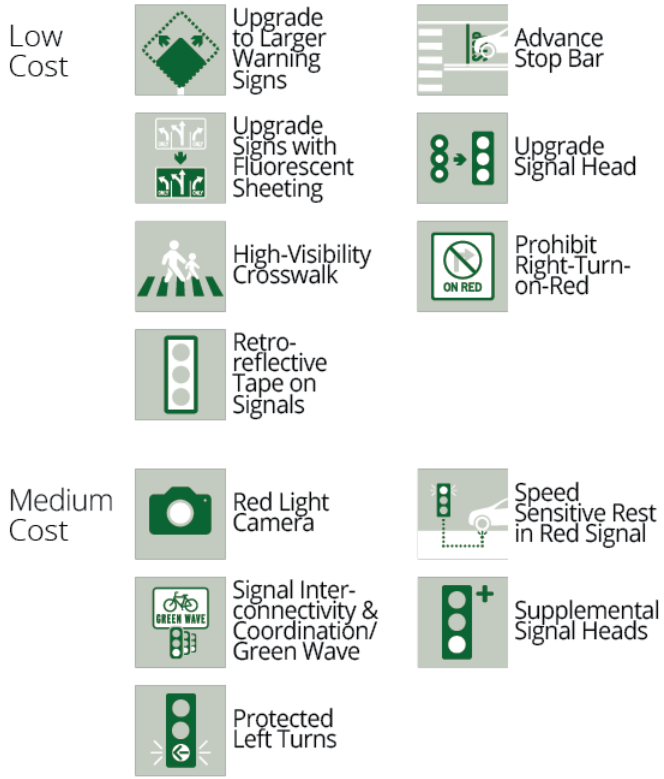
- Fast-moving traffic along wide roads
- Long pedestrian crossing distances
- Missing crosswalk legs.



PROFILE 6

Red Light Running

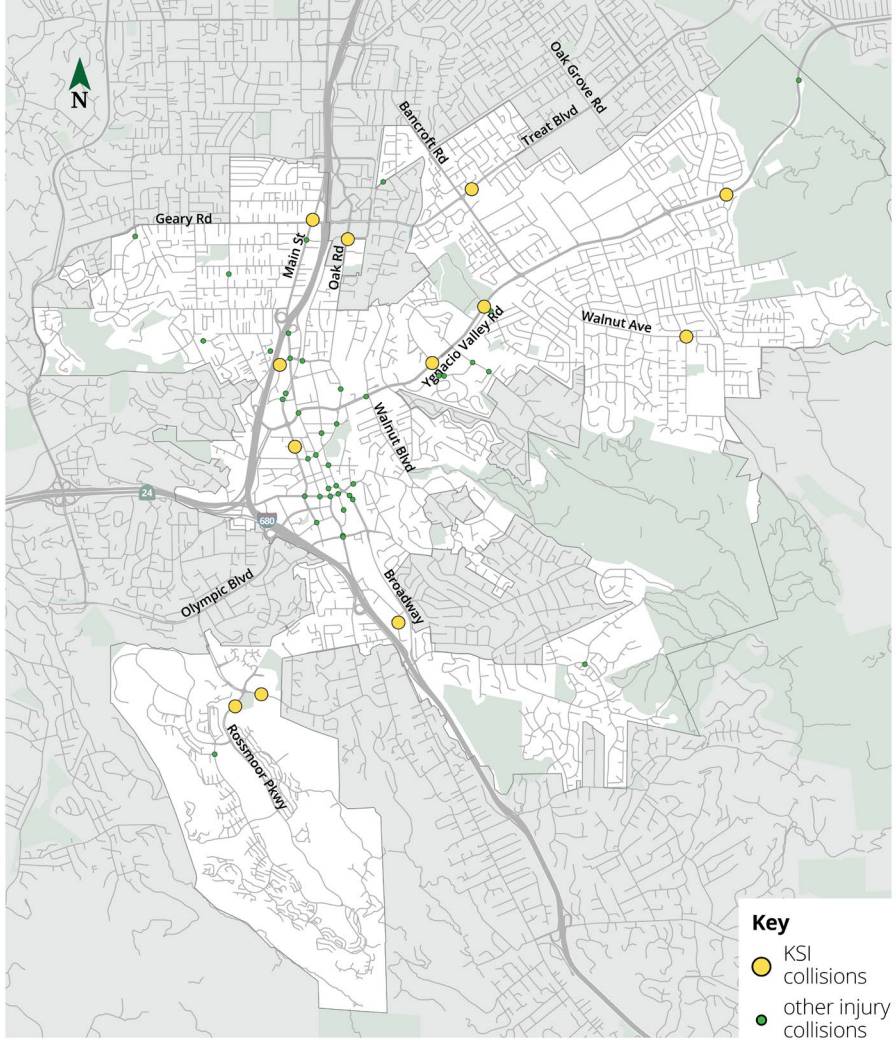
Red light violations occur throughout the City and reduce the efficacy of safety features. Non-engineering interventions like targeted and automated enforcement will be needed, but may be supplemented with these countermeasures, which are general ways to enhance safety at signalized intersection.



PROFILE 7

Pedestrians in the Dark

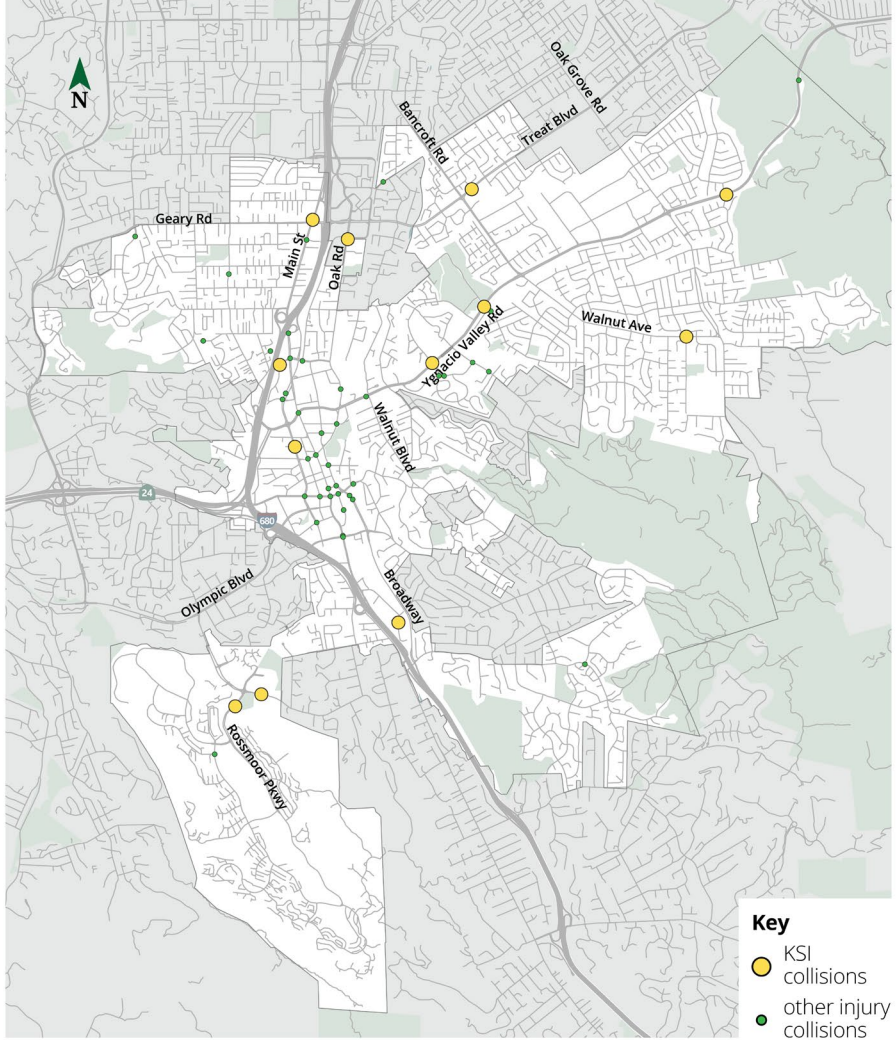
57 ped collisions / 12 KSIs
35% of all ped collisions
60% of all ped KSIs



PROFILE 7

Pedestrians in the Dark

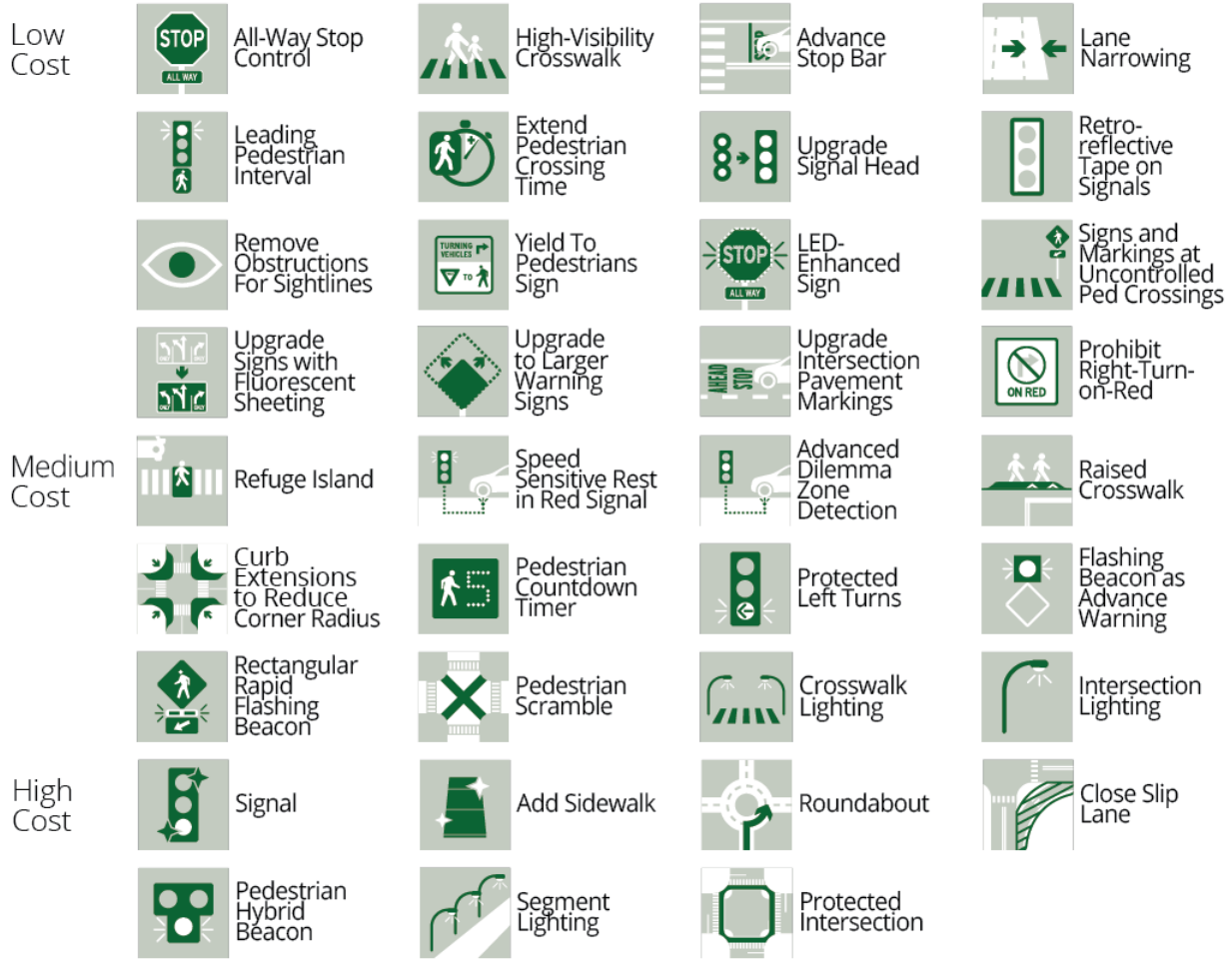
More than a third of pedestrian collisions in Walnut Creek and over half of pedestrian KSI collisions happen in the dark. While most occur in areas with streetlights, the quality, intensity, spacing, and brightness of that lighting can vary, as streetlights are often designed primarily to illuminate the roadway for vehicles.



PROFILE 7

Pedestrians in the Dark

These countermeasures aim to slow traffic and increase lighting and visibility of pedestrians on sidewalks and at crossings, especially in areas with high pedestrian activity.

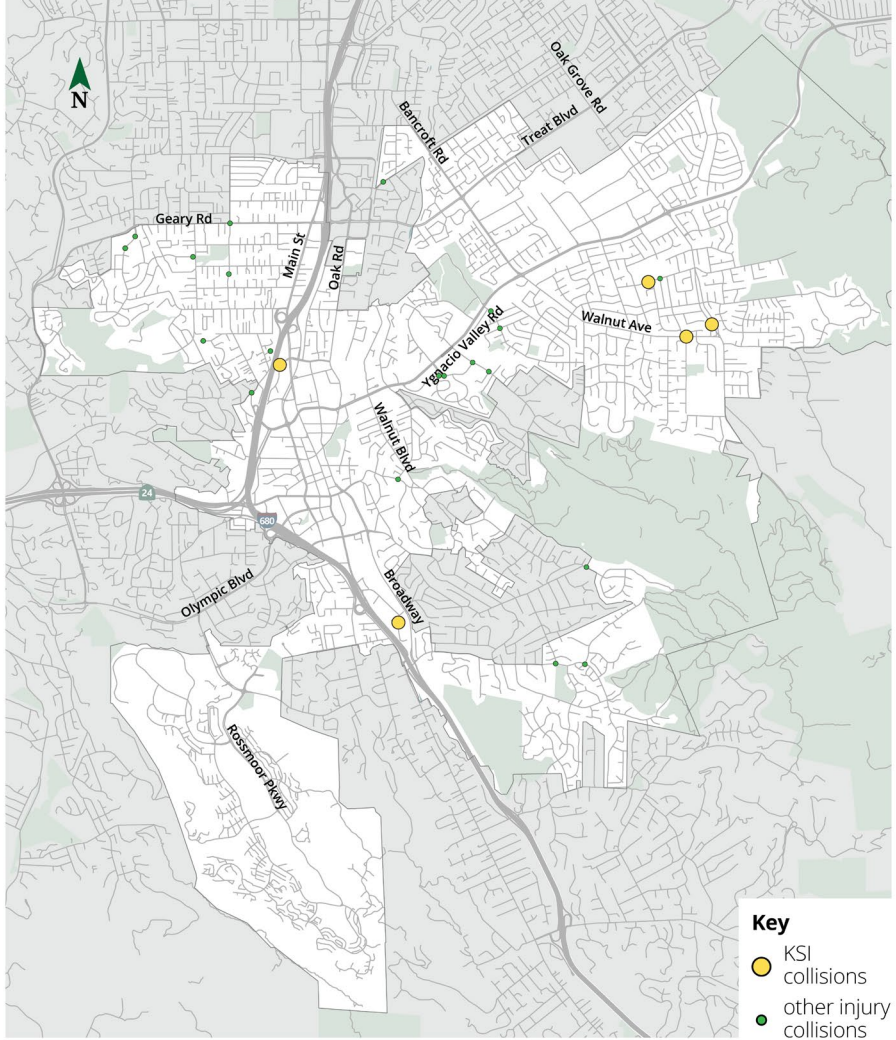


PROFILE 8

Pedestrians in Residential Areas

26 ped collisions / 5 KSIs
16% of all ped collisions
25% of all ped KSIs

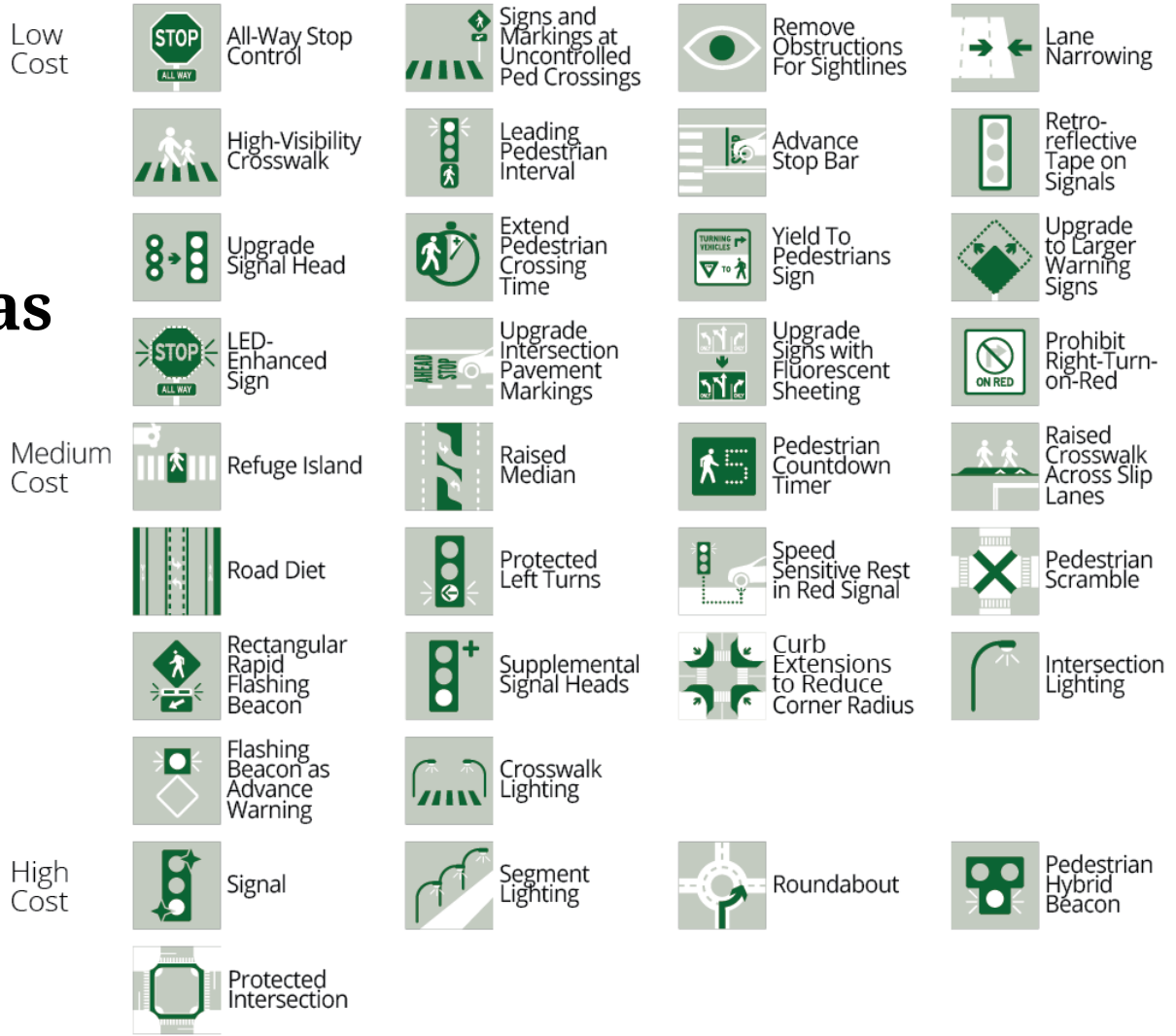
There are a number of smaller arterial and collector streets through residential neighborhoods designed for lower traffic volumes than they currently serve, and now pose safety risks.



PROFILE 8

Pedestrians in Residential Areas

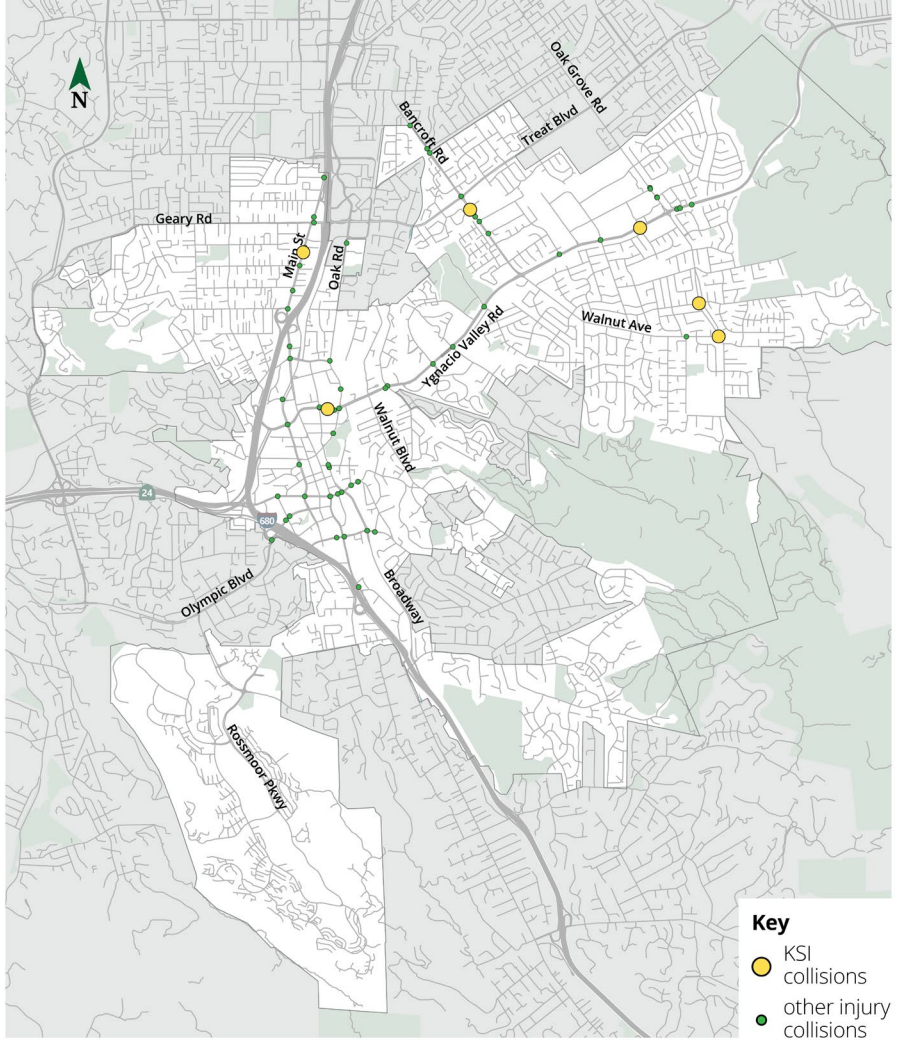
These countermeasures are examples of possible upgrades to the design of neighborhood arterial and collector streets as the population of Walnut Creek continues to rise and traffic volumes continue to grow.



PROFILE 9

Bicycles Along Wide Roadways

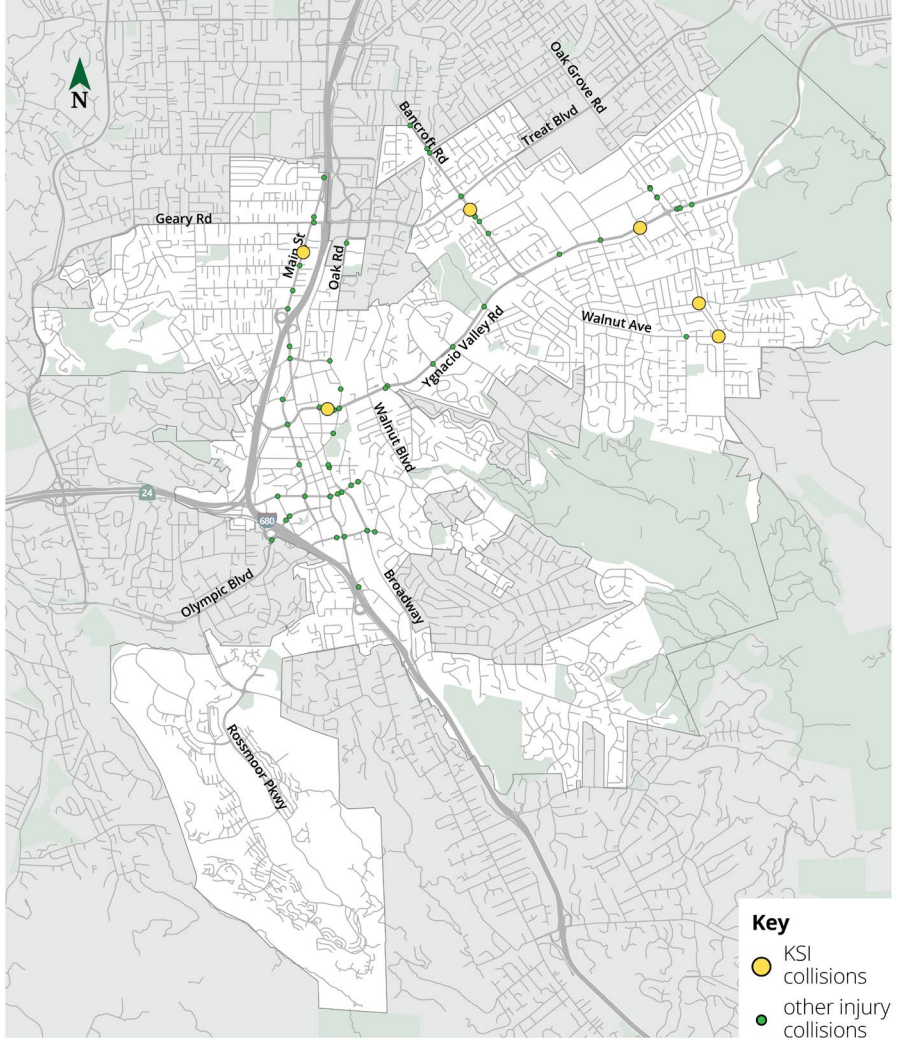
82 bike collisions / 6 KSIs
71% of all bike collisions
75% of all bike KSIs



PROFILE 9

Bicycles Along Wide Roadways

- The vast majority of bike collisions occur on large, multi-lane roadways designed for vehicle throughput.
- Several of these roadways have unseparated bike lanes that provide minimal separation and protection from high-speed traffic.
- At intersections, there are more potential conflicts as the traffic mixes.



PROFILE 9

Bicycles Along Wide Roadways

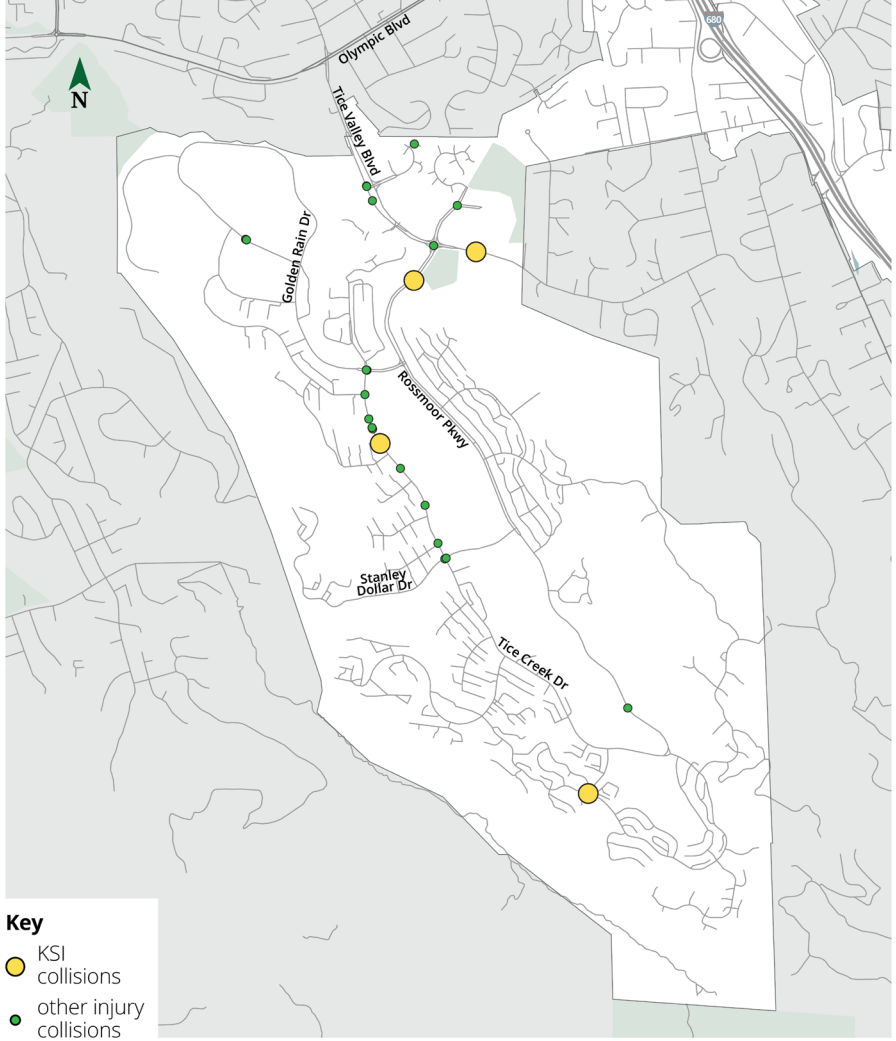
Bike facilities, especially unprotected ones, along high-speed roadways result in high stress for bicyclists and these countermeasures aim to provide context-appropriate bicycle facilities.

PROFILE 10

ROW Violations in Rossmoor

30 total collisions / 4 KSIs
57% of all collisions
(in Rossmoor)
57% of all KSIs
(in Rossmoor)

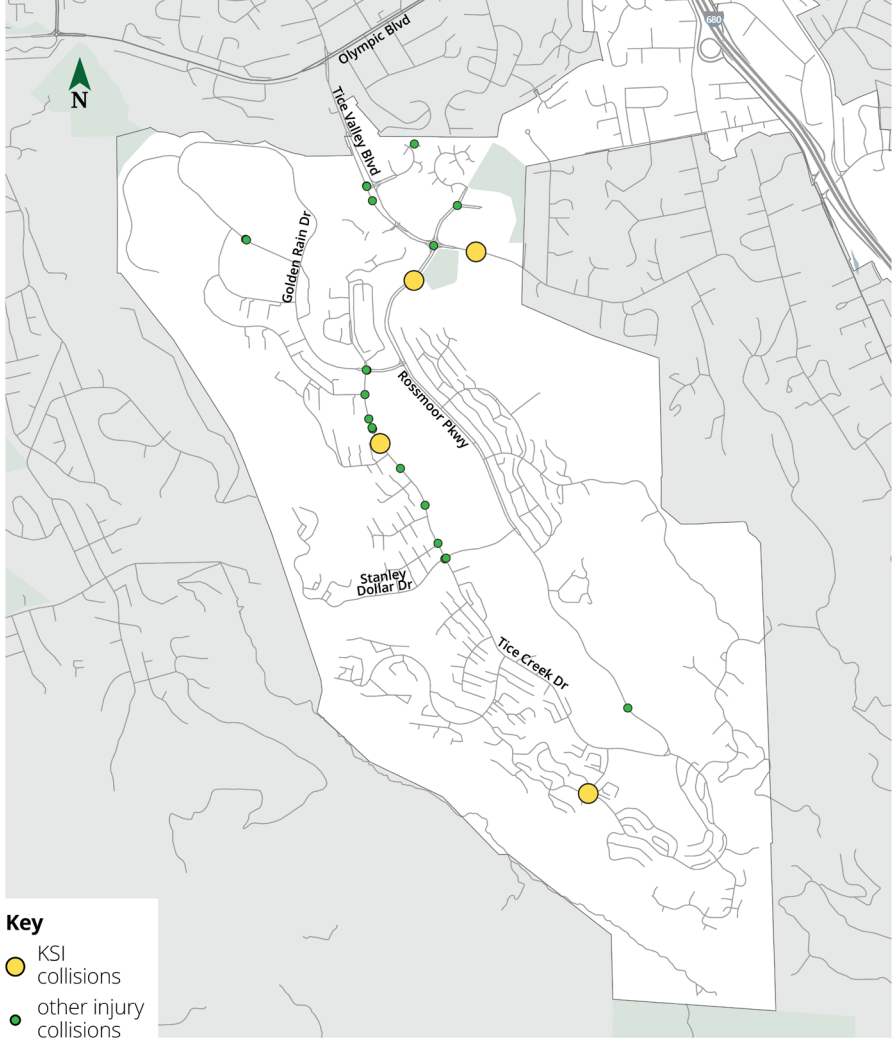
7 ped collisions / 3 KSI
58% of all ped collisions
(in Rossmoor)
75% of all ped KSIs
(in Rossmoor)



PROFILE 10

ROW Violations in Rossmoor

Due to the special characteristics of the Rossmoor community, a community-specific analysis of the collisions was performed. The most common cause of collisions in the community are right-of-way violations, including signals and signs violations, vehicle right-of-way violations, pedestrian right-of-way violations, and improper turning violations.



Your Thoughts?

- The collisions that fall into these profiles account for 68% of injury collisions, and 78% of KSI collisions
- Were there any collision profiles that you feel are expected or easily observed from your experience in Walnut Creek?
- Were there any collision profiles that were surprising to you or that you hadn't thought of before?

Non-Engineering Countermeasures and Safety Partnerships

Education

- For vulnerable groups
- For youth
- For bicyclists
- On roadway changes such as newly-implemented countermeasures

Enforcement

- Targeted enforcement (at specific locations or times)
- High-visibility enforcement
- Automated enforcement?

Policy Changes

- Expanding Safe Routes to School
- Neighborhood slow zones
- Speed limit modification

Partner with Local Businesses and Stakeholders

- Safe ride home programs (at bars, for example)
- Partner with local experts and businesses at hotspots

“Routine Maintenance”

- Keep roadways clear of debris
- Improve crash data collection, sharing, and tracking
- Pilot demonstration safety projects

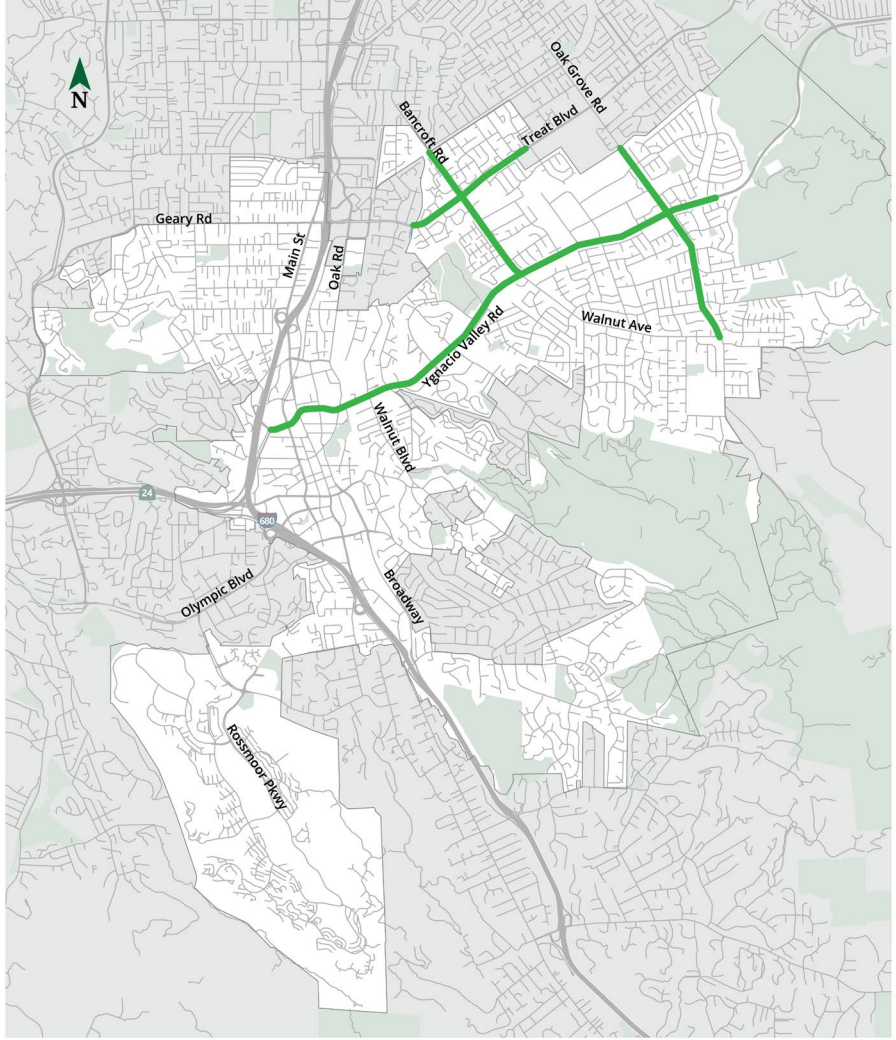
Your Thoughts?

- What existing programs are working? Not working?
- Any new ideas for partnership come to mind, especially in relation to these identified needs?

Proposed Improvements

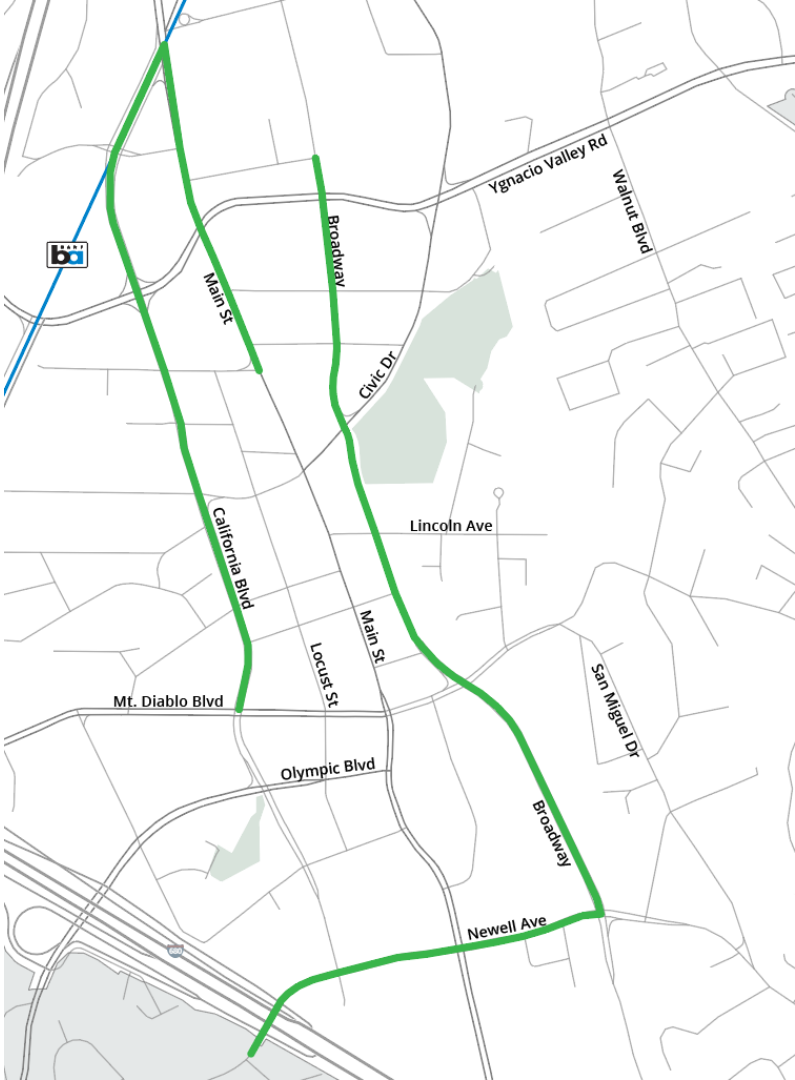
Improvements Along Large Arterials

- Addresses Profiles 2, 3, and 9
- Improvements to slip lanes, upgrades to bike facilities, and modifications to uncontrolled pedestrian crossings
- Candidate corridors include:
  - Treat Blvd
  - Oak Grove Rd
  - Ygnacio Valley Rd
  - Bancroft Rd



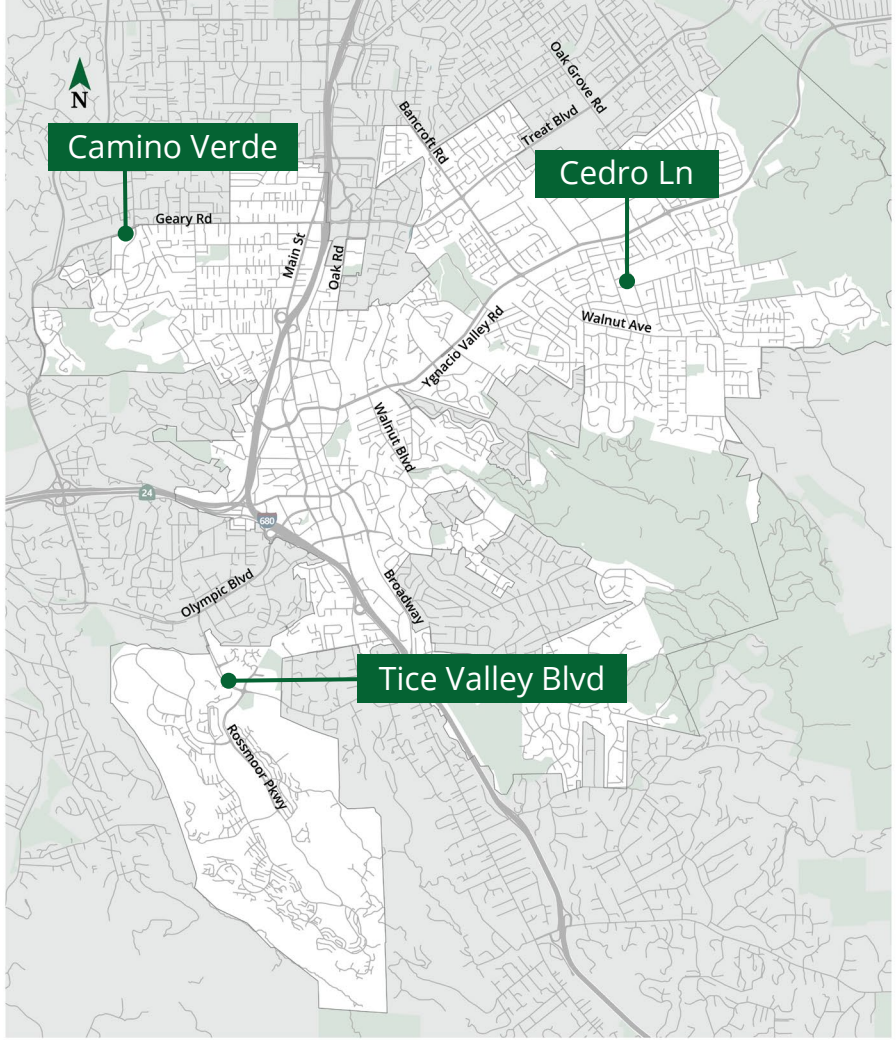
Improvements in Downtown

- Addresses Profile 4
- Improvements to larger roadways around Downtown that serve as barriers to bike & ped access
- Candidate corridors include:
  - N Broadway
  - N California Ave
  - N Main St
  - Newell Ave



Other Proposed Improvements

- Candidate projects as shown
- Addresses Profiles 8 and 10



Next Steps

Monitoring Outcomes

- Collision numbers tracked year-over-year (overall and mode/profile-specific) through periodic engagement with data
- Speed reductions at identified hotspots (through traditional speed surveys or Big Data sources)
- Number of projects implemented
- Stakeholder and community input through the working group

Draft LRSP

- **Evaluation & Implementation**
  Identify strategies and tools for monitoring performance, funding sources, and roles and responsibilities
- **Local Road Safety Plan**
  One consolidated report that can act as a roadmap for City staff


East Esplanade Avenue | Hewitt Street to Meridian Street

TYPE OF EMPHASIS AREA
CORRIDOR HOT SPOT

COLLISION SUMMARY
28 TOTAL COLLISIONS
3 KSI COLLISIONS
6 BICYCLE AND PEDESTRIAN COLLISIONS
1 BICYCLE AND PEDESTRIAN KSI COLLISIONS

LOCATION SUMMARY
VIOLATIONS
› Unsafe speed
› Pedestrian Crossing Outside Crosswalk
COLLISION TYPES
› Broadside
› Victims Under 19
ROADWAY AND CONTEXTUAL FACTORS
› 4 Lanes
› 40 mph speed limit
› Curves
› Major unsignalized intersections

GOALS
› Increase pedestrian visibility with enhanced striping and signage, especially near schools and parks.
› Identify locations with high pedestrian activity without marked crossing opportunities.
› Encourage multi-modal transportation with multi-modal infrastructure and lower vehicle speeds.
› Increase driver awareness of curves.

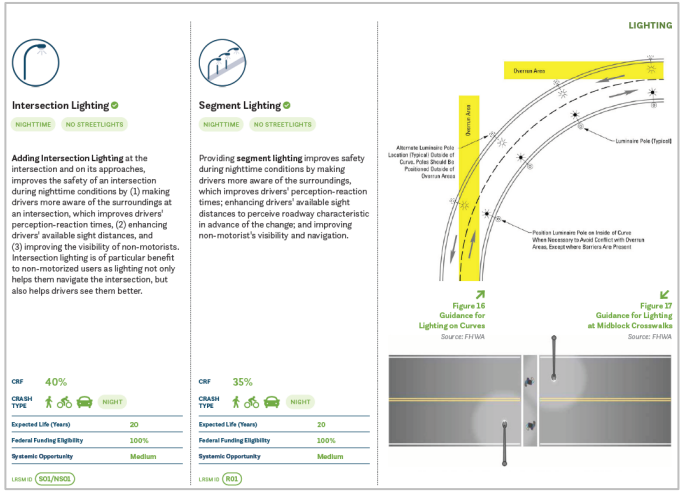
RELEVANT GRANT OPPORTUNITIES
HSIP ATP SB821

NEAR SCHOOL NEAR RETAIL NEAR PARK IN DISADVANTAGED COMMUNITY

PRIMARY COUNTERMEASURES
Swap ? for source and limitations of data, including costs.

COUNTERMEASURE		ISSUE AREA	TIME FRAME	UNIT COST	BENEFIT
Speed Feedback Sign	To Address	Unsafe Speeding	Short	$22,500 each	N/A
Flashing Beacons as Advanced Warning	To Address	Broadside, Curves	Medium	$20,000 each	$2.7m
Rectangular Rapid Flashing Beacon	To Address	Pedestrian Crossing Outside Crosswalk	Medium	$40,000 per crossing	$3.7m
Install Additional Warning Signs	To Address	Broadside	Medium	$350 each	$2.7m
Uncontrolled Pedestrian Crossing with Enhanced Safety Features	To Address	Pedestrian Crossing Outside Crosswalk	Medium	$35 lf + add'l elements	$3.7m
Turn Restrictions/Medians	To Address	Broadside	Medium	$60 per sf	$13.2m
All-Way Stop Control	To Address	Broadside, Pedestrian Crossing Outside Crosswalk	Medium	$800 per location	$9.2m
Road Diet	To Address	Unsafe Speed	Long	$80,000 per mile	$10.9m

SECONDARY COUNTERMEASURES
› Raised Pedestrian Crossing
› Pedestrian Refuge Island
› Curb Extensions
› Separated Bike Lanes


Intersection Lighting
NIGHTTIME NO STREETLIGHTS
Adding Intersection Lighting at the intersection and on its approaches, improves the safety of an intersection during nighttime conditions by (1) making drivers more aware of the surroundings at an intersection, which improves drivers' perception-reaction times, (2) enhancing drivers' available sight distances, and (3) improving the visibility of non-motorists. Intersection lighting is of particular benefit to non-motorized users as lighting not only helps them navigate the intersection, but also helps drivers see them better.

CRF 40%
CRASH TYPE NIGHT

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

LRSM ID S01/WS01

Segment Lighting
NIGHTTIME NO STREETLIGHTS
Providing **segment lighting** improves safety during nighttime conditions by making drivers more aware of the surroundings, which improves drivers' perception-reaction times; enhancing drivers' available sight distances to perceive roadway characteristic in advance of the change; and improving non-motorist's visibility and navigation.

CRF 35%
CRASH TYPE NIGHT

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

LRSM ID R01

LIGHTING
Figure 16 Guidance for Lighting on Curves
Source: FHWA
Figure 17 Guidance for Lighting at Midblock Crosswalks
Source: FHWA

Thank You!