VISION ZERO SACRAMENTO

ACTION PLAN

ADOPTED AUGUST 14, 2018

Every three days, someone is killed or seriously injured on Sacramento's streets. On January 19, 2017, the City Council issued a call to action by adopting a resolution with the following goal:

The City of Sacramento will work collaboratively in a data-driven effort to eliminate traffic fatalities and serious injuries by 2027.

To help reach this goal, the City developed this Action Plan. The Plan uses historic crash data to pinpoint the factors contributing to traffic deaths and serious injuries, and it identifies proven safety countermeasures to address those factors through education, engineering, enforcement, and evaluation.

Vision Zero is an international traffic safety philosophy that rejects the notion that traffic crashes are simply "accidents," but instead preventable incidents that can and must be systematically addressed. Through Vision Zero, the City of Sacramento and its partners are committed to working together, supported by a comprehensive data-driven process, to create safer streets and bring the number of people killed or seriously injured down to zero.

Through Vision Zero, Sacramento approaches transportation safety differently – not only addressing spot improvements but taking a systematic and comprehensive approach to our transportation environment.

Tackling such a complex challenge requires reaching across multiple disciplines, working together to evaluate data differently, and investing financial and staff resources in transportation safety.

Photographs provided by the City of Sacramento & Fehr & Peers

Design & Layout by Fehr & Peers

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VISION ZERO SACRAMENTO

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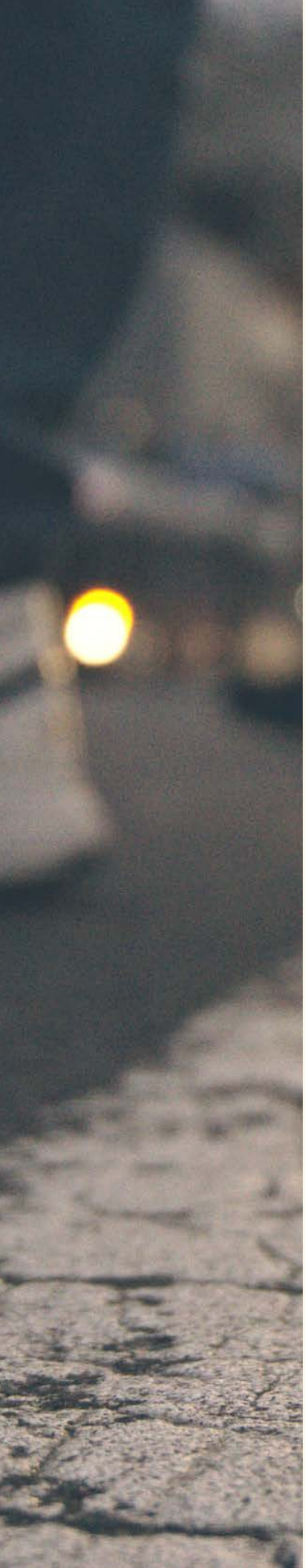
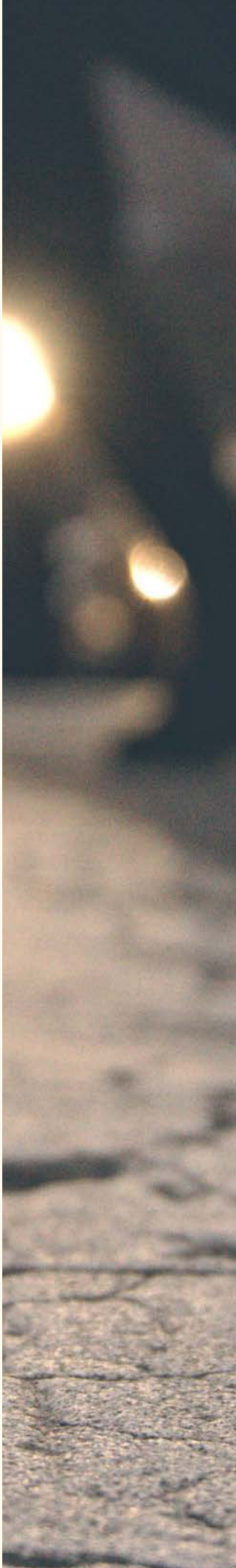


VISION ZERO TASK FORCE

Reaching the Vision Zero goal requires a strategic planning effort to build community consensus and regional political support. As part of Sacramento's Vision Zero initiative, a multidisciplinary task force was convened to incorporate the unique perspectives of a variety of stakeholders and guide the development of the Action Plan. Task Force members include local government agencies and partner organizations, such as:

- AARP
- City of Sacramento Fire Department
- City of Sacramento Community Development Department
- City of Sacramento Police Department
- City of Sacramento Public Works Department
- Sacramento County Health and Human Services
- California State Office of Traffic Safety
- Resources for Independent Living
- Sacramento Area Council of Governments (SACOG)
- Sacramento Area Bicycle Advocates
- Sacramento City/County Bicycle Advisory Committee (SacBAC)
- Sacramento City Unified School District
- Sacramento Disabilities Advisory Commission
- Sacramento Regional Transit
- Society for the Blind
- WALKSacramento

VISION ZERO SACRAMENTO



LETTER FROM THE MAYOR

Members of the Community:

I am pleased to present the City of Sacramento's Vision Zero plan to eliminate all traffic fatalities and serious injuries by 2027. No fatality or serious injury is acceptable on our streets. Crashes are too often preventable incidents that can be addressed through engineering, enforcement, and education.

Making our transportation network safer for people to walk, bike, drive, or use their mobility devices to get where they need to go is at the core of what we do as stewards of City resources. Our City fabric is made stronger by increasing the connectivity of its residents.

The effort to achieve this goal will be comprehensive, collaborative, and equitable. The commitment we make with this plan -- and the projects we will undertake to implement it – will help to strengthen and revitalize our communities, and is part of the City's overall effort to enhance opportunities for residents to live prosperous lives in healthy, sustainable, and safe communities.

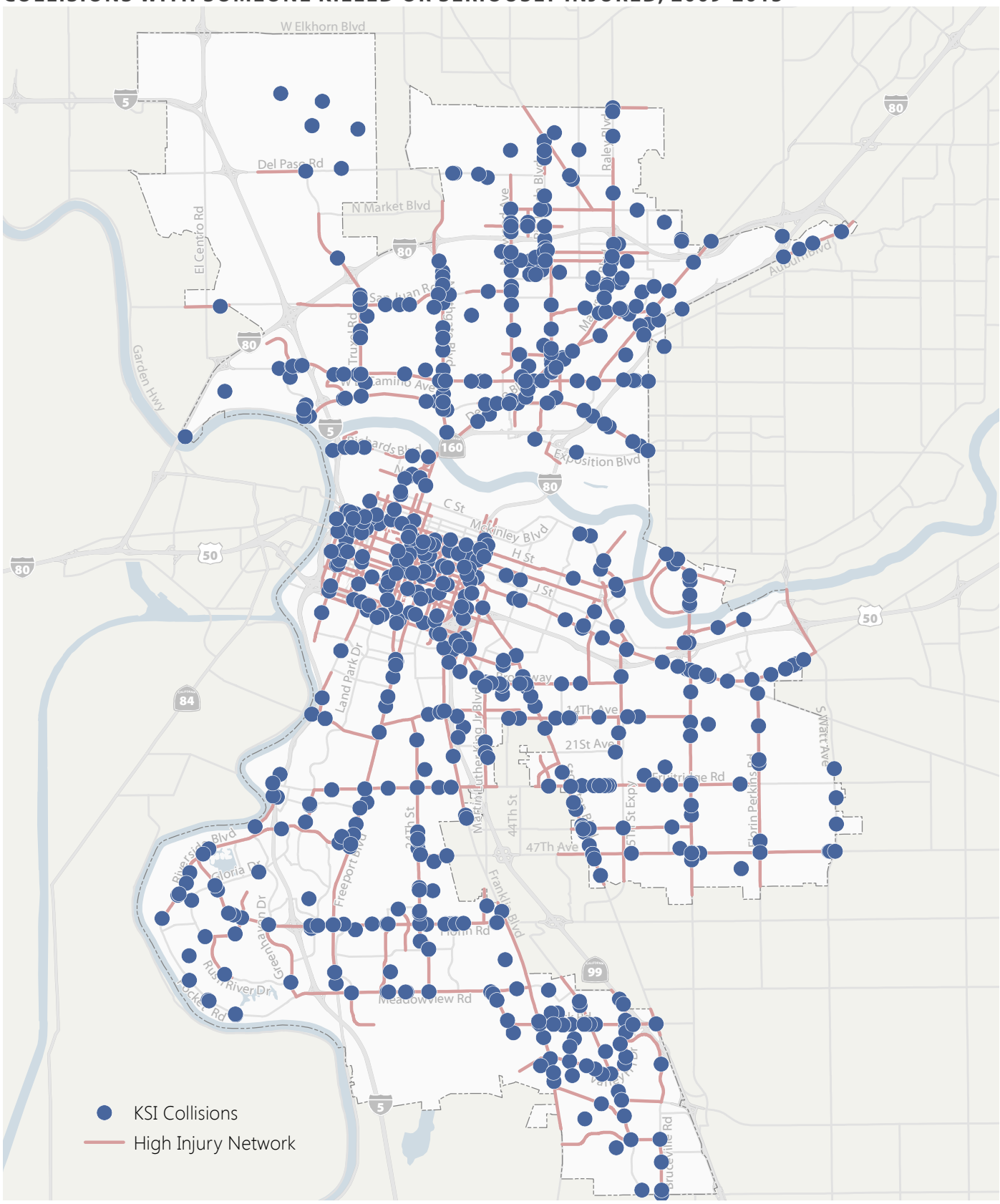
This effort is not only data-driven, but also data-driving. Its recommendations are based on applying the best transportation planning principles available today to traffic safety data, and it will also help shape how our City gathers that data to make planning even smarter moving forward.

Achieving Vision Zero is critically important. I am grateful to the City Council for its leadership, and to staff for developing this comprehensive plan to make our communities safer and ultimately more vibrant.

Sincerely,

Darrell Steinberg

COLLISIONS WITH SOMEONE KILLED OR SERIOUSLY INJURED, 2009-2015



A CALL TO ACTION TO MAKE OUR STREETS SAFER

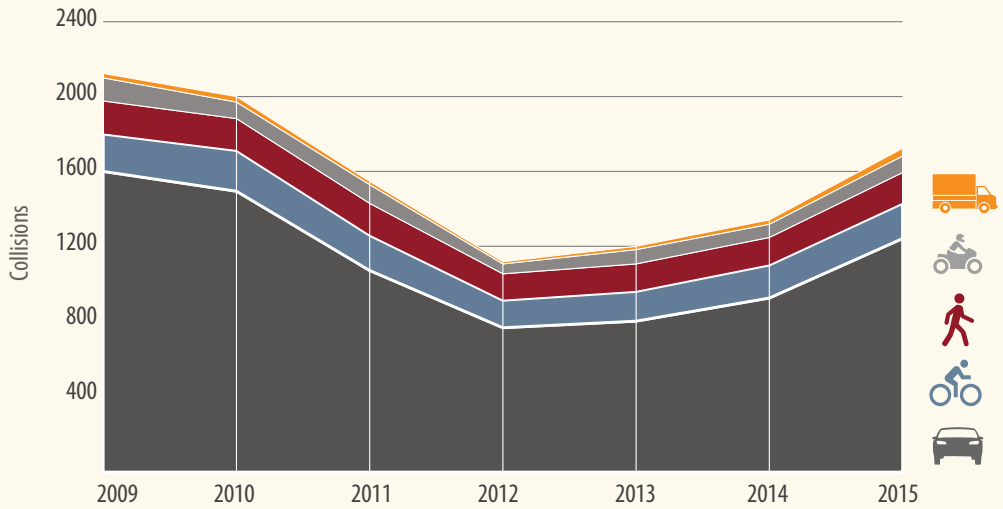
Between 2009 and 2015, collisions where someone was killed or seriously injured while biking or walking **increased 63%**

Between 2009 and 2015, 151 people lost their lives on Sacramento's streets. Nearly half of those people were killed while biking or walking. The list of victims includes residents from all corners of our City, and cuts across all boundaries – geographically and demographically. These deaths result in tragic personal loss for family and friends and significantly impact the Sacramento community.

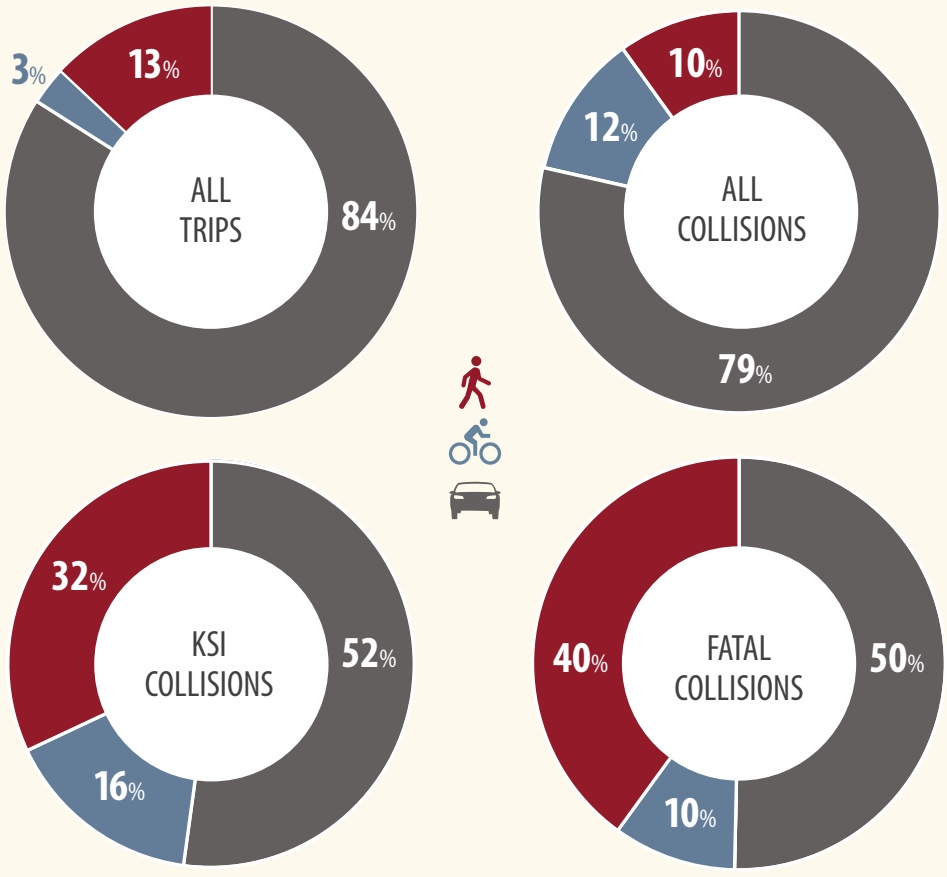
Fortunately, between 2009 and 2015, we saw the annual number of crashes in Sacramento decrease by 20%. But this does not mean our safety work is done. Over the same period of time, crashes where someone was killed or seriously injured increased by 6%. The increase was even more pronounced (63%) for people killed or seriously injured while walking or riding a bicycle. It is time for the City to take action to protect everyone traveling on our streets, including the most vulnerable users of our roads.

People walking in Sacramento are disproportionately impacted by unsafe conditions on our streets. Thirteen percent of all trips in Sacramento are made on foot, but 40% of all fatal crashes in the City involve a pedestrian.[1] Traffic crash victims who walk are 10 times more likely to be killed or seriously injured in Sacramento than crash victims who drive.

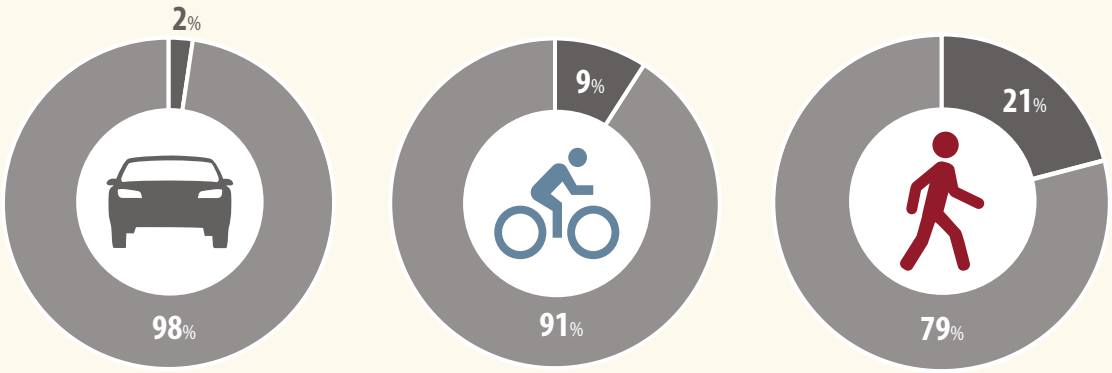
COLLISIONS BY MODE, 2009-2015



TRAVEL AND COLLISIONS BY MODE



SHARE OF VICTIMS WHO WERE KILLED OR SERIOUSLY INJURED BY MODE



KILLED OR SERIOUSLY INJURED
NOT KILLED OR SERIOUSLY INJURED

Why Focus on Fatalities and Serious Injuries?

The City of Sacramento 2035 General Plan states that the City is "committed to sustaining the health and safety of its residents, labor force, and visitors and recognizes their importance in achieving the City's vision as the most livable city in the nation." With this pledge, the City recognizes its commitment to promote a healthy and safe environment, including through responsible stewardship of the transportation network. Accounting for fatal and serious injury crashes in Vision Zero analysis work acknowledges the out sized impact of these crashes and focuses the City's efforts on improvements with the greatest benefit to help the City fulfill its commitments on health and safety.

Serious injuries (also called severe injuries by the California Highway Patrol) resulting from a traffic crash can result in a number of catastrophic impacts, including permanent disability, lost productivity and wages, and ongoing healthcare costs. These injuries can include:[2]

- Broken or fractured bones
- Dislocated or distorted limbs
- Severe lacerations
- Severe burns
- Skull, spinal, chest or abdominal injuries
- Unconsciousness at or when taken from the collision scene

Throughout the Plan, the acronym **KSI** is used to denote crashes where someone was killed or seriously injured.

Crash victims who walk are **10 times more likely to be killed or seriously injured** in Sacramento than crash victims who drive

ABOUT VISION ZERO

What is Vision Zero?

Vision Zero is a strategy to eliminate all traffic fatalities and serious injuries, while increasing safe, healthy, equitable mobility for all. Vision Zero is a significant departure from the status quo in two major ways:

1 Vision Zero acknowledges that traffic deaths and serious injuries are preventable, and it sets a goal of eliminating them in an established time frame with clear, measurable strategies. Through widespread campaigns like reducing drunk driving and increasing recycling, history has shown that changing cultural attitudes and ensuring political accountability lead to increased success. It's time to take this level of intention and focus to the critical issue of traffic deaths.

2 Vision Zero is a multidisciplinary approach that brings together a diverse set of stakeholders to address the complex problem of traffic safety. It acknowledges that there are many factors that contribute to safe mobility – including roadway design, speed, enforcement, behavior change, technology, and policies – and sets clear strategies to achieve the shared goal of zero fatalities and serious injuries.

Vision Zero began in Sweden in 1997, when the country's Parliament adopted a national transportation policy that "the long-term goal of traffic safety is that nobody shall be killed or seriously injured as a consequence of traffic accidents." Since 2014, Vision Zero has been building momentum in the United States. Starting with New York, Vision Zero policies have spread across American cities, adopted in places like Chicago, Seattle, San Francisco and Los Angeles. As of March 2017, 27 U.S. cities have committed to Vision Zero, according to the national Vision Zero Network. Sacramento is joining a global movement with a strong national network to help cities share best practices to improve roadway safety.

Early results are promising. In New York City, 2016 had the fewest traffic fatalities on record. Traffic deaths are down 30% since 2013, just before the City launched Vision Zero. The first three years of Vision Zero is the safest three-year period in New York City's history. Closer to home, Fremont, California has seen a 25% reduction in major traffic crashes in the first two years since adopting Vision Zero.

Why Vision Zero?

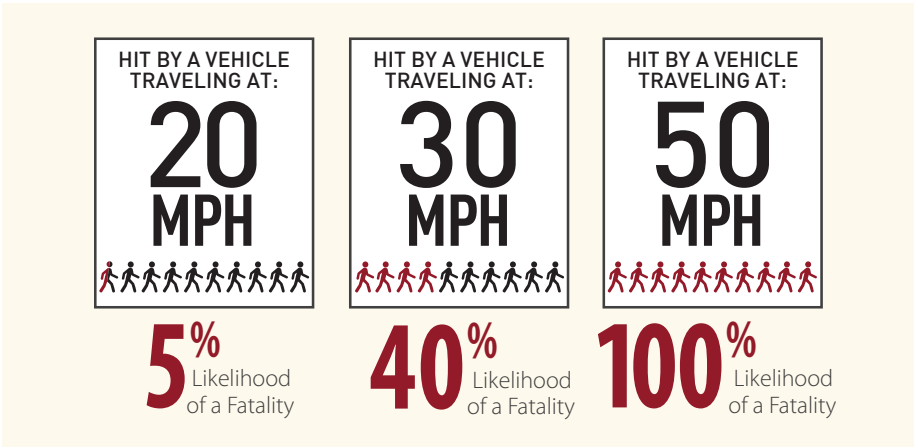
Sacramento has taken an ambitious step in adopting its Vision Zero goal, signaling that it is willing to do the hard work necessary to eliminate traffic deaths and serious injuries. Only by moving beyond traditional transportation safety practices with bold interventions can the City solve one of its largest preventable public health crises. Sacramento's rate of fatal and serious injury crashes continues to rise, and the 2008 Sacramento County Health Status Profile Report cites vehicle crashes as the leading cause of death for children aged 1 to 18.[6]

The City of Sacramento is constantly working to increase the availability of safe and comfortable multi-modal transportation choices for all residents, helping meet its goals to reduce carbon emissions, improve public health through increased physical activity, and improve quality of life for everyone. The adoption of Vision Zero makes this a primary focus for the City, prioritizing safe travel for all modes over delivering efficient vehicle throughput.

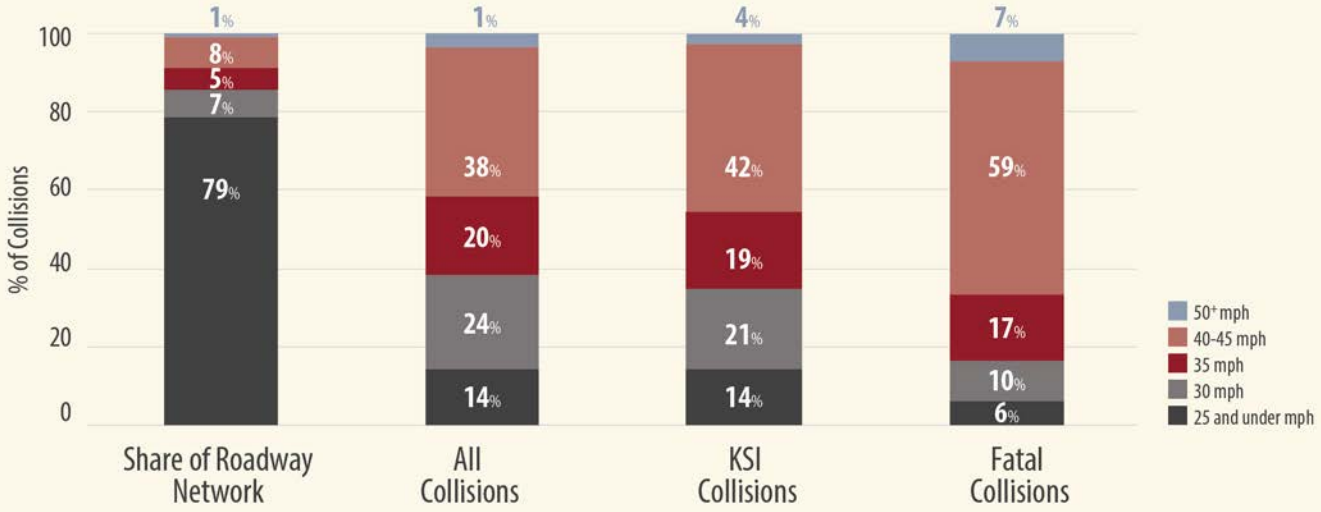
Speed Kills

A major component of Vision Zero is the recognition that speed kills. Research compiled by the U.S. Department of Transportation National Highway Traffic Safety Administration shows that the likelihood of fatality is 5% for a pedestrian struck by a vehicle traveling at 20 miles per hour, but the likelihood increases to 40% at 30 miles per hour and to 100% at 50 miles per hour.[7] By just designing our streets differently, we can lower the speeds at which vehicles travel to help reduce the severity of injuries. Street design changes, combined with public education and targeted enforcement efforts, have the potential to greatly reduce the number people seriously injured or killed on Sacramento's streets.

Unsafe speed is the leading cause of crashes. **2/3 of fatal crashes** occur on streets with a posted speed of 40+ mph, which account for just **10% of the City's street network**



POSTED SPEED OF ROADWAY AND SEVERITY OF COLLISIONS



VISION STATEMENT & GUIDING PRINCIPLES

The Vision Zero Task Force met in late 2016 to develop a vision statement and guiding principles to frame the development and implementation of the Vision Zero Action Plan. These principles form the foundation on which the City will conduct its Vision Zero work.

Vision Statement

Traffic safety impacts our community, neighborhoods, health, and Sacramento's livability. No level of fatality or serious injury is acceptable on our streets because crashes are preventable incidents that can be addressed through engineering, education, and enforcement.

Guiding Principles

1. Safety of human life is our highest priority.
2. Traffic deaths and serious injuries are preventable, a public health issue, unacceptable, and must be addressed.
3. Actions towards Vision Zero will be a comprehensive, collaborative, and equitable approach through engineering, education and culture change, and traffic enforcement.
4. Actions towards Vision Zero will be data-driven based on available crash data.
5. Evaluation will be ongoing, measuring performance against the Vision Zero Action Plan objectives.

Vision Zero Sacramento is a collaborative and data-driven effort to eliminate traffic fatalities and serious injuries by 2027

44%

of fatal crashes and half of pedestrian KSI crashes occur in the City's Disadvantaged Communities, which account for only **25%** of the roadway network

Equity

All Sacramentans deserve safe streets. Traffic deaths and severe injuries disproportionally burden Sacramento's Disadvantaged Communities.

Disadvantaged Communities are defined by the State of California as the neighborhoods in Sacramento that are most burdened by pollution and other negative environmental factors, public health concerns, and a lack of equitable economic opportunity.[8] These communities have experienced historic underinvestment in safe roadway projects throughout the state and now receive preference for various types of State and Regional transportation grants.

Forty-four percent of fatal crashes and half of pedestrian KSI crashes occur in the City's Disadvantaged Communities, which account for only 25% of the roadway network.

The Vision Zero Task Force and City staff recognize the importance of creating equitable safety solutions through the implementation of Vision Zero. The data-driven Vision Zero process compels the City to align roadway safety improvements with the areas hardest hit by traffic violence – often the most under served areas of Sacramento. In redefining its enforcement activities, the City will also work to ensure that the disproportionate burden on communities of color in traffic policing does not persist.

Vision Zero Aligns with Sacramento's Plans and Policies

The goals of Vision Zero align well with recently adopted plans and policies that guide the development of the transportation network in Sacramento. Plans such as the Bicycle Master Plan and Grid 3.0 emphasize improving safety and closing key gaps in the bicycle and pedestrian networks.

The Mobility Element of Sacramento's 2035 General Plan, which was adopted in March of 2015, overlaps with the goals and strategies of Vision Zero. The General Plan seeks to improve multi-modal choices and multi-modal access within the City by removing barriers for accessibility and creating complete streets that are safe and comfortable for travel by all modes. The General Plan also emphasizes the importance of safe connections to transit, a bicycle network that is accessible for all residents, and safe pedestrian crossings and sidewalks throughout the City.

VISION ZERO RESOLUTION

On January 19, 2017, the Sacramento City Council voted unanimously on a resolution to adopt a Vision Zero goal.

Background

A. Traffic safety impacts our community, neighborhoods, health and Sacramento's livability.

B. During the five-year period from 2010-2014, 130 people died in traffic crashes in Sacramento (26 deaths per year) including 48 pedestrians and 13 bicyclists.

C. Over the six-year period from 2008-2013, in the category of over-all traffic safety, when compared to cities with a population greater than 250,000, the City of Sacramento ranked 1 of 13 in 2008, 2009, 2010, and 2011, 3 of 13 in 2012, and 6 of 14 in 2013.

D. Vision Zero provides a framework for reducing traffic deaths and serious injuries through a comprehensive approach.

E. On March 15, 2016, Council passed Motion No. 2016-0074 directing the City Manager to 1) develop a Vision Zero Action Plan toward eliminating traffic deaths in Sacramento; and 2) establish a Vision Zero Task Force to assist in developing and implementing the Vision Zero Action Plan.

F. In October 2016, the City of Sacramento embarked on its Vision Zero Action Plan and formed a Vision Zero Task Force.

Based on the Facts Set Forth in the Background, the City Council Resolves as Follows:

Section 1. City of Sacramento recognizes that safety of human life is our highest priority and that traffic deaths and serious injuries are preventable, a public health issue, and must be addressed.

Section 2. No fatality or serious injury is acceptable on our streets because crashes are preventable incidents that can be addressed through engineering, enforcement and education.

Section 3. Vision Zero Sacramento is a collaborative and data-driven effort to eliminate traffic fatalities and serious injuries by 2027.

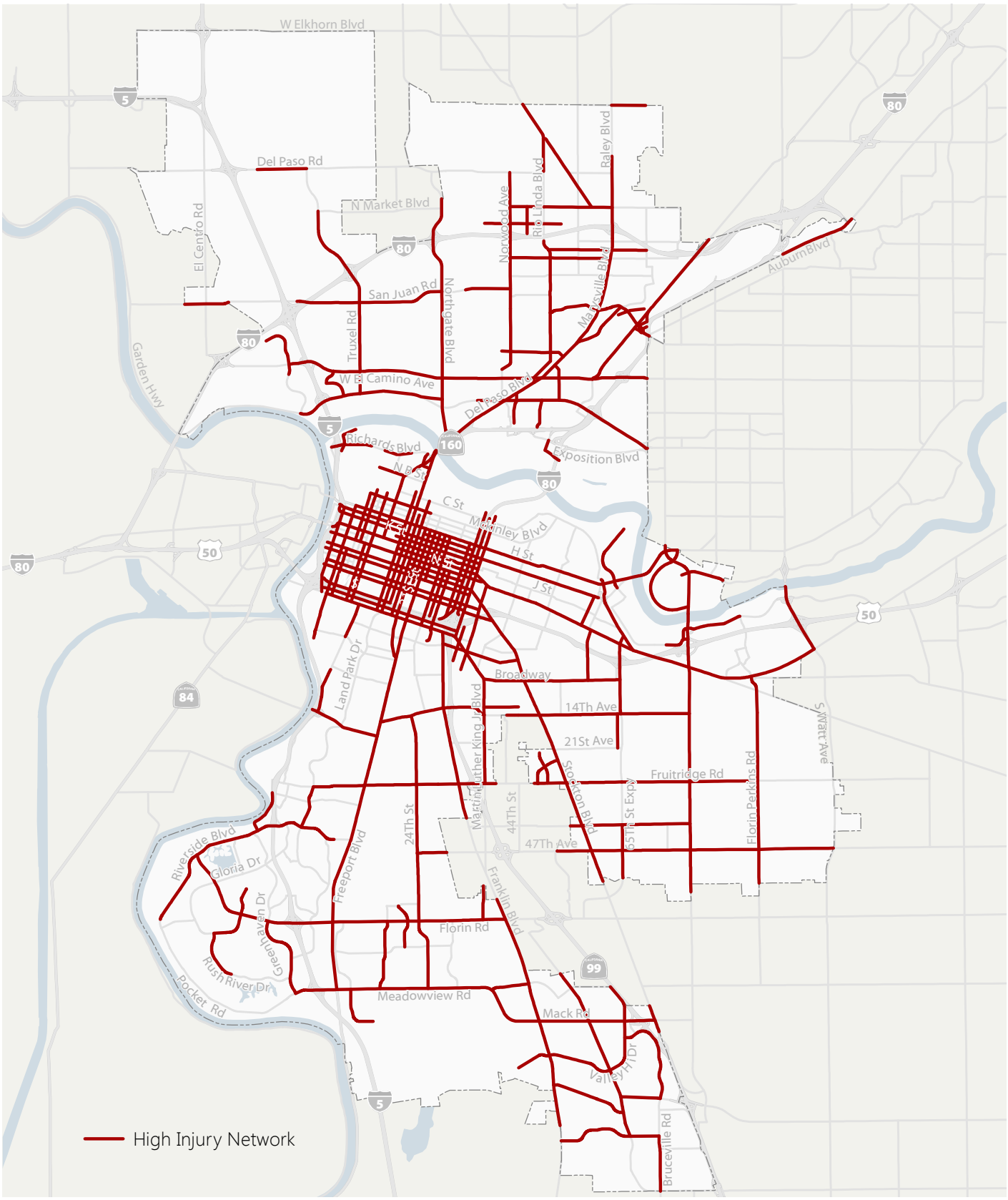
Section 4. Actions towards Vision Zero will be a comprehensive, collaborative, and equitable approach through engineering, education and culture change, and traffic enforcement.

Section 5. Actions towards Vision Zero will be data driven based on available crash data.

Section 6. Evaluation of reaching the goal to eliminate traffic fatalities and serious injuries by 2027 will be ongoing, measuring performance against the Vision Zero Action Plan objectives.

Section 7. The City adopts the following goal related to Vision Zero: The City of Sacramento will work collaboratively in a data-driven effort to eliminate traffic fatalities and serious injuries by 2027.

HIGH INJURY NETWORK



CRASH TRENDS

79%

of all crashes occur on the High Injury Network, which accounts for **just 14%** of Sacramento's roadways

Study Methodology

Vision Zero is a data-driven process. In developing the Action Plan, the City analyzed all crashes that occurred on City streets resulting in fatality or any level of injury for the years 2009 through 2015.[9] Prior Vision Zero work has shown that roadway characteristics, such as number of lanes, posted speed limit, and intersection control types, are very important in helping to identify historic collision trends and help cities be proactive in identifying high-risk locations. Vision Zero work has also highlighted the disproportionate burden traffic crashes have on vulnerable populations, such as seniors and Disadvantaged Communities. The City of Sacramento incorporated roadway characteristic and demographic datasets into its collision analysis to understand how these patterns play out locally.

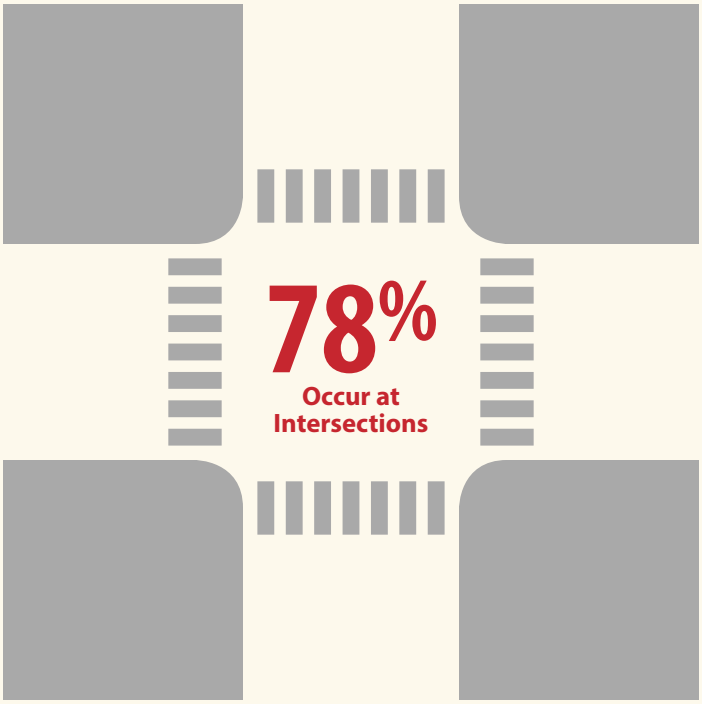
High Injury Network

The City developed a High Injury Network (HIN), which identifies the corridors with the highest levels of fatal and serious crashes for pedestrians, bicyclists, and motorists. There are 1,610 total roadway miles in Sacramento, but KSI crashes do not occur on the majority of those roads. By developing the HIN, the City is able to focus safety improvements on priority corridors where the most serious crashes happen with the most frequency.

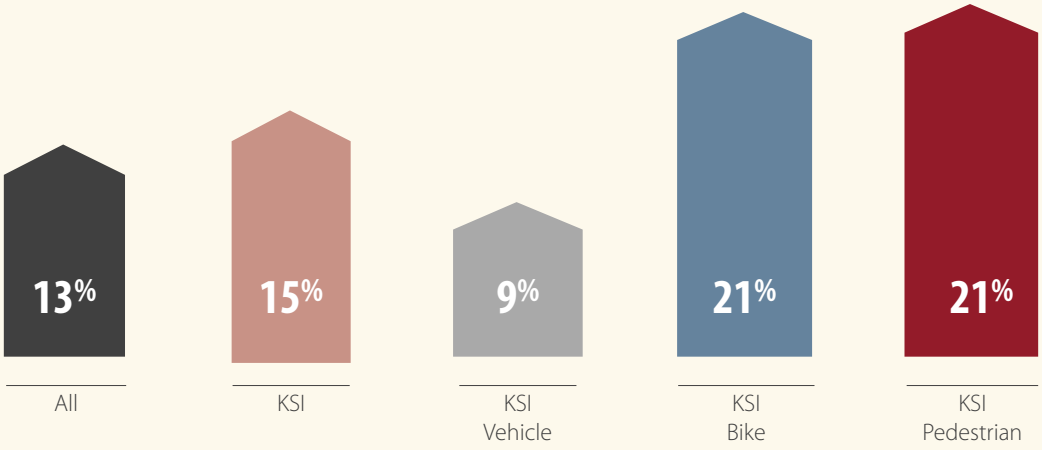
Sacramento's High Injury Network accounts for 79% of all crashes and 77% of KSI crashes, which occur on just 14% (225 miles) of Sacramento's roadway network. Eighty-three of the City's elementary, middle, and high schools fall along the HIN. Thirty-five percent of the HIN falls within Disadvantaged Communities.

Crash Statistics

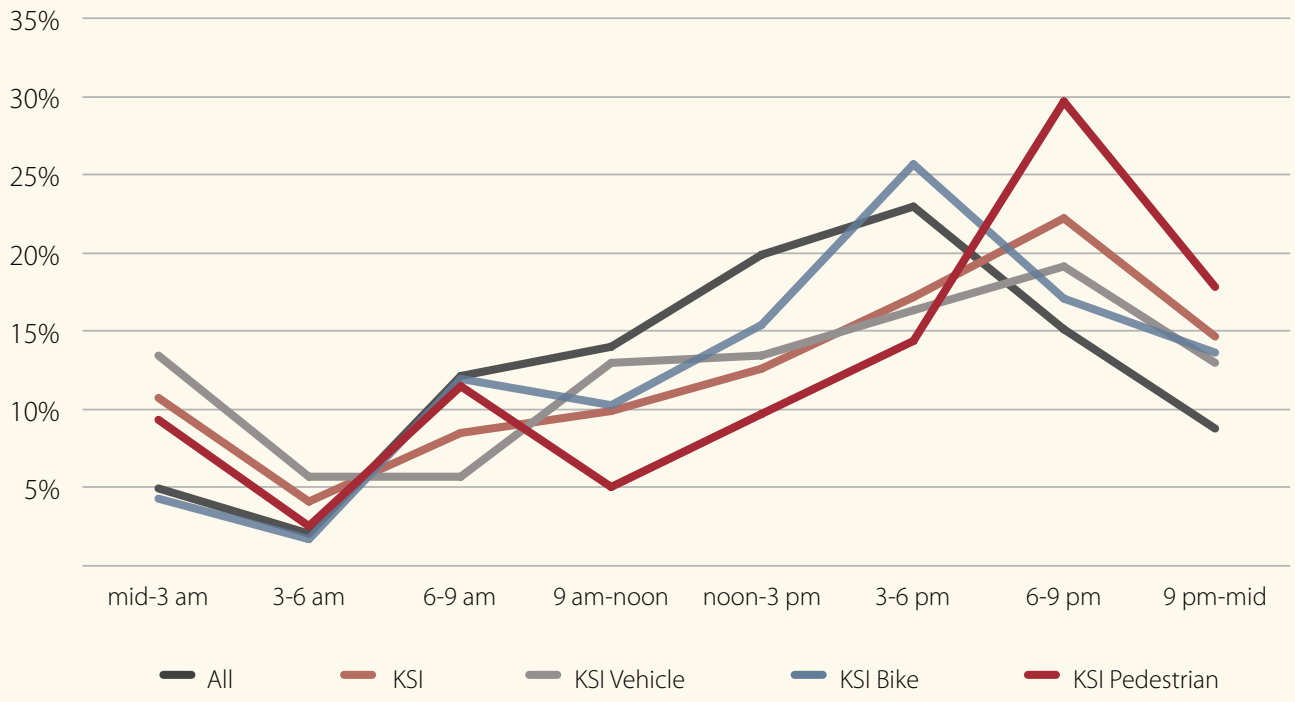
SHARE OF COLLISIONS THAT OCCURRED AT INTERSECTIONS



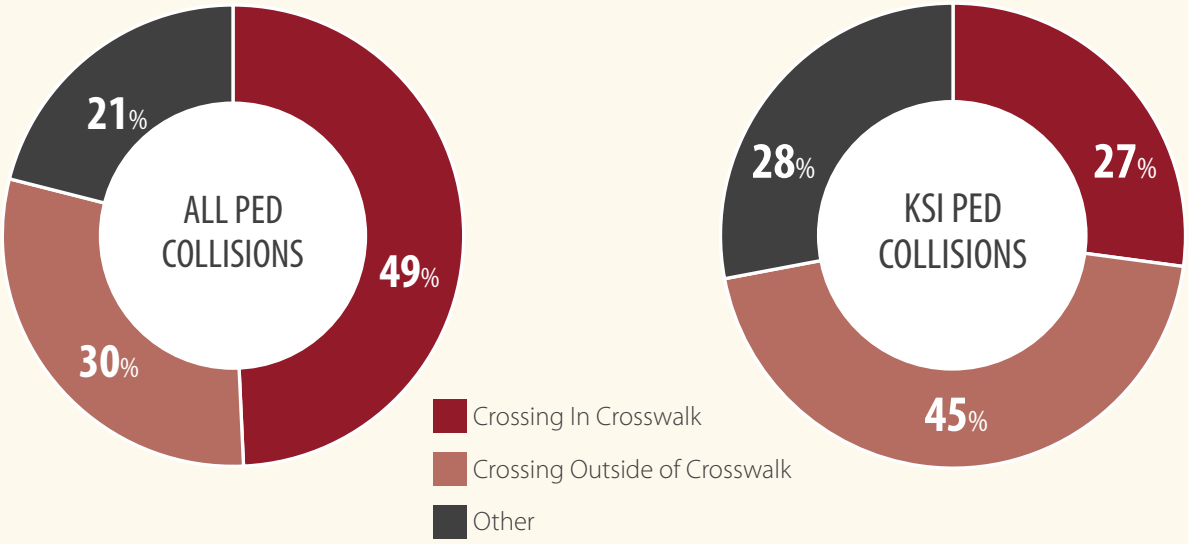
SHARE OF COLLISIONS THAT WERE HIT AND RUN



SHARE OF COLLISIONS BY TIME OF DAY



PEDESTRIAN LOCATION AT TIME OF COLLISION




LOS COYOTES

CRASH PROFILES & COUNTERMEASURE TOOLBOX

The City developed crash profiles to highlight 10 of the top trends among KSI crashes. The crash profiles are based on an analysis of crash data and related environmental factors. Every profile highlights a crash pattern the City has identified as a priority concern. The profiles are paired with safety countermeasures most relevant for the crash and location context. Together, these engineering, education, and enforcement countermeasures make up a toolbox of safety interventions the City will utilize to implement projects tailored to unique safety issues.

The following pages are set up with the 10 profiles and countermeasures. We have ranked the countermeasures by **Efficacy, Cost, Complexity** and given each of those ratings a score:

HIGH: ●●●

MEDIUM: ●●○

LOW: ●○○

UNKNOWN ○○○

Efficacy: The anticipated level of safety benefit, based on academic research and indsutry standards.

Cost: The magnitude of cost to design and implement the countermeasure.

Complexity: The level of complexity anticipated for the City to implement the countermeasure.

Top 10 profiles

- Unsafe Speed on Non-Local Streets
- Alcohol Involved
- 35+ MPH Streets
- 30+ MPH Streets - Bicycle Involved
- Broadside Crashes - Bicycle Involved
- Driver Making Left Or Right Turn - Bicycle/ Pedestrian Involved
- Crashes in Commercial Areas
- 60+ Year Old Pedestrians
- Pedestrian Crossing Outside of an Intersection or Crosswalk
- Pedestrian Crashes Near Transit Stops

PROFILE 1:

UNSAFE SPEED ON NON-LOCAL STREETS

The primary collision factor in a crash is the factor which "best describes the primary or main cause of the collision," according to the reporting officer.[10] When the primary collision factor is cited as "unsafe speed," it means that someone involved in the crash was driving "at a speed greater than is reasonable or prudent" for the conditions.[11] By slowing vehicles down, we can increase the time drivers have to react to potentially dangerous situations and we can reduce the severity of injuries by lessening the impact of a crash. The following countermeasures outline potential options for redesigning our roads to discourage unsafe speeds and enforce the speed limits that are in place.

FACTORS

Primary collision factor was "unsafe speed"

Crash occurred on an arterial or collector street

MODES

STATS

77

KSI CRASHES

» Accounts for **10%** of all KSI crashes and **17%** of vehicle KSI crashes

COUNTERMEASURES

STREET NARROWING

Several countermeasures fall within the Intersection Narrowing toolkit, including curb extensions (bulbouts), lane narrowing and visual narrowing. Curb extensions are raised devices, usually constructed from concrete and/or landscaping, that reduce the corner radius or narrow the roadway in order to reduce speeds of turning vehicles, improve sight lines, and shorten crossing distances. In addition to physically narrowing intersection or lane widths, visual narrowing techniques can help to slow speeds and increase driver attentiveness. Visual narrowing techniques include adding street trees, vertical lighting elements, street furniture, special paving treatments, or roadway markings.

EFFICACY:[12] ●●○

COST: ●●○

COMPLEXITY: ●○○

ROAD DIETS

Reduction in number of travel lanes, often paired with a center turning lane. Road diets can allow for additional space for other uses, including for pedestrians, bike lanes and parking.

EFFICACY: ●●●

COST: ●●○

COMPLEXITY: ●●●

SIGNAL SYNC, SLOW GREEN WAVE

Signals can be synchronized to give a progressive green band for cars traveling at a specified speed, resulting in vehicles traveling faster than the specified speed having to stop more frequently.

EFFICACY: ●○○

COST: ●○○

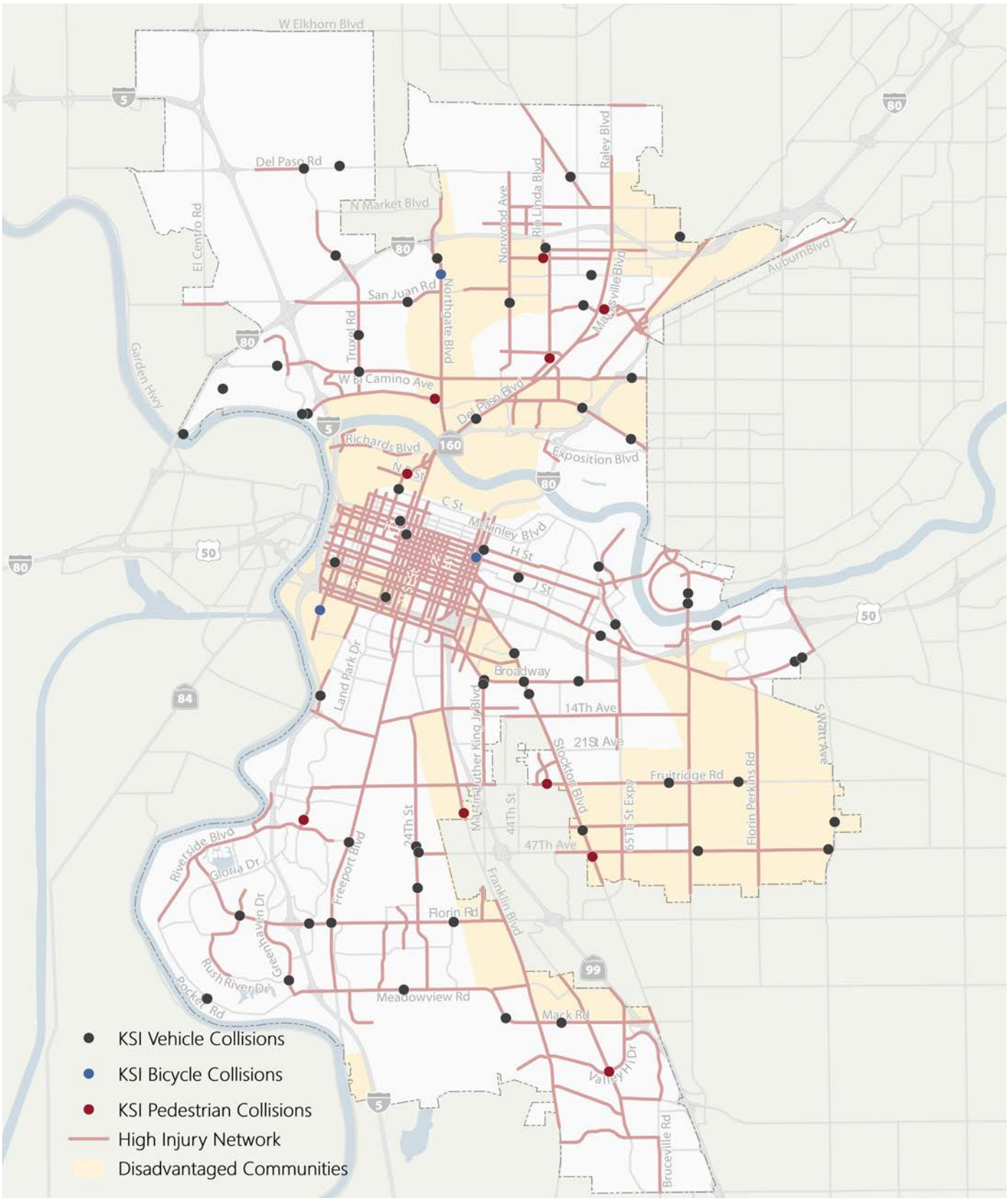
COMPLEXITY: ●○○

Automated Speed Enforcement

Automated speed detection devices can identify speeding violations and provide citations. California is currently considering legislation to allow this type of enforcement and the City of Sacramento plans to support this effort.

MAP 1:

UNSAFE SPEED ON NON-LOCAL STREETS



PROFILE 2:

ALCOHOL INVOLVED

In one-quarter of Sacramento's severe crashes, someone involved had been drinking. In order to combat this major public safety issue, a combination of education and enforcement will be necessary. National reports on this topic, such as those published by the Centers for Disease Control and Prevention, point to the effectiveness of mass media campaigns, sobriety checkpoints and stricter drunk driving laws.[13]

FACTORS

Reporting officer cited that the crash involved someone drinking

MODES

STATS

186

KSI CRASHES

» Accounts for **25%** of all KSI crashes and **31%** of pedestrian KSI crashes

COUNTERMEASURES

EDUCATION, PUBLIC SERVICE ANNOUNCEMENTS

Create public educational campaigns or public service announcements to inform the public on roadway safety.

EFFICACY: ●●○

COST: ○○○

COMPLEXITY: ○○○

Vision Zero Campaign

TARGETED PROMOTIONAL CAMPAIGNS

(Designated Drivers, Rideshare, Transit)

Create promotional campaigns to encourage the use of designated drivers, rideshare services, and transit as an alternative to driving under the influence. The campaigns should include working with restaurants and bar owners to help promote driver-for-hire and transit services.

EFFICACY: ○○○

COST: HIGH ○○○

COMPLEXITY: ●●●

ENFORCEMENT, MORE OFFICERS

Increase the number of traffic officers to the recommended national standard. Focus enforcement efforts on most dangerous behaviors identified in this Vision Zero Action Plan.

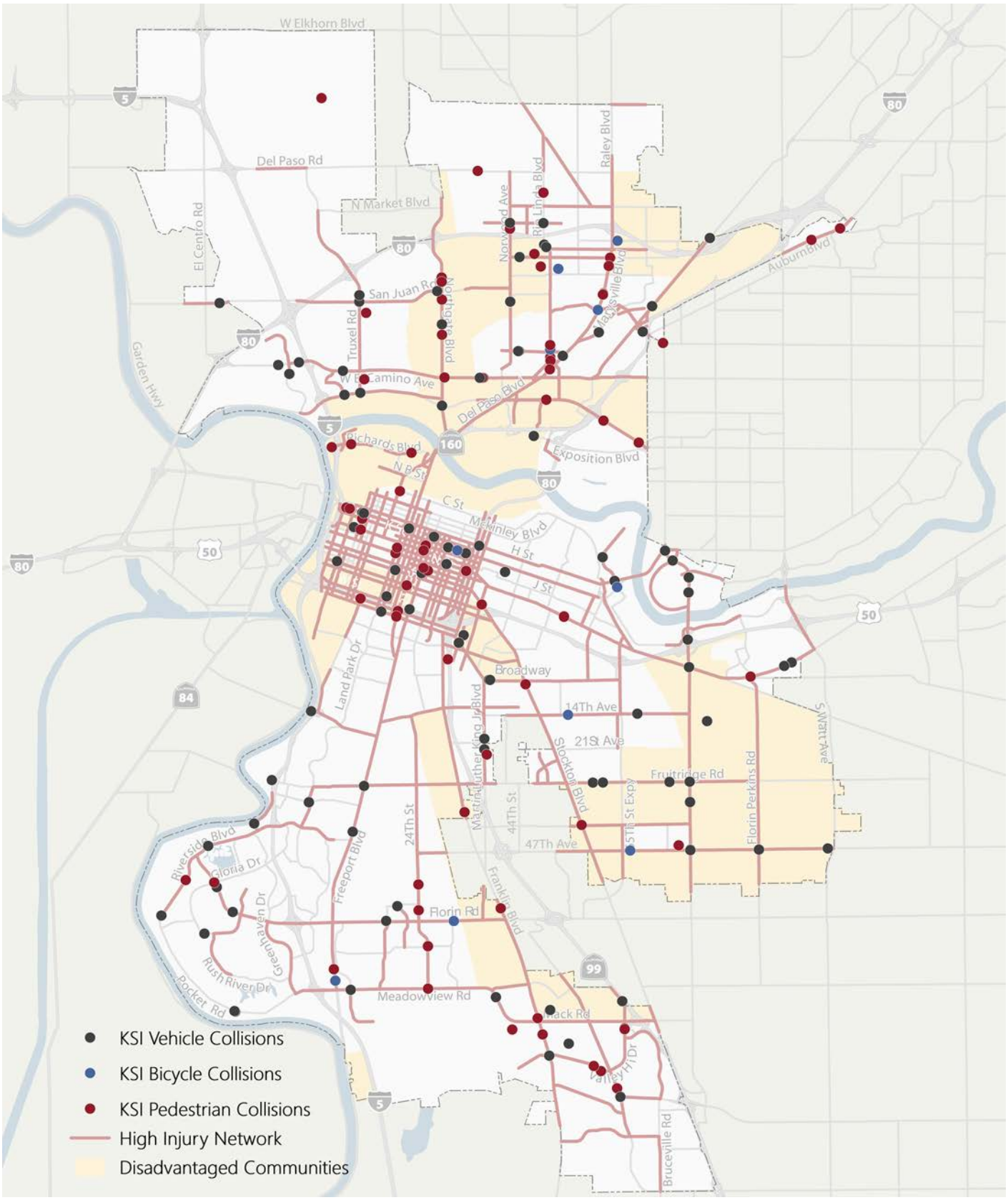
EFFICACY: ●●○

COST: ●●●

COMPLEXITY: ●●●

MAP 2:

ALCOHOL INVOLVED



PROFILE 3:

35+ MPH STREETS

The majority of serious collisions in Sacramento occur on streets with posted speeds of 35 mph or higher. Given that these streets account for only a small portion of the City's roadway network, we know that these streets have an outsized impact of the safety of Sacramento residents. By implementing countermeasures that slow vehicles down, we can increase the time drivers have to react to potentially dangerous situations, reduce the severity of injuries, and increase visibility of more vulnerable road users.

FACTORS

Crash occurred on street with posted speed of 35+ mph

MODES

STATS

480

KSI CRASHES

» Accounts for **65%** of all KSI crashes

COUNTERMEASURES

STREET NARROWING

Several countermeasures fall within the Intersection Narrowing toolkit, including curb extensions (bulbouts), lane narrowing and visual narrowing. Curb extensions are raised devices, usually constructed from concrete and/or landscaping, that reduce the corner radius or narrow the roadway in order to reduce speeds of turning vehicles, improve sight lines, and shorten crossing distances. In addition to physically narrowing intersection or lane widths, visual narrowing techniques can help to slow speeds and increase driver attentiveness. Visual narrowing techniques include adding street trees, vertical lighting elements, street furniture, special paving treatments, or roadway markings.

EFFICACY: ●●○

COST: ●●○

COMPLEXITY: ●○○

SPEED FEEDBACK SIGN

Radar signs that display the speed limit as well as the speed of the approaching vehicle in real-time, and in some cases have changeable message display boards.

EFFICACY: ●●○

COST: ●●○

COMPLEXITY: ●○○

REDUCED SPEED SCHOOL ZONE

State legislation (AB 321) allows for speed limit reductions to 15 or 20 mph near schools in environments that meet certain conditions. All other streets are subject to speed-limit setting based on existing travel speeds, and therefore can only be reduced if vehicles start traveling more slowly.

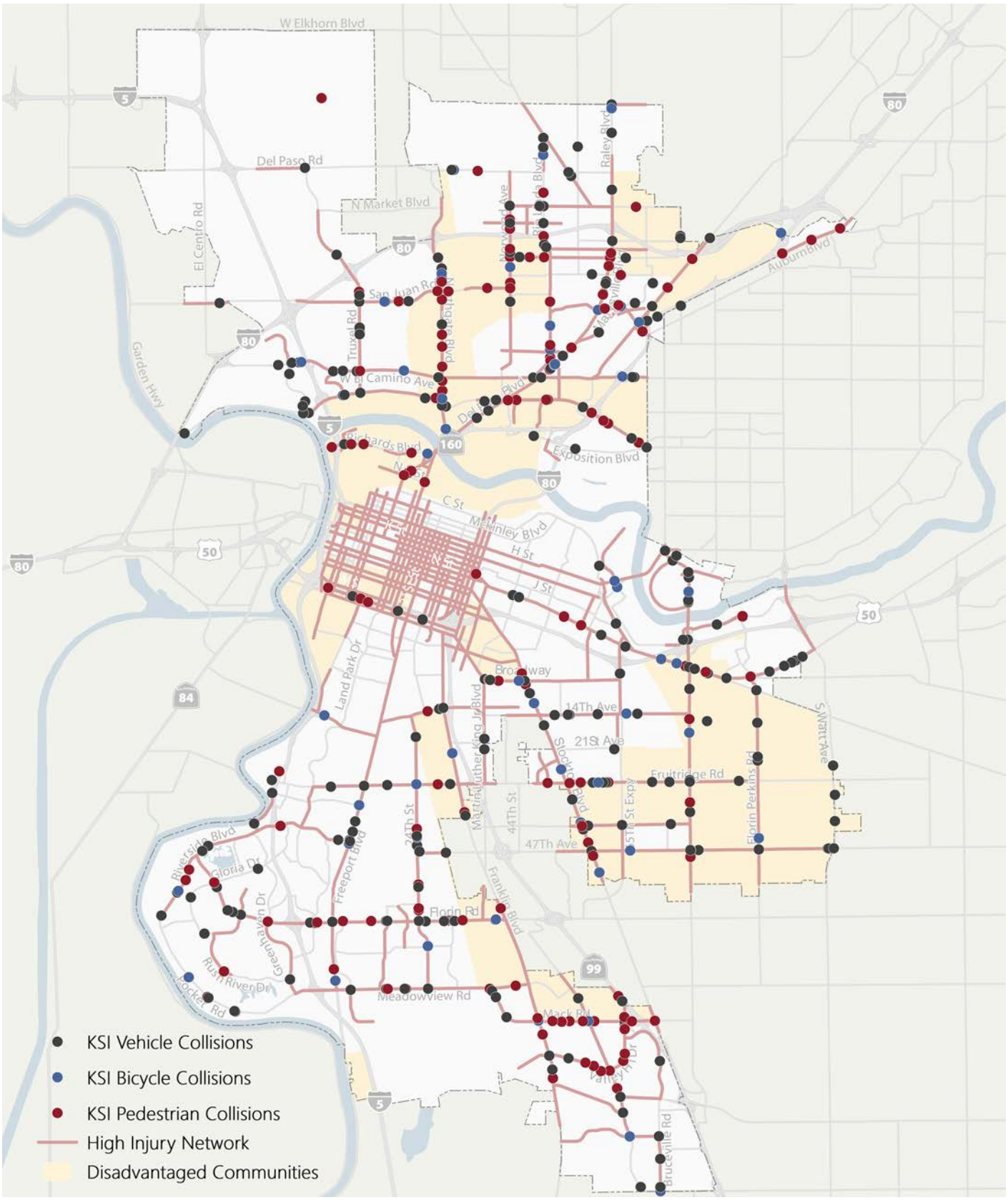
EFFICACY: ●●●

COST: ●○○

COMPLEXITY: ●○○

MAP 3:

35+ MPH STREETS



PROFILE 4:

30+ MPH STREETS - BICYCLE INVOLVED

The 2016 Sacramento Bicycle Master Plan Facility Selection Guidelines call for separate bicycle facilities to be implemented on streets with a posted speed of 30 mph or higher. At 30 mph, bike lanes are recommended. At faster speeds, buffered bike lanes and separated bikeways are recommended. Our data analysis found that severe crashes occurred on streets both with and without bicycle facilities. However, state guidance shows that providing dedicated space for bicyclists can increase safety.

FACTORS

Crash Occurred on street with posted speed of 30+ mph

MODES

STATS

100

KSI CRASHES

» Accounts for **85%** of bicycle KSI crashes

COUNTERMEASURES

SEPARATED BIKEWAYS

(cycle tracks)

Bikeways, separated from vehicle traffic by a physical barrier, usually bollards, landscaping, parked cars, or through elevated separation.

EFFICACY: ●●○

COST: ●●●

COMPLEXITY: ●●●

BUFFERED BIKE LANES

A buffered bike lane is comprised of a painted buffer between a Class II bicycle lane and the vehicles lanes, intended to reduce motor vehicle encroachment into the bike lane and increase bicyclist comfort and safety.

EFFICACY: ●○○

COST: ●●○

COMPLEXITY: ●●○

WARNING & REGULATORY SIGNS FOR MOTORISTS

("bikes may use full lane," "no parking in bike lane")

Posted signs that provide warning and regulatory messages alerting motorists to the presence of bicyclists and shared roadway facilities.

EFFICACY: ●○○

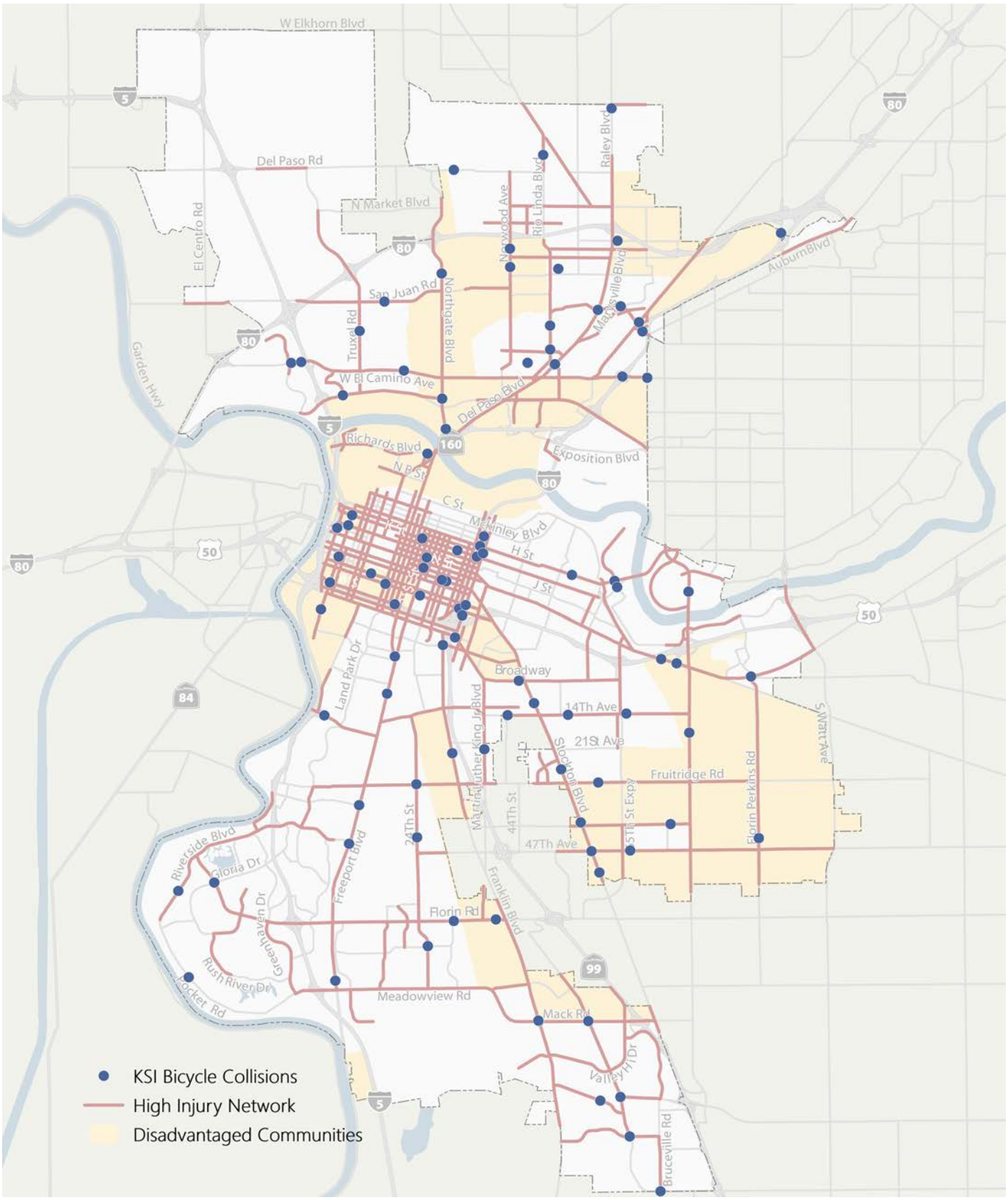
COST: ●○○

COMPLEXITY: ●○○

Separated Bikeway

MAP 4:

30+ MPH STREETS - BICYCLE INVOLVED



PROFILE 5:

BROADSIDE CRASHES - BICYCLE INVOLVED

FACTORS

Collision type was reported is "broadside"

» Broadside definition: One motor vehicle strikes another vehicle (or bicycle) at an angle greater than that of a sideswipe (at or near 90 degrees). Commonly known as a "T-Bone" collision.

MODES

STATS

51

KSI CRASHES

» Accounts for **44%** of bicycle KSI crashes

» **41%** of these crashes occurred at signalized intersections

COUNTERMEASURES

BICYCLE SIGNAL PHASE

Restricts conflicting vehicular movements to provide a signal phase, using a bicycle signal head, for bicyclists crossing an intersection where there are bike lanes

EFFICACY: ●●○

COST: ●●○

COMPLEXITY: ●○○

NEW TRAFFIC SIGNALS

Traffic signal installed at previously unsignalized intersection, when warranted due to traffic volumes.

EFFICACY: ●●●

COST: ●●●

COMPLEXITY: ●●○

EDUCATION & ENFORCEMENT

Develop education and enforcement campaigns targeted at decreasing broadside crashes.

Education

EFFICACY: ●●○

COST: ○○○

COMPLEXITY: ○○○

Enforcement

EFFICACY: ●●○

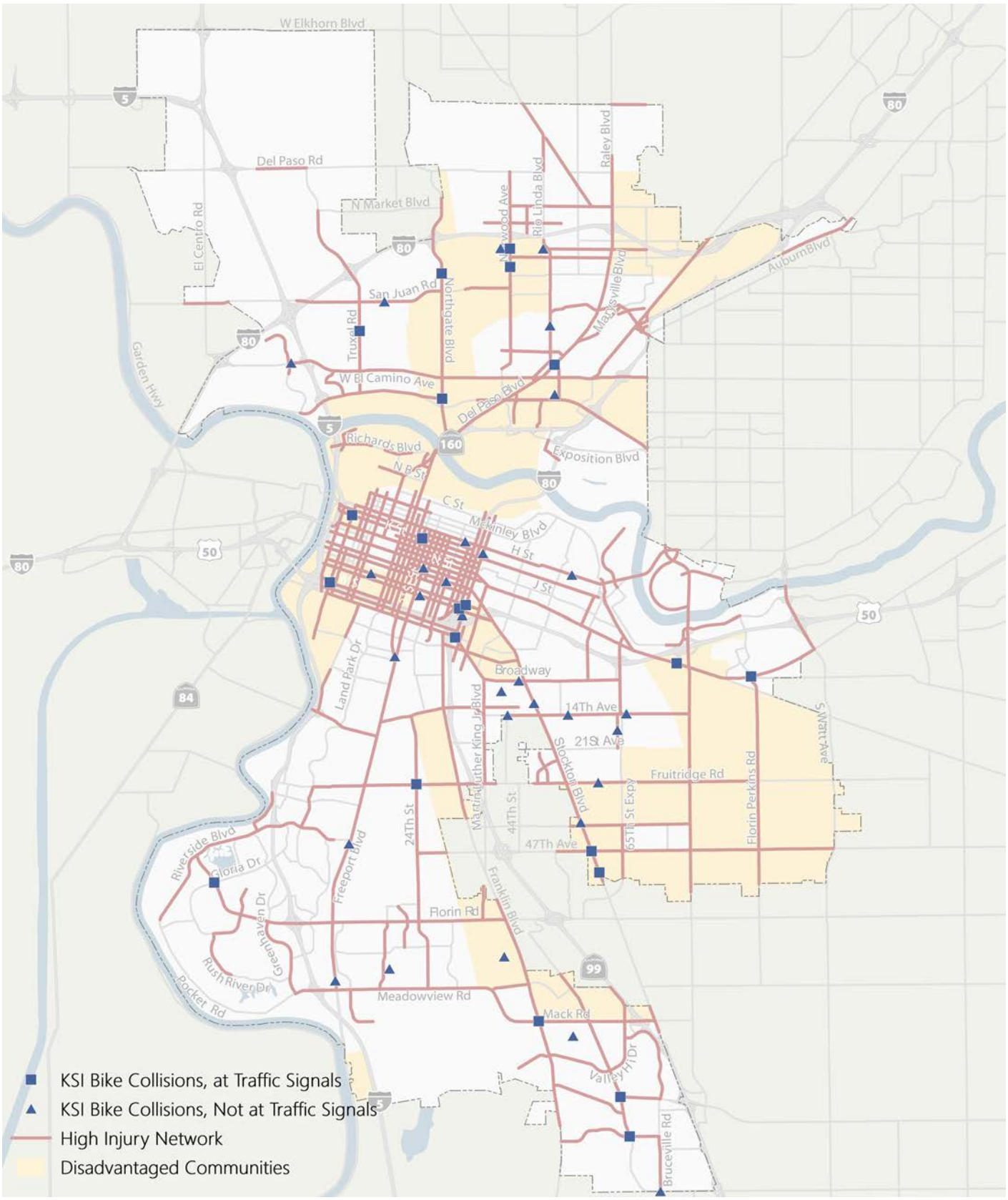
COST: ●●●

COMPLEXITY: ●●●

Bicycle Signal

MAP 5:

BROADSIDE CRASHES - BICYCLE INVOLVED



PROFILE 6:

DRIVER MAKING LEFT OR RIGHT TURN - BICYCLE/ PEDESTRIAN INVOLVED

FACTORS

The driver's movement preceding the crash was a left turn or a right turn

MODES

STATS

58

KSI CRASHES

(33 left turns and 25 right turns)

» Accounts for **22%** of bicycle KSI crashes and **14%** of pedestrian KSI crashes

COUNTERMEASURES

The countermeasures listed here are aimed at increasing visibility at intersections, and reducing the number of potential conflict points between vehicles and people walking or biking by providing dedicated turn phases at signals.

LEADING PEDESTRIAN/ BICYCLE INTERVAL

Traffic signals timed to allow pedestrians and bicyclists a short head start in crossing the intersection to minimize conflicts with turning vehicles.

EFFICACY: ●●○

COST: ●○○

COMPLEXITY: ●○○

PARKING RESTRICTIONS NEAR INTERSECTIONS

(nearside locations)

Parking spaces removed near crossing locations to allow for improved sight lines for both pedestrians and motorists. Also called "daylighting." This countermeasure is aligned with the California Manual of Uniform Traffic Control Devices (MUTCD), which calls for near-side parking to be located no closer than 20 feet from intersections and 30 feet from signalized intersections.

EFFICACY: ●●●

COST: ●○○

COMPLEXITY: ●○○

PROTECTED LEFT TURNS (turn pockets and signal phasing)

Protected left-turn phasing provides an exclusive phase for left-turning vehicles to enter the intersection separate from any conflicting vehicle or pedestrian movements. Permissive/protected left-turn phasing provides the exclusive left-turn phase in addition to a phase permitting left turns simultaneously with conflicting through movements. This countermeasure will be implemented in locations with demonstrated left-turn KSI collisions.

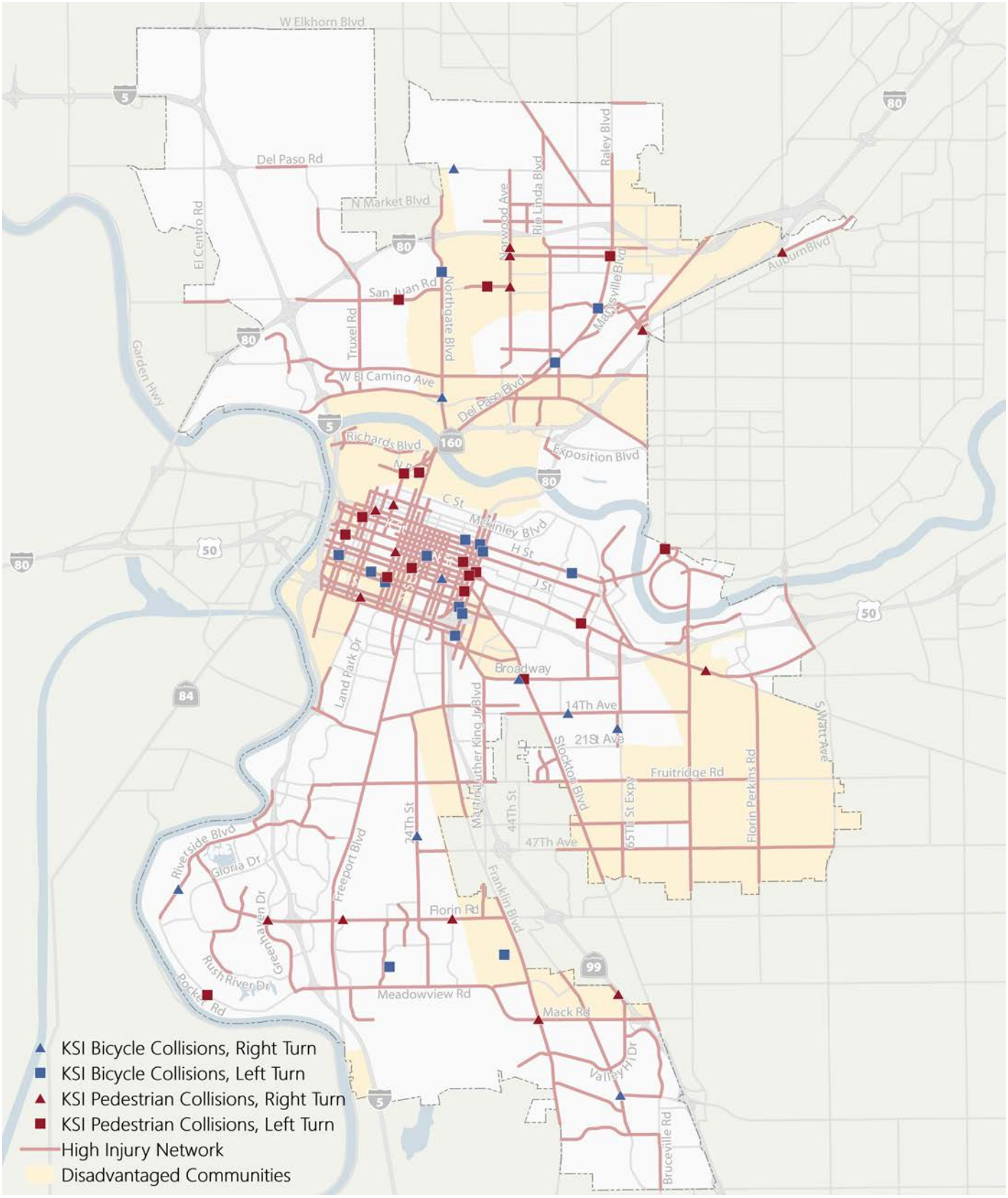
EFFICACY: ●●●

COST: ●●○

COMPLEXITY: ●○○

MAP 6:

DRIVER MAKING LEFT OR RIGHT TURN - BICYCLE/ PEDESTRIAN INVOLVED



PROFILE 7:

CRASHES IN COMMERCIAL AREAS

FACTORS

Crash occurred within 500 feet of a retail or recreation-focused commercial land use

MODES

STATS

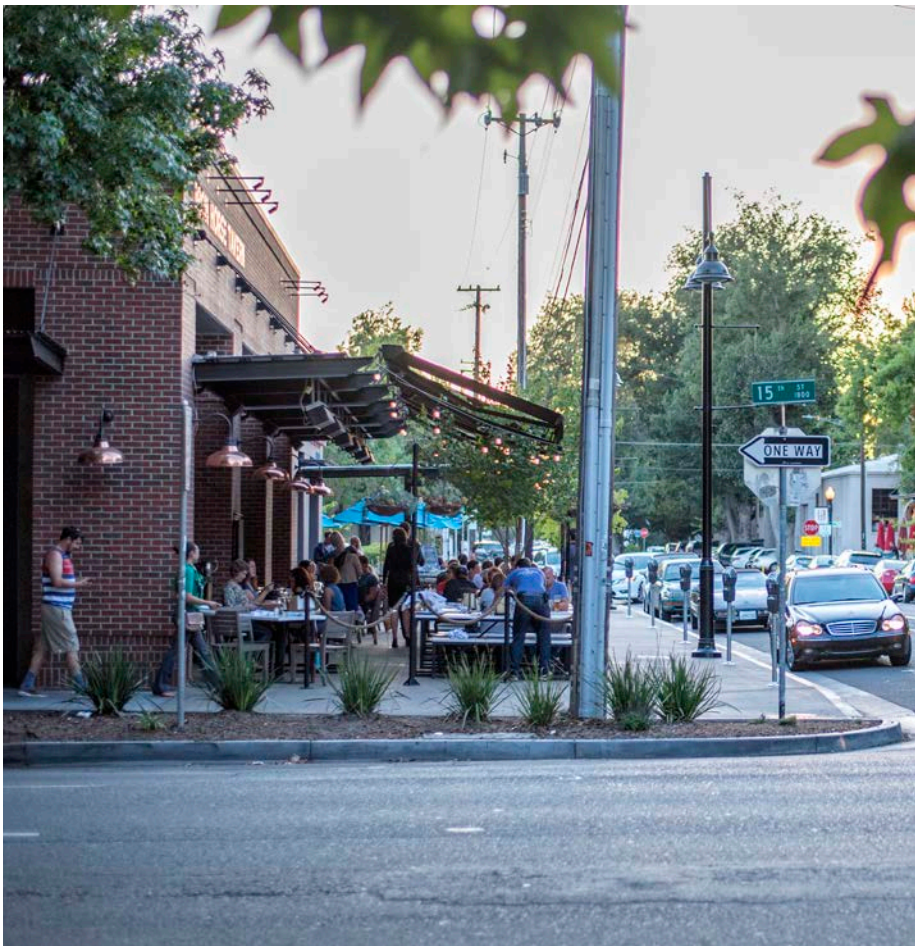
200

KSI CRASHES

» Accounts for **47%** of bicycle KSI crashes and **62%** of pedestrian KSI crashes

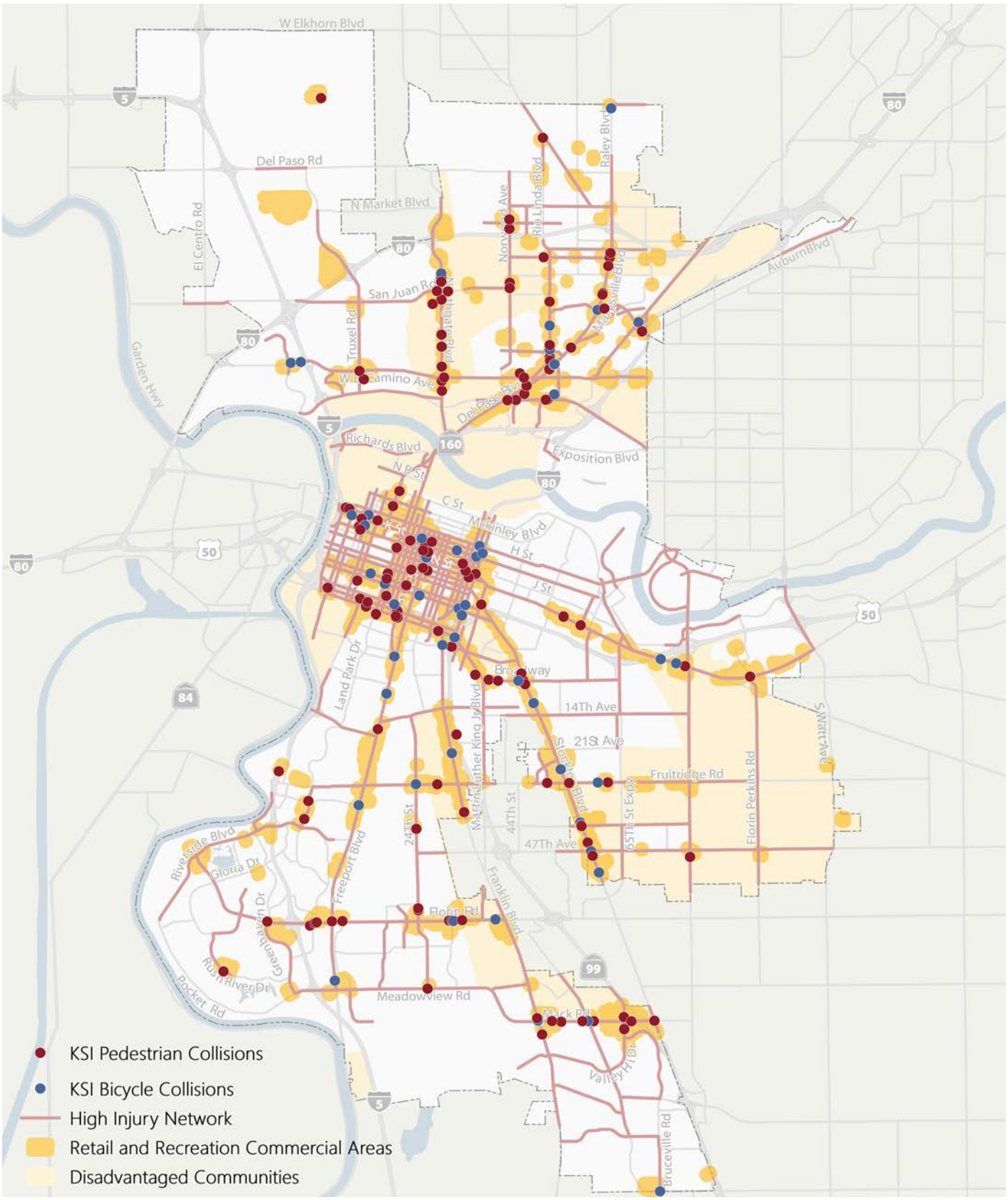
STRATEGY

While these crashes all occurred in commercial areas, the context of these areas varies quite a bit. Countermeasures that work on smaller streets with neighborhood-serving retail may not be appropriate near shopping centers on wide arterial streets. The City will prioritize the location of these collisions for further study and countermeasure pairing. Given the high public visibility of commercial areas, these locations will be prioritized for targeted education and enforcement campaigns.



MAP 7:

CRASHES IN COMMERCIAL AREAS



FACTORS

60+ Age of crash victim

MODES

STATS

70

KSI CRASHES

» Accounts for **30%** of pedestrian KSI crashes

PROFILE 8:

60+ YEAR OLD PEDESTRIANS

COUNTERMEASURES

EXTEND PEDESTRIAN CROSSING TIME, PEDESTRIAN DETECTION

Extending pedestrian crossing intervals helps people who may need additional time crossing the street. In addition, the City may install sensors that detect when pedestrians are present in a crossing and automatically increase crossing time when necessary.

EFFICACY: ●●○

COST: ●○○

COMPLEXITY: ●○○

PEDESTRIAN REFUGE ISLANDS/ MEDIANS

Curbed sections in the center of the roadway that are physically separated from vehicular traffic. Raised medians or refuge islands shorten crossing distances across large, multi-lane roadways.

EFFICACY: ●●●

COST: ●●○

COMPLEXITY: ●○○

RAISED CROSSWALKS, SPEED TABLES

Pedestrian crossings that are elevated to the level of the sidewalk, with ramps on each vehicle approach.

EFFICACY: ●●●

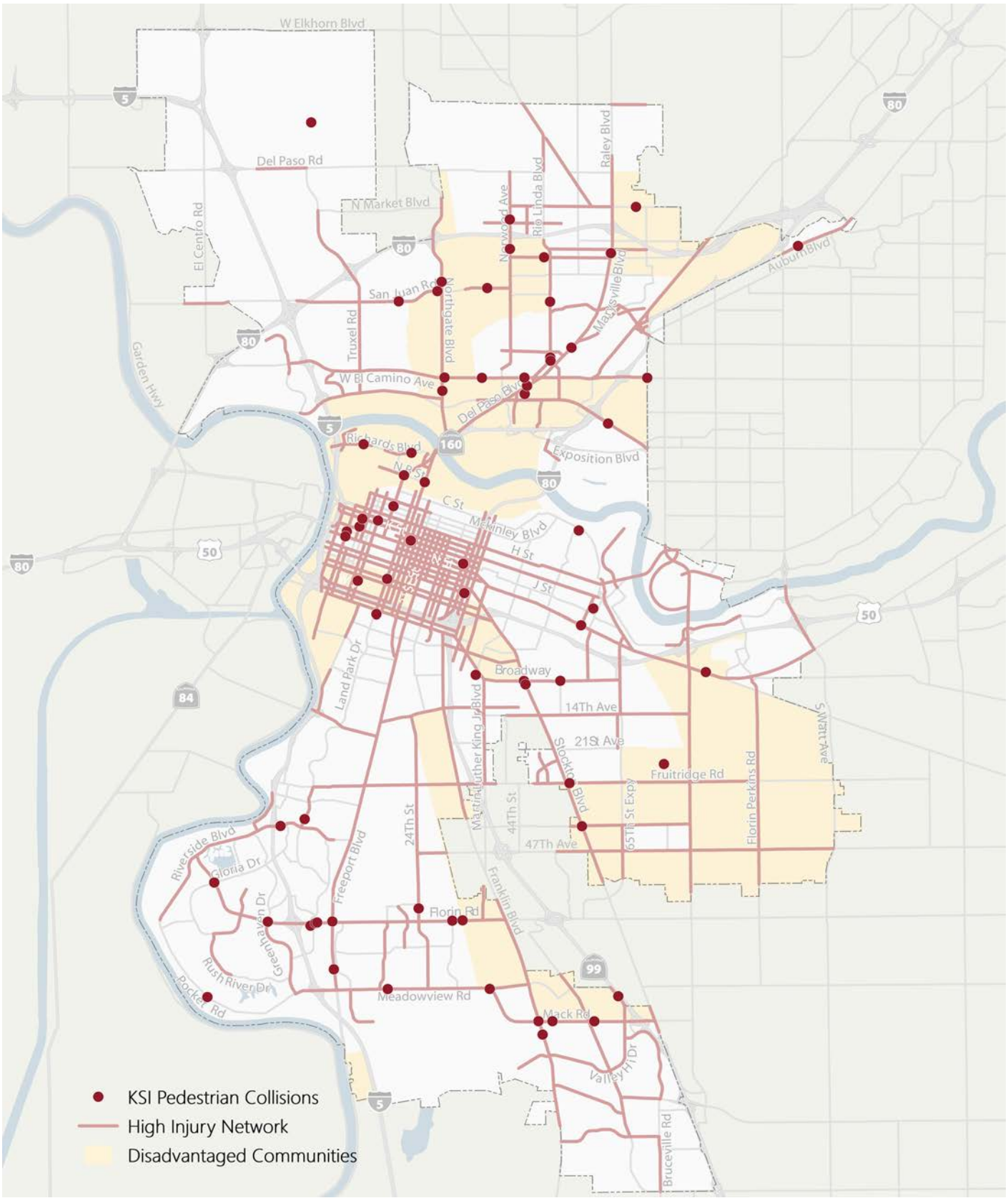
COST: ●●○

COMPLEXITY: ●○○

Pedestrian Refuge Island

MAP 8:

60+ YEAR OLD PEDESTRIANS



PROFILE 9:

PEDESTRIAN CROSSING OUTSIDE OF AN INTERSECTION OR CROSSWALK

The City of Sacramento adopted Pedestrian Crossing Guidelines in October 2014 to guide the implementation of marked crosswalks and enhanced pedestrian crossing treatments.

As part of the City's Vision Zero effort, there is an opportunity to update the Pedestrian Crossing Guidelines and similar guidance documents to better reflect countermeasures that address the collision trends outlined in this section.

FACTORS

Pedestrian action was reported as "crossing not in crosswalk"

Crash occurred more than 100 feet from an intersection

MODES

STATS

53

KSI CRASHES

» Accounts for **22%** of pedestrian KSI crashes

COUNTERMEASURES

HIGH VISIBILITY CROSSWALKS WITH ADVANCE STOP OR YIELD LINES

Distinct pavement markings, such as a continental, zebra or ladder pattern, or a reflective inlay or thermoplastic tape.

EFFICACY: ●●●

COST: ●○○

COMPLEXITY: ●○○

FLASHING BEACON

Pedestrian-activated flashing beacons highlighting crosswalks and pedestrian crossing signs. Flashing beacons provide a high-visibility, bright strobe-like flashing frequency.

EFFICACY: ●●○

COST: ●●○

COMPLEXITY: ●○○

PEDESTRIAN HYBRID BEACON

Pedestrian-activated warning light located on a mast arm over a pedestrian crossing. The beacon stays dark until activated. It has one yellow lens and two red lenses to indicate to drivers that a pedestrian is in the crosswalk.

EFFICACY: ●●●

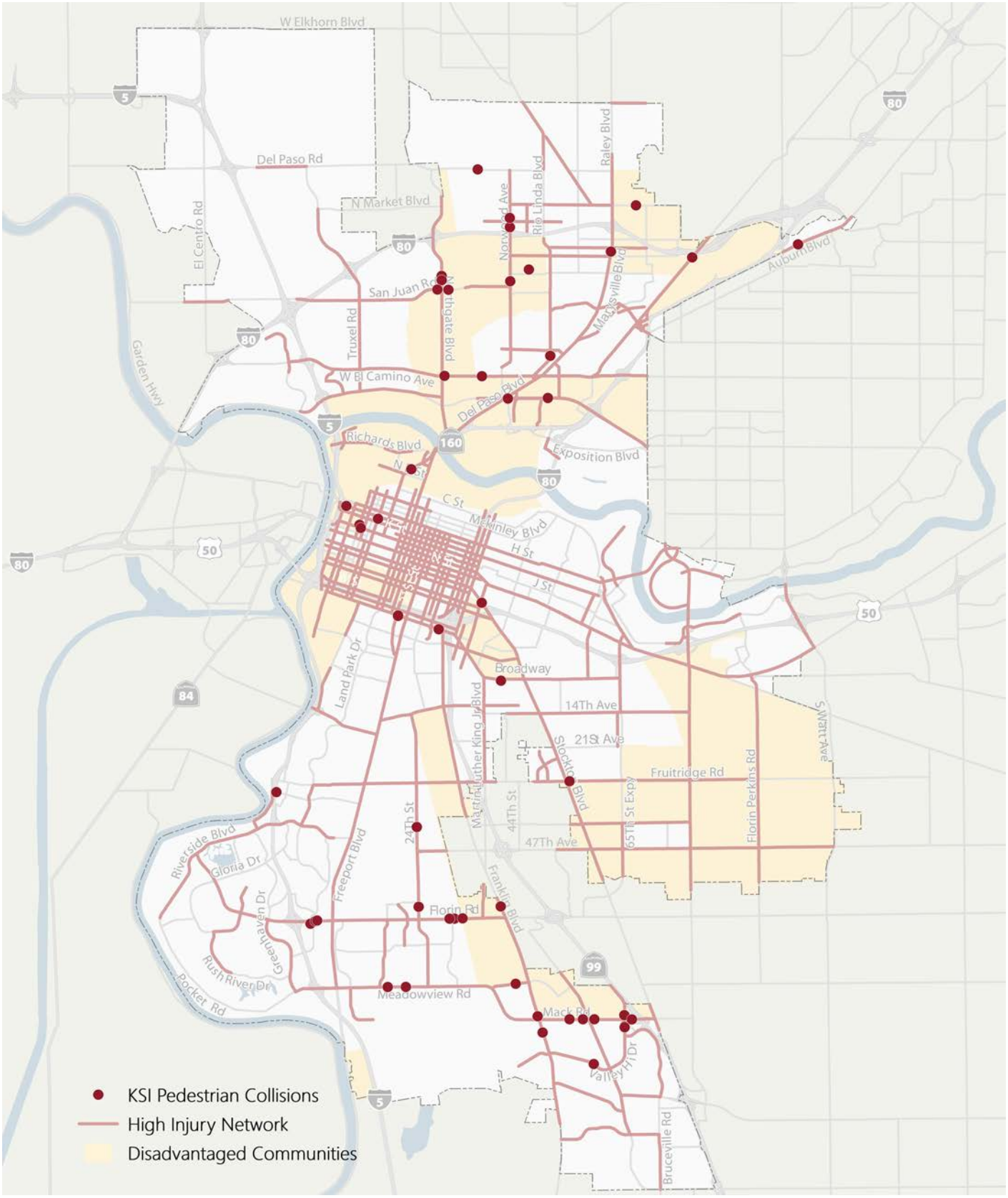
COST: ●●●

COMPLEXITY: ●●○

Pedestrian Hybrid Beacon

MAP 9:

PEDESTRIAN CROSSING OUTSIDE OF AN INTERSECTION OR CROSSWALK



PROFILE 10:

PEDESTRIAN CRASHES NEAR TRANSIT STOPS

FACTORS

Crash occurred within 200 feet of a light rail station or bus stop

MODES

STATS

128

KSI CRASHES

» Accounts for **54%** of pedestrian KSI crashes

COUNTERMEASURES

PEDESTRIAN WARNING SIGNS

Signs such as "Yield Here to Pedestrians" or "Stop Here for Pedestrians" that can be placed at the roadway surface level in advance of the crosswalk, on posts, or overhead.

EFFICACY: ●○○

COST: ●○○

COMPLEXITY: ●○○

BUS STOP SITING

(far side stops)

Bus stops are moved to the far side of an intersection to decrease instances in which riders must cross in front of the bus and oncoming traffic after disembarking. This siting strategy can also improve transit system efficiency.

EFFICACY: ○○○

COST: ●○○

COMPLEXITY: ●○○

FLASHING BEACON FOR TRANSIT ACTIVITY/PEDESTRIAN GATES

Pedestrian gates and flashing beacons to warn pedestrians of approaching light rail vehicles.

EFFICACY: ○○○

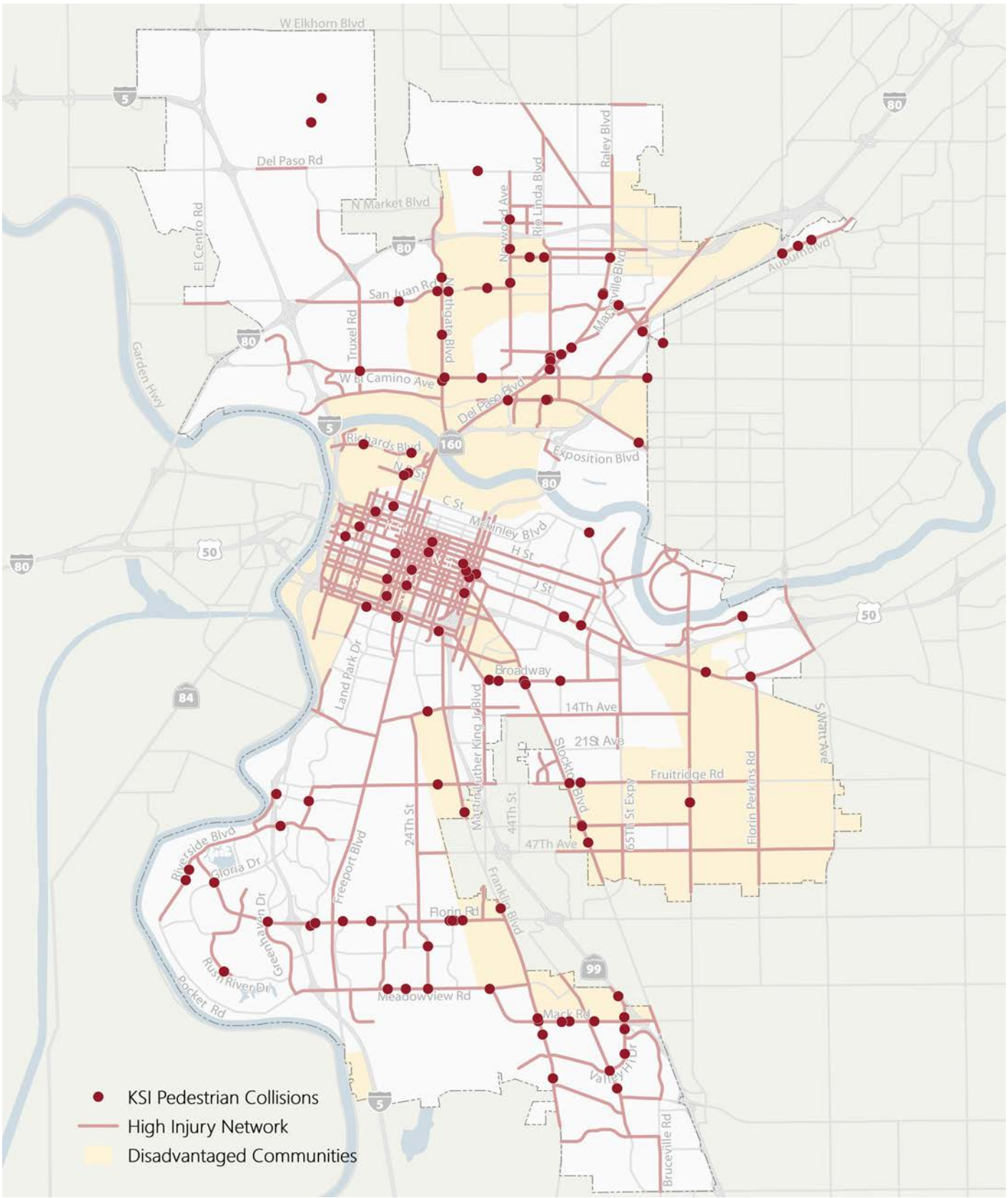
COST: ●●○

COMPLEXITY: ●○○

Pedestrian Warning Sign

MAP 10:

PEDESTRIAN CRASHES NEAR TRANSIT STOPS

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ACTION PLAN

Sacramento adopted its Vision Zero policy in 2017, but the City's efforts to improve traffic safety did not begin there. Numerous safety projects and programs have already been implemented throughout the City.

Our Progress To Date

Here's the most recently implemented programs throughout the City:

1. Installation of the City's first segment of cycle track
2. Sacramento City College Bicycle and Pedestrian Bridge
3. Mid-block crossings with enhanced safety features, such as Rectangular Rapid Flashing Beacons
4. Freeport Blvd road diet, bike lane and pedestrian improvements
5. Carlson Drive Bicycle and Pedestrian Improvements – includes the City's first bicycle signal phase, bike box, and two-stage left-turns for bicyclists
6. C Street bike lane project providing improved school access
7. City of Sacramento monthly Urban Cycling Class
8. Over $22 million in safety grant improvements 2013-2017

The City has also been hard at work securing funding for future projects, including winning a $250,000 grant from Caltrans' Systemic Safety Analysis Report Program and an Office of Traffic Safety Grant for Vision Zero Outreach and Education in 2017. In addition, the City has secured federal engineering and construction funds for the following capital projects currently in project development, many of which are on city arterial roadways:

- A Class IV separated bikeway on North 12th Street - $3,378,000 (on the HIN)
- The Broadway Complete Streets project that includes a road diet, buffered bike lanes, and curb extensions along a major arterial roadway - $2,763,000 (on the HIN)
- The Meadowview Complete Streets which includes buffered bike lanes, separated sidewalks and high visibility crosswalks, in addition to median and streetscape improvements on a high speed arterial roadway identified on the high injury network $4,536,000
- D.W Babcock and Northwood School improvements which include signals, connecting sidewalk gaps, and curb extensions on El Camino Avenue which has been identified on the high injury network: $995,700
- The Franklin Boulevard Complete Streets which is evaluating the road diet of a major arterial roadway on the high injury network to provide bike lanes, street enhancements, and separated sidewalks $800,000
- Class IV separated bikeways along Franklin Boulevard $315,000 (on the HIN)
- Downtown Parking Protected Bikeways $491,000, locally-funded (on the HIN)

The Vision Zero Action Plan will build on these successes to guide proactive implementation of future safety projects focused on eliminating fatalities and serious injuries for all roadway users by 2027.

Acknowledgment of Preventable Incidents: Crash, Not Accident

The City of Sacramento commits to using the word "crash," not "accident," to acknowledge that these incidents can be systematically addressed.

In adopting this language, the City joins a long list of local, state and federal agencies with similar policies. In a 2014 letter to Federal Highway Administration staff, George L. Reagle, Associate Administrator for Motor Carriers at the U.S. Department of Transportation wrote:[14]

> *Changing the way we think about events and the words we use to describe them affects the way we behave. Motor vehicle crashes occur "when a link or several links in the chain" are broken. Continued use of the word "accident" implies that these events are outside human influence or control. In reality, they are predictable results of specific actions…*
>
> *The Federal Highway Administration has joined the National Highway Traffic Safety Administration in declaring that the word "accident" will no longer be used in materials we publish, in speeches or other statements, or in communications with the media and others.*

Implementable Actions

Vision Zero implementation will involve a committed team of City departments, the Sacramento community, and partner organizations. This team has identified a set of key actions to serve as a roadmap towards Vision Zero. Every action is assigned a time frame, a metric to measure progress, and a core leadership group. Short-term actions will be implemented within 0-2 years and long-term actions will be implemented within 2-10 years. The implementable actions directly address the Plan's 10 Crash Profiles.

The Implementable Actions are organized into five action areas:

1. Vision Zero Program
2. Street Design
3. Dangerous Behaviors
4. Access to Key Destinations
5. Vulnerable Road Users

Performance Measures

The City's primary performance measure to evaluate progress is the change in the number of KSI crashes, with the ultimate goal to reach zero KSI crashes by 2027. The City will also measure its progress based on the change in the number of crashes under each of the 10 Crash Profiles. In its annual Vision Zero progress report, the City will also measure progress on each of the Implementable Actions identified in the Action Plan.

Next Steps

One significant next step that the City is already working towards is identifying the first engineering projects to implement on Sacramento's streets. These projects will be located along the HIN, and will incorporate the countermeasures identified in this Plan to combat the crash types identified in the Crash Profiles. The specific locations, project scopes, and cost estimates must be developed for candidate projects, and then the projects will be prioritized for implementation. The City of Sacramento has secured $250,000 grant funding from Caltrans' Systemic safety Analysis Report Program to do this work.

VISION ZERO ACTIONS

	ACTION
1. VISION ZERO PROGRAM	
1.1	Include Vision Zero on agendas for all City sponsored meetings, and education opportunities such as the Planning Academy.
1.2	Convene regular meetings of executive-level departmental representatives to coordinate Vision Zero efforts.
1.3	Develop a workshop for media professionals on how to best communicate about traffic crashes and roadway safety.
1.4	Launch online, interactive crash data map and website.
1.5	Identify a permanent, dedicated funding source for Vision Zero implementation and coordination.
1.6	Incorporate Vision Zero safety principles into all future City plans and design documents.
1.7	Provide ongoing safety related training and support to City staff responsible for street design and enforcement activities.
1.8	Publish an annual report to measure progress against the goals of the Action Plan.
2. STREET DESIGN (ADDRESSES PROFILES 3 & 4)	
2.1	Update City street design standards to reflect complete streets and designs reflective of crash reduction factors.
2.2	Develop designs and secure grant funding for first Top 5 priority corridors, with a focus on roadway designs for reduced speeds.
2.3	Install low-cost safety improvements at 10 locations, including new road markings, signs, and minor signal modifications per year.
2.4	Develop prioritized list and deliver half of engineering safety projects on the HIN in Disadvantaged Communities (commensurate with share of fatal collisions).
2.5	Establish internal process to ensure that Vision Zero countermeasure options are evaluated and implemented where feasible on projects that fall within the HIN.
2.6	Enhance street lighting to improve visibility throughout the HIN.
2.7	Prioritize at least 10 capital project locations on HIN to address roadway designs for reduced speeds; develop project designs and secure funding. Focus on geographic equity and Disadvantaged Communities.
2.8	Work with local, state and federal partners to update the current 85th percentile methodology for setting speed limits.

TIME LINE	PARTNERS	METRIC
Short-Term	CC, NA	Number of meetings with Vision Zero on agenda
Short-Term	PW, CD, PR, SPD, CMO	Number of executive-level participants
Long-Term	CMO	Number of media professionals participating
Long-Term	IT	Number of website visitors
Short-Term	CC	Amount of funding available for Vision Zero
Long-Term	CD, PW	Number of plans and policies incorporating Vision Zero
Long-Term	SPD	Share of SPD officers trained
Long-Term	PW	Annual report addressing all metrics and performance measures
Short-Term	PW	Design standards updated
Short-Term	PW	Number of projects implemented
Short-Term	PW	Number of projects implemented
Long-Term	PW	Share of projects delivered in Disadvantaged Communities
Long-Term	PW, CD	Share of public and private projects incorporating Vision Zero elements
Long-Term	PW	Share of HIN with upgraded street lighting
Long-Term	PW	Number of project implemented. Geographic distribution of projects. Share of projects in Disadvantaged Communities.
Long-Term	GP	Number of local, state and federal policy changes to support Vision Zero

Partner Acronyms

BID Business Improvement Districts
CC City Council
CD Community Development
CMO City Manager's Office
GP Government partners (SACOG, State Legislature, Governor's Office, League of CA Cities)
IT Information Technology
NA Neighborhood Associations
PO Partner Organizations (AARP, SABA, Walk Sacramento, etc.)
PR Parks & Recreation
PW Public Works
RT Sacramento Regional Transit
SD School Districts
SPD Sacramento Police Department
TNC Lyft, Uber, Taxi companies

	ACTION
3. DANGEROUS BEHAVIORS (ADDRESSES PROFILES 1 & 2)	
3.1	Launch high-visibility education PSA campaigns against speeding, distracted driving, impaired driving, and other high-risk behaviors. Campaigns will focus on HIN corridors.
3.2	Explore opportunities to expand free or subsidized transit fares during holidays and for special events.
3.3	Increase the use of speed feedback signs to discourage speeding.
3.4	Support state Automated Speed Enforcement legislation.
3.5	Launch high-visibility enforcement campaigns against speeding, failure to yield to pedestrians, distracted driving, and impaired driving. Campaigns will focus on HIN corridors.
3.6	Deter impaired driving by targeting education and outreach at alcohol-serving establishments.
3.7	Develop public promotional campaign to encourage late-night transit, taxi, rideshare, and other services to provide alternatives to impaired driving.
3.8	Increase number of traffic enforcement officers to number recommended by best practices.
3.9	Integrate Vision Zero curriculum into PD Academy curriculum and in-service Police Officer training.
3.10	Improve data collection and reporting on speed, impairment, cell phone use, and distraction for KSI collisions.
3.11	Work with local, state and federal partners to lower legal blood alcohol levels.
4. ACCESS TO KEY DESTINATIONS (ADDRESSES PROFILES 7 & 10)	
4.1	Install at least one low-cost or pilot project engineering countermeasure project in a neighborhood-serving commercial area each year.
4.2	Improve safe pedestrian and bicycle access to transit stops along key bus routes and near light rail stations.
4.3	Prioritize at least 10 capital project locations on HIN to improve access to commercial areas and transit stops; develop project designs and secure funding. Focus on geographic equity and Disadvantaged Communities.
4.4	Evaluate school areas eligible for reduced speed limits and implement.

TIME LINE	PARTNERS	METRIC
Short-Term	SPD	Number of peopled reached
Short-Term	RT	Number of people using free or subsidized fares
Short-Term	PW	Number of signs installed
Short-Term	CC, SPD, GP	Adoption of state legislation
Short-Term	SPD	Number of enforcement campaigns
Long-Term	SPD, BID	Number of establishments reached
Long-Term	SPD, TNC, RT	Number of people reached
Long-Term	SPD	Number of traffic officers
Long-Term	SPD	Number of officers trained on Vision Zero
Long-Term	SPD	Share of collision records including this data
Long-Term	GP	Number of local, state and federal policy changes to support lowering legal blood alcohol levels
Short-Term	PW, NA, BID	Number of projects implemented
Long-Term	PW, RT	Share of transit stops and stations that have improved access
Long-Term	PW, BID, RT	Number of project implemented. Geographic distribution of projects. Share of projects in Disadvantaged Communities.
Long-Term	PW, SD	Share of schools with a school zone

Partner Acronyms

BID Business Improvement Districts
CC City Council
CD Community Development
CMO City Manager's Office
GP Government partners (SACOG, State Legislature, Governor's Office, League of CA Cities)
IT Information Technology
NA Neighborhood Associations
PO Partner Organizations (AARP, SABA, Walk Sacramento, etc.)
PR Parks & Recreation
PW Public Works
RT Sacramento Regional Transit
SD School Districts
SPD Sacramento Police Department
TNC Lyft, Uber, Taxi companies

	ACTION
5. VULNERABLE ROAD USERS (ADDRESSES PROFILES 5, 6, 8 & 9)	
5.1	Collaborate with local stakeholders near the HIN with a special emphasis on reaching vulnerable and under served populations.
5.2	Revisit pedestrian crossing guidelines for signalized and unsignalized intersections.
5.3	Develop PSA campaign aimed at drivers to increase safety for pedestrians age 60+.
5.4	Update City signal timing policy to improve safety for all modes (e.g. all red time, pedestrian crossing times).
5.5	Complete 10 projects that improve bicycle and pedestrian safety related to turning vehicles at intersections.
5.6	Continue building the enhanced bikeway network consistent with the Bicycle Master Plan.
5.7	Install at least 10 pedestrian crossing treatments on the HIN.
5.8	Install pedestrian countdown timers at every signalized crossing location throughout the City.
5.9	Develop and implement at least 10 trust-building opportunities related to traffic safety among law enforcement and low-income communities, and communities of color.
5.10	Establish regular pedestrian and bicyclist counts at consistent locations in order to understand collision rates and exposure, develop walking and biking data that can be analyzed over time, and assist in prioritizing investments.

TIME LINE	PARTNERS	METRIC
Short-Term	PW, NA, PO	Number of public meetings
Short-Term	PW	Share of crossings meeting design criteria
Short-Term	CMO, PO	Estimated number of people reached
Short-Term	PW	Share of signals meeting updated policy
Long-Term	PW	Number of projects implemented
Long-Term	PW	Lane miles of low-stress facilities installed
Long-Term	PW	Share of crossings that have been upgraded
Long-Term	PW	Share of crossings with countdown timers
Long-Term	SPD, NA, PO	Number of public meetings & events
Long-Term	PW, PO	Number of counts that have taken place

Partner Acronyms

BID Business Improvement Districts
CC City Council
CD Community Development
CMO City Manager's Office
GP Government partners (SACOG, State Legislature, Governor's Office, League of CA Cities)
IT Information Technology
NA Neighborhood Associations
PO Partner Organizations (AARP, SABA, Walk Sacramento, etc.)
PR Parks & Recreation
PW Public Works
RT Sacramento Regional Transit
SD School Districts
SPD Sacramento Police Department
TNC Lyft, Uber, Taxi companies

ACKNOWLEDGMENTS

Elected Officials

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Mayor

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Allen Warren (District 2)

Jeff Harris (District 3)

Steve Hansen (District 4)

Jay Schenirer (District 5)

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[8] Disadvantaged Communities are defined under California State Senate Bill 535 as the top 25% of census tracts within the State of California with the highest CalEnviroScreen 2.0 score. CalEnviroScreen 3.0, which provides the most recent available health and environmental indicator data, had not yet been released at the time of our analysis.

[9] A database was built using geocoded crash data from the Transportation Injury Mapping System (TIMS), managed by the Safe Transportation Research and Education Center (SafeTREC) at the University of California, Berkeley.

[10] California Highway Patrol. Collision Investigation Manual. Revised February 2003.

[11] California Vehicle Code Section 22350.

[12] Efficacy estimates are based on the latest road safety research compiled by Caltrans and the Federal Highway Safety Administration.

[13] Centers for Disease Control and Prevention. What Works: Strategies to Reduce or Prevent Drunk Driving. Retrieved from: https://www.cdc.gov/motorvehiclesafety/impaired_driving/strategies.html

[14] Reagle, G.L. A Crash is Not an Accident. Federal Motor Carrier Safety Administration. March 4, 2014. https://www.fmcsa.dot.gov/newsroom/crash-not-accident


TOWER
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Land Park
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NO CRUISING OR LOITERING
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