



SACRAMENTO COUNTY LOCAL ROAD SAFETY PLAN

JANUARY 2022

PREPARED FOR:

COUNTY OF SACRAMENTO – DEPARTMENT OF TRANSPORTATION



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Prepared for County of Sacramento
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INTRODUCTION

This Local Road Safety Plan (LRSP) represents the next step in Sacramento County's continued commitment to transportation safety. This Plan provides a summary of key safety emphasis areas identified through stakeholder outreach and analysis of recent crash data. The emphasis areas provide the framework for this document, with each one providing a focus for two additional elements:

1. Quantitative goals that will be used to evaluate the success of the Plan.
2. Associated strategies to help achieve those goals.

Ultimately, this Plan identifies high-level safety needs and strategies to address those needs, ensuring continued eligibility for State and Federal funding to implement safety projects throughout the County. Safety project prioritization and selection require further review of individual location or segment to analyze specific problems and their countermeasures, though this plan provides many of the tools and emphasis areas to help with any future effort.

VISION STATEMENT

To progressively reduce Fatal and Severe Injury crashes in Unincorporated Sacramento County.

SAFETY PARTNERS AND STAKEHOLDERS

One of the critical pieces of this Plan is that it was not generated solely by County Staff and a consultant team but was the genesis of a team of stakeholders representing a range of needs, priorities, and perspectives throughout the County. While the following list of stakeholders includes the specific people present at project workshops, each represents a broader community of interested parties. Further project awareness and opportunity for public input was provided through a project website.

STAKEHOLDER LIST

James Boyle, *Sacramento Regional Transit District*

B Callaway, *California Highway Patrol*

J Carlisle, *California Highway Patrol*

Chrishana Fields, *Sacramento Metropolitan Fire District*

Clint Holtzen, *Sacramento Area Council of Governments*

Robin Johnson, *California Highway Patrol*

Mikki McDaniel, *Sacramento County Department of Transportation; Sacramento County Bicycle Advisory Committee*

Sam Shelton, *Sacramento Area Council of Governments*

Greg Zumstein, *California Highway Patrol*

PROCESS

Sacramento County Department of Transportation (SacDOT) initiated the procurement process for this project in December 2019 when county staff applied for a grant to develop a Local Roadway Safety Plan. SacDOT was granted the funding in January 2020, which resulted in the release of an RFP in October 2020 and selection of DKS Associates to perform the work in November 2020.

LRSP was developed over the past 12 months, starting in November 2020. The process has incorporated County efforts to apply for and secure funding for this effort, consultant procurement, identification of a project team and stakeholders, data collection and analysis, and ultimately drafting of the Plan.

IDENTIFICATION OF TEAM MEMBERS

The core project delivery team consisted of representatives from SacDOT and DKS Associates. To further assist in development of content and document review, an initial group of potential stakeholders representing emergency and enforcement services, regional agencies and school districts, and relevant public committees were identified and contacted. The stakeholders that responded expressing interest in the project and willingness to commit to providing input and review throughout the project became the Stakeholder Working Group.

STAKEHOLDER OUTREACH AND WORKSHOPS

Stakeholder input was requested at three critical points during the project process:

- Determination of Emphasis Areas and Goals
- Identification of Strategies
- Preparation of Draft Plan

The stakeholders were engaged each time through a combination of presentation, workshop, and a period of time for document review and feedback. Stakeholders were encouraged to distribute the draft documents internally to their relevant committees, departments, or agencies for further review and comment.

PUBLIC OUTREACH

This project benefitted greatly from a parallel effort to prepare an Active Transportation Plan (ATP) for Sacramento County that involved significant public outreach and engagement focused on safety concerns and active transportation needs Countywide. LRSP incorporates that comprehensive public outreach effort in the identification of pedestrian- and bicycle-related safety needs and perceived issues throughout the county. Additional public outreach and engagement was facilitated through distribution of approved project memos through the project website and presentation of project materials and conclusions to public committees. Ultimately the Final Plan will be presented to the County Board of Supervisors.

TIMELINE

This Plan proceeded along the following Timeline:

- December 2019 – Application for Caltrans LRSP Grant
- January 2020 – Award of Caltrans LRSP Grant
- October 2020 – Advertise LRSP RFP and begin Consultant Procurement
- November 2020 – Award LRSP contract to Consultant and Project Kick-Off
- February 2021 – Finalization of Stakeholder Working Group and First Workshop
- March 2021 – Second LRSP Stakeholder Workshop
- September 2021 – Third LRSP Stakeholder Strategy Workshop
- November 2021 – Draft LRSP Plan submitted to Sacramento County DOT staff for review and comments.
- January 2022 – Final Plan submitted to Sacramento County DOT
- May 2022 – Final Plan approval by Board of Supervisors

EXISTING SAFETY PROGRAMS

NEIGHBORHOOD TRAFFIC MANAGEMENT PROGRAM (2006)

The Neighborhood Traffic Management Program was conceptualized to better accommodate residents' requests to treat neighborhood traffic-related concerns, provide DOT staff with a systematic approach to handling neighborhood traffic requests, and create a broader set of tools to address those concerns in both urban and rural neighborhoods. The program provides a framework and guidelines, but not requirements, for systematically selecting and prioritizing streets and neighborhood areas for treatment, selection and application of neighborhood traffic management devices, and design of new neighborhoods to minimize the future need for neighborhood traffic management.

COLLISION SURVEILLANCE PROGRAM (1998)

The Collision Surveillance Program is an ongoing program that utilizes the Crossroads traffic collision database software to identify locations with repeated crashes. It utilizes certain thresholds determined by the type of facility or type of observed crashes to trigger an investigation into possible causes and may result in safety improvement recommendations.

SACRAMENTO COUNTY ACTIVE TRANSPORTATION PLAN (ATP) (EXPECTED 2022)

The Active Transportation Plan is a current effort to combine the existing Bicycle Master Plan and Pedestrian Master Plan into a comprehensive document, including a countywide analysis of crashes involving people walking and biking, identification of active transportation projects, and development of a project prioritization process based on factors such as safety, equity, connectivity and accessibility, feasibility, and community need. The Draft Active Transportation Plan will go to the Board of Supervisors as a workshop item in February 2022 with adoption expected in October 2022.

SACRAMENTO COUNTY HSIP GRANT APPLICATIONS (ONGOING)

Sacramento County has applied for and received state and federal funds for the construction of safety improvements through the Caltrans highway Safety Improvement Program (HSIP). Funding has been awarded to Sacramento County for HSIP cycles 7 through 10 for a total of \$17,015,660 in federal funds and \$1,815,700 granted in state funds. The County currently plans to apply for HSIP Cycle 11 (Q2 2022) funds, utilizing the conclusions and recommendations from this plan to assist with project selection.

DATA SUMMARY

DATA SOURCES

To support the project analysis, a variety of information related to the existing conditions such as existing safety issues (obtained through collision data) is required. This information was compiled from different sources, including the Statewide Integrated Traffic Records System (SWITRS) and Transportation Injury Mapping System (TIMS). The crash data analyzed for this project included all crashes recorded in SWITRS and/or TIMS during the five-year period between January 1, 2015, and December 31, 2019.

STATEWIDE INTEGRATED TRAFFIC RECORDS SYSTEM (SWITRS)

The Statewide Integrated Traffic Records System (SWITRS) is a database¹ that serves as a means to collect and process California crash data gathered from a collision scene. SWITRS processes all reported crashes that occurred on California's state highways and all other roadways, excluding private property. SWITRS allows for the creation of custom reports requested by the user based on different categories including, but not limited to locations, dates, and collision types.

TRANSPORTATION INJURY MAPPING SYSTEM (TIMS)

The Transportation Injury Mapping System (TIMS) is a crash mapping and analysis application² developed by SafeTREC to process and geocode crash data available by SWITRS. Specifically, the project looked at the needs of agencies to geocode and map the crashes in an efficient and simple manner. Further grants from OTS allowed SafeTREC to develop a geocoding methodology and apply it to SWITRS data statewide. As such, TIMS provides processed and cleaned data, but only includes fatal and injury crashes, excluding all crash reports resulting in only property damage.

¹ <https://www.chp.ca.gov/iswtrs/>

² Transportation Injury Mapping System (TIMS), Safe Transportation Research and Education Center, University of California, Berkeley. 2021, <https://tims.berkeley.edu/>

CRASH RECORD DATA

Crash records are available categorized at three different levels: by collision, by party (vehicle), and by victim. All three levels are linked by a unique Case ID for each collision. Crash records provide all data collected by the reporting officer, including crash identification (jurisdiction, route and postmile, location, date, time), demographics (sex, age, race, sobriety, safety equipment usage), environmental (lighting, weather, road surface), and crash details (primary collision factor, type of collision, vehicle/party type, severity). A codebook detailing the SWITRS crash definitions is available on the SWITRS website or from TIMS³.

For this project and most other safety analyses, the collision severity is defined in the Highway Safety Manual (HSM) as follows:

- Fatal injury: A collision that results in the death of a person within 30 days of the collision.
- Severe (incapacitating) injury: A collision that results in broken bones, dislocation, severe lacerations, or unconsciousness, but not death.
- Other visible (non-incapacitating) injury: A collision that results in other visible injuries, including minor lacerations, bruising, and rashes.
- Possible injury (complaint of pain): A collision that results in the complaint of non-visible pain/injury, such as confusion, limping, and soreness.
- Property damage only (PDO): A collision without injury or complaint of pain but resulting in property damage to a vehicle or other object, commonly referred to as a “fender bender.”⁴

The most severe crashes, characterized as FSI (Fatal or Severely Injured), are the main focus of this analysis.

³ https://tims.berkeley.edu/help/files/SWITRS_codebook_20180719.doc

⁴ PDO collisions do not include mechanical issues, such as a flat tire unless the failure results in a collision with another vehicle or object.

COLLISION TRENDS

The crash data was collected, mapped, and analyzed using physical environment, vehicles involved, contributing factors, and driver age in order to determine unincorporated countywide crash trends and areas where potential deficiencies and need for improvements exist. A review of crash data by year and severity (as illustrated in Figure 1) shows that while the frequency of lower severity crashes has remained relatively flat over the last five years, the number of severe injury and fatal crashes has continued to grow over the same period, reinforcing the relevance of the Plan Vision Statement and the need for projects and programs that will reduce fatal and severe injury crashes in Sacramento County. Figure 2 provides a map of FSI crashes that have occurred in unincorporated Sacramento County in the five-year period between 2015 and 2019.

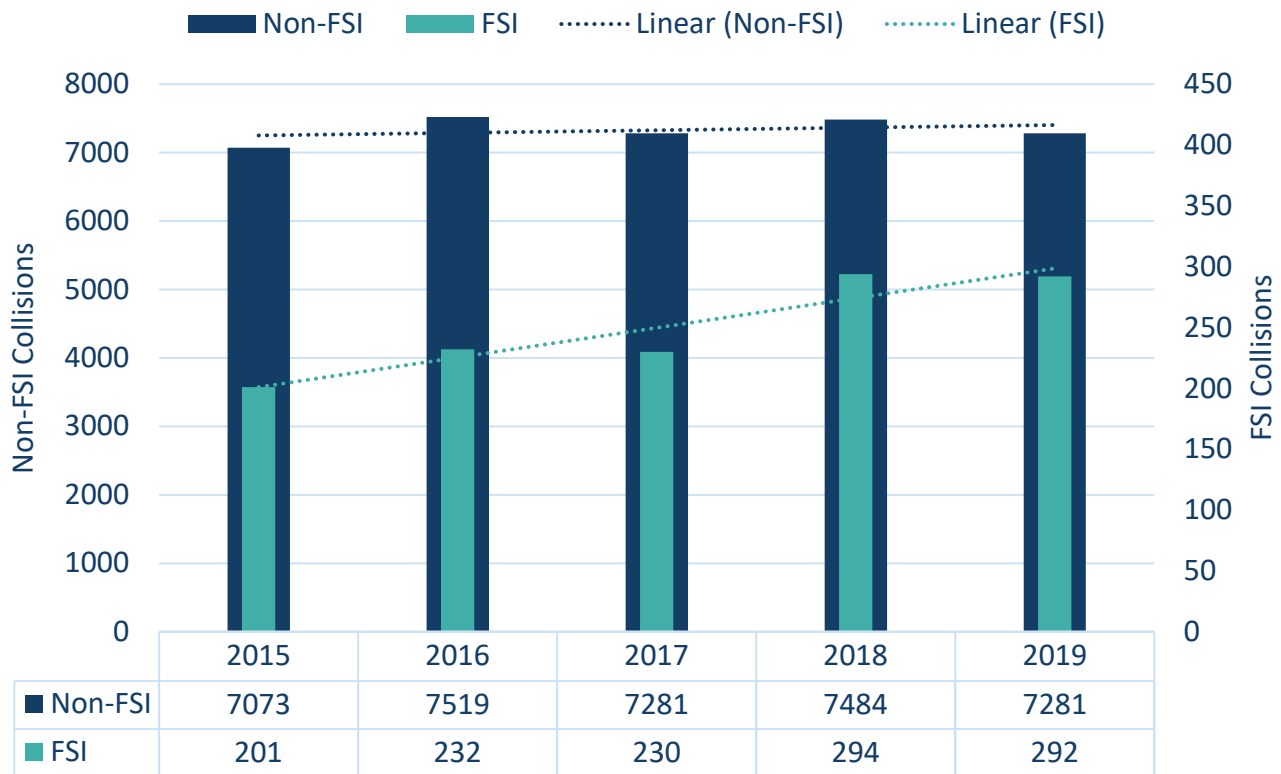


FIGURE 1: SACRAMENTO COUNTY COLLISION TRENDS BY YEAR (2015-2019)

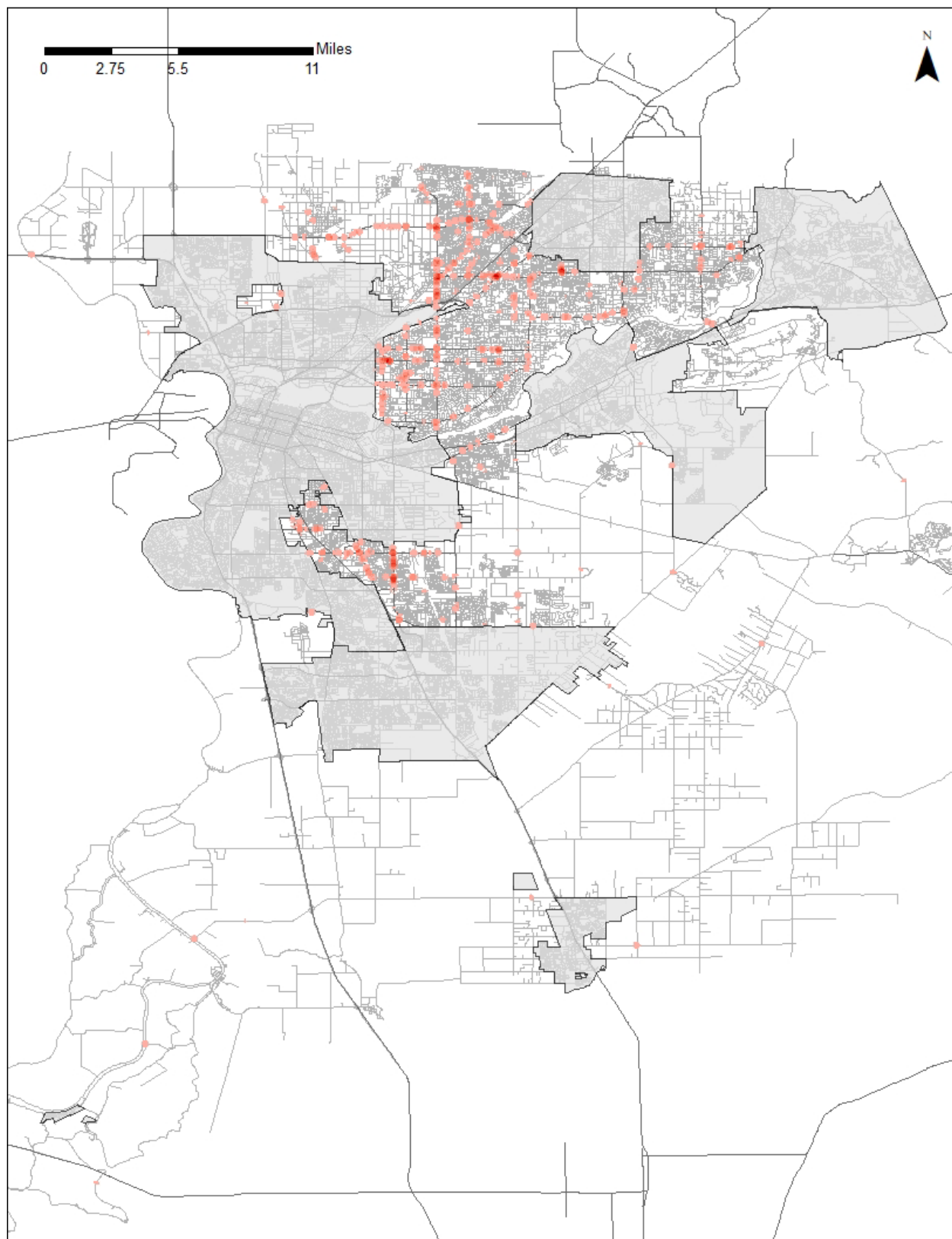


FIGURE 2: FATAL AND SERIOUS INJURY COLLISIONS LOCATION HEAT MAP (2015-2019)

Following are the top 10 locations in the County for fatal and serious injury crash locations from 2015 to 2019 along with the number of FSI crashes and associated yearly crash rate.

1. Madison Ave and Auburn Blvd (9 FSI crashes, 1.8 crashes/year)
2. Power Inn Rd and Gerber Rd (8 FSI crashes, 1.6 crashes/year)
3. Elkhorn Blvd and Watt Ave (7 FSI crashes, 1.4 crashes/year)
4. Madison Ave and Dewey Dr (7 FSI crashes, 1.4 crashes/year)
5. El Camino Ave and Bell St (7 FSI crashes, 1.4 crashes/year)
6. Walerga Rd and Elkhorn Blvd (7 FSI crashes, 1.4 crashes/year)
7. Marconi Ave and Walnut Ave (7 FSI crashes, 1.4 crashes/year)
8. Power Inn Rd and Florin Rd (6 FSI crashes, 1.2 crashes/year)
9. Watt Ave and Roseville Rd (4 FSI crashes, 0.8 crashes/year)
10. Power Inn Rd and 68th Ave (2 FSI crashes, 0.4 crashes/year)

Figure 3 shows non-FSI crashes that have occurred in unincorporated Sacramento County in the five-year period between 2015 and 2019.

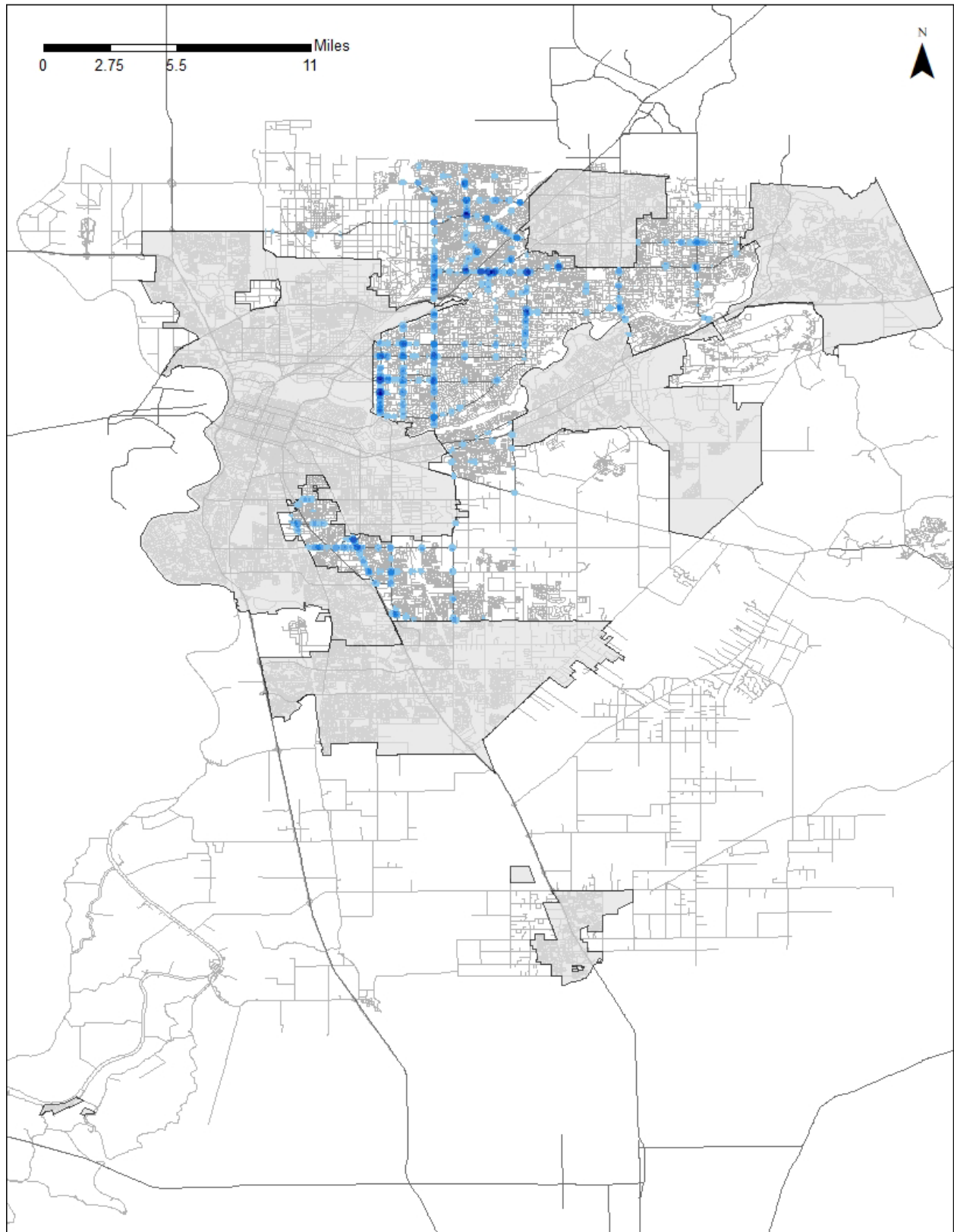


FIGURE 3: NON-FATAL, NON-SERIOUS INJURY COLLISION LOCATION HEAT MAP (2015-2019)

Following are the top 10 locations in the County for non-FSI crash locations in a five-year period.

- | | |
|-----------------------------------|-------------------------------------|
| 1. Elkhorn Blvd and Walerga Rd | 6. Manzanita Ave and Fair Oaks Blvd |
| 2. Madison Ave and Hillsdale Blvd | 7. Howe Ave and Arden Way |
| 3. Madison Ave and College Oak Dr | 8. Howe Ave and Hurley Way |
| 4. Madison Ave and Auburn Blvd | 9. 65th St and Stockton Blvd |
| 5. Madison Ave and Manzanita Ave | 10. Calvine Rd and Power Inn Rd |

PHYSICAL ENVIRONMENT

The crash data was categorized by facility type to determine the type of facility where the majority of crashes were occurring, as well as if there is any shift in the trend for the most severe crashes. Table 1 shows that almost three out of every four crashes occur at or related to an intersection. When FSI crashes are considered, that slightly decreases to two out of every three crashes and remains a large portion of the crashes.

TABLE 1: FACILITY TYPE BY SEVERITY – FIVE YEARS (2015-2019)

COLLISION LOCATION	FSI		NON-FSI	
	COUNT	PERCENTAGE	COUNT	PERCENTAGE
INTERSECTION	859	69%	27,189	74%
SEGMENT	390	31%	9,449	26%
TOTAL	1,249		36,638	

Table 2 provides a summary of crashes by lighting conditions, showing that the majority of crashes occur under daylight or lit conditions, and confirm that less than 1% crashes occur at locations where streetlights are installed but not functioning. With 13% of FSI crashes and 6% of non-FSI crashes occurring in locations with no streetlights, it provides an additional factor that could be considered on a case-by-case basis when combined with other factors.

TABLE 2: LIGHTING CONDITION BY SEVERITY – FIVE YEARS (2015-2019)

LIGHTING CONDITIONS	FSI		NON-FSI	
	COUNT	PERCENTAGE	COUNT	PERCENTAGE
DAYLIGHT	602	48%	25,477	70%
DARK – STREET LIGHTS	439	35%	7,754	21%
DARK – NO STREET LIGHTS	165	13%	2,325	6%
DUSK - DAWN	39	3%	1,066	3%
DARK – STREET LIGHTS NOT FUNCTIONING	4	<1%	53	<1%

CONTRIBUTING FACTORS

Understanding the potential causes of crashes can be one of the most useful tools in diagnosing crash records. Table 3 summarizes the top primary collision factors in crashes. For non-FSI crashes, unsafe speed is by far the highest occurring contributing factor. However, FSI crashes show a much different situation, with driving under the influence of alcohol and/or other drugs (DUI) being the most prevalent with 19% of FSI crashes, despite only being 8% of non-FSI crashes. Next highest is pedestrian violations with 17% of FSI crashes despite being only 1% of non-FSI crashes.

PRIMARY COLLISION FACTOR	FSI		NON-FSI	
	COUNT	PERCENTAGE	COUNT	PERCENTAGE
DUI – DRIVING OR BIKING	243	19%	2,747	8%
PEDESTRIAN VIOLATION	210	17%	295	1%
IMPROPER TURNING	201	16%	7,105	19%
UNSAFE SPEED	162	13%	10,566	29%
AUTOMOBILE RIGHT OF WAY	158	13%	5,904	16%
TRAFFIC SIGNALS AND SIGNS	103	8%	2,483	7%
WRONG SIDE OF ROAD	61	5%	810	2%
OTHER	95	10%	6,558	18%

Table 4 looks at any crashes where alcohol was involved, showing an increase proportion for FSI crashes, meaning that higher severities occur even when alcohol was not the primary cause for a crash.

TABLE 3: PRIMARY COLLISION FACTORS BY SEVERITY – FIVE YEARS (2015-2019)

PRIMARY COLLISION FACTOR	FSI		NON-FSI	
	COUNT	PERCENTAGE	COUNT	PERCENTAGE
DUI – DRIVING OR BIKING	243	19%	2,747	8%
PEDESTRIAN VIOLATION	210	17%	295	1%
IMPROPER TURNING	201	16%	7,105	19%
UNSAFE SPEED	162	13%	10,566	29%
AUTOMOBILE RIGHT OF WAY	158	13%	5,904	16%
TRAFFIC SIGNALS AND SIGNS	103	8%	2,483	7%
WRONG SIDE OF ROAD	61	5%	810	2%
OTHER	95	10%	6,558	18%

TABLE 4: ALCOHOL INVOLVEMENT BY SEVERITY – FIVE-YEARS (2015-2019)

ALCOHOL INVOLVEMENT	FSI		NON-FSI	
	COUNT	PERCENTAGE	COUNT	PERCENTAGE
YES	309	25%	3,001	8%
NO	940	75%	33,637	92%

VEHICLES INVOLVED

While motor vehicles often make up the majority of vehicles utilizing the roadway; pedestrians, bicyclists, and motorcyclists represent a much more vulnerable set of users on the roadway. This is clearly shown in Table 5 which shows 91% of non-FSI crashes only involve cars while 55% of FSI crashes involving a pedestrian, bicyclist, or motorcycle. Pedestrians represent the most affected vulnerable users, with 25% of FSI crashes involving a pedestrian.

TABLE 5: VEHICLES INVOLVED BY SEVERITY – FIVE YEARS (2015-2019)

DRIVER AGE	FSI		NON-FSI	
	COUNT	PERCENTAGE	COUNT	PERCENTAGE
MOTOR VEHICLES	563	45%	34,114	91%
PEDESTRIAN	313	25%	686	3%
MOTORCYCLE	242	19%	786	3%
BICYCLE	131	11%	1,052	3%

DRIVER AGE

Another potential indicator of user vulnerability is driver age, whether from inexperience or reduction in vision and reaction time. Table 6 however does not show any indication that a higher than expected number of crashes are occurring due to the age of driver in Sacramento County, nor that a higher proportion of severe crashes are due to age.

TABLE 6: DRIVER AGE BY SEVERITY – FIVE YEARS (2015-2019)

DRIVER AGE	FSI		NON-FSI	
	COUNT	PERCENTAGE	COUNT	PERCENTAGE
MIDDLE-AGED DRIVER (21-64 YRS OLD)	682	79%	21,935	76%
YOUNG DRIVER (15-20 YRS OLD)	100	12%	4,159	14%
AGING DRIVER (65+)	81	9%	2,691	9%

EMPHASIS AREAS

Emphasis Areas provide a strategic framework for developing and implementing strategies and actions for the LRSP. The Emphasis Areas were developed, using the results of crash data analysis and input from staff and stakeholders. For the development of strategies, the Emphasis Areas were categorized in four broader groups: Vulnerable Users, Risky Behaviors, Infrastructure, and Improved Systems. Each group is described below with the associated Emphasis Areas.

VULNERABLE USERS

Vulnerable road users can be characterized by the amount of protection they have when using the transportation system. For example, pedestrians, bicyclists, and motorcyclists are more exposed than people in vehicles, making them more susceptible to injury in the event of a crash. In Sacramento County, collisions involving vulnerable users make up 55% of all Fatal or Severe Injury crashes.

Neighborhoods with low-income populations or people of color (identified as Environmental Justice Communities) experience a higher rate of bicycle- and pedestrian-involved collisions per capita⁵. Reasons may include a disproportionate use of walking and transit in these communities. Existing infrastructure standards no longer meeting the community needs – such as significantly fewer Class I bike trails.

For this group, the following Emphasis Areas were identified:

- Bicyclists
- Pedestrians
- Motorcyclists
- Equity

⁵ Sacramento County Environmental Justice Element, Sacramento County Office of Planning & Environmental Review (2019)

BICYCLISTS



Many bicycle facilities place users in close proximity with fast moving cars with little to no protection, making riders vulnerable to severe injuries in the event of a collision. While the number of recreational trips made by bicycle are not available, census and crash data show that while only 0.4%⁶ of commute trips are made on bicycle, they make up 5.7% of injury crashes (all severities) and 10.6% of fatal or severe injury crashes. Also, based on crash records in Sacramento County, older riders involved in a crash are twice as likely to suffer fatal or severe injuries. In 83% of Sacramento County recorded bicycle crashes the bicyclist did not wear a helmet, which resulted in a much higher occurrence of fatal or severe injuries than when a helmet was worn. Figure 4 provides a map of crashes involving someone on a bicycle in unincorporated Sacramento County.

California currently has child bicycle helmet laws for ages 18 and younger and Sacramento County has a Safe Routes to School program administrated by WALKSacramento, which are two of the most effective non-infrastructure strategies for improving child bicyclist safety⁷.

Goals

- Achieve 50% helmet usage among bicyclists by 2030⁸
- Reduce fatal and severe injury crash rates for bicyclists by 50% by 2035 (compared to 2015-2019 rates of 28 crashes per year)

Strategies

- **Improve driver awareness of shared responsibility to be situationally aware and enhance road safety for all users. (Education)**

Schools and state agencies should provide driver training to increase driver sensitivity to the presence of bicyclists and educate how to identify right of way laws regarding interactions between drivers and pedestrians as well as high risk behaviors. In addition, CA Assembly Bill 122 is currently awaiting a signature by the Governor that will remove the requirement that bicyclists come to a full stop at stop sign controlled intersections, instead requiring the bicyclist yield to any vehicle stopped at or within the intersection.

- **Promote bicycle helmet use and distribute helmets through community events and engage in regular bike safety campaigns using social media platforms (Education)**

Various agencies could run promotions that focus on lack of helmets, increasing understanding of the benefits from helmet use, and countering misconceptions about helmet use. Although this strategy has been shown to be more expensive and not as effective as laws mandating adult helmet usage, very few jurisdictions nationwide have laws requiring adult helmet use and there is concern that a mandate could decrease bicycle activity.

⁶ <https://data.census.gov/>, Table S0801 Commuting Characteristics by Sex

Note: Unincorporated Mode Share is calculated as Countywide Volumes minus incorporated volumes

⁷ NHTSA 812478 – Countermeasures That Work, 9th Edition, 2017

⁸ California currently has bicycle helmet laws for anyone 18 or younger operating a bike, and 5 and younger for any bicycle passengers

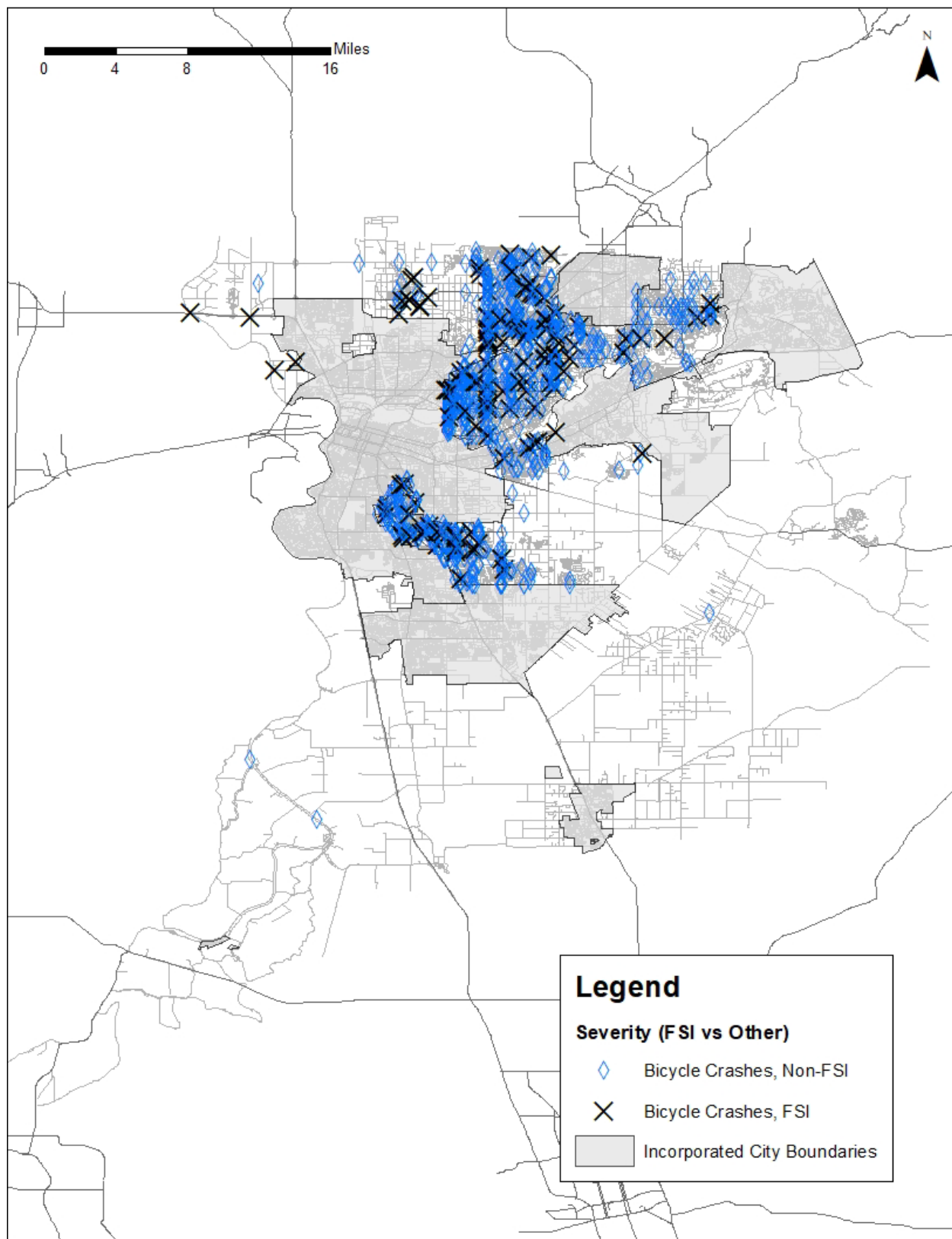


FIGURE 4: MAP OF BICYCLE CRASHES BY SEVERITY (2015-2019)

Strategies (cont.)

- **Provide alternative repercussions for minors bicycling without a helmet, including bicycle traffic school and temporary tickets that can be reversed with receipt of purchase of a bicycle helmet (Enforcement)**
- **Provide a more comprehensive network of bicycle facilities, including implementing and protecting bike lanes and reducing conflict zones between cars and bicycles, along high crash corridors (Engineering)**

The Sacramento County Active Transportation Plan (ATP) (expected 2022) has identified 176 bicycle facility projects on high crash corridors covering 239 miles of roadways, half of which are prioritized in the top 10% of bicycle projects. See Figure 5 for a heat map of relevant bicycle projects. Providing safe alternate facilities away from high crash corridors can also shift vulnerable users from high volume corridors. Installation of Bike Lanes (Class II) and Separated Bike Lanes (Class II/IV) have significant safety benefits of 35%-45% reduction in crash occurrence.
- **Identify which bicycle projects identified in the Active Transportation Plan have competitive Benefit-Cost Ratios, and submit HSIP applications for state funding (Engineering)**

Table 7 below shows a list of intersections where fatal or injury collisions involving bicyclists occurred most frequently in a 200-foot radius, which was obtained from the Sacramento Active Transportation Plan.

TABLE 7: INTERSECTIONS WITH THE MOST FATAL OR INJURY BICYCLE COLLISIONS (2015-2019)

INTERSECTION	# OF COLLISIONS
Gold Country Boulevard & Sunrise Boulevard	6
Elkhorn Boulevard & Watt Avenue	5
Elkhorn Boulevard & Don Julio Boulevard	5
Howe Avenue & Hurley Way	5
Howe Avenue & Woodside Lane	5
Stockton Boulevard & 65 th Street	4
65 th Street & 65 th Street Expressway	4
65 th Street Expressway & Stockton Boulevard	4
6 th Parkway & Florin Road	4

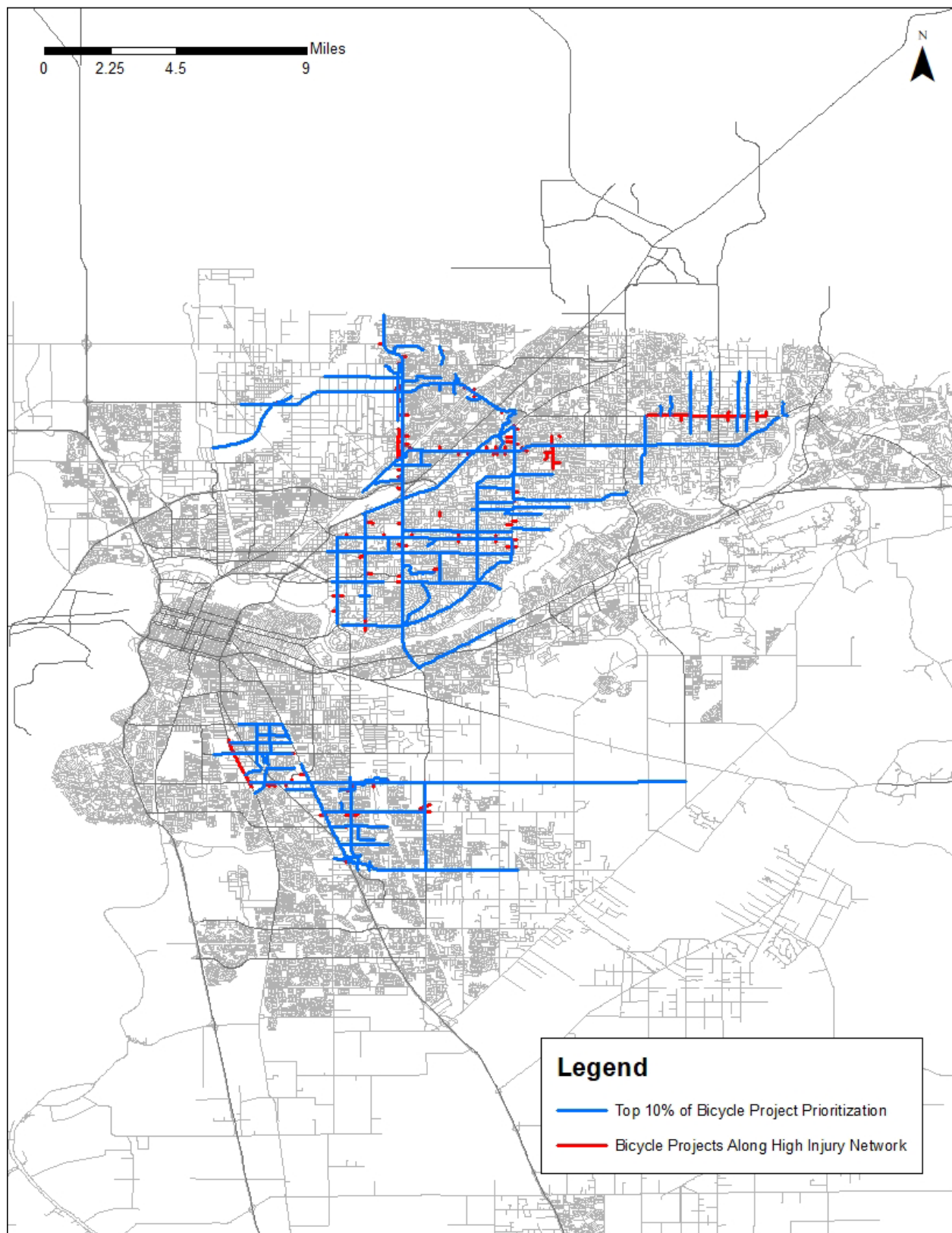


FIGURE 5: MAP OF BICYCLE PROJECT RECOMMENDATIONS FROM SACRAMENTO ATP (2022)

The draft Sacramento Active Transportation Plan includes a ranked list of bicycle safety project recommendations. Following are the top-ranked bicycle projects from the draft plan.

1. Ethan Way from Exposition Blvd to Alta Arden Expressway
2. Ethan Way from Hurley Way to Arden Way
3. Elder Creek Trail from Waterman Trail to Elk Grove Florin Rd
4. Arcade Creek Trail from Garfield Ave to Madison Ave
5. Calvine Road Trail from Hwy 99 Northbound to East Stockton Blvd
6. Union Pacific RR Trail from Florin Rd to McComber St
7. 47th Ave from Wire Dr to Stockton Blvd
8. 55th St from Florin Rd to 66th Ave
9. Date Ave from Myrtle Ave to Madison Ave
10. Hillsdale Blvd from Madison Ave to Frizell Ave
11. Winona Way from Roseville Rd to Watt Ave
12. Bell St from Marconi Ave to Edison Ave

PEDESTRIANS



This emphasis area focuses on crashes involving someone walking or rolling on a personal conveyance (e.g., wheelchair). Pedestrians are some of the most vulnerable users of a roadway network, with pedestrian-involved crashes more likely resulting in fatal or severe injuries than most other crash types. **Pedestrian-involved crashes make up less than 3% of total crashes in Sacramento County, but 25% of fatal or severe injury crashes.** More than half of all pedestrian-involved crashes happened due to pedestrian entering a roadway at a non-protected time (Don't Walk signal) or place (midblock), with most of these occurring at midblock locations. Pedestrian-involved crashes occurring midblock outside of a crosswalk are twice as likely to result in a fatal or severe injury as those that occurred in a crosswalk. Figure 6 provides a map of pedestrian crashes in unincorporated Sacramento County.

Goals

- Decrease the occurrence of pedestrian-crossing violations by 50% by 2035
- Reduce fatal and severe injury crash instances among pedestrians by 50% by 2035 (compared to 2015-2019 frequency of 70 crashes per year)

Strategies

- **Improve driver awareness of shared responsibility to be situationally aware and enhance road safety for all users. Use social media outlet platforms to bring awareness and remind drivers of increased pedestrian activity at the beginning of school year. (Education)**
Schools and jurisdictions should provide driver training to increase driver sensitivity to the presence of pedestrians and educate how to identify right of way laws regarding interactions between drivers and pedestrians as well as high risk behaviors.
- **Provide safe crossing opportunities at or near locations with high pedestrian-crossing violation occurrences (Engineering)**
Pedestrian-crossing violations most often occur at locations where a pedestrian would either have to wait too long or walk too far for a safe crossing opportunity. The County can add enhanced crossings to improve connectivity and safety in places where there is high pedestrian

demand and no nearby safe crossing opportunities. This improvement is a good candidate for HSIP funding, since Caltrans has previously included \$250,000 in HSIP set-aside grant funding per jurisdiction for improved pedestrian crossings that is not subject to competitive benefit cost ratio thresholds.

- **In locations where sufficient crossings exist or where isolated pedestrian crossings could add a safety concern, based on vehicle speed, line of sight, or other factors, median fences could provide an impediment to pedestrian-crossing violations. (Engineering)**

The County should only install fences where there is an existing curbed median to avoid blocking existing emergency vehicle access. Fences must be paired with pedestrian improvements at the promoted crossing locations (mid-block or intersection), since SACOG has denied funding for median fencing when presented as a first or primary solution (without additional treatments).

- **Improve pedestrian safety at high crash occurrence intersections and corridors (Engineering)**

The Sacramento County Active Transportation Plan (ATP) (expected 2022) has identified 119 intersection improvement projects along high crash corridors, which include recommendations such as improved crosswalks and curb extensions. 13 of the locations include improvements via a Rectangular Rapid Flashing Beacon (RRFB) or a Pedestrian Hybrid Beacon (PHB), both of which are good candidates for HSIP funding. See Figure 7 for a heat map of relevant projects. According to Caltrans, a 35%-55% reduction in crash occurrence can be achieved with the installation of RRFBs and PHBs⁹.

- **Identify night-time high incident locations and consider street light improvements, high reflective warning signs (Engineering)**

While most pedestrian-involved crashes occurred during the day or at night in areas with streetlights, 14% of all crashes and 19% of fatal or severe injury crashes involving pedestrians occurred at night in areas with no lights. Almost all (95%) of the observed nighttime fatal or severe injury pedestrian crashes occurred with a pedestrian crossing where there was no crosswalk or walking in the road or shoulder.

- **Continue the process to receive, review, and prioritize citizen requests for pedestrian crossings (Engineering)**

⁹ Caltrans Local Roadway Safety Manual, April 2020

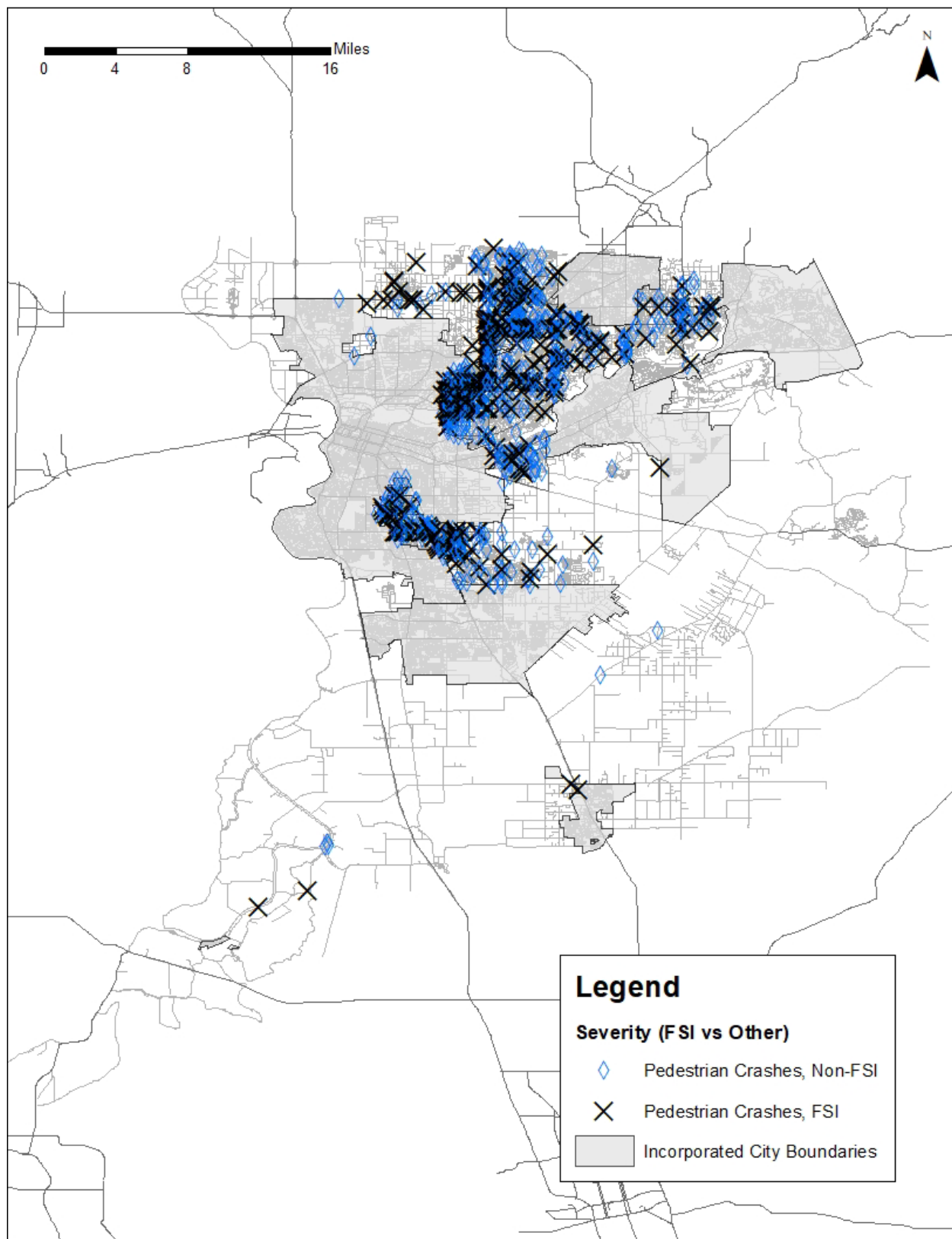


FIGURE 6: MAP OF PEDESTRIAN CRASHES BY SEVERITY (2015-2019)

Table 8 below shows a list of intersections where fatal or injury collisions involving pedestrians occurred most frequently in a 200-foot radius, which was obtained from the Sacramento Active Transportation Plan.

TABLE 8: INTERSECTIONS WITH THE MOST FATAL OR INJURY PEDESTRIAN COLLISIONS IN A FIVE-YEAR PERIOD (2015-2019)

INTERSECTION	# OF COLLISIONS
Auburn Boulevard & Madison Avenue	8
East Parkway & Florin Road	7
47 th Avenue & Martin Luther King Jr. Boulevard	6
Auburn Boulevard & Watt Avenue	6
Date Avenue & Madison Avenue	6
Elkhorn Boulevard & Walerga Road	6
Florin Road & Stockton Boulevard	6
Florin Mall Drive & Florin Road	5
Marconi Avenue & Watt Avenue	5
Orange Grove Avenue & Watt Avenue	5

Figure 7 shows a map of draft recommended pedestrian treatments from the draft Sacramento Active Transportation Plan, followed by a list of top-scoring sidewalk infill corridors and the top-scoring intersections for pedestrian improvements.

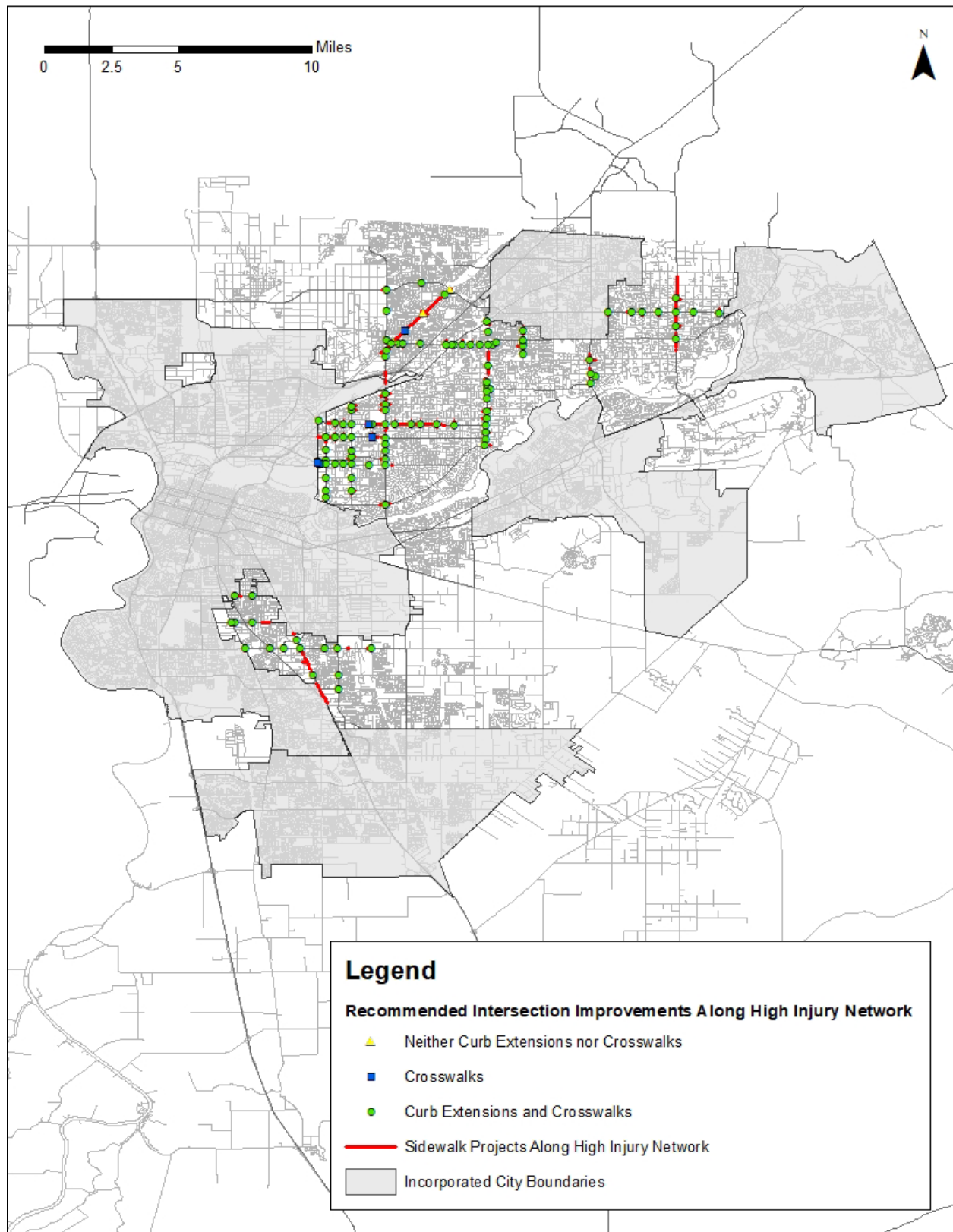


FIGURE 7: MAP OF PEDESTRIAN PROJECT RECOMMENDATIONS FROM SACRAMENTO ATP

Following is a prioritized list of top-scoring sidewalk infill corridors:

1. Stockton Blvd
2. 47th Ave
3. Anna Way
4. El Camino Ave
5. Orange Ave
6. Roseville Rd
7. Watt Ave
8. Fruitridge Rd
9. Jackson St
10. Walerga Rd

Following is a prioritized list of top-scoring intersections for pedestrian treatments, which include signal timing changes, constructing pedestrian median refuges and curb extensions, and providing or improving crosswalks:

1. Myrtle Ave and Watt Ave
2. Walerga Rd and Roseville Rd
3. Elkhorn Blvd and Roseville Rd
4. Martin Luther King Jr Blvd and Fruitridge Rd
5. Andrea Blvd and Roseville Rd
6. Whitney Ave and Watt Ave
7. 47th Ave and Martin Luther King Jr Blvd
8. Florin Rd and Briggs Dr
9. Fulton Ave and Hurley Way
10. Howe Ave and Cottage Way
11. Bell St and El Camino Ave
12. Arden Way and Bell St
13. Fruitridge Rd and 44th St
14. Arden Way and Ethan Way
15. Madison Ave and Jackson St
16. Edison Ave and Watt Ave

Additional detail for the scope and design of these projects can be found in the Sacramento Active Transportation Plan, expected to be published in early 2022.

MOTORCYCLISTS



This emphasis area focuses on crashes which involve someone riding a motorcycle. Motorcyclist crashes account for less than 3% of total crashes but nearly 20% of fatal or severe injury crashes. The top three primary collision factors in crashes involving motorcyclists were unsafe speed (28%), motorcycles approaching too close to a car (23%), and improper turning (17%). The two most frequent types of crashes involving motorcyclists and resulting in a fatal or severe injury are broadsides (34%) and overturns (20%), together making up over half of all fatal or severe injury motorcycle crashes. In 6% of the motorcycle-involved crashes the motorcyclist did not wear a helmet, and those crashes were almost twice as likely to result in fatal or severe injuries. Figure 8 provides a map of crashes involving someone on a motorcycle in unincorporated Sacramento County.

California has a mandatory motorcycle helmet law (Vehicle Code Section 27803), stating that it is “unlawful to operate a motorcycle, motor-driven cycle, or motorized bicycle if the driver or any passenger is not wearing a safety helmet.

Goals

- Reduce fatal and severe injury crash instances for motorcyclists by 50% by 2035 (compared to 2015-2019 crashes)

Strategies

- **Prioritize road maintenance and install high-friction surface treatments on curves and intersection approaches with high incidence of motorcycle crashes (Engineering)**
Figure 9 provides a map of curves in rural areas where motorcycle crashes have occurred that could benefit from high-friction surface treatments which would represent good candidates for HSIP funding.
- **Promote visibility enhancing solutions, such as reflective vests (Education)**
- **Improve road user awareness of shared responsibility to be situationally aware and enhance road safety for all users. (Education)**
Schools and jurisdictions should provide driver training to increase driver sensitivity to the presence of motorcycles and educate how to identify high risk behaviors. In addition, jurisdictions should provide motorcycle drivers with information to increase awareness that most motorcyclist-involved crashes involve speed, impairment, and roadway departure.

Figure 8 illustrates the locations of motorcycle-involved collisions followed by a lists of the 10 locations with the highest frequency of crashes involving motorcyclists (overall and in rural areas).

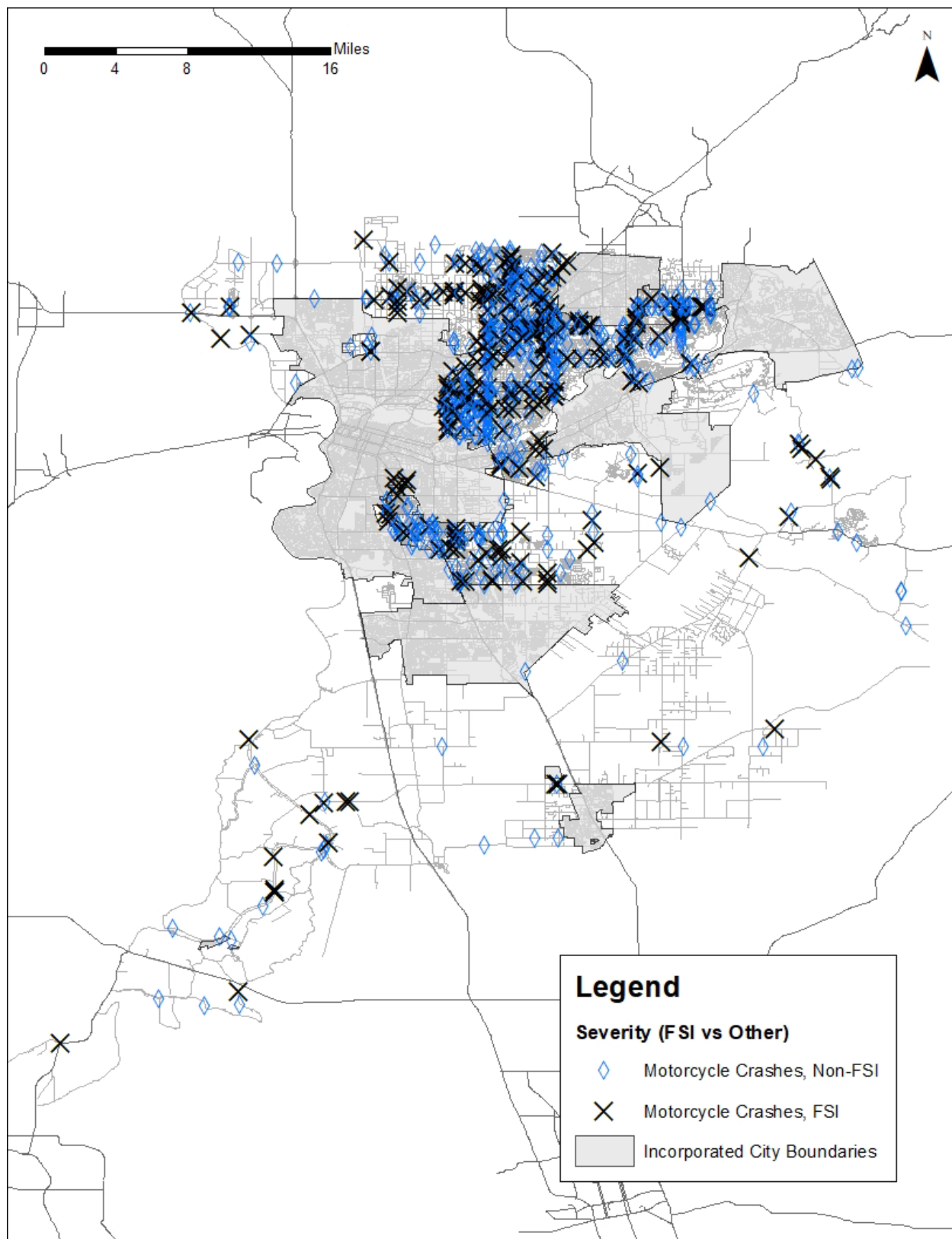


FIGURE 8: MAP OF MOTORCYCLE CRASHES BY SEVERITY (2015-2019)

Following is a list of the top overall motorcycle-involved crash locations in a five-year period (2015-2019):

1. Madison Ave and Hillsdale Blvd
2. Elkhorn Blvd and Diablo Rd
3. Madison Ave and College Oak Dr
4. El Camino Ave and Watt Ave
5. Hazel Ave and Greenback Ln
6. Greenback Ln and Fair oaks Blvd (east of the intersection)
7. Lerwick Rd and Watt Ave
8. Watt Ave and Roseville Rd
9. Roseville Rd and Madison Ave
10. Madison Ave and Auburn Blvd

This list shows the top 10 locations with the highest frequency of motorcycle-involved crashes in rural areas in a five-year period (2015-2019).

1. Garden Hwy and N Bayou Rd
2. Scott Rd (Curve one mile northwest of Boys Ranch Rd intersection)
3. Scott Rd (Curve 1.44 miles southeast of Boys Ranch Rd intersection)
4. Twin Cities Rd and Midway Rd
5. Isleton Rd and Andrus Island Rd
6. Walnut Grove Bridge Road (east end of the bridge)
7. Walnut Grove Bridge Road (west end of the bridge)
8. Ione Rd (3,700 ft from Claypit Rd/Mustang Alley)
9. Twin Cities Rd (5,200 east of River Rd)
10. Isleton Rd and River Rd at Isleton Bridge

Figure 9 shows the locations of motorcycle-involved collisions on horizontal curves.

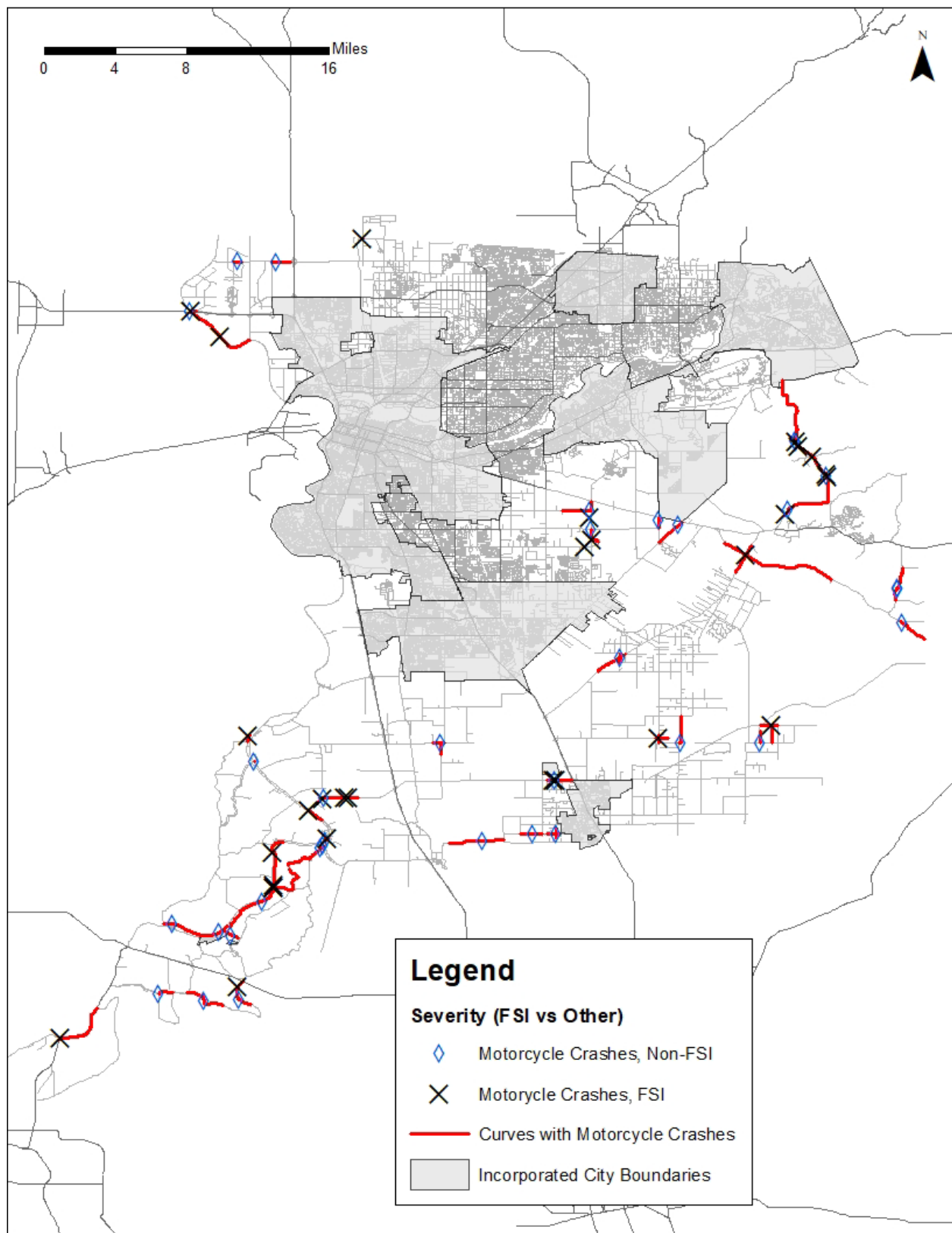


FIGURE 9: MAP OF RURAL CURVES WITH MOTORCYCLE CRASHES BY SEVERITY (2015-2019)

EQUITY



This emphasis area focuses on where safety projects are identified and how funds for safety improvements are distributed to ensure that disadvantaged communities are equitably represented. This Emphasis Area was identified by stakeholders during roundtable discussions. Figure 10 provides a heat map of crashes occurring within an Environmental Justice Community as defined by the Sacramento County Environmental Justice Element.¹⁰

Goals

- Obtain funding for identified safety improvement projects located in Environmental Justice communities from state and federal grants
- Ensure that engagement activities related to project identification are equitable in time and location, and that result in proportional feedback
- Partner with community and advocacy groups to provide educational resources (for all road users) and walking and biking accessories (lights, helmets, etc.) to disadvantaged communities

Strategies

- **Identify projects located within Environmental Justice communities in prioritization of project recommendations (Engineering)**
The Sacramento County Active Transportation Plan (expected 2022) used location of a project in or improving connectivity of an Environmental Justice (EJ) Community as a prioritization factor. As a result, they were significantly represented in the prioritization ranking, with 23% of EJ projects ranking in the overall top 10% of identified bicycle facility projects, and 48% of EJ projects ranking in the top 25% of identified bicycle facility projects. Similar ratios were seen in sidewalk in-fill projects.
- **Improve collection, availability, and reporting on socioeconomic and racial demographics within crash statistics (Education/Enforcement)**

Following is a list of the highest frequency crash locations (all severities) in the Environmental Justice Community boundaries.

- | | |
|-----------------------------------|-----------------------------------|
| 1. Elkhorn Blvd and Walerga Rd | 6. Hillsdale Blvd and Frizell Ave |
| 2. Madison Ave and Auburn Blvd | 7. Howe Ave and Arden Way |
| 3. Madison Ave and College Oak Dr | 8. Madison Ave and Date Ave |
| 4. Howe Ave and Hurley Way | 9. 65th St and Stockton Blvd |
| 5. Howe Ave and Fair Lake Ave | 10. Calvine Rd and Power Inn Rd |

¹⁰ Environmental Justice Element, December 2019, <https://planning.sacounty.net/PlansandProjectsIn-Progress/Documents/General%20Plan%202030/Environmental%20Justice%20Element.pdf>

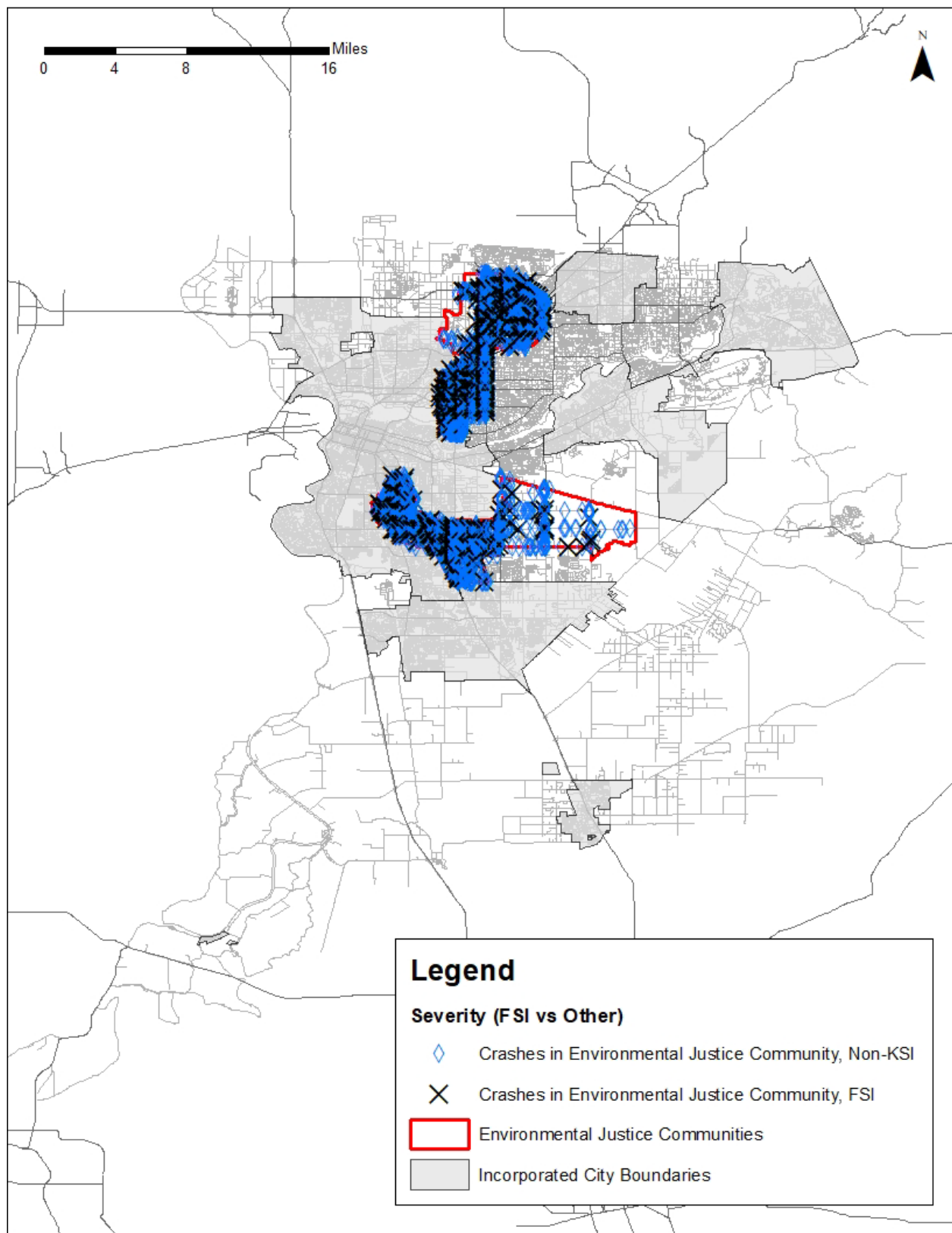


FIGURE 10: MAP OF CRASHES IN ENVIRONMENTAL JUSTICE COMMUNITIES BY SEVERITY (2015-2019)

RISKY BEHAVIORS

Reductions in fatalities and serious injuries can be accomplished by deterring unsafe or risky behaviors made by drivers and other transportation users. For this category, the following Emphasis Areas were identified:

- Impaired Driving
- Speeding
- Unbelted/Improperly-Belted

IMPAIRED DRIVING



This emphasis area focuses on crashes in which the driver was under the influence of alcohol and/or other drugs (DUI). DUI crashes account for 9% of all crashes but make up 25% fatal and severe injury crashes. In addition, the frequency of fatal and severe injury DUI crashes was disproportionately higher during weekends and late night/early morning (between 10 pm and 2 am) periods. Nearly half of all fatal and severe injury crashes during this period were DUIs, while only a fifth of fatal and severe injury crashes during the other time periods involved an impaired driver. Figure 11 provides a map of alcohol-involved crashes in unincorporated Sacramento County while Figure 12 provides a map of those FSI crashes which occurred between 10 PM and 2 AM.

Goals

- Reduce rate of collisions from impaired driving during key time periods (weekends/late night/early morning) by 50% by 2030
- Reduce total rate of collisions from impaired driving by 50% by 2035 (compared to 2016-2020 rates)

Strategies

- **Continue DUI deterrence actions (Enforcement)**
 - **Publicized Sobriety Checkpoints**
California is one of 38 states which allow for sobriety checkpoints. Each requires advance publication, neutral stopping criteria, and a reasonable location. However, checkpoints are often not used more frequently due to lack of personnel and/or funding. This is an effective approach, as Studies have shown that checkpoints can reduce alcohol-related fatal crashes by 9%, all alcohol related crashes by 17%, and all crashes by 10%-15%¹¹.
 - **High-Visibility Saturation Patrols**
This approach offers a lower cost, though less effective, alternative to checkpoints. Passive Alcohol Sensors (PAS) allow for probable cause during a sobriety checkpoint or stop.
 - **Integrated Enforcement**
DUI detection can be incorporated into special enforcement focused on speeding or seat belt usage, which has been found to be especially effective at night, as the behaviors are often

¹¹ NHTSA 812478 – Countermeasures That Work, 9th Edition, 2017

related (one study showed 50% overlap between drivers that were speeding and those that were drinking¹²). To fund enforcement efforts, Office of Traffic Safety grants can be utilized.

- **Implement requirements for cannabis retailers and consumption lounges to provide educational information to users and training for workers related to the responsible use of cannabis and other drugs, including risks of impaired driving and locally available alternative transportation for consumers (Education)**

This is supported by the CHS report to the Legislature regarding SB 94.

- **Implement a mass media campaign including using social media outlet platforms aiming to reduce alcohol-impaired driving (Education)**

Involved agencies should engage bar and restaurant owners in outreach efforts and seek opportunities for public service informational signage (i.e. report DUI drivers signs) at high incident locations. Various agencies should also consider running media campaigns, as they are a standard part of DUI-reducing efforts, with most states running annual campaigns. To fund enforcement efforts, Office of Traffic Safety grants can be utilized.

- **Identify locations for repeat sobriety checkpoints and construct infrastructure that minimizes the future cost of implementing checkpoints, such as storage and standing structures (Engineering)**

Following are the top 10 locations with the highest frequency of alcohol-involved crashes in a five-year period (2015-2019).

1. Antelope Rd and Walerga Rd
2. Sunrise Blvd and Fair Oaks Blvd
3. Madison Ave and Hillsdale Blvd
4. Hillsdale Blvd and Turnsworth Ct/Oberon Ave
5. Madison Ave and Auburn Blvd
6. Roseville Rd from Watt Ave to Madison Ave
7. Watt Ave and Myrtle Ave
8. Watt Ave and Milton Way
9. 47th Ave and Martin Luther King Blvd
10. Madison Ave and Manzanita Ave

¹² NHTSA 812478 – Countermeasures That Work, 9th Edition, 2017

Following are the top 10 locations experiencing nighttime (10PM -2AM) alcohol-involved crashes resulting in fatalities or serious injuries in a five-year period (illustrated in Figure 12).

1. Sunrise Blvd and Fair Oaks Blvd
2. Orange Grove Ave and Industry Dr
3. Marconi Ave and Watt Ave
4. Fair Oaks Blvd between Kaula Dr and Woodleaf Dr
5. Florin Rd and Stockton Blvd
6. Watt Ave from Kings Way to Balmoral Dr
7. Watt Ave from Whitney Ave to Pope Ave
8. Watt Ave from Myrtle Ave to Winona Way
9. 47th Ave from Martin Luther King Blvd to 44th St
10. Power Inn Rd from Auberry Dr to Meadowhaven Dr

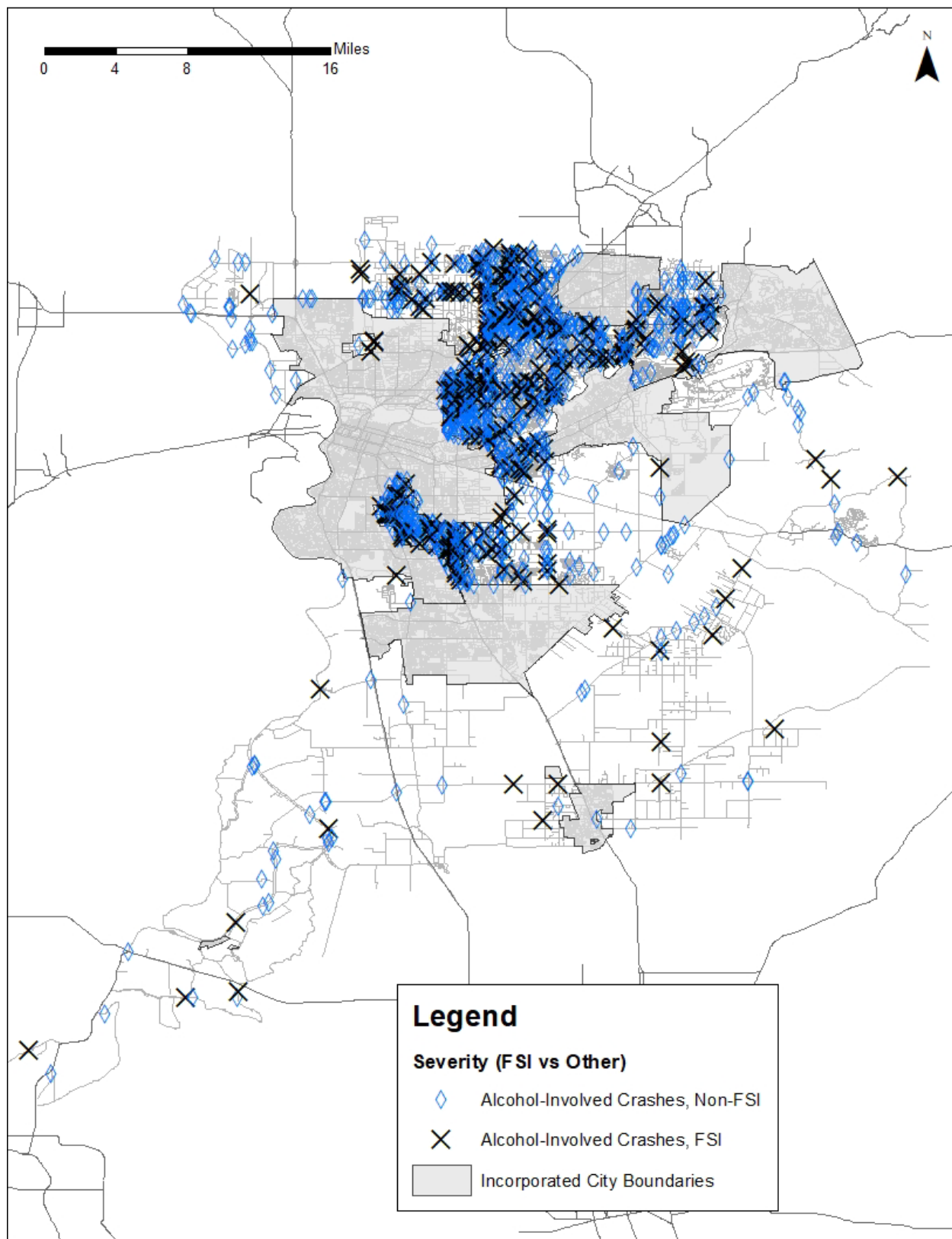


FIGURE 11: MAP OF ALCOHOL-INVOLVED CRASHES BY SEVERITY (2015-2019)

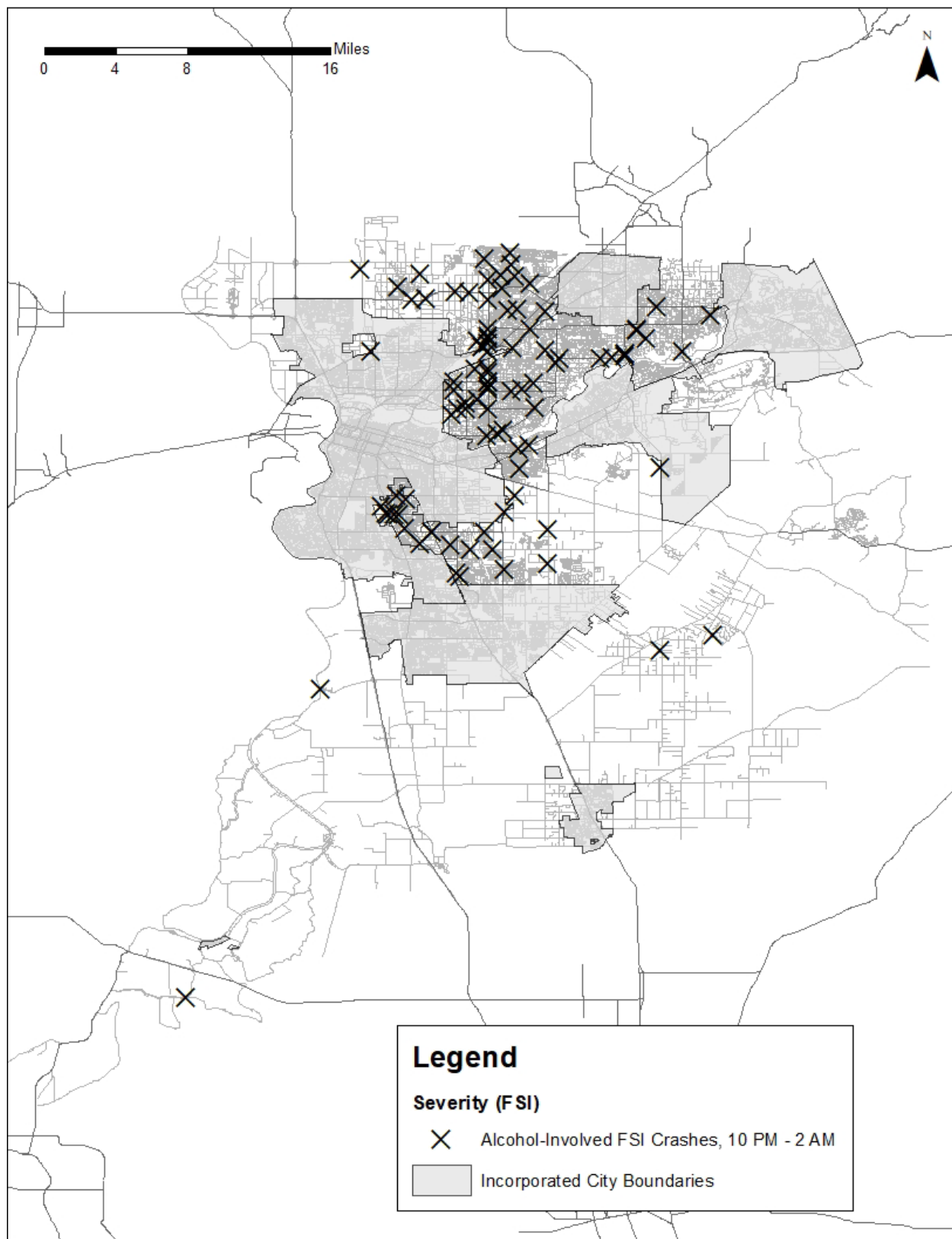


FIGURE 12: MAP OF NIGHTTIME ALCOHOL-INVOLVED FSI CRASHES (2015-2019)

SPEEDING



This emphasis area focuses on speeding as a driving behavior that puts the driver and other road users at risk. Rear end, hit object, and broadside are the three main resulting collision types that encompass 60% of total fatal and severe injury crashes that involve speeding. Also, nearly 15% of pedestrian-involved fatal or severe injury crashes are caused by speeding. Figure 13 provides a map of crashes due to unsafe speeds in unincorporated Sacramento County.

Goals

- Review speeds on County roadways and reduce posted speed limits to appropriate speeds per California Vehicle Code and current MUTCD standards
- Review speeds along high pedestrian-demand corridors and reduce to appropriate posted speeds per California Vehicle Code and MUTCD standards
- Reduce fatal and severe injury crash rates due to unsafe speeds by 50% by 2035 (compared to 2015-2019 rates)

Strategies

- **Update posted speed limits countywide per California vehicle code and MUTCD standards, utilizing the latest research (e.g., NCHRP Report 966, Posted Speed Limit Setting Procedure and Tool: User Guide) as a reference. Revise local roadway design standards to encourage lower speeds on roadways where there is potential for vehicle and/or multimodal interaction (Engineering)**

Lower vehicle operating speeds reduce crash occurrence and severity. Figure 14 provides a map of roadways in unincorporated Sacramento County with posted speed limits at 50 MPH and greater.

- **Implement traffic calming measures (e.g., narrow lanes, Road Diets, roundabouts) to encourage reduced operating speeds on arterial streets (Engineering)**

Identify arterial streets that are feasible to implement traffic calming measures to reduce overall vehicle speed. Some traffic calming measures, such as converting an intersection to a roundabout, are good candidates for HSIP funding.

- **Integrated Enforcement (Enforcement)**

Speeding enforcement can be incorporated into special enforcement focused on DUI detection or seat belt nonuse, which has been found to be especially effective at night, as the behaviors are often related (one study showed 50% overlap between drivers that were speeding and those that were drinking¹³). To fund enforcement efforts, Office of Traffic Safety grants can be utilized.

- **Use communications and outreach campaigns to support enforcement efforts (Education)**

Communications and outreach efforts focused on encouraging people not to speed have shown to be most effective when tied to significant enforcement and engineering treatments.

¹³ NHTSA 812478 – Countermeasures That Work, 9th Edition, 2017

Following are the top intersections of crashes that involve a speeding motorist.

1. Madison Ave and College Oak Dr
2. Madison Ave and Date Ave
3. Howe Ave from Fair Oaks Blvd to Northrop Ave
4. Watt Ave and Roseville Rd
5. Garfield Ave and Greenback Ln
6. Elkhorn Blvd and Diablo Dr
7. Elkhorn Blvd and Walerga Rd
8. Howe Ave and Arden Way
9. Watt Ave and Arden Way
10. Power Inn Rd and Calvine Rd

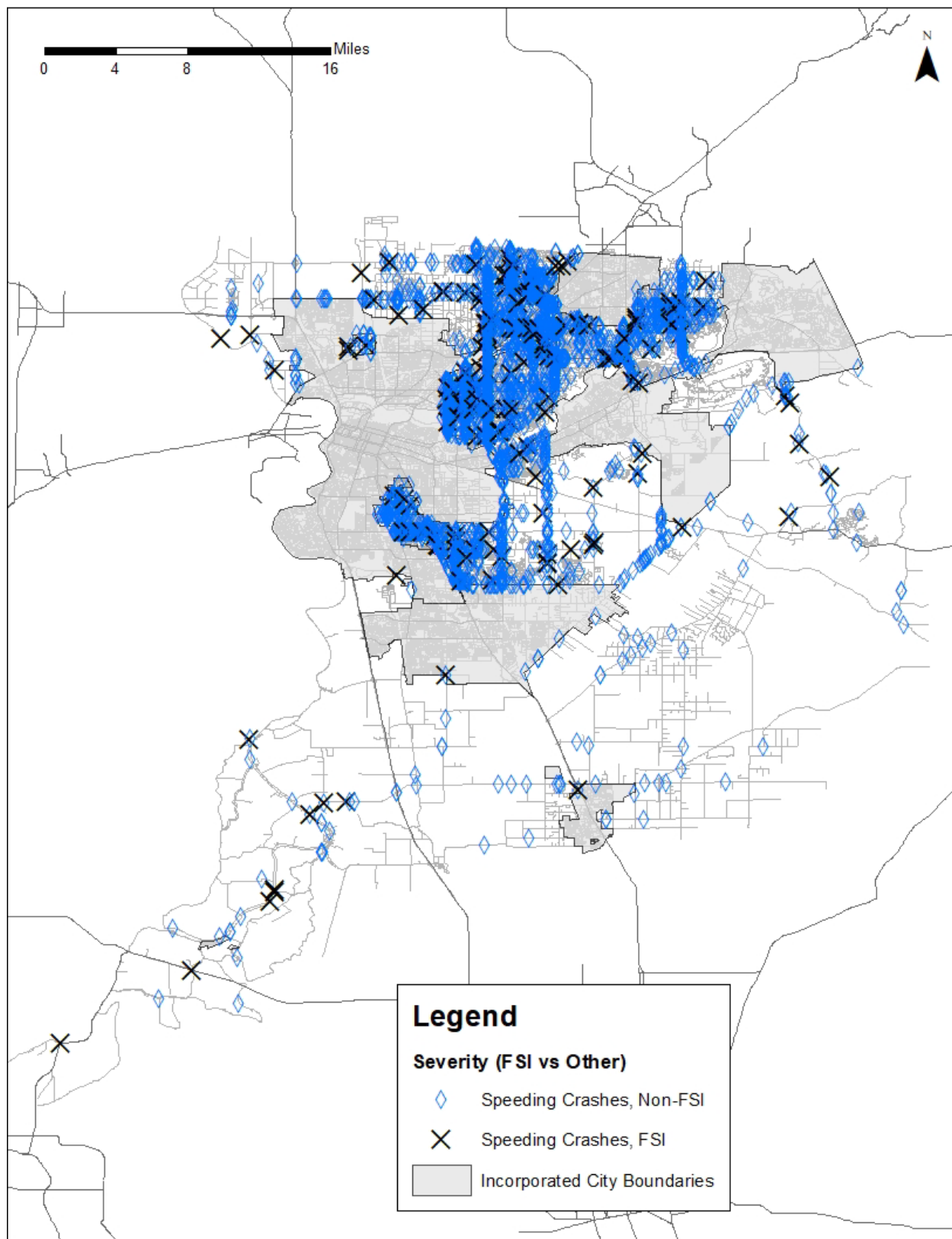


FIGURE 13: MAP OF CRASHES DUE TO SPEEDING BY SEVERITY (2015-2019)

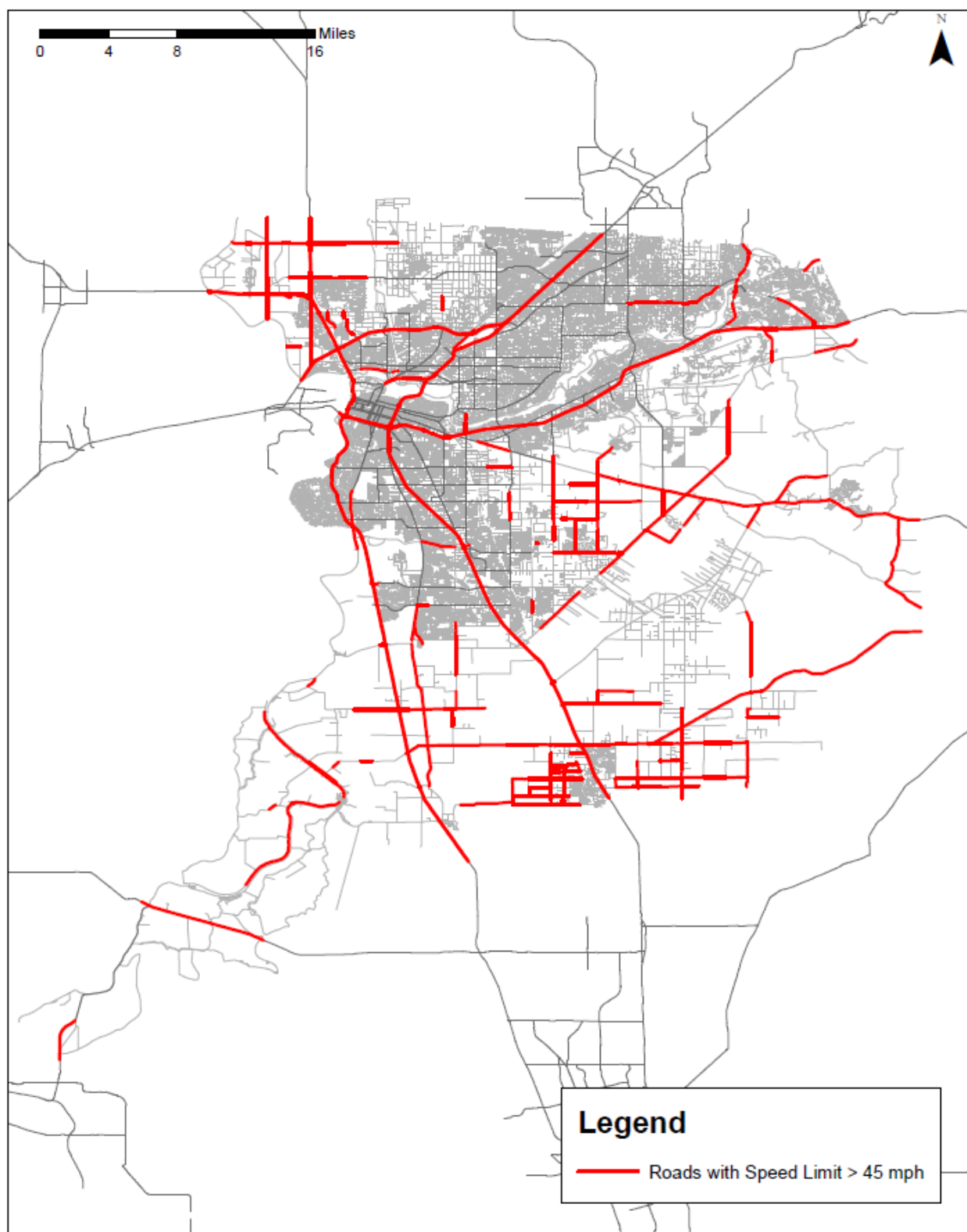
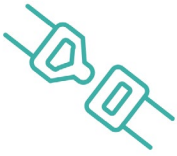


FIGURE 14: MAP OF ROADS WITH SPEED LIMITS AT 50 MPH AND GREATER. (INCLUDES FREEWAYS AND STATE ROUTES THAT ARE OUTSIDE OF SACDOT JURISTICTION)

UNBELTED/IMPROPERLY-BELTED



This emphasis area focuses on crashes in which the occupant (driver or passenger) did not properly use occupant protection devices (lap and shoulder harness). In over a third of crashes, the data about occupant protection usage was not recorded. Out of all fatal or severe injury crashes, 20% included someone not wearing a seatbelt and those crashes were significantly more likely to result in a fatality or severe injury. Figure 15 provides a heat map of crashes where an occupant was not wearing appropriate protection or seat belt in unincorporated Sacramento County.

Goals

- Increase recording of seatbelt usage in crash reporting from 75% to 90% by 2030
- Reduce fatal and severe injury crash rates due to not using occupant protection by 100% by 2035 (compared to 2015-2019 rates)

Strategies

- **Increase seat belt law enforcement and crash reporting consistency (Enforcement)**
 - **Implement short-term, high-visibility enforcement**
Common efforts encompass a two-week, highly publicized and comprehensive period of increased seat belt use enforcement using checkpoints, saturation patrols, or enforcement zones. Studies have shown that this approach is effective: enforcement is a key differentiator between states with high and low seat belt usage. High-visibility enforcement programs were shown to increase seat belt usage by 16%, however with regular programs that promote seat belt usage, subsequent improvement may not be as high as shown in past studies. Typically, after the enforcement program, usage drops but often remains higher than initial rates.
 - **Integrated Nighttime Enforcement**
Data indicates that seat belt usage is lower at night, and that the severity of crashes involving unbelted occupants is higher at night. Law enforcement can incorporate seat belt enforcement into special enforcement combining speeding, seat belt nonuse, and impaired driving – See Impaired Driving strategies
 - **Sustained Enforcement**
California, along with Oregon and Washington, use sustained seat belt enforcement implemented as a part of regular patrols or special patrols and shows a maintained high seat belt use rate, increasing to 97% as of 2016. If Sacramento County shows continued lower usage rates than statewide average, a commitment to sustained enforcement may be effective.
- **Use social media outlet platforms and community outreach campaigns to support enforcement efforts and target low-usage demographics (Education)**
During a national Click It or Ticket campaign, extensive advertisement was shown to increase seat belt usage by 8.6% and limited advertising showed an increase in usage of 2.7%. However, paid advertising can be expensive, so knowing the target audience is important. Studies have identified multiple demographics that show lower seat belt usage, including male occupants, occupants aged 16-24, Black occupants, pick-up truck occupants, and rural residents, providing an audience for targeted outreach campaigns.

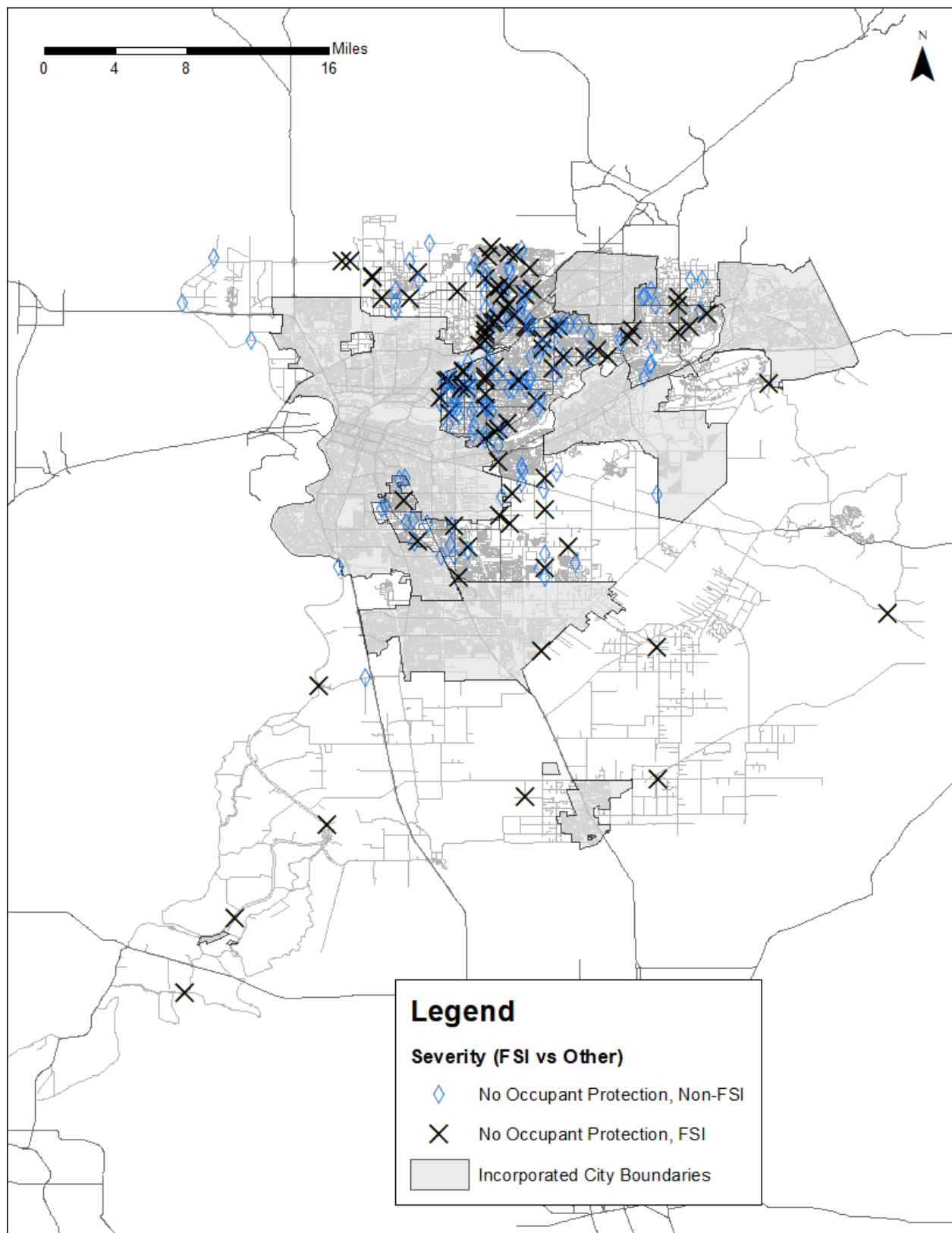


FIGURE 15: MAP OF CRASHES WITH NO OCCUPANT PROTECTION (SEAT BELT) BY SEVERITY (2015-2019)

INFRASTRUCTURE

Transportation infrastructure assets can be constructed or retrofitted to reduce the risk of fatal and serious injury crashes. Opportunities to do this include implementing safety treatments at intersections and along roadways. For this category, the following Emphasis Areas were identified:

- Intersections
- Lane Departures

INTERSECTIONS



This emphasis area focuses on crashes associated with intersection operations. Crashes in Sacramento County during the study period that occurred at intersections were more than twice as likely to result in fatal or severe injuries than other crashes. The most common types of fatal and severe injury intersection collisions included the following:

- Broadside collisions (29%)
- Pedestrian collisions (25%)
- Fixed object collisions (14%)

Goals

- Obtain funding for identified safety improvement projects focused on intersections (e.g. traffic signal visibility, unsignalized pedestrian crossing improvements, and signal timing and coordination projects) from state and federal grants
- Reduce fatal and severe injury crash instances at intersections by 50% by 2035 (compared to 2015-2019 crashes)

Strategies

- **Identify and submit competitive intersection-based HSIP systemic grant application opportunities (Engineering)**
Relevant low-cost eligible projects that address broadside and/or hit object crashes include signal visibility and awareness improvements (15%-30% crash reduction), operational improvements (signal timing and coordination – 15% crash reduction, advanced dilemma zone detection – 40% crash reduction), left turn pockets and timing (30%-55% crash reduction). High-cost improvements for locations with high frequency and severity crashes include signalization or roundabout implementation. Jurisdictions should utilize access control at unsignalized intersections and driveway consolidation along high crash corridors where feasible. Figure 16 provides the location of the ten signalized intersection with the highest frequency of crashes.
- **Improve pedestrian safety at high crash occurrence intersections and corridors (Engineering)**
See additional details under the Pedestrian emphasis area.

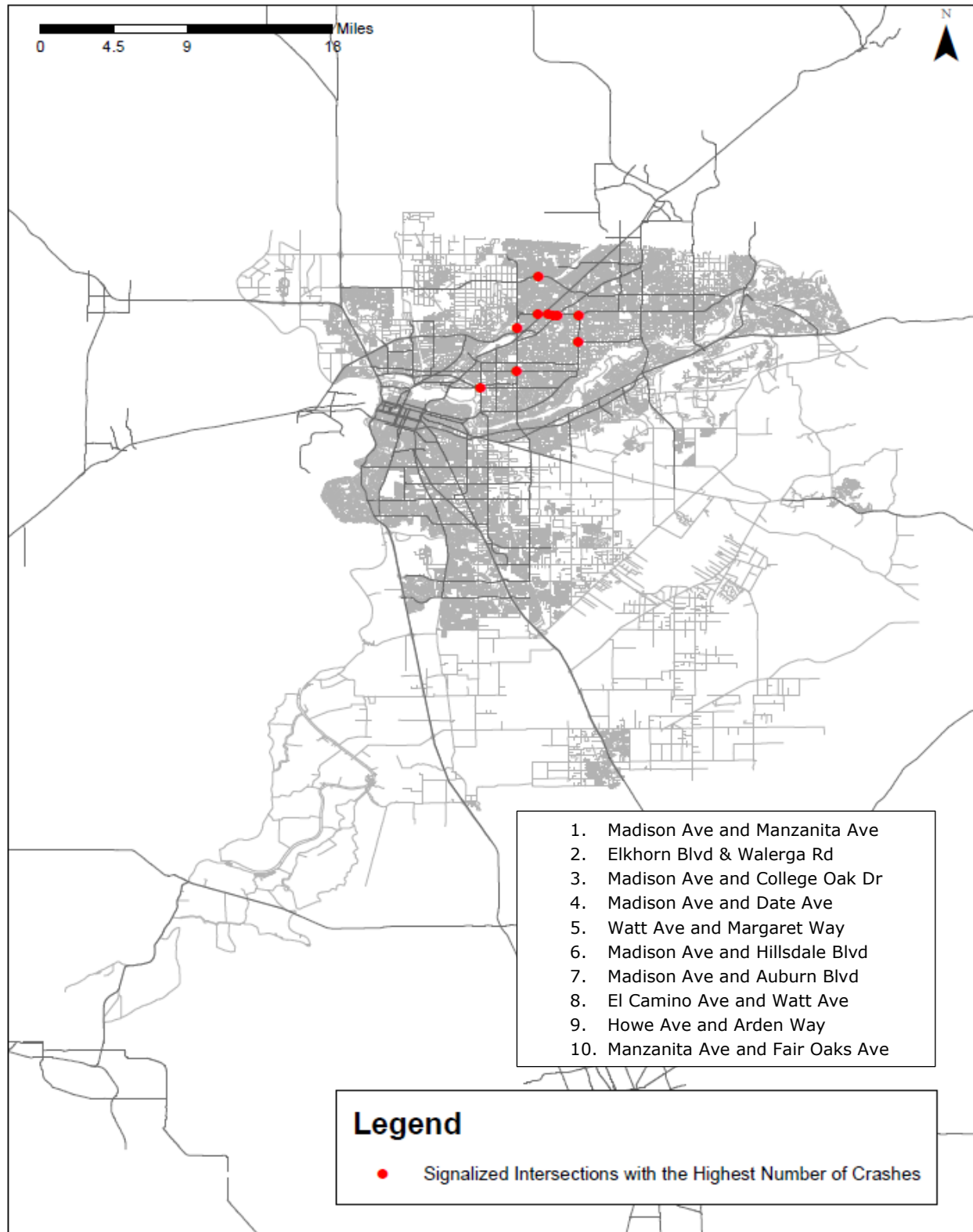


FIGURE 16: MAP OF SIGNALIZED INTERSECTIONS WITH THE HIGHEST NUMBER OF CRASHES (2015-2019)

LANE DEPARTURES



This emphasis area focuses on crashes that fall within two categories: crashes caused by crossing into the opposing lane and crashes caused by running off the road. Lane departure crashes make up 4% of all crashes in Sacramento County and 9% of fatal and severe injury crashes. In Sacramento County, lane departure crashes are over three times more likely to result in fatal or severe injuries than all other crash types. Improper turning (40%), DUI (35%), and unsafe speed (14%) are the three most common contributing factors to fatal or severe injury lane departure crashes, with the majority of those occurring as single vehicle run off road crashes. Figure 17 provides a map of lane departure crashes that occurred in unincorporated Sacramento County.

Goals

- Obtain funding for identified safety improvement projects focused on reducing lane departure crashes (e.g. guardrails, increased shoulder clearance, and median treatments) from state and federal grants
- Reduce fatal and severe injury collision instances due to lane departure by 50% by 2035 (compared to 2016-2020 crashes)

Strategies

- **Identify and implement improvements that reduce head on, overturn, and run-off road crashes (Engineering)**

Relevant low-cost eligible projects include addition of a center turn lane (30% reduction), installation of curve warning signs (25%-40% crash reduction), installation of centerline and/or edgeline rumble strips (15%-20% crash reduction), and new or refreshed striping. Relevant medium-cost eligible projects include median barriers, guardrails, and impact attenuators (25% crash reduction), high friction surface treatments (55%), dynamic/variable speed warning signs (30% crash reduction). Relevant high-cost improvements for locations with high frequency and severity crashes include improving horizontal and vertical curve alignment (25%-60% crash reduction). Jurisdictions should consider utilizing grant funding and HSIP funding. Caltrans has previously included set-aside grant funding for guardrail upgrades (\$1,000,000 per jurisdiction for all recent Cycles), high-friction surface treatments (Cycle 9), and installing edgelines (\$250,000 per jurisdiction in Cycle 10) that are not subject to competitive benefit cost ratio thresholds. Figure 18 provides a map of the highest priority guardrail upgrade projects in unincorporated Sacramento County.

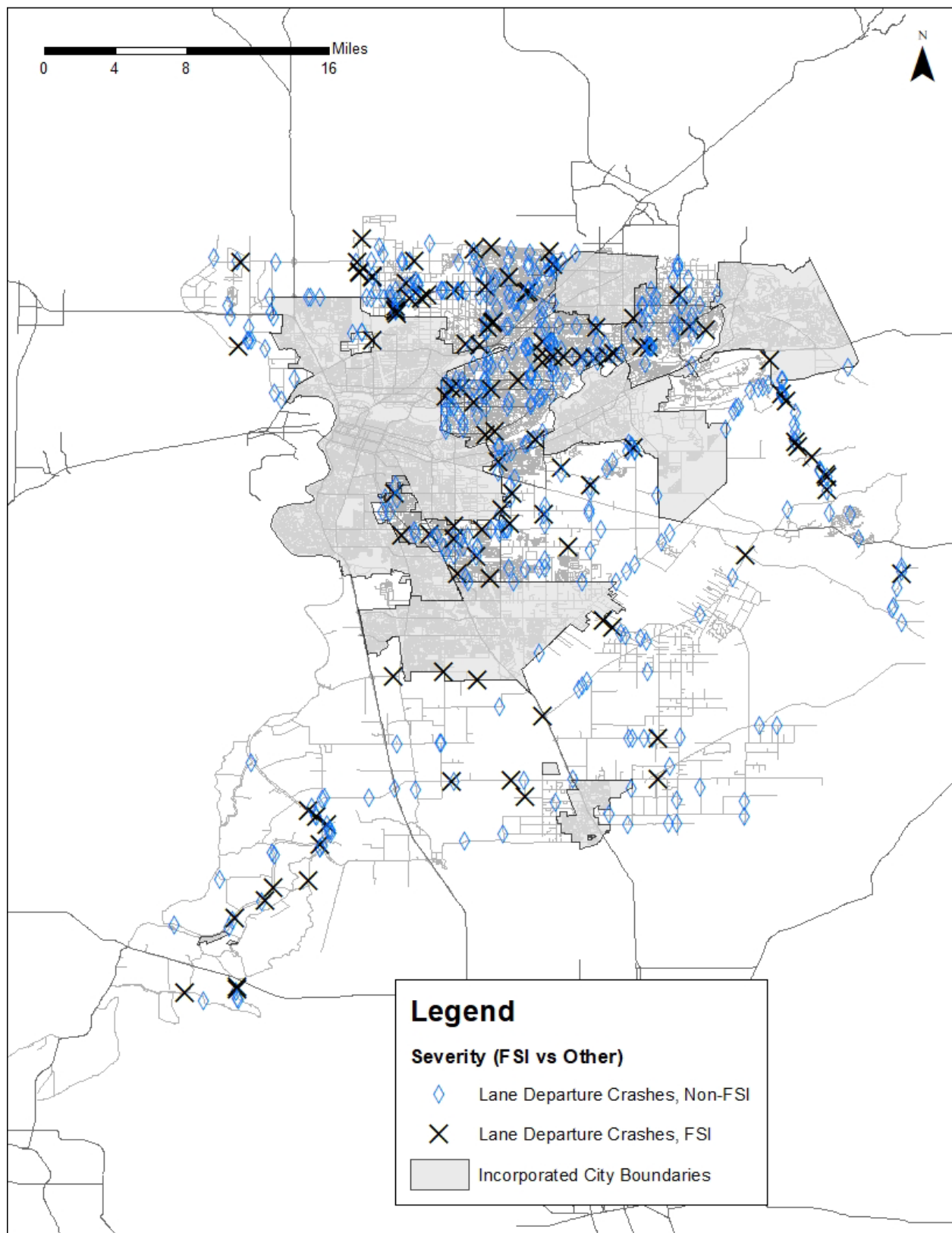


FIGURE 17: MAP OF LANE DEPARTURE CRASHES BY SEVERITY (2015-2019)

The following list are the segments with the highest frequency of lane departure crashes in a five-year period (2015-2019).

1. Antelope North Rd NE of Box Car Ave
2. Winding Way from Oxbow Ridge Pl to Buchanan Dr
3. Rio Linda Blvd from E St to Crystal Rd
4. Scott Rd 3/4 mile south of White Rock Rd
5. Elkhorn Blvd from 20th St to 30th St
6. Winding Way from College Oak Dr to Walnut Ave

Figure 18 shows a map of priority guardrail installation locations as identified by Sacramento County, as well as crashes that occurred within 50 feet of the guardrail locations during the five-year period of 2015-2019.

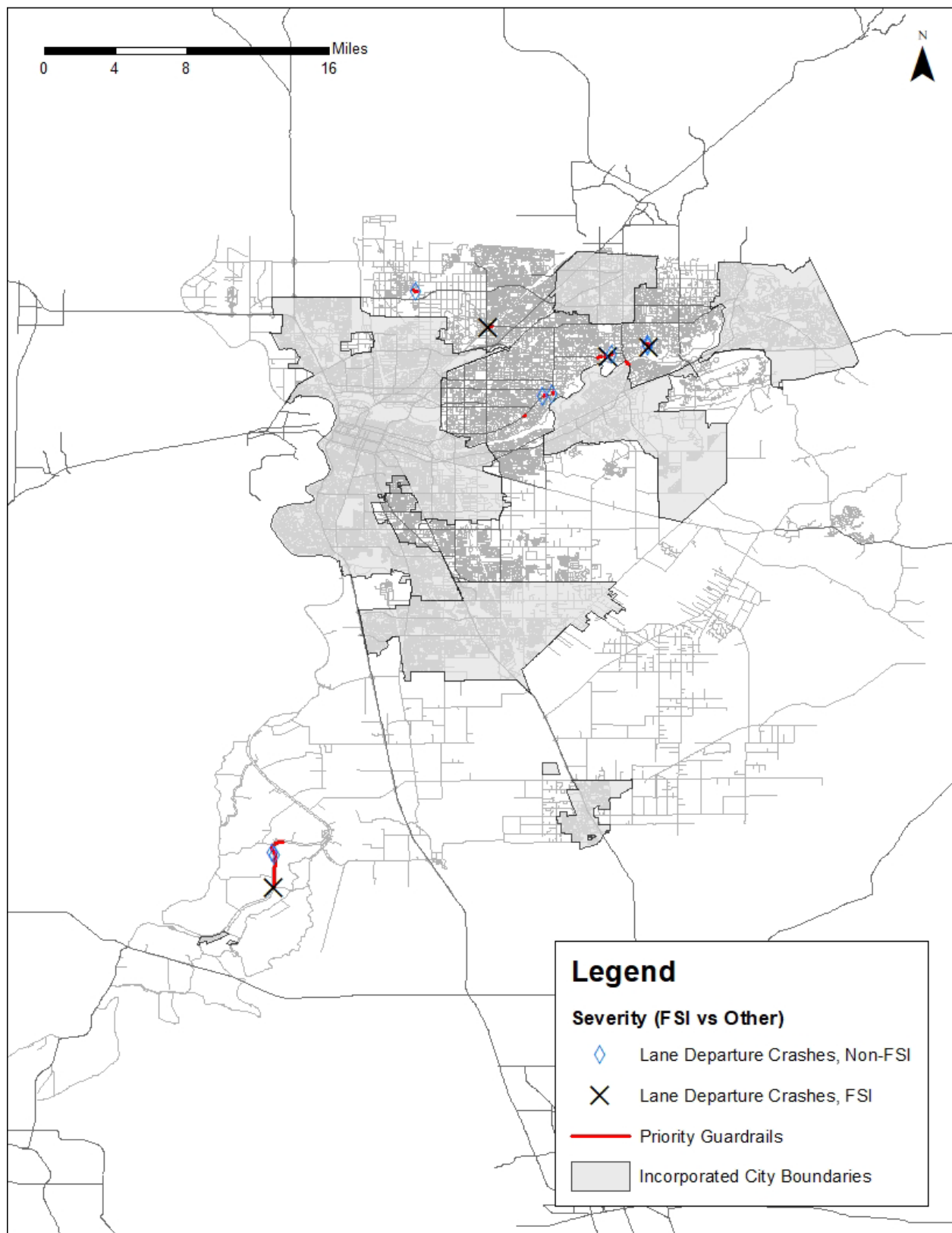


FIGURE 18: MAP OF PRIORITY GUARDRAIL PROJECTS AND NEARBY LANE DEPARTURE CRASHES

IMPROVED PROGRAMMATIC SYSTEMS

Beyond the transportation system of roads, sidewalks, and trails, County safety stakeholders can also improve safety by assessing and improving programmatic systems. For this category, the following Emphasis Areas were identified:

- **Emergency Response and Access.** Fully funded, staffed, and trained law enforcement and emergency response agencies can direct their efforts toward keeping users safe and, when crashes do occur, have the resources and systems in place so traffic incident management and emergency medical services personnel are available to respond.
- **Improved Data Collection and Management.** Crash history and other types of safety data can be advanced to better understand the causes and locations of crashes, leading to effective solutions. One framework is the list of USDOT's data quality attributes: timeliness, accuracy, completeness, uniformity, integration, and accessibility. Training is used to educate planners, engineers, designers, and construction staff about the importance of safety and how to incorporate it into their everyday job responsibilities.

EMERGENCY RESPONSE AND ACCESS



This emphasis area focuses on the response time of paramedics and other emergency personnel after a collision happens. Improved reporting and response times can decrease the ultimate injury severity outcome of crashes due to quicker treatment. This Emphasis Area was identified by multiple stakeholders during roundtable discussions.

Goals

- Develop emergency-access score metric and set appropriate reporting quality goal
- Reduce the emergency response time by 25% by 2030 compared to 2021 response time

Strategies

- **Recruit, train, and retain EMS responders in areas with higher response times, especially in Environmental Justice communities (Emergency Services)**
Staffing is one of the largest barriers to response time. In addition, lower response times correspond with areas that have a lower frequency of calls. Possible future studies can compare longer response times with frequency of calls to identify and address potential equity concerns.
- **Ensure a comprehensive network of Emergency Signal Priority Preemption systems are in place at traffic signals along main corridors countywide – Utilize Changeable message signs to alert drivers of collision incidents. (Engineering)**
Non-infrastructure based GPS signalized intersection preemption systems can improve response time for first responders. This strategy is in development in Rancho Cordova and Folsom.
- **Promote Traffic Incident Management (TIM) Responder Training for EMS officials (Education)**

IMPROVED DATA COLLECTION AND MANAGEMENT



Comprehensive data collection and data management is a critical part of evaluating safety Countywide as well as ensuring that the effectiveness and success of the strategies outlined in this document and the eventual LRSP. Strategies that will help in this process include:

Goals

- Improve consistency, comprehensiveness, and access to crash data

Strategies

- **Develop and implement an electronic reporting system to improve crash report timeliness, uniformity, accuracy, completeness, accessibility, and integration with related data sets (e.g., roadway inventory, traffic, public health) (Enforcement)**
Other data sources can potentially be used to improve comprehensiveness of crash data, including the FARS system, hospital case reporting, and insurance claims.
- **Evaluate type and extent of crash under-reporting and implement necessary actions to address the issue. (Enforcement)**
- **Collect data that helps safety data analysts and policy makers evaluate transportation safety equity. (Engineering)**
- **Re-evaluate collision trends and associated countermeasures every 5 years and update the Local Road Safety Plan and associated goals. (Engineering)**

IMPLEMENTATION & EVALUATION

This Local Road Safety Plan is the framework for engaging residents, stakeholders, employers, planners, engineers, enforcement agencies, and emergency medical service providers across the County in improving transportation safety in unincorporated Sacramento County. While safety-specific plans and programs are critical to achieving the vision for safety in unincorporated Sacramento County, it also is important that traditional transportation planning, design, operations and maintenance, and programs and policies proactively integrate safety into their decision-making processes. The emphasis areas and strategies in this Plan present short-term safety needs and solutions that can be utilized by stakeholders countywide as funding and implementation opportunities present themselves. Ongoing coordination and collaboration will enhance implementation efforts and set the stage to evaluate progress on policies, programs, and projects.

Using the goals and strategies in the LRSP, planners and engineers can track and plan for safety on the transportation system by:

- **Reviewing past, current, and predicted safety trends** – Are trends changing? Are the identified strategies reducing fatal and severe crashes within each emphasis area?
- **Revising safety goals and strategies** – Have the goals been achieved early, or are they progressing slower than expected? Are the responsible parties implementing the strategies, and if not, what are the barriers to implementation (funding, staff resources, lacking champions)?
- **Identifying new projects and strategies to achieve results** – Safety research and innovative programs are continually advancing. Are there new and more effective strategies that can be used to better improve safety?
- **Monitoring and evaluating system performance** – Are systems in place to effectively monitor and evaluate safety throughout the County? Are there opportunities to improve data collection and accuracy/quality?

IMPLEMENTATION

Sacramento Department of Transportation will reform the Stakeholder Working Group on a regular basis to discuss new and ongoing strategy implementations, new strategic and funding opportunities, and barriers to implementation. The purpose of the meeting is to encourage and to maintain communication across stakeholders and provide accountability for implementation. This Stakeholder Working Group should include the representatives from emergency and enforcement services, regional agencies and school districts, and relevant public committees.

EVALUATION

Sacramento Department of Transportation will prepare a memo every two years that will summarize crash trends for unincorporated Sacramento County focused on the Emphasis Areas and the stated goals of the current Local Road Safety Plan. This frequency will coincide with the frequency of Caltrans HSIP and ATP funding cycles, allowing the analysis to inform priority projects and funding applications.

The Emphasis Areas and Strategies identified in the Local Road Safety Plan will be re-evaluated every five years and revised based upon the results of the crash trend analysis.