

TRANSPORTATION SAFETY

REGIONAL EXISTING CONDITIONS



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EXECUTIVE SUMMARY

Between 2001 and 2016, there were more than 22,000 fatal collisions in the SCAG region, killing more than 24,000 people, and an additional 73,000 collisions resulting in serious injuries. During this same period, statewide, more than 57,000 people died in collisions and more than 193,000 people were seriously injured. Though transportation safety has improved to some extent in recent years, it remains a significant challenge for both the region and the state.

The State of California, SCAG, and local governments are committed to ensuring transportation safety for all people in our region. Metropolitan planning organizations such as SCAG are working with the state to develop statewide and regional safety targets to comply with transportation legislation. More specifically, we are working together to assess fatalities and serious injuries on all public roads and set annual targets for the following performance measures (at a minimum):

- Number of Fatalities;
- Rate of Fatalities per 100 million Vehicle Miles Traveled (VMT);
- Number of Serious Injuries;
- Rate of Serious Injuries per 100 million VMT; and
- Number of Non-motorized Fatalities and Non-motorized Serious Injuries.

We plan to use the data generated to help us make better transportation decisions that result in fewer fatalities and serious injuries. We want to find solutions to make the region safer for everyone. The first step is to acquire a perspective on our existing conditions. Specifically, what is happening? Where is it happening? When is it happening? Who is it happening to? And most importantly, why is it happening?

This report has two purposes. The first is to help provide some answers to these questions by reviewing our region's roadway collision data, patterns, and trends. The second purpose is to serve as a point of reference when considering the 2016 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) planned improvements as we develop regional safety targets.

SCAG REGION BY THE NUMBERS



1,500 PEOPLE DIE
EVERY YEAR
FROM COLLISIONS

5,200 PEOPLE SUSTAIN SERIOUS INJURIES
EVERY YEAR FROM COLLISIONS

136,000

PEOPLE SUSTAIN INJURIES
EVERY YEAR FROM COLLISIONS



270

COLLISIONS OCCUR PER DAY
ON THE STREETS

THAT IS ROUGHLY

99,000

PER YEAR



27%



OF ALL DEATHS INVOLVE
PEOPLE WALKING OR BICYCLING

90%

OF ALL COLLISIONS
OCCUR IN URBAN
AREAS



26%

OF ALL PEDESTRIAN-RELATED
FATALITY VICTIMS ARE
65 OLDER



42%

OF ALL TRAFFIC COLLISION
VICTIMS ARE PEOPLE 18-34



71%

OF ALL
COLLISIONS
OCCUR ON LOCAL ROADS



22%

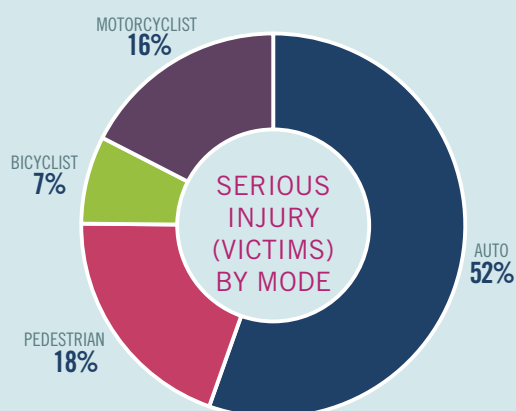
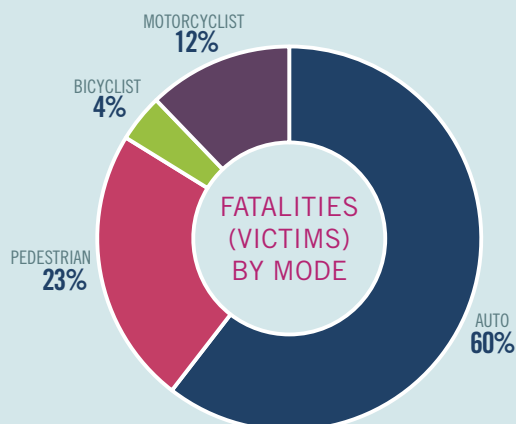
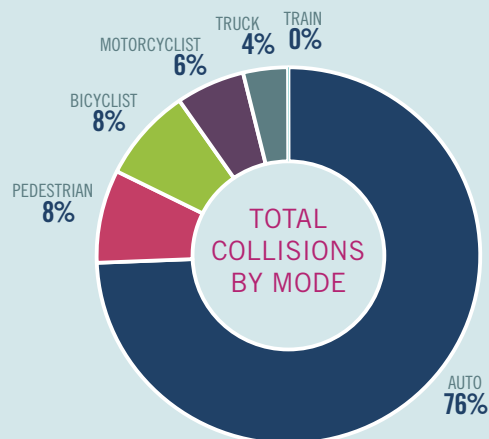
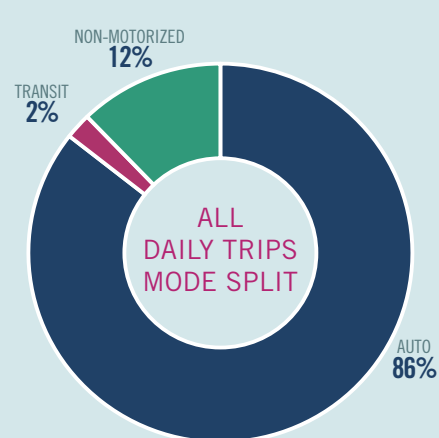
OF ALL COLLISIONS
OCCUR ON HIGHWAYS

8,700

ANNUAL VEHICLE MILES
TRAVELED PER CAPITA



PEOPLE WALKING AND BICYCLING ARE OVER-REPRESENTED AMONG TRAFFIC DEATHS COMPARED TO THEIR TOTAL MODE SHARE.



Why are collisions occurring?

The top contributing factor of all collisions is unsafe speed.



Speed is the critical factor in the severity of collisions

HIT BY A VEHICLE TRAVELING AT 25 MPH



9 out of 10 pedestrians survive

HIT BY A VEHICLE TRAVELING AT 50 MPH



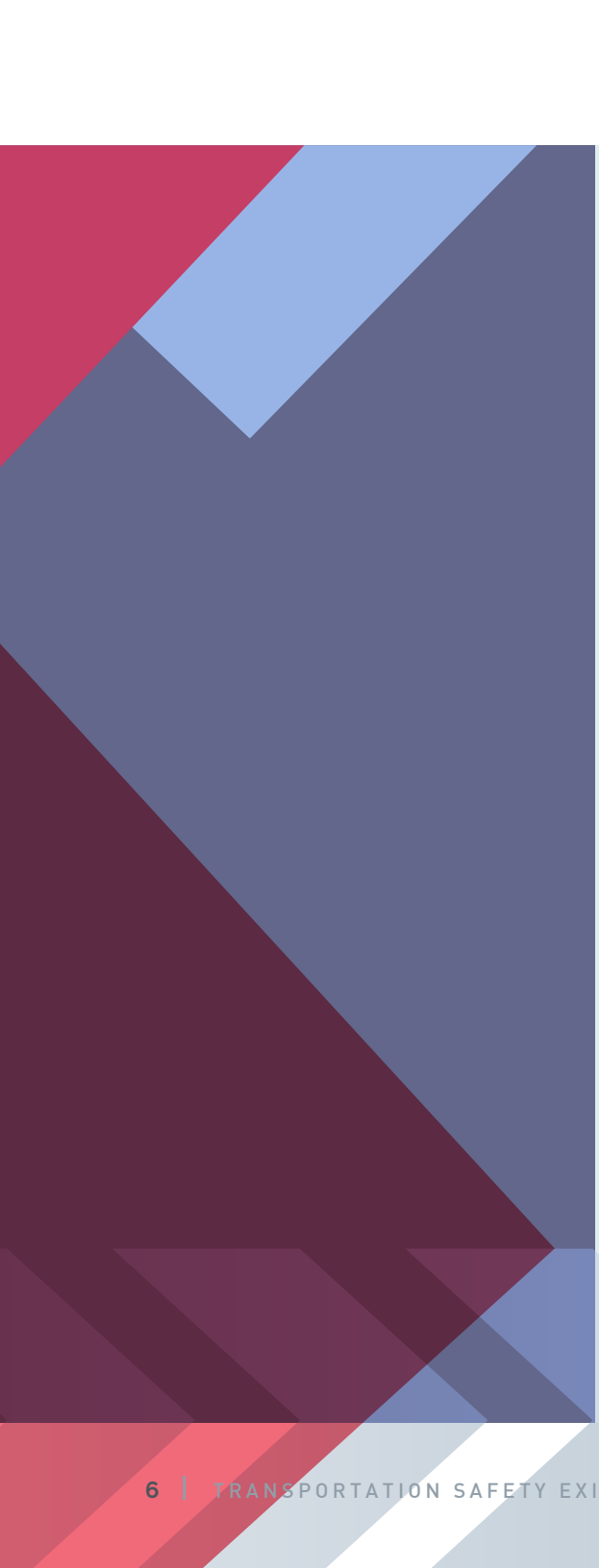
2.5 out of 10 pedestrians survive



INTRODUCTION

Southern California is home to roughly 19 million people, about half the entire state's population, and 15 million licensed drivers. We rely on our cars, buses, rail lines, bicycles, and feet to get around. And we're getting around a lot. We travel more than 440 million miles every day. That's equivalent to 17,911 trips around the world every day. The thing is, we aren't going around the world. We're going to work, the grocery store, to visit our grandma, and to our child's soccer game.

With all that traveling, it's not surprising that mistakes are made. At the wrong moment, we might take a quick glance at a text message, rush to make it through a traffic signal, or forgo the intersection to cross midblock. The consequences of these mistakes can last a lifetime.



On average, 1,500 people are killed, 5,200 are seriously injured, and 136,000 are injured in traffic collisions each year in Southern California. These numbers represent children, parents, spouses, relatives, and friends. These are people who were going about their typical day—again, heading to work, the grocery store, and to visit grandma. Collisions are happening in every community in our region, from El Centro in Imperial County to Malibu in Los Angeles County. They are happening to people from all walks of life, to those who drive and to people who walk and bike.

Continued population and economic growth in the region has created increased demand on many of our existing roadways, increasing traffic density and making safety more critical than ever for the diverse population who use our network on a daily basis.

The State of California, SCAG, and local governments are committed to ensuring transportation safety for all people in our region. We want to work together to find solutions to make the region safer for everyone. The first step is to acquire a perspective on our existing conditions. Specifically, what is happening? Where is it happening? When is it happening? Who is it happening to? And most importantly, why is it happening?

This report has two purposes. The first is to help provide some answers to these questions by reviewing our region's roadway collision data, patterns, and trends. The second purpose is to serve as a point of reference when considering the 2016 RTP/SCS planned improvements as we develop regional safety targets.

Overview

Many local jurisdictions are already hard at work on improving safety. Why are we setting regional safety targets?

Communities everywhere are working to develop safer transportation systems. Our combined efforts can be better supported and coordinated by establishing common goals and targets at the state and regional level.

Transportation funding legislation was approved in 2012 (Moving Ahead for Progress in the 21st Century Act (MAP-21)) and 2015 (Fixing America's Surface Transportation Act (FAST Act)) that calls for establishing performance measures and standards. To this end, the Federal Highway Administration (FHWA) is now requiring State Departments of Transportation (DOTs) to work with metropolitan planning organizations (MPOs) to assess fatalities and serious injuries on all public roads and to set annual targets for the following performance measures (at a minimum):

- Number of Fatalities;
- Rate of Fatalities per 100 million Vehicle Miles Traveled (VMT);
- Number of Serious Injuries;
- Rate of Serious Injuries per 100 million VMT; and
- Number of Non-motorized Fatalities and Non-motorized Serious Injuries.

Targets will be set based on five-year rolling averages. A five-year rolling average is the average of five individual, consecutive annual points of data for each proposed performance measure. Using a multiyear average approach provides a better understanding of the overall fatality and serious injury data over time. For instance, if a particularly high or low number of fatalities and/or serious injuries occur in one year, a return to a level consistent with the average in the previous year may occur.

State DOTs and MPOs are expected to use the information and data generated to help make better transportation planning and funding decisions that result in fewer transportation fatalities and serious injuries.

When will we set our regional safety targets?

The California Department of Transportation (Caltrans) is required to

establish statewide targets on an annual basis, beginning in August 2017 for calendar year 2018 targets.

SCAG is required to establish targets for the same five safety performance measures up to 180 days after Caltrans establishes targets (i.e., February 27 each year). SCAG has the option to agree to support Caltrans' targets, establish numerical targets specific to our region, or use a combination of both. SCAG must provide regular updates on its progress towards achieving these targets, including in the Regional Transportation Plan/Sustainable Communities Strategy and the Federal Transportation Improvement Program.

How will we know if we are making progress?

FHWA will consider whether Caltrans has met or made significant progress toward meeting its safety targets when at least four of the five targets are met or the outcome for the performance measure is better than the baseline performance the year prior to the target year.

For example, for 2018, the total number of fatalities would need to be equal to or less than the established target. If not equal or less than the established target, FHWA would consider the baseline performance – that is, whether the state performed better than 2017. FHWA will notify Caltrans of its progress by March following the year the data becomes available. For example, for 2018 targets, Caltrans will be notified by March 2020 of whether it has met or made progress towards targets.

The met or made significant progress determination only applies to State DOT targets, not MPOs. However, as part of oversight of the planning process, FHWA will review how MPOs such as SCAG are addressing their targets or assisting the state in addressing its targets during Transportation Management Area (TMA) Certification Reviews, when FHWA reviews the Transportation Improvement Programs (TIPs) and State Transportation Improvement Programs (STIPs). FHWA will also review how MPO targets are achieved during the Federal Planning Finding associated with the approval of the STIP.

What will happen if we do not meet our targets?

If California does not meet its targets, a State Implementation Plan will have

to be developed to meet its targets, and whatever flexibility there is in using Highway Safety Improvement (HSIP) funds will be gone. Also, if California is not meeting the requirements, greater coordination of Caltrans and MPO safety activities will likely have to occur.

Isn't California already working on safety?

California has its own Strategic Highway Safety Plan, which started development in 2006 and was updated in 2015. As a statewide, coordinated safety plan, it provides a comprehensive framework for reducing fatalities and serious injuries experienced by motorists, pedestrians, and bicyclists on all public roads. Similar to SCAG, California aims to have a safe transportation system for all users. California's overarching goal is Toward Zero Deaths. To achieve this goal, California is aiming to achieve a 3 percent per year reduction for the number and rate of fatalities; and a 1.5 percent per year reduction for the number and rate of severe injuries. The State is currently hard at work on implementing this plan. More information can be found at <http://www.dot.ca.gov/trafficops/shsp/>.

In addition, a number of cities in California (e.g., Los Angeles) and across the world are aiming to achieve transportation systems with no fatalities or serious injuries, also known as Vision Zero. A Vision Zero approach recognizes that people make mistakes while using the roadways and that the system should be designed to eliminate the severity of these mistakes. For example, a Vision Zero strategy could be lowering vehicle speeds to reduce the number of collisions as well as their severity. This goal is informed by the understanding that a pedestrian has a 10 percent chance of being killed by a vehicle traveling at about 25 miles per hour and at 50 miles per hour, his or her chance of being killed escalates to 75 percent.

Helpful Definitions, Acronyms, and Data

What is VMT and why is it important?

VMT stands for Vehicle Miles Traveled. Per VMT is used to describe collision rates per vehicle miles traveled. This helps us measure the safety per distance traveled.

What is a serious injury versus a non-serious injury?

Serious injuries are non-fatal and result in one or more of the following:

- Severe laceration resulting in exposure of underlying tissues/muscle/organs or resulting in significant loss of blood;
- Broken or distorted extremity (arm or leg);
- Crush injuries;
- Suspected skull, chest, or abdominal injury other than bruises or minor lacerations;
- Significant burns (second and third degree burns over 10 percent or more of the body);
- Unconsciousness when taken from the crash scene; and/or
- Paralysis.

Non-serious injuries are also non-fatal or severe, but more common. They may include visible injuries and/or a complaint of pain.

What is non-motorized transportation?

Non-motorized transportation is a term for active transportation or human powered transportation and includes walking and bicycling, and variants such as skates, skateboards, and wheelchairs.

Why are we referring to crashes or collisions and not accidents?

Fatal and non-fatal collisions are not all simply "accidents" – that is, unavoidable tragedies. People driving, walking, and bicycling will make mistakes on the road. We recognize that most crashes have identifiable causes and we can work together to implement programs and improvements to ensure that future similar mistakes do not result in death.

Where is the data coming from?

Collision data for this report was generated from the California Statewide Integrated Traffic Report System (SWITRS). Because SWITRS combines records from all state and local police departments, data varies due to differences in reporting methods. It is important to note that the number of collisions reported to SWITRS is likely an underestimate of the actual

number of collisions that take place because some parties do not report minor collisions to law enforcement, particularly collisions not resulting in injury or property damage. Although under-reporting and omissions of near-misses are limitations, analyzing the collision data allows us to look for trends both spatially and in behaviors or design factors that cause collisions in our region. It is important to note that the most recent year of complete data is from 2014. The 2015 and 2016 data we are sharing are provisional. Throughout the report we have relied on the most recent year of data, 2016, though in some instances we have used 2014 data when that is all that was available.

VMT data was generated from the 2015 Highway Performance Monitoring System (HPMS), a national level highway information system that includes data on the extent, condition, performance, use, and operating characteristics of the nation's highways. The HPMS contains administrative and extent of system information on all public roads, while information on other characteristics is represented in HPMS as a mix of universe and sample data for arterial and collector functional systems. Limited information on travel and paved miles is included in summary form for the lowest functional systems.

Regional Existing Conditions

What are the overall trends?

SCAG, like California and the nation, experienced a period of annual declines in traffic-related fatalities and serious injuries until 2012 when they began to steadily rise, though they have not risen to their previous peaks. Although the region has made some progress on safety, on average, each year 1,500 people die in traffic collisions, 5,200 are seriously injured, and 136,000 are injured. **Figures 1 and 2** show the total number of fatal and seriously injured victims since 2001, respectively. Although the region has experienced increases, overall, fatalities have declined by 16 percent, from a high of 1,891 in 2006 to 1,580 in 2016. Meanwhile, serious injuries have declined marginally by 3 percent, from a high of 6,006 in 2004 to 5,800 in 2016, and injuries have declined by 5 percent, from a high of 157,173 in 2003 to 149,192 in 2016.

Map 1 reflects all fatal collisions occurring throughout the region in 2014

(our most recent year of complete geocoded data). **Map 2** reflects all serious injury collisions occurring throughout the region in 2014. Both fatal and serious injuries are generally concentrated in areas of high population.

Since 2001, in terms of crash severity, 95 percent of all victims suffered from injuries, 3.7 percent of all victims suffered from serious injuries, and 1 percent of all victims died from their injuries.

About 73 percent of those killed since 2001 were in vehicles or on motorcycles, while the remaining 27 percent were walking or bicycling. The numbers of both pedestrians and motorcyclists killed are the highest they have been for more than a decade.

Figures 3 and 4 reflect the total number of pedestrian fatalities and serious injuries since 2001, respectively, and the overall trends. Pedestrian fatalities, after a brief period of annual declines, have increased each year since 2012 and are now 50 percent higher in 2016 than they were in 2011, the most recent low point. The number of pedestrians sustaining serious injuries has also recently increased from a recent low of 878 in 2011 to a high of 1,046 in 2016, an 18 percent increase.

Map 3 reflects all pedestrian-involved serious injury and fatal collisions occurring throughout the region in 2014.

Figures 5 and 6 reflect the total number of bicyclist fatalities and serious injuries since 2001, respectively and the overall trends. Bicyclist fatalities declined 23 percent, from a high of 88 cyclists killed in 2006 to 68 in 2016. Still, in any one year, roughly 60 bicyclists are killed in fatal collisions. Serious injuries have decreased by 19 percent from a high of 441 in 2012 to 359 in 2016. All bicyclist non-fatal injuries have remained generally stable, with about 5,800 injured in any one year. It should be noted that between 2007 and 2012, bicycling in the SCAG region increased 70 percent.

Map 4 reflects all bicycle-involved serious injury and fatal collisions occurring throughout the region in 2014.

Please note, simple tabulations of total fatalities or injuries may not necessarily paint the complete picture. Modal shifts may have occurred. For example, bicycling injuries may go up by 20 percent, but more people may be bicycling –that is, bicycling in the same period may have increased 70

percent. It is common practice to normalize roadway fatality and serious injury rates, by comparing the rates to population or traffic volumes. Normalization by population is useful in measuring the overall safety of the roadway system. **Figures 7 and 8** show the historical rates of fatalities and serious injuries per 1,000 people since 2001. Both rates have downward trends, with recent upticks that parallel those of the state.

Normalization by traffic volumes is useful in measuring the safety per distance traveled. **Figures 9 and 10** show the historical rates of fatalities and serious injuries per 100 million VMT, respectively, since 2001. Both rates have experienced significant declines, with only a recent noticeable uptick in 2016.

The numbers and rates of fatalities and serious injuries can increase or decrease for a multitude of reasons, some of which an MPO cannot directly influence, including the state of the economy, vehicle technologies, roadway design, drinking and driving, distracted driving, and safety belt use, just to name a handful. And though there is a correlation between decreased VMT and decreased fatalities, within the SCAG region, VMT did not decline during the economic downturn, but remained relatively stable for more than the past decade as shown in **Figure 11** (with Imperial County being the exception).

SCAG VMT per capita has slightly declined since its last peak in 2002 (8,846) compared to 2016 (8,678). This decline could be attributable to our region's modest population gains, changing demographics, saturated highways, and/or a preference for living in more compact neighborhoods, which reduces the need for driving. Monitoring our region's VMT is critical because one of the clearest trends in collision data is the correlation between fatality rates and annual VMT per capita. More automobile travel typically results in higher fatality rates (per VMT), so when the region experiences declines in automobile travel and/or modal shifts, fatality rates will typically decline. Currently, more than 86 percent of all trips within the region are made by car, and just over the past decade, an average of 156 billion vehicle miles were traveled per year throughout the region. **Figure 12** provides a comparison of percentage changes between fatalities, serious injuries, VMT, and population levels since 2001. While population and VMT have remained relatively stable, the changes in numbers of fatalities and serious injuries have increased and declined in parallel.

Where are collisions occurring?

California's statewide database of traffic collisions, SWITRS, defines rural as unincorporated and incorporated areas with a population of fewer than 2,500. Urban is defined as unincorporated and incorporated areas with a population of 2,500 or more. According to our most recent year of data (2016), nearly 90 percent of all collisions in the SCAG region occur in urban areas (see **Maps 1-4**). A total of 73 percent of our fatal collisions occur in urban areas, while 79 percent of our serious injury collisions occur in urban areas. Nearly all (88 percent) of our pedestrian- and bicycle-related collisions occur in urban areas.

Southern California's vast roadway system functions as the backbone of our overall transportation network and facilitates the movement of people and goods throughout our region. Our region's highway and arterial system covers about 21,000 centerline miles while our local roads cover about 34,000 centerline miles. Our region has roughly 3,900 miles of bikeways, which include 748 miles of Class 1 off-road paved paths or Class 4 separated bikeways, and 2,150 miles of Class 2 bicycle lanes. The remaining 1,021 miles are Class 3 bicycle routes, which have no physical barrier or visual separation (lane striping). We anticipate these numbers will shift upwards as we approach 2040, when the region will have nearly 13,000 miles.

According to our most recent year of complete data (2014), the overwhelming majority of collisions (71 percent) are occurring on local roads. Local roads are typically low-speed streets with low traffic volumes in residential areas, but also include similar streets in commercial and industrial areas. Local roads generally account for the largest percentage of all roadways in terms of mileage. Vehicles traveling on local roads (versus highways) have more opportunities to interact with oncoming traffic, cross-traffic, and vulnerable road users (e.g., bicyclists and pedestrians), which may help explain why the majority of collisions are occurring on these types of roadways.

The remaining collisions are occurring on our highways (22 percent) and major arterials (7 percent). In comparison to local roads, arterial roads provide a high degree of mobility and higher operating speeds for longer trip lengths and high volumes of traffic. They typically avoid penetrating identifiable neighborhoods.

More than half (65 percent) of our fatal collisions are occurring on our local

roads. About a quarter of our fatal collisions (23 percent) are occurring on our highways and the rest on our arterials (12 percent).

When are collisions occurring?

Most collisions are occurring during the evening commute period on weekdays, peaking around 5–6 pm and also during the same evening period on weekends as shown in **Figure 13**. Fatal collisions tend to occur late at night, around 9 pm, continuing through 3 am. Collisions tend to be lowest on Sundays and gradually increase as the week progresses, peaking on Fridays as shown in **Figure 14**.

For bicyclists and pedestrians, weekday injury collisions occur most often during morning and evening commute hours, with a higher spike during the evening commuting hours as shown in **Figures 15 and 16**. Pedestrian fatalities and serious injuries rise in the afternoon and evening rush hour, along with an increase in all pedestrian-involved collisions. Bicyclist fatalities, serious injuries and all bicyclist-involved collisions follow a similar pattern.

However, there are differences on weekends as shown in **Figures 17 and 18**. Pedestrian fatalities, serious injuries, and all pedestrian-involved collisions peak during the late-afternoon and evening weekend rush hour. Bicyclist fatalities have a slight increase between 9-12 am and again between 3 pm and 9 pm.

Throughout the course of the year, collisions tend to peak between August and October, roughly overlapping with the beginning of the school year and coinciding with the start of the time change and fewer daylight hours, as shown in **Figure 19**. As shown in **Figure 20**, pedestrian-involved collisions are lowest in summer, but begin to rise after June and peaking in February. Bicyclist involved collisions tend to peak in August and September, and are lowest in December and January.

For our most recent year of data (2016), on average, each month there were about 120 fatal collisions (about 130 in October/November); roughly 420 serious injury collisions; and more broadly, more than 8,660 collisions. Please note, the total number of collisions does not equal the total number of victims since multiple people can be involved in any one collision.

Who is being hurt?

As shown in **Figures 21 and 22**, bicyclist and pedestrian victims account for about a quarter of all fatal and serious injury victims. Only about 12 percent of all daily trips are made via walking or biking as shown in **Figure 23** and so people walking or biking are overrepresented. Another concern is that the number of fatalities in these categories has remained stable over the past decade, meaning that if you are walking or biking throughout our region, your chances of being killed today are roughly the same as what they were in 2005.

Motorcyclists account for about 12 percent of all fatalities since 2001 and unfortunately, motorcycle fatalities as well as serious injuries have continued to increase. There were 120 fatalities in 2001 versus 267 in 2016, with an annual average of 189. These rising numbers could be due to the rising popularity of motorcycle riding.

In any given year, the number of collisions involved with trains is very low. For example, from 2001 through 2016, 544 train-related collisions occurred (about 30 per year), of which 67 resulted in fatalities and 51 in serious injuries.

Truck-involved collisions are more frequent, but also low in number. For example, in 2016, 3,905 collisions occurred involving trucks (about 4 percent of all collisions – not to be confused with victims), and of these, 128 resulted in fatalities and 245 resulted in serious injuries, or in other words, about 10 percent of all truck-involved collisions result in death or serious injury.

According to our most recent year of data (2016), 42 percent of all traffic collision victims are between the ages of 18 to 34, though this age group makes up about 26 percent of our region's population. People in this age group make up 39 percent of all fatal collision victims. About 10 percent of all traffic collision victims and 5 percent of fatal collision victims are under the age of 18 (about 24 percent of our region's population), and 9 percent of all traffic collision victims and 16 percent of all fatal collision victims are 65 and older (they make up about 12 percent of our region's population).

Also according to our most recent year of data (2016), men and women appear to be involved in collisions at equal rates, though women are more often passengers in collisions (63 percent), while men are slightly more involved in collisions as drivers (53 percent), pedestrians (58 percent), or

bicyclists (83 percent). Men are also more often involved in fatal collisions (73 percent) and serious injury collisions (69 percent).

Figures 24, 25, and 26 provide a breakdown of all collisions, fatal collisions, and serious injury collisions victims by age and sex.

For pedestrian-involved collisions, the number of fatalities for those 18 to 44 represented 33 percent (39 percent of our region's population), while the number of fatalities for those 45 to 64 represented 27 percent of all pedestrian fatalities (25 percent of our region's population). The number of fatalities for those 65 and older represented 26 percent of all pedestrian fatalities – disproportionate to their 12 percent share of our region's population. For serious injuries related to pedestrian-involved collisions, those 18 to 44 represented 44 percent of all pedestrian serious injuries, while those 45 to 64 represented 28 percent of all pedestrian serious injuries. The number of serious injuries for those 65 and older represented 15 percent of all pedestrian serious injuries – slightly disproportionate to their share of our region's population.

For bicyclist involved collisions, the number of fatalities for those 45 to 64 represented 34 percent of all bicyclist fatalities, while the number of fatalities for those 18 to 44 represented 23 percent. The number of fatalities for those 65 and older represented 19 percent of all bicyclist fatalities – disproportionate to their share of our region's population. For serious injuries related to bicyclist-involved collisions, those 18 to 44 represented 45 percent of all bicyclist serious injuries, while those 45 to 64 represented 33 percent of all bicyclist serious injuries.

Why are collisions occurring?

In the SCAG region, about 30 percent of collisions are due to unsafe speed. For those of us who drive, it's important to know that at 50 miles per hour, a car gives a pedestrian only a 25 percent chance of surviving if struck. In contrast, at about 25 miles per hour, a car gives a pedestrian a 90 percent chance of surviving if struck.

Maps 5-8 reflect the top three contributing factors of 2014 (our most recent year of complete geocoded data) for all fatal and serious collisions, and bicycle- and pedestrian-involved fatal and serious collisions.

Examples of collision contributing factors:

An example of a collision related to unsafe speed is when a driver travels above the posted speed limit or at an unsafe speed for the existing roadway conditions, such as during rain or snow.

An example of a right-of-way collision is when a driver fails to yield to and then collides with a vehicle, pedestrian, or bicyclist already in an intersection.

An example of a collision related to improper turning is when a driver makes a U-turn at an intersection without a four way stop that results in a collision with another vehicle, bicyclist, or pedestrian. It is important to note that the top contributing factors tend to be behavior-related. That is, the driver, pedestrian, or bicyclist caused the crash through poor decision-making. Unfortunately, at this time we do not have a great deal of data on the impact of distracted driving. However, we do know that nearly 60 percent of California drivers surveyed stated they had been hit or nearly hit by a driver talking or texting (California Traffic Safety Survey, 2015).

THE TOP THREE CONTRIBUTING FACTORS FOR ALL COLLISIONS



THE TOP THREE CONTRIBUTING FACTORS FOR FATAL COLLISIONS



THE TOP THREE CONTRIBUTING FACTORS FOR SERIOUS INJURIES

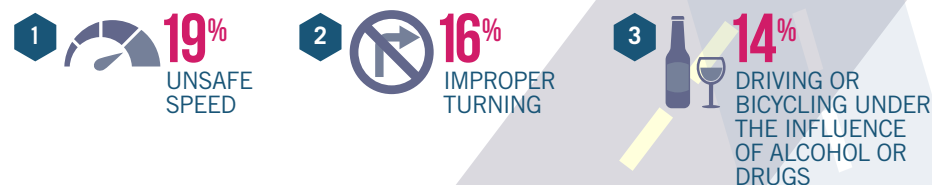


Figure 1: Total Number of Fatal Victims

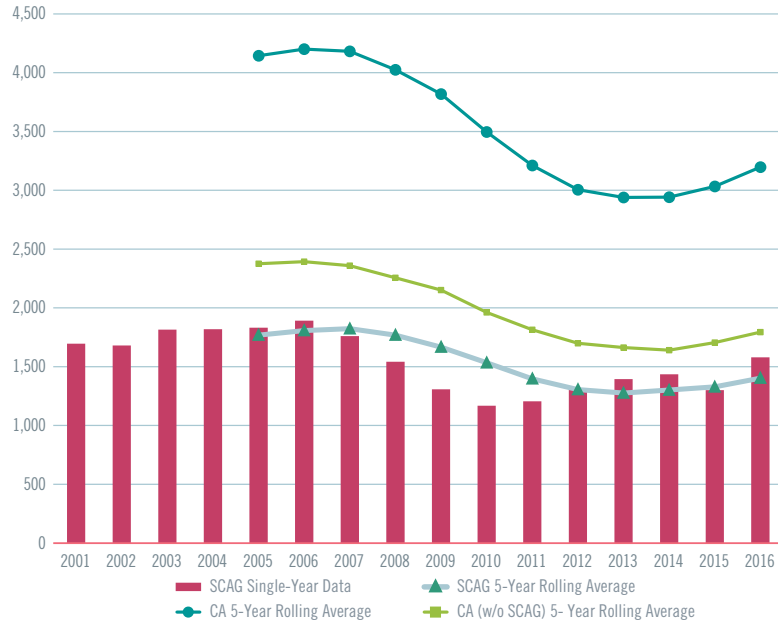


Figure 2: Total Number of Serious Injury Victims

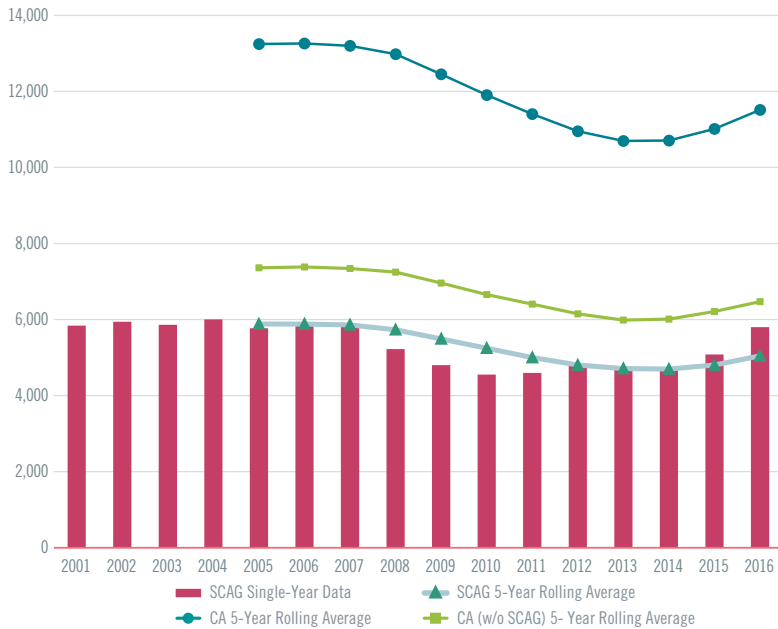


Figure 3: Total Number of Fatal Pedestrian Victims



Figure 4: Total Number of Pedestrian Serious Injuries



Figure 5: Total Number of Fatal Bicyclist Victims



Figure 6: Total Number of Bicyclist Serious Injury Victims



Figure 7: Total Number of Fatal Victims per 1,000 Population (All Modes)

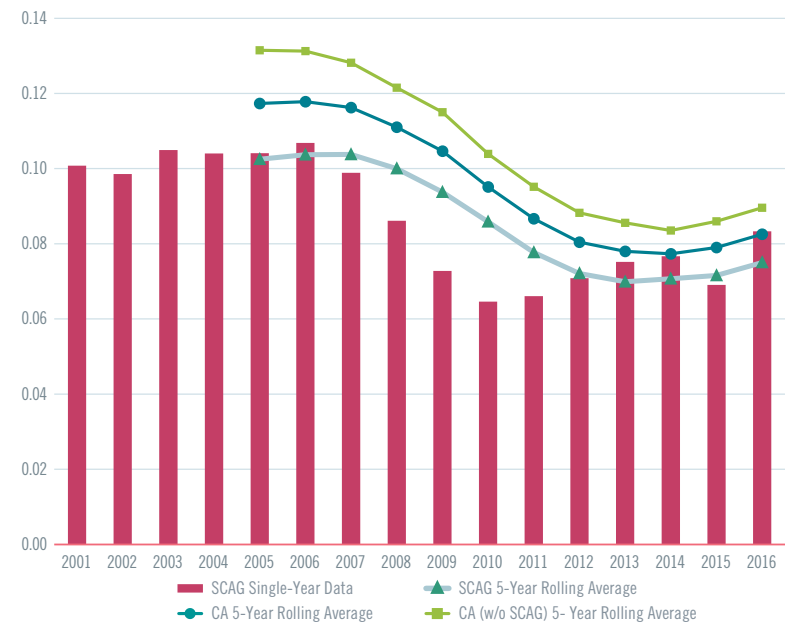


Figure 8: Total Number of Serious Injury Victims per 1,000 Population (All Modes)

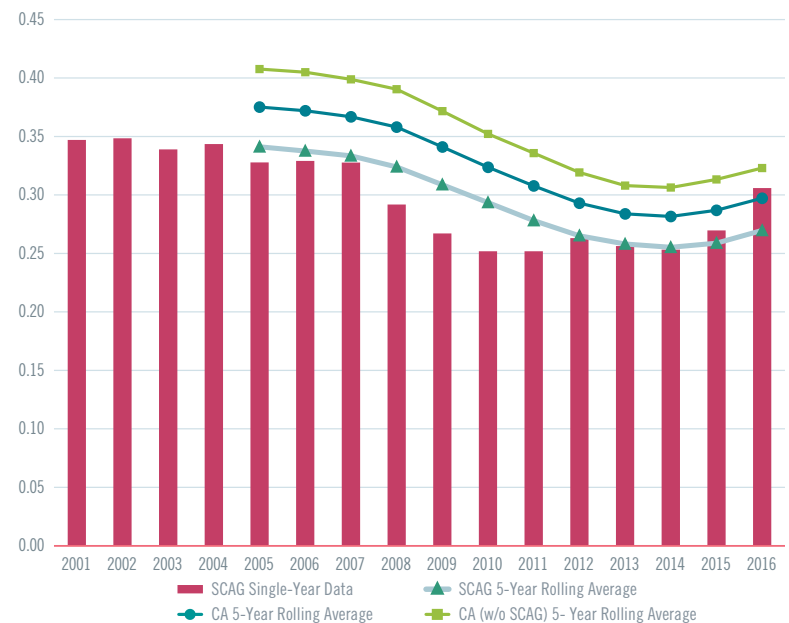


Figure 9: Total Number of Fatal Victims per 100M Vehicle Miles Traveled (All Modes)

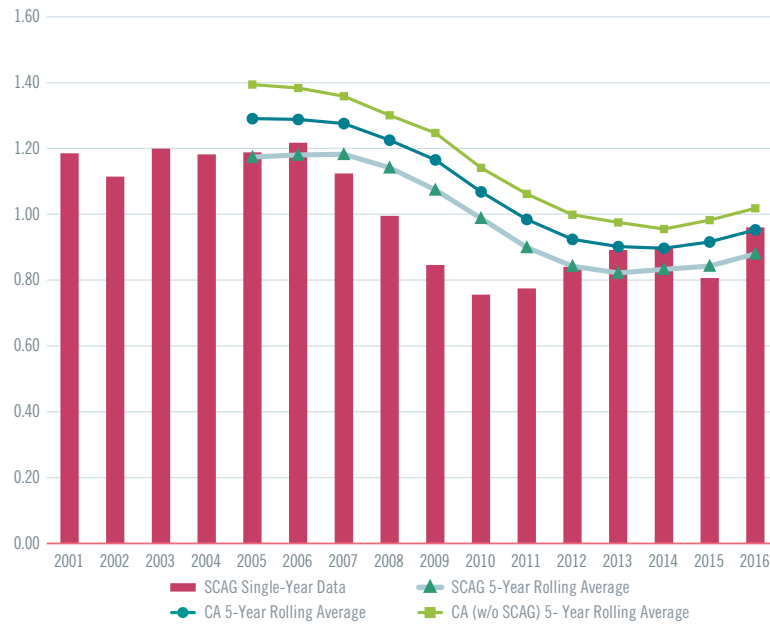


Figure 10: Total Number of Serious Injury Victims per 100M Vehicle Miles (All Modes)

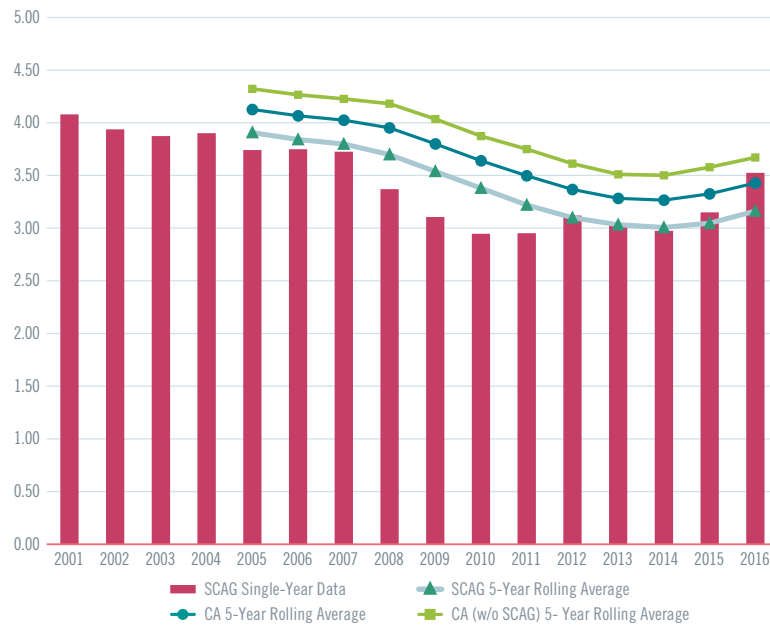


Figure 11: Vehicle Miles Traveled Per Capita

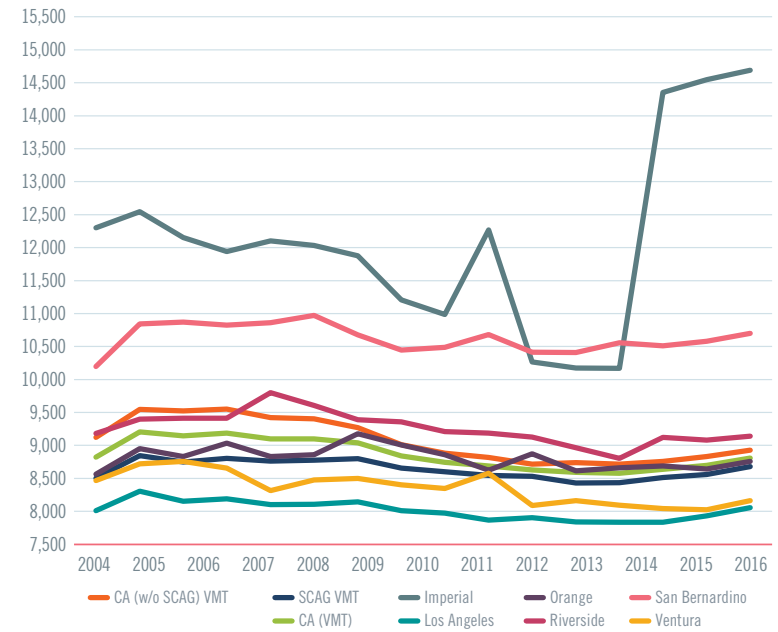


Figure 12: Percent Change Fatal Collisions, Serious Injury Collisions, and VMT

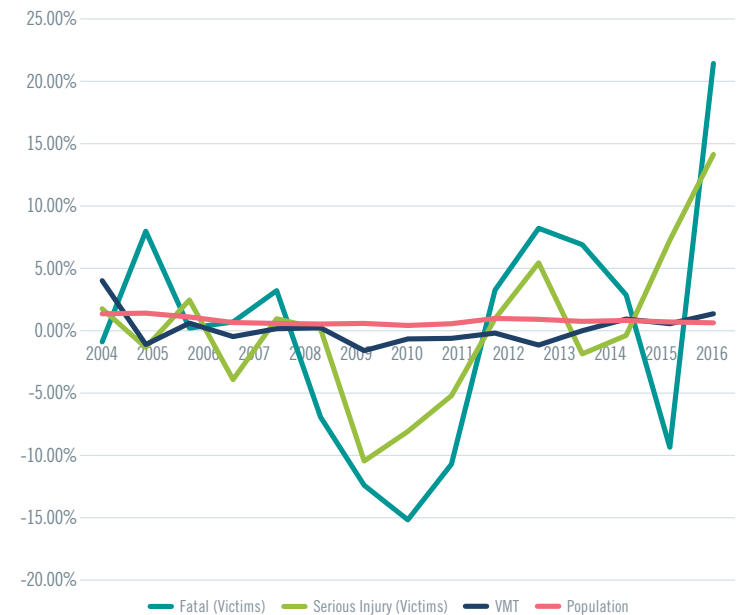


Figure 13: Collisions by Time of Day (2016)

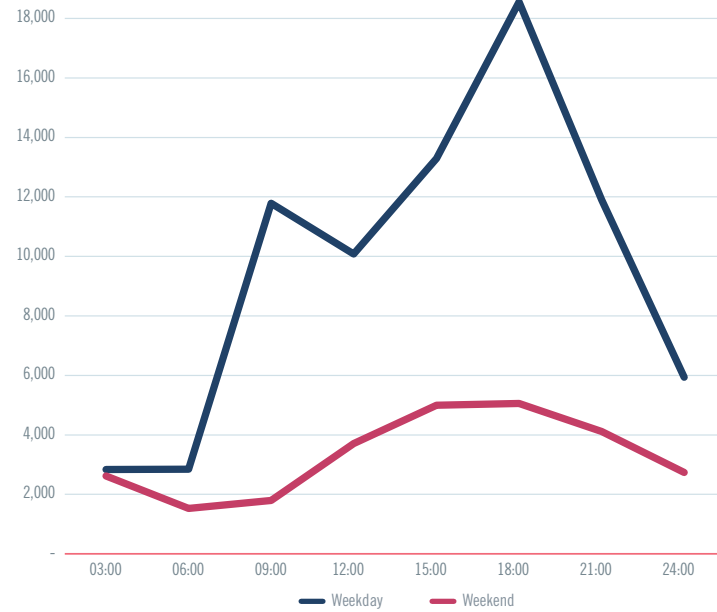


Figure 14: Collisions by Day of the Week (2016)

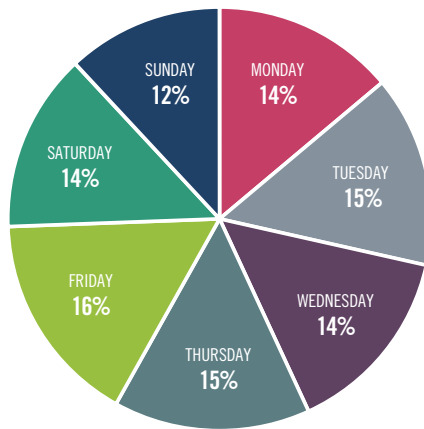


Figure 15: Pedestrian-Involved Collisions by Time of Day (Weekday, 2016)

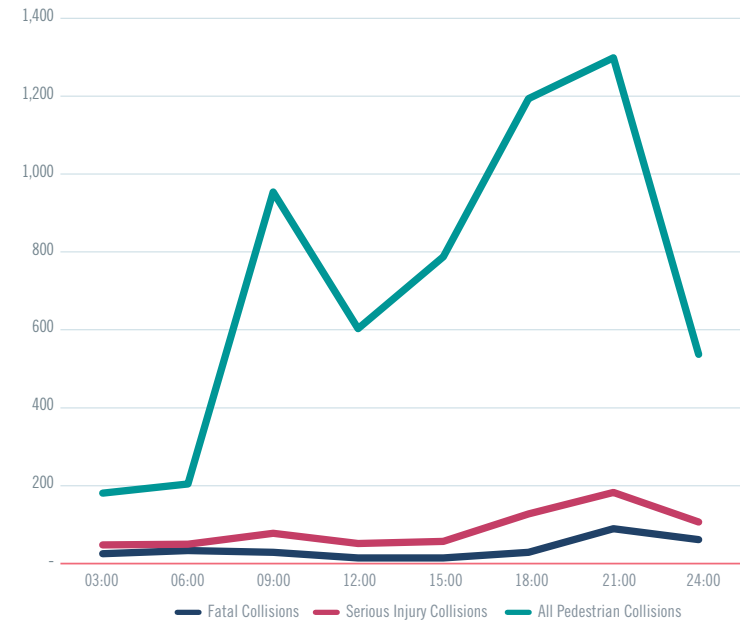


Figure 16: Bicyclist-Involved Collisions by Time of Day (Weekday, 2016)

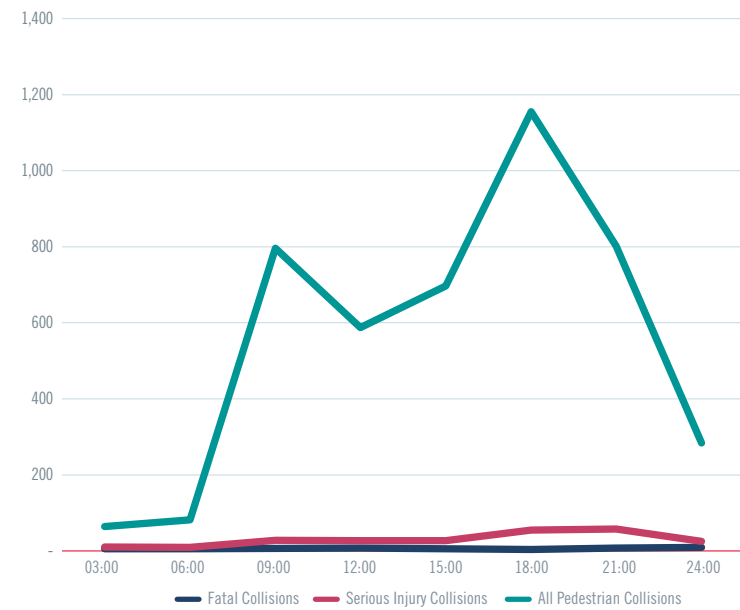


Figure 17: Pedestrian-Involved Collisions by Time of Day (Weekend, 2016)

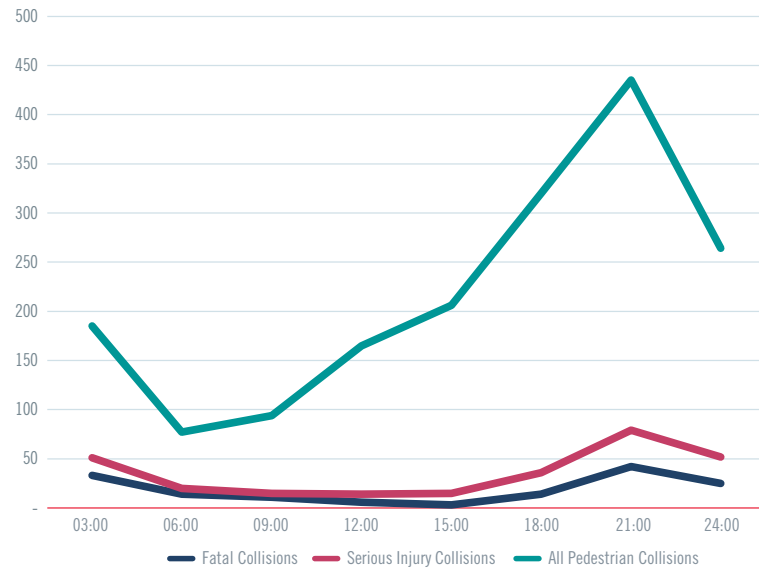


Figure 18: Bicyclist-Involved Collisions by Time of Day (Weekend, 2016)

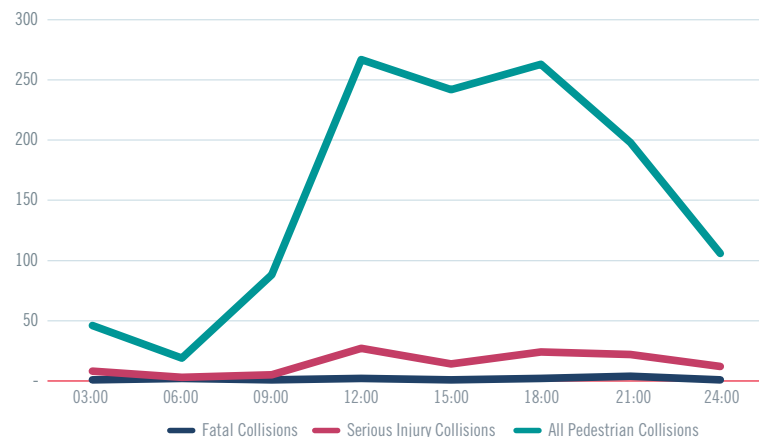


Figure 19: Collisions by Month (2016)

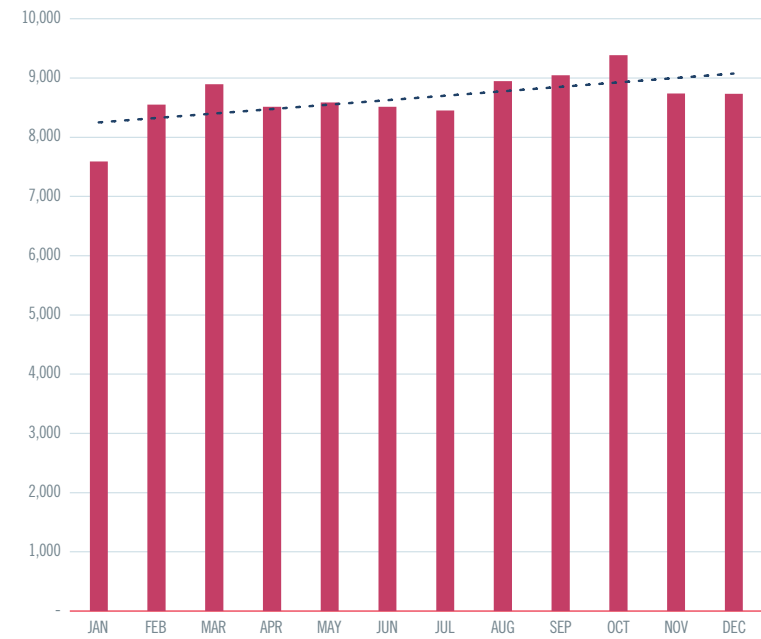


Figure 20: Average Pedestrian and Bicyclist Collisions by Month (2016)

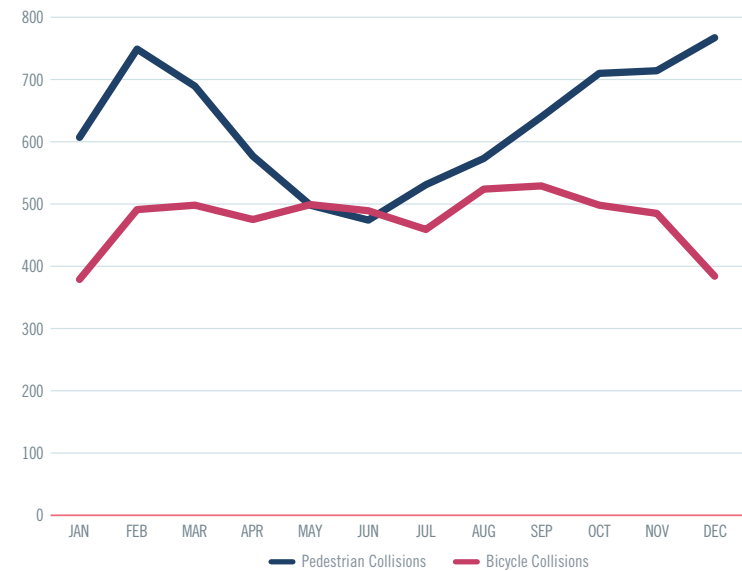


Figure 21: Fatal Victims by Mode (2001 – 2016)

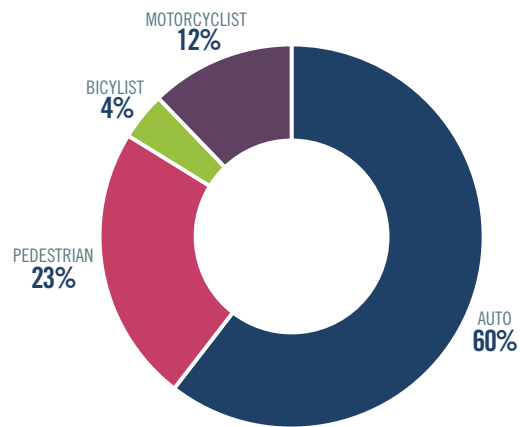


Figure 23: All Daily Trips Mode Split - SCAG Region (2001 – 2016)

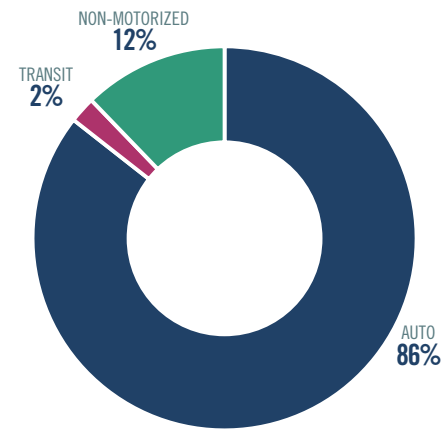


Figure 22: Serious Injury Victims by Mode (2001 – 2016)

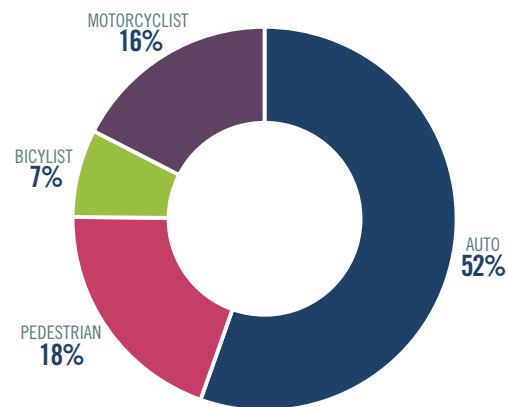


Figure 24: All Collision Victims - Age and Sex (2016)

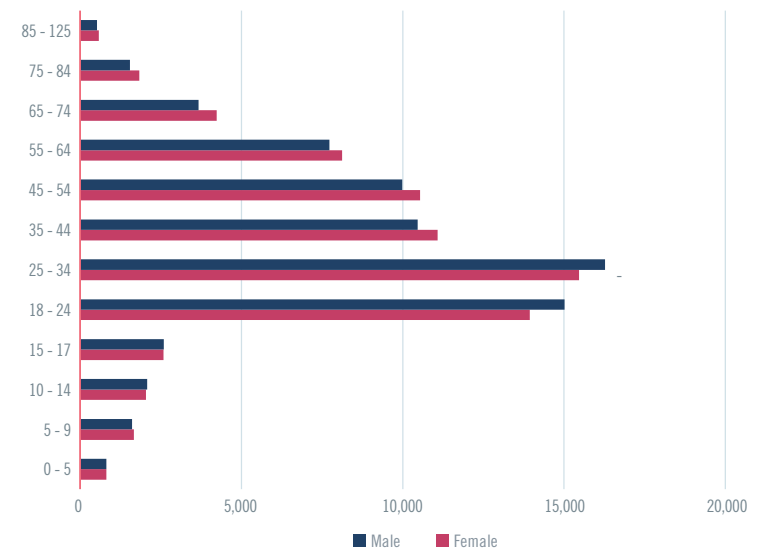


Figure 25: Fatal Collision Victims - Age and Sex (2016)

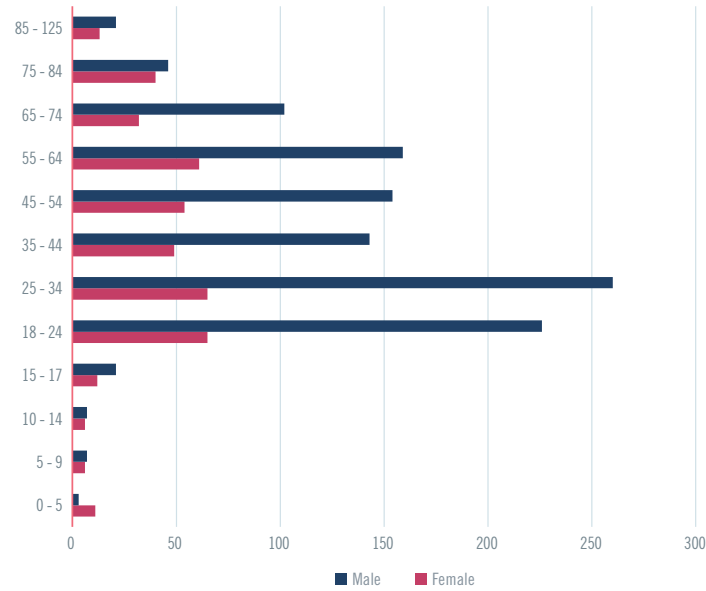
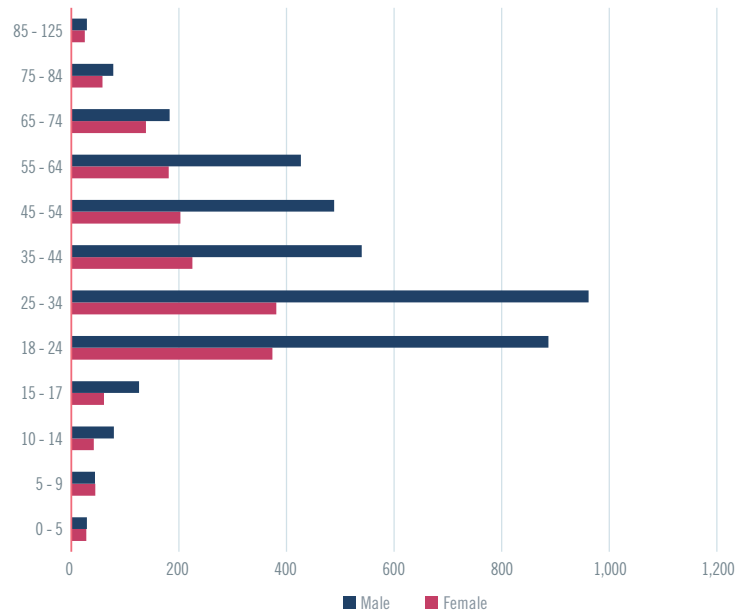
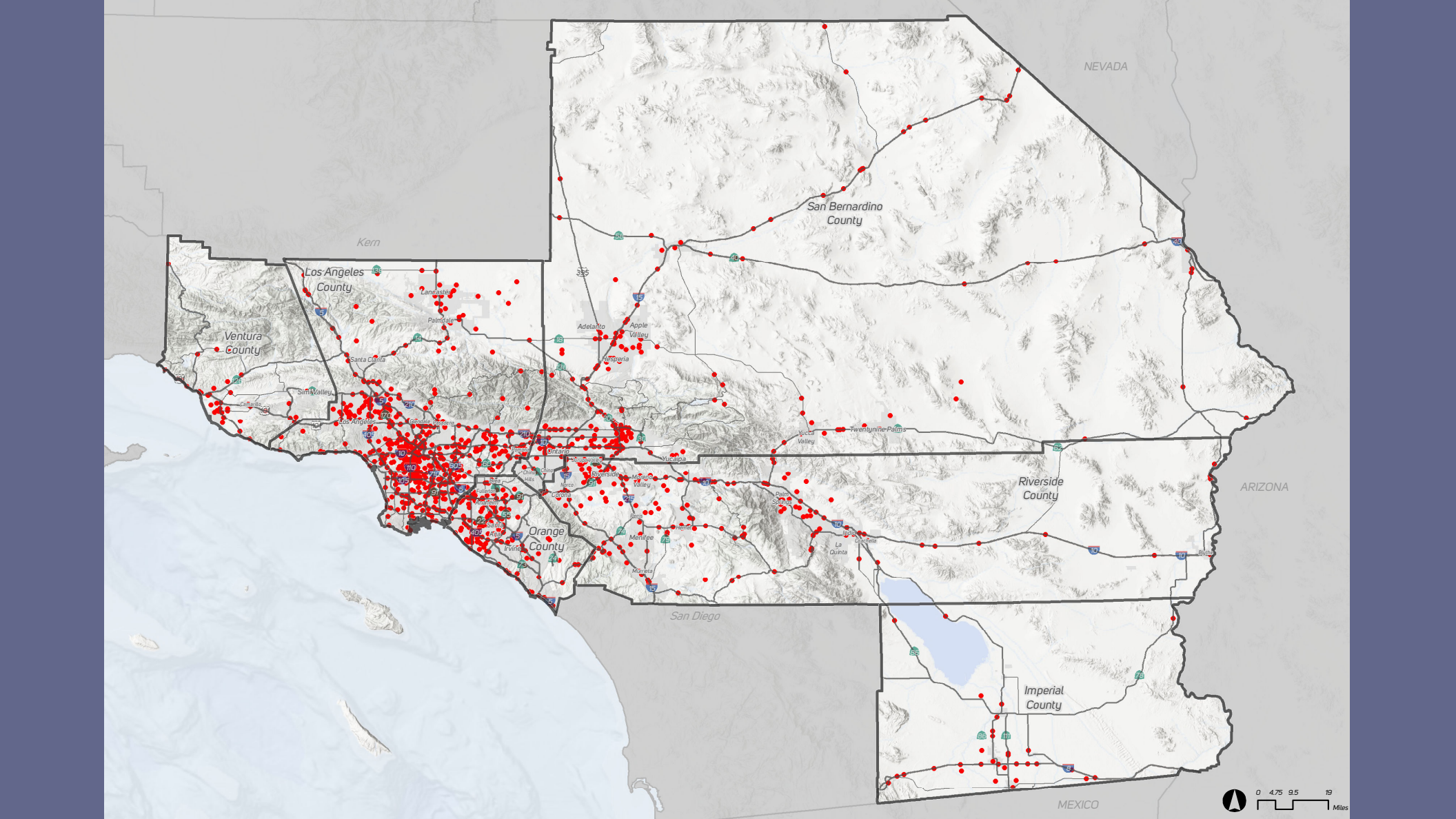


Figure 26: Serious Injury Collision Victims - Age and Sex (2016)

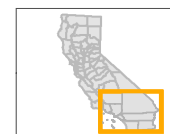




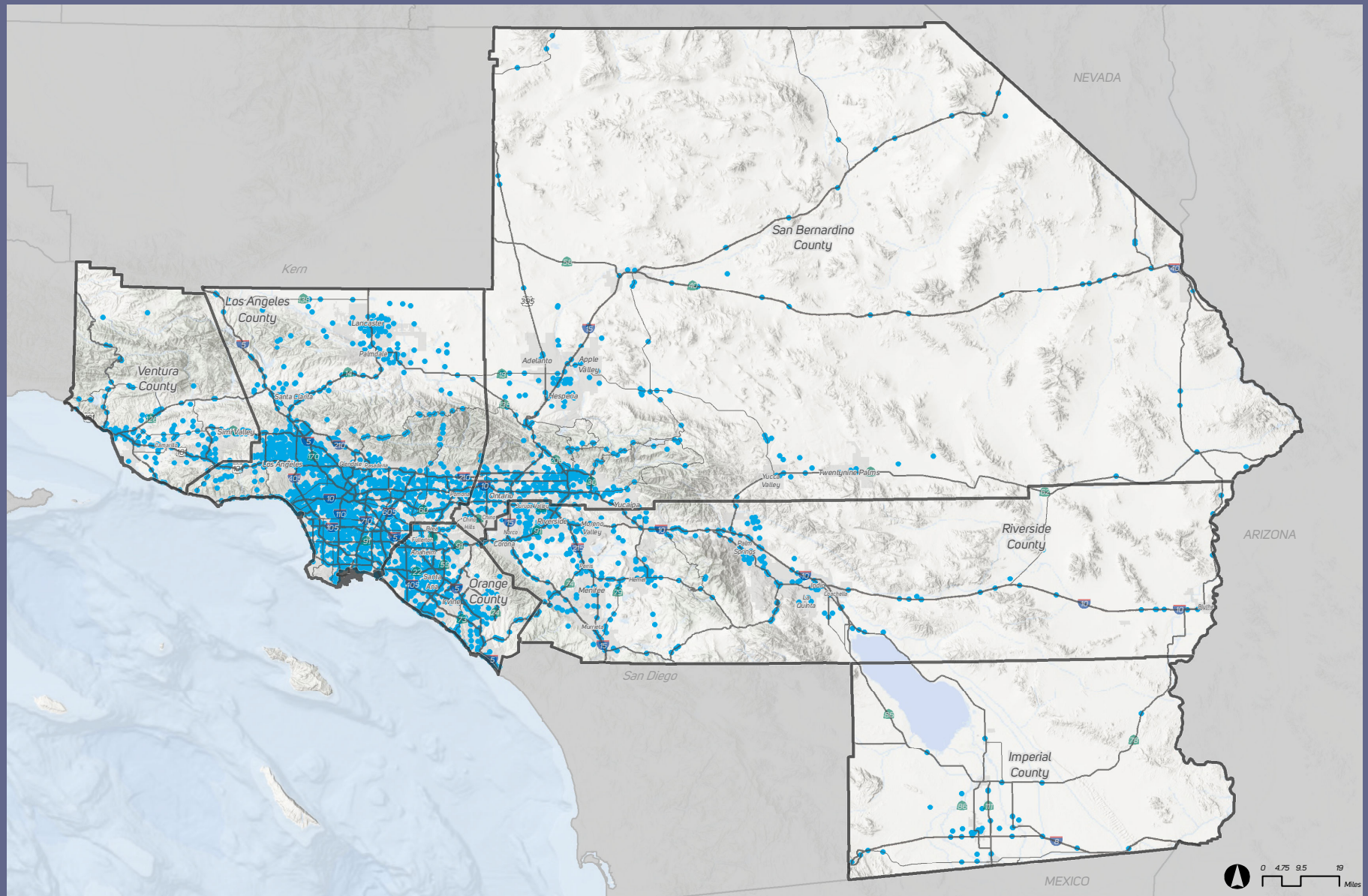
 County Boundaries  City Boundaries  2014 Fatal Collisions

Note: Each dot represents one collision.

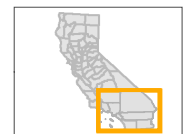
(Source: SWITRS and SCAG, 2017)



Map 2: SCAG Region, 2014 Serious Injury Collisions

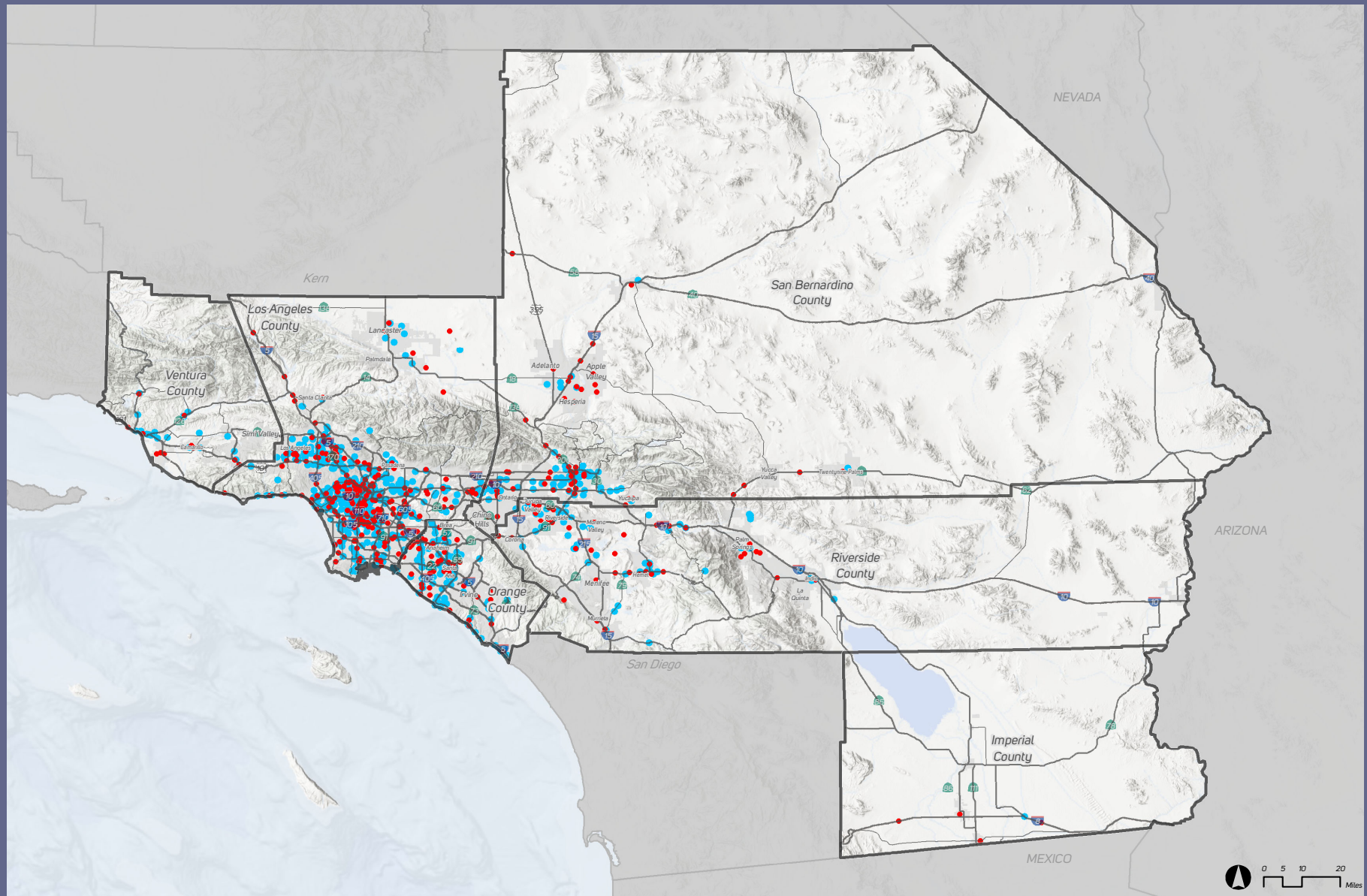


County Boundaries City Boundaries 2014 Serious Injury Collisions



(Source: SWITRS and SCAG, 2017)

Map 3: SCAG Region, 2014 Pedestrian-Involved Fatal and Serious Injury Collisions

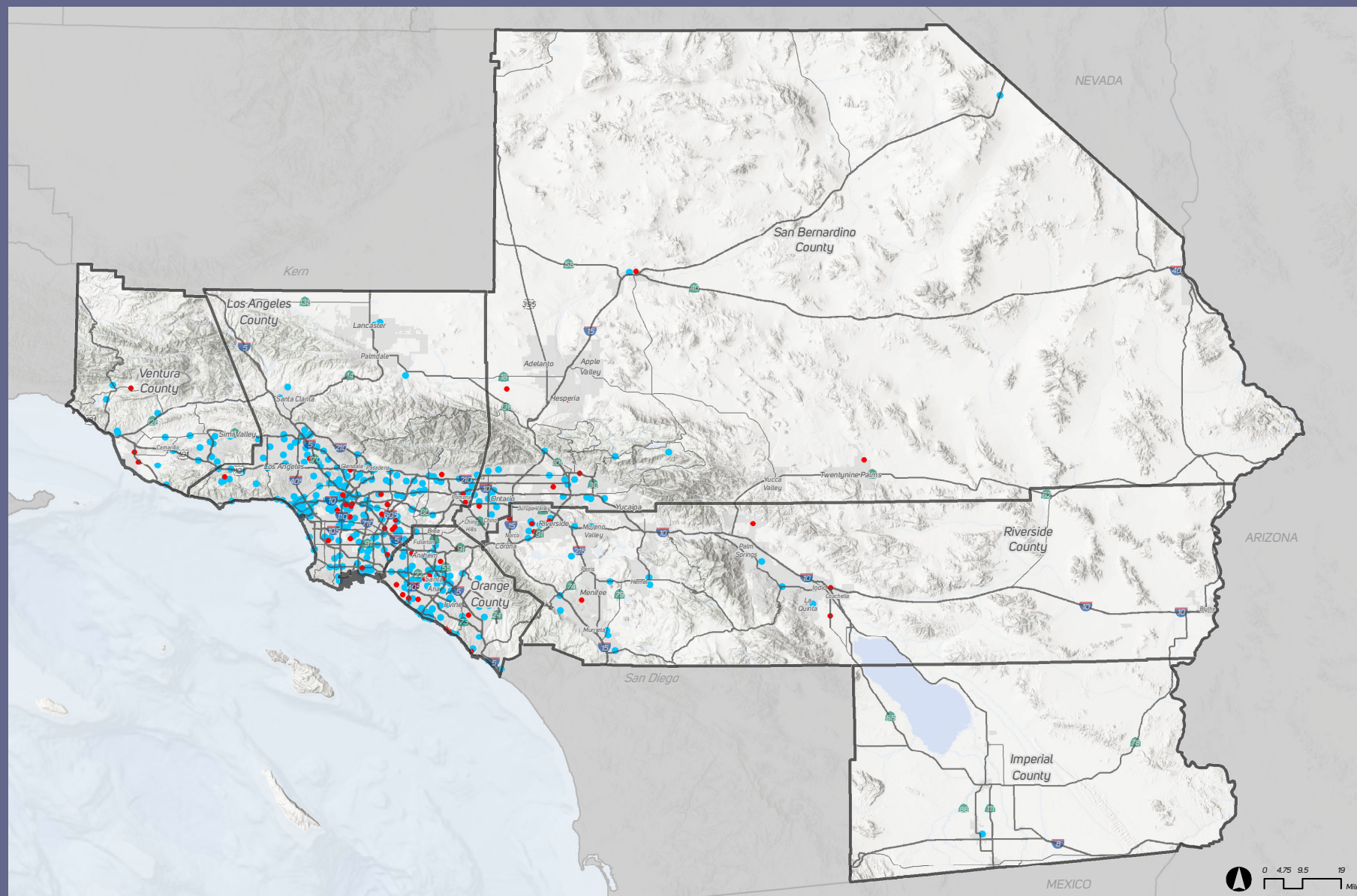


County Boundaries
 City Boundaries
 ● 2014 Pedestrian-Involved Serious Injury Collisions
 ● 2014 Pedestrian-Involved Fatal Collisions



(Source: SWITRS and SCAG, 2017)

Map 4: SCAG Region, 2014 Bicycle-Involved Fatal and Serious Injury Collisions

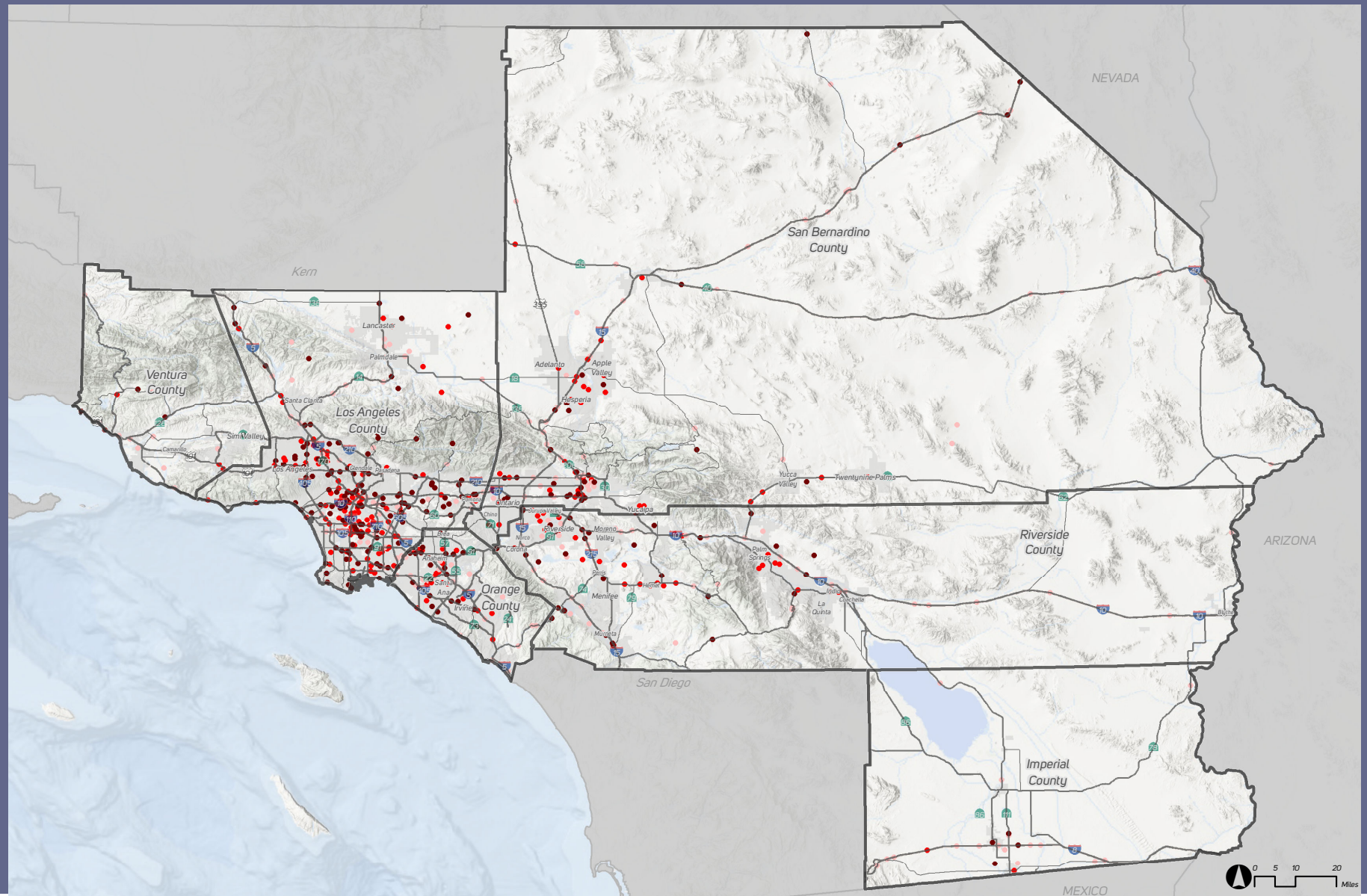


County Boundaries
 City Boundaries
 • 2014 Bicycle-Involved Serious Injury Collisions
 • 2014 Bicycle-Involved Fatal Collisions



(Source: SWITRS and SCAG, 2017)

Map 5: 2014 Top 3 Violation Categories of Fatal Collisions in the SCAG Region



Administrative Boundaries

- Country Boundaries
- City Boundaries

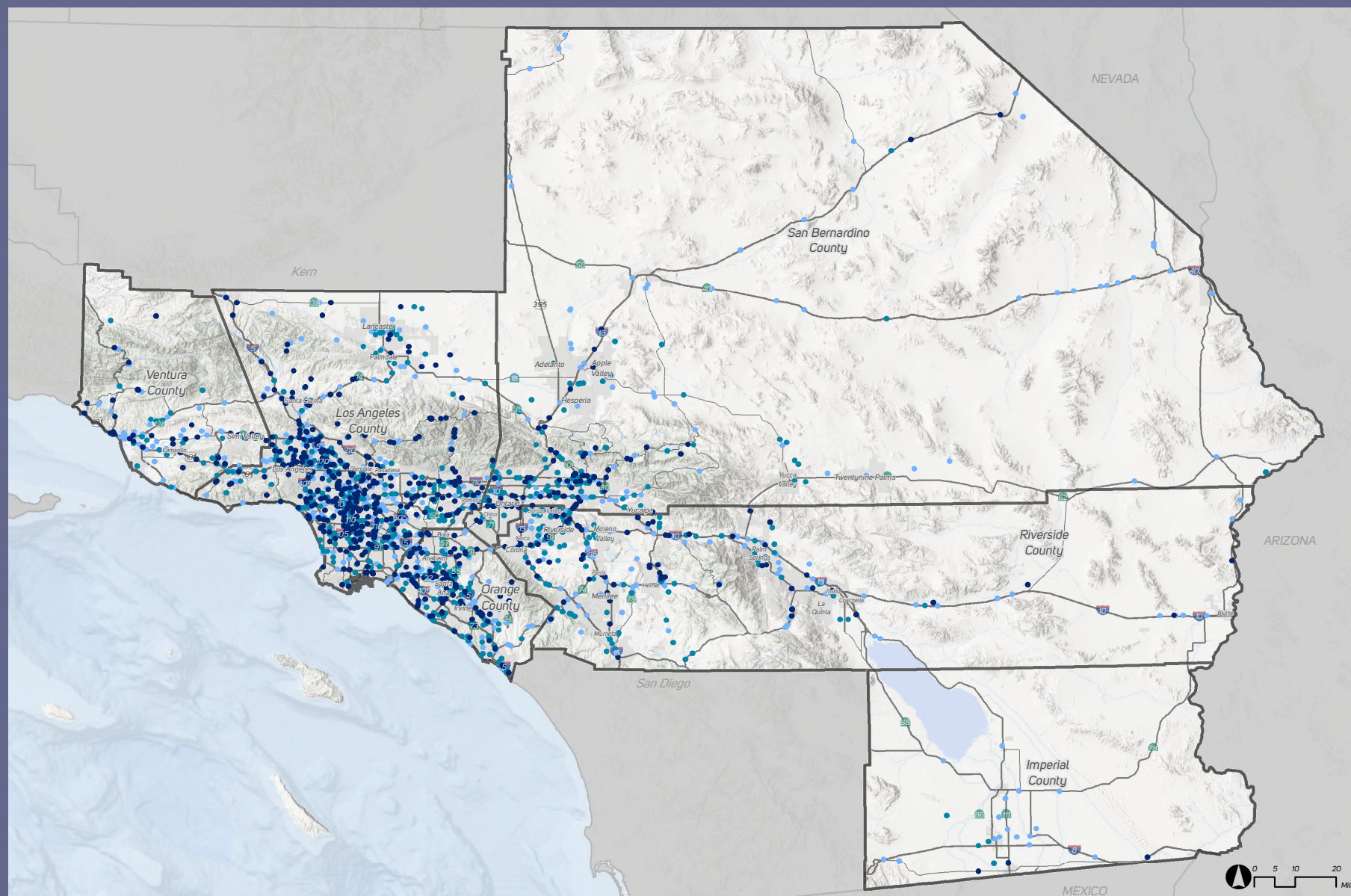
(Source: SWITRS, TIMS, SCAG)

Top 3 Violation Categories of 2014 Fatal Collisions

- Unsafe Speed (Top 1)
- Pedestrian Violation (Top 2)
- Improper Turning (Top 3)



Map 6: 2014 Top 3 Violation Categories of Serious Injury Collisions in the SCAG Region



Administrative Boundaries

- Country Boundaries
- City Boundaries

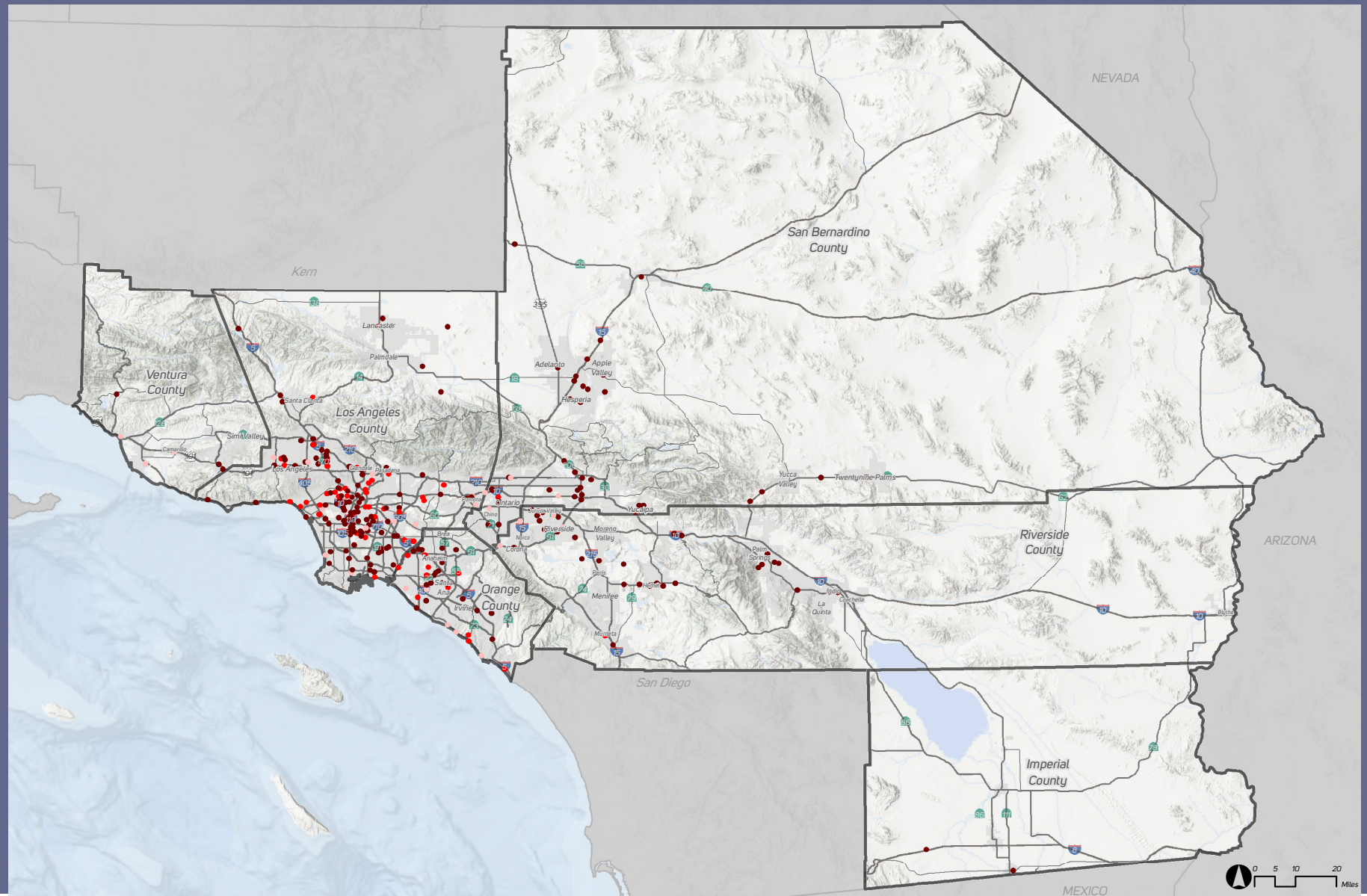
Top 3 Violation Categories of 2014 Serious Injury Collisions

- Unsafe Speed (Top 1)
- Driving or Bicycling Under the Influence of Alcohol or Drug (Top 2)
- Improper Turning (Top 3)

(Source: SWITRS, TIMS, SCAG)



Map 7: Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Fatal Collisions in the SCAG Region



Administrative Boundaries

- Country Boundaries
- City Boundaries

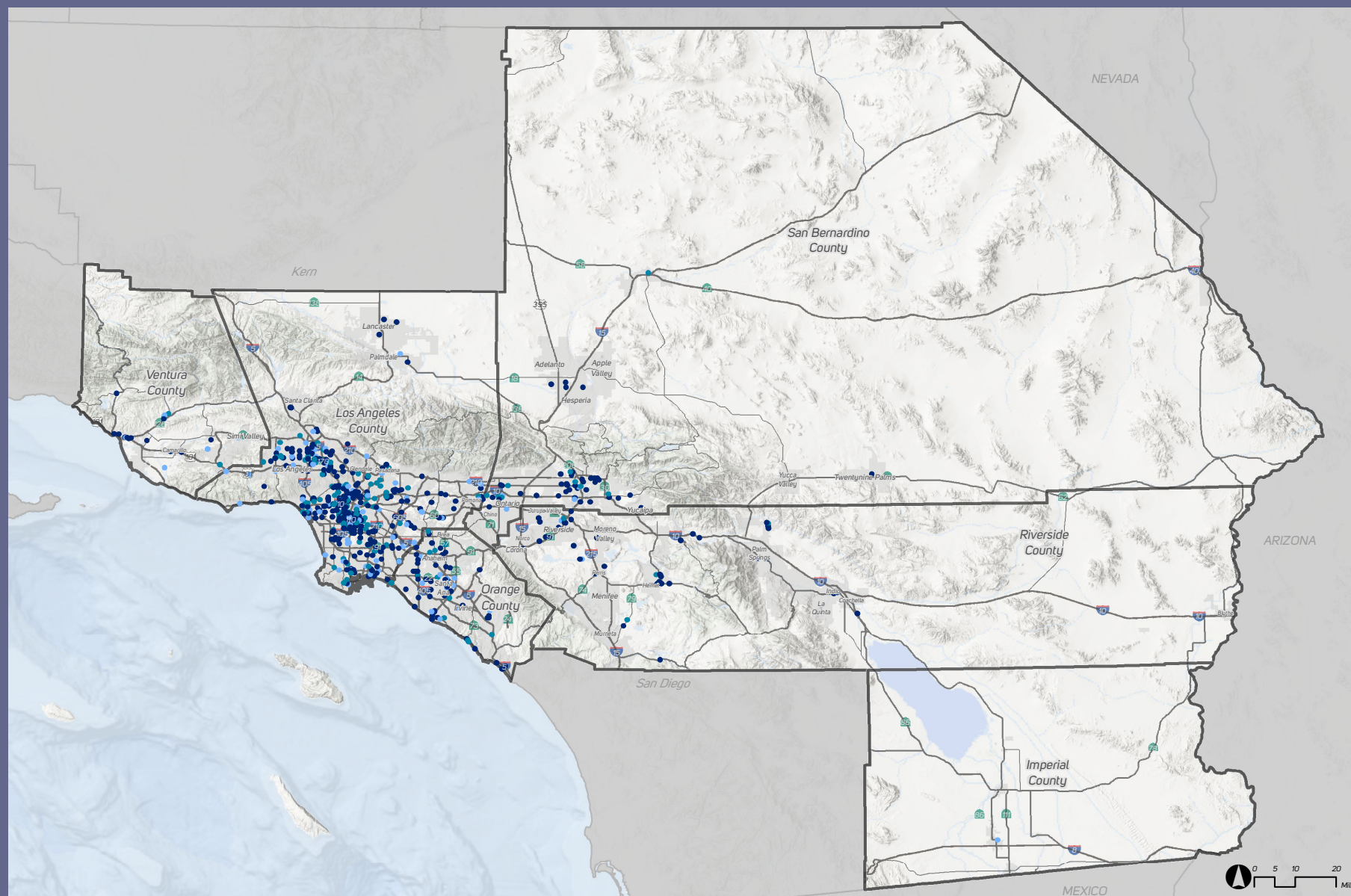
(Source: SWITRS, TIMS, SCAG)

Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Fatal Collisions

- Pedestrian Violation (Top 1)
- Pedestrian Right-of-Way (Top 2)
- Driving or Bicycling Under the Influence of Alcohol or Drug (Top 3)



Map 8: Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Serious Injury Collisions in the SCAG Region



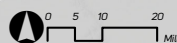
Administrative Boundaries

- Country Boundaries
- City Boundaries

(Source: SWITRS, TIMS, SCAG)

Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Serious Injury Collisions

- Pedestrian Violation (Top 1)
- Pedestrian Right-of-Way (Top 2)
- Automobile Right-of-Way (Top 3)



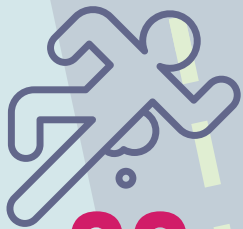


IMPERIAL COUNTY

Imperial County is located in the southeast corner of California and borders the counties of Riverside (north), San Diego (west), and Yuma, Arizona (east). To its south lies Mexico. With 4,176 square miles of land, it is slightly larger than Los Angeles County (4,057), but has a much smaller population, about 182,000 residents. Residents of Imperial County drive on average 12,000 miles each year, more than any other county in the SCAG region. This may be due to the area's low density of land uses and options for alternative forms of transportation (e.g., light rail).

IMPERIAL COUNTY

BY THE NUMBERS



30 PEOPLE DIE EVERY YEAR FROM COLLISIONS



80 PEOPLE SUSTAIN SERIOUS INJURIES EVERY YEAR FROM COLLISIONS



900 PEOPLE SUSTAIN INJURIES EVERY YEAR FROM COLLISIONS



1-2 COLLISIONS OCCUR PER DAY ON THE STREETS
THAT IS ROUGHLY **600** PER YEAR



10% OF ALL DEATHS INVOLVE PEOPLE WALKING OR BICYCLING



THOUGH A LITTLE MORE THAN HALF OF ALL COLLISIONS OCCUR IN RURAL AREAS

60%

NEARLY ALL FATAL AND SERIOUS INJURY COLLISIONS OCCUR IN RURAL AREAS

39%



OF ALL TRAFFIC COLLISION VICTIMS ARE PEOPLE 18-34



NEARLY ALL COLLISIONS OCCUR ON LOCAL ROADS

2%

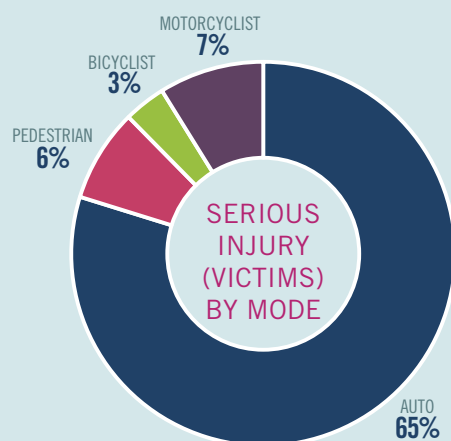
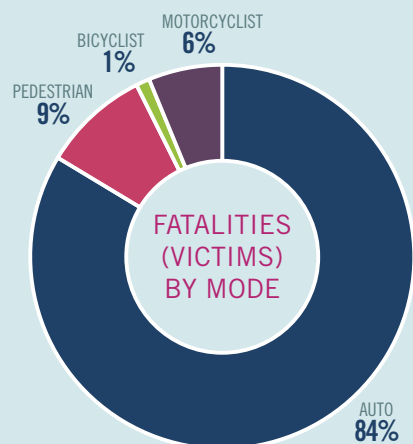
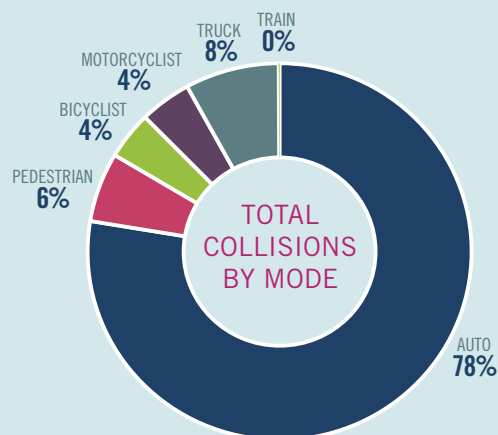
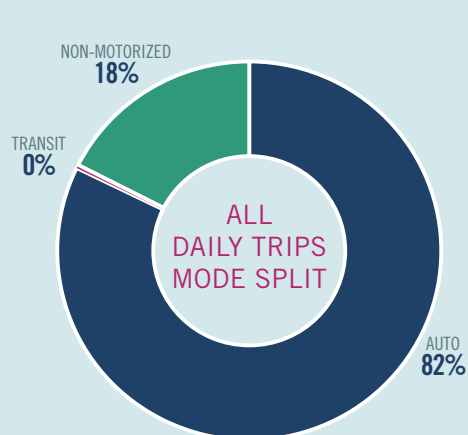
OF ALL COLLISIONS OCCUR ON HIGHWAYS

12,000



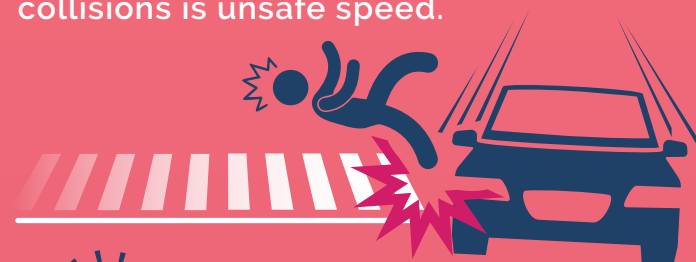
ANNUAL VEHICLE MILES TRAVELED PER CAPITA

MODE SHARE CONSIDERATIONS



Why are collisions occurring?

A top contributing factor of all collisions is unsafe speed.



Speed is the critical factor in the severity of collisions

HIT BY A VEHICLE TRAVELING AT 25 MPH



9 out of 10 pedestrians survive

HIT BY A VEHICLE TRAVELING AT 50 MPH



2.5 out of 10 pedestrians survive



What are the overall trends?

Imperial County has experienced reductions in traffic-related fatalities and serious injuries for more than the past decade. Although progress has been made, on average 30 people die in traffic collisions, 80 are seriously injured, and 900 people are injured each year in Imperial County. **Figures 1 and 2** show the total number of fatal and seriously injured victims since 2001, respectively, and the overall downward trend. About 90 percent of those killed were in vehicles or on motorcycles, while the remaining 10 percent were walking or bicycling.

Since 2001, the total number of fatal and serious injury collisions have experienced an overall downward trend. Fatal collisions have declined 45 percent, from a high of 47 in 2004 to 26 in 2016, our most recent year of data. **Map 1** reflects all fatal collisions occurring in Imperial County in 2014 (our most recent year of complete geocoded data). Similarly, serious injury collisions have declined 48 percent, from a high of 80 in 2003 to 42 in 2016. **Map 2** reflects all serious injury collisions occurring in Imperial County in 2014. Please note, total collisions does not equal total victims since multiple people can be involved in any one collision.

Of the 30 fatal collisions occurring annually in the county, about 4 are active transportation collisions, and though the fatality trend is one of decline, the active transportation fatality average has no clear trend.

Of the 57 serious injury collisions, about 8 are active transportation collisions, and though the serious injury trend is one of decline, again there is no clear trend for active transportation serious injury collisions.

Figures 3 and 4 show the total number of fatal and seriously injured pedestrians and bicyclists between 2001 and 2016. Fatalities for pedestrians peaked in 2012, with 7 fatalities, compared to a low of 1 in 2011. Serious injuries for pedestrians peaked in 2001, with 13 seriously injured, compared to a low of 1 in 2009.

Bicyclist fatalities have fluctuated between 0 to 2 fatalities per year, and the bicyclist fatality average has no clear trend. Bicyclists seriously injured have also fluctuated between 0 to 6 serious injuries per year, and again, there is no clear trend for bicyclist serious injury collisions.

Maps 3 and 4 reflect the pedestrian- and bicycle-involved serious injury and fatal collisions occurring in Imperial County in 2014.

Figures 5 and 6 show the historical rates of fatal and serious injury victims per 1,000 people since 2001. Both rates have downward trends. More specifically, the rate of fatalities has declined by 54 percent (comparing the most recent peak in 2004 with 2016) and the rate of serious injuries has declined by nearly 65 percent (comparing the 2001 peak with 2016).

Figures 7 and 8 show the historical rates of fatal and serious injury victims per 100 million vehicle miles traveled (VMT), respectively, since 2001. Both rates have experienced significant declines since 2004 and 2003, respectively. The rate of fatal collisions per 100 million VMT has declined by 62 percent. Meanwhile the rate of serious injury collisions per 100 million VMT has declined by 69 percent.

Where are collisions occurring?

More than half (67 percent) of all collisions in Imperial County are occurring in rural areas and nearly all of the fatal and the overwhelming majority of serious injury collisions are occurring in rural areas.

Imperial County includes an extensive roadway network consisting of 229 highway centerline miles, 1,390 arterial centerline miles, and 1,878 local road centerline miles. Local roads account for 54 percent of all roadways in terms of mileage within Imperial County.

According to our most recent year of data (2014), a majority of all collisions are occurring on local streets, while a small percentage are occurring on major arterials and highways (about 4 percent). Since a majority of all collisions are occurring on local streets, 85 percent of fatal collisions are occurring on them. The data regarding bicycle and pedestrian collisions was too sparse to attempt to draw any conclusions.

When are collisions occurring?

Most collisions are occurring during the evening commute period on weekdays, peaking around 6 pm and also during the same evening period

on weekends as shown in **Figure 9**. Collisions tend to be lowest during midweek (Wednesday) as shown in **Figure 10**.

For our most recent year of data (2016), collisions were fairly well distributed throughout the entire year (see **Figure 11**). On average, about 43 collisions occurred each month, and of these, about 2 were fatal collisions and 4 were serious injury collisions.

Who is being hurt?

Walking or bicycling collisions account for about 12 percent of all fatal and serious injury collisions. To put this figure in context, about 18 percent of all daily trips are made via walking or biking. Motorcyclists account for about 6 percent of all fatalities.

In any given year, the number of collisions involved with trains is very low throughout the region, but especially in Imperial County. For example, over the course of more than a decade (2001-2016), 8 train-related collisions occurred, of which 3 resulted in fatalities and 5 in serious injuries.

Truck-involved collisions are more frequent, but also low in number. For example, over the course of more than a decade (2001-2016), 841 collisions occurred involving trucks (about 8 percent of all collisions), and of these, 83 resulted in fatalities and 103 resulted in serious injuries, or in other words, about 22 percent of all truck-involved collisions result in death or serious injury. While the number of fatalities and serious injuries is relatively low, the impact on traffic safety can be substantial given the severity of the collisions, many of which are caused by passenger vehicles.

According to our most recent year of data (2016), 39 percent of all traffic collision victims are between the ages of 18 to 34, though this age group makes up about 25 percent of the county's population. About 12 percent of all traffic collision victims are under the age of 18 (about 29 percent of the county's population), and 11 percent of all traffic collision victims are 65 and older (about 12 percent of the county's population).

Also according to our most recent year of data (2016), men and women appear to be involved in collisions at equal rates, though women are more often passengers in collisions (59 percent), while men are more often

involved in collisions as drivers (53 percent), pedestrians (61 percent), or bicyclists (61 percent). Men are also more often involved in fatal collisions (61 percent) and serious injury collisions (64 percent).

Why are collisions occurring?

Maps 5-8 reflect the top three contributing factors of 2014 (our most recent year of complete geocoded data) for all fatal and serious collisions, and bicycle- and pedestrian-involved fatal and serious collisions.

THE TOP THREE CONTRIBUTING FACTORS FOR ALL COLLISIONS



THE TOP THREE CONTRIBUTING FACTORS FOR FATAL COLLISIONS



THE TOP THREE CONTRIBUTING FACTORS FOR SERIOUS INJURIES



Figure 1: Imperial County Total Number of Fatal Victims

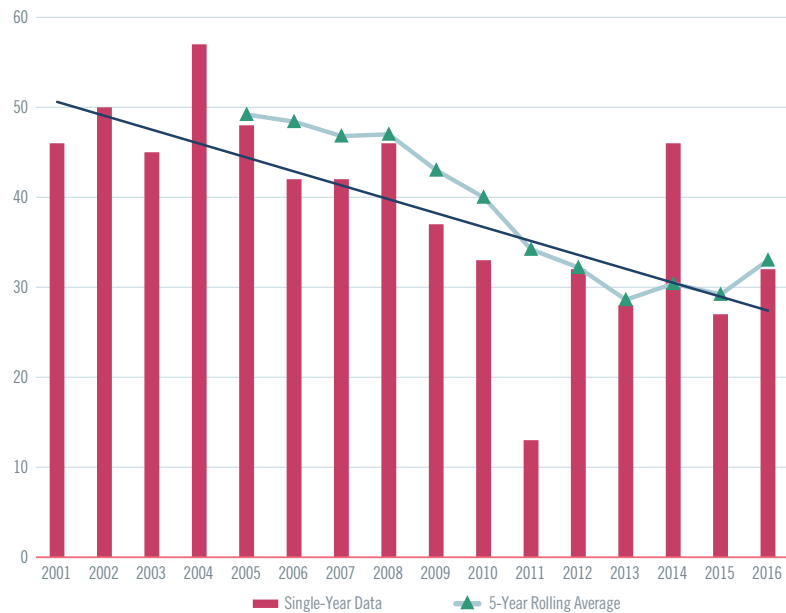


Figure 2: Imperial County Total Number of Serious Injury Victims



Figure 3: Imperial County Total Number of Pedestrian Fatal and Serious Injury Victims

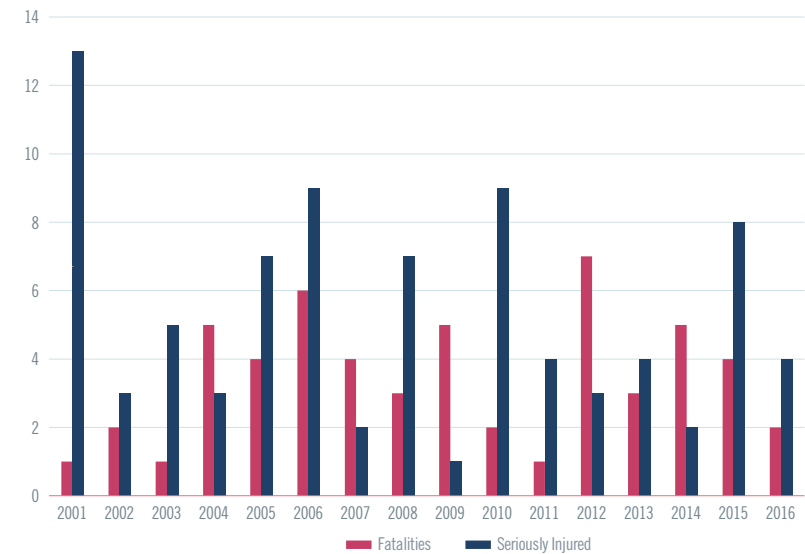


Figure 4: Imperial County Total Number of Bicyclist Fatal and Serious Injury Victims



Figure 5: Imperial County Fatal Victims per 1,000 Population



Figure 7: Imperial County Fatal Victims per 100M VMT



Figure 6: Imperial County Serious Injury Victims per 1,000 Population



Figure 8: Imperial County Serious Injury Victims per 100M VMT



Figure 9: Imperial County Collisions by Time of Day (2016)

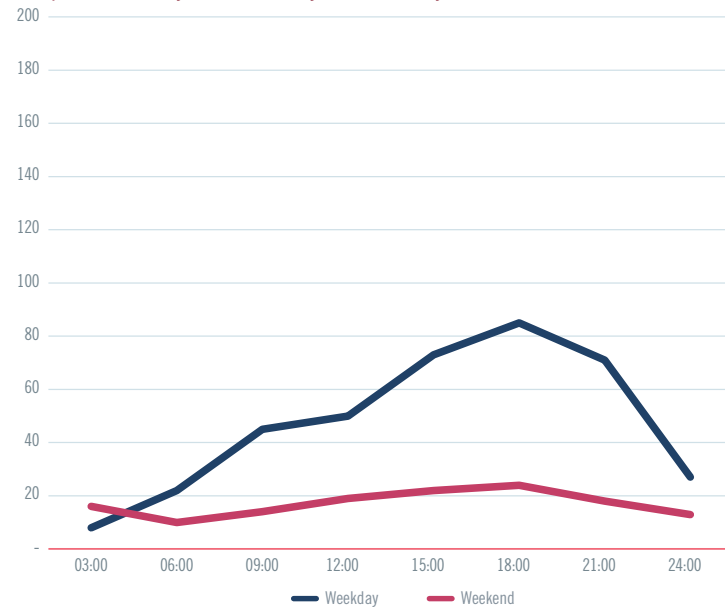


Figure 11: Imperial County Collisions by Month (2016)

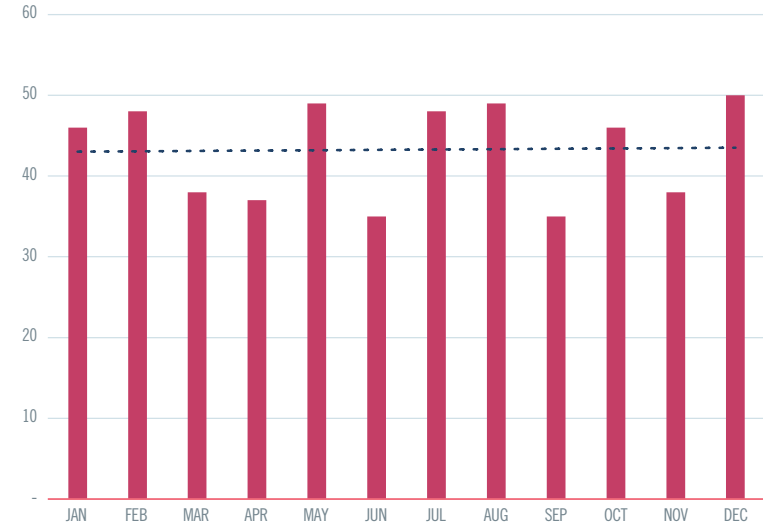
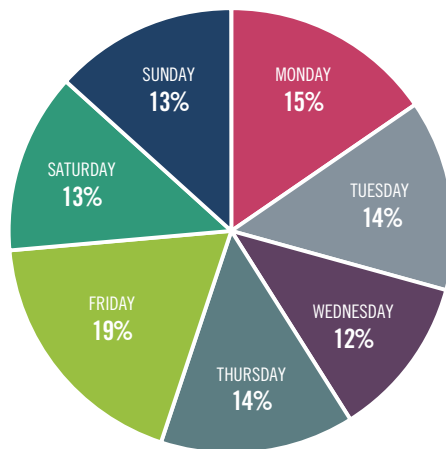
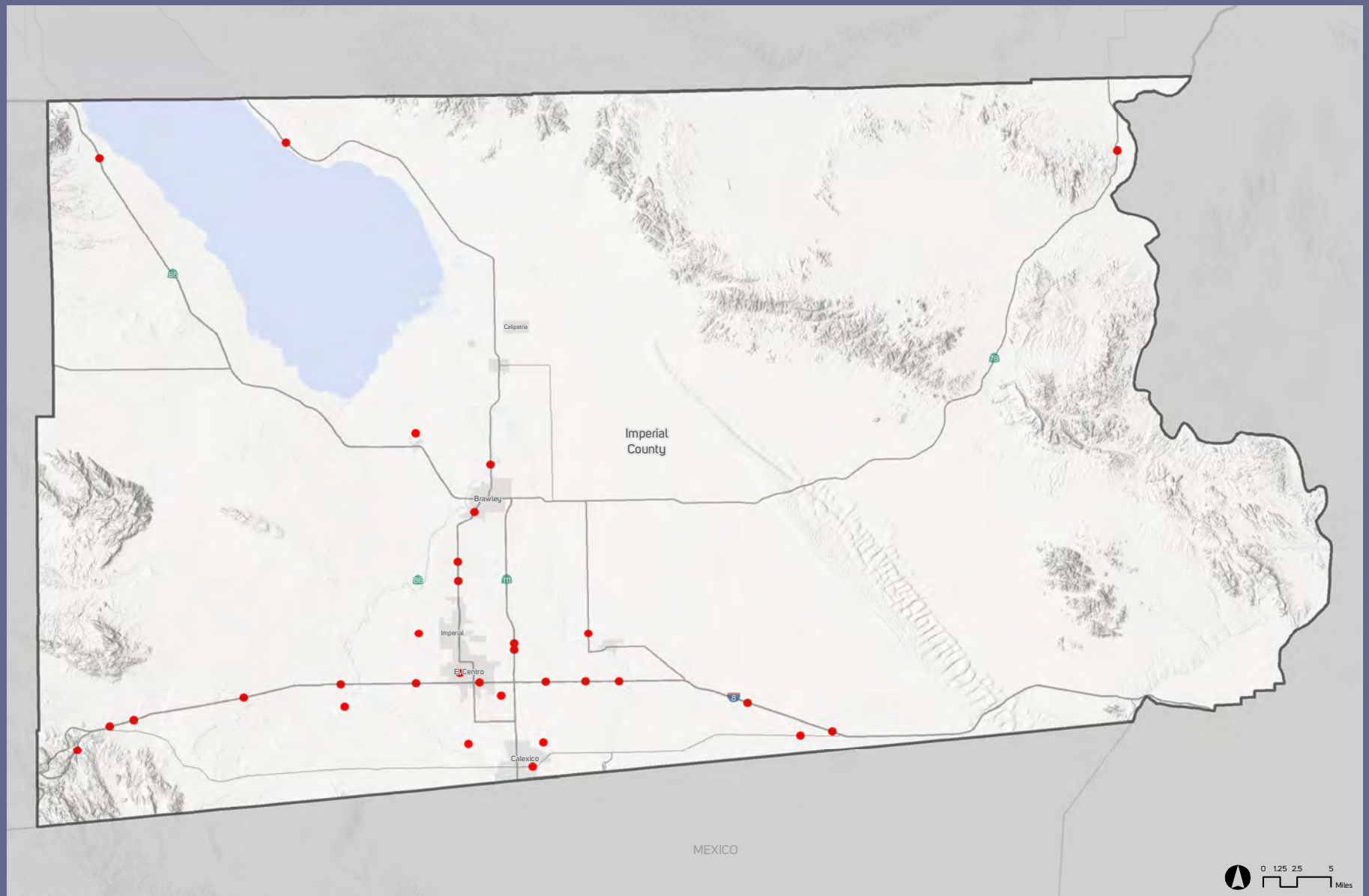


Figure 10: Imperial County Collisions by Day of the Week (2016)



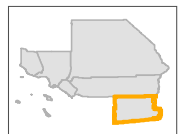
Map 1: Imperial County, 2014 Fatal Collisions



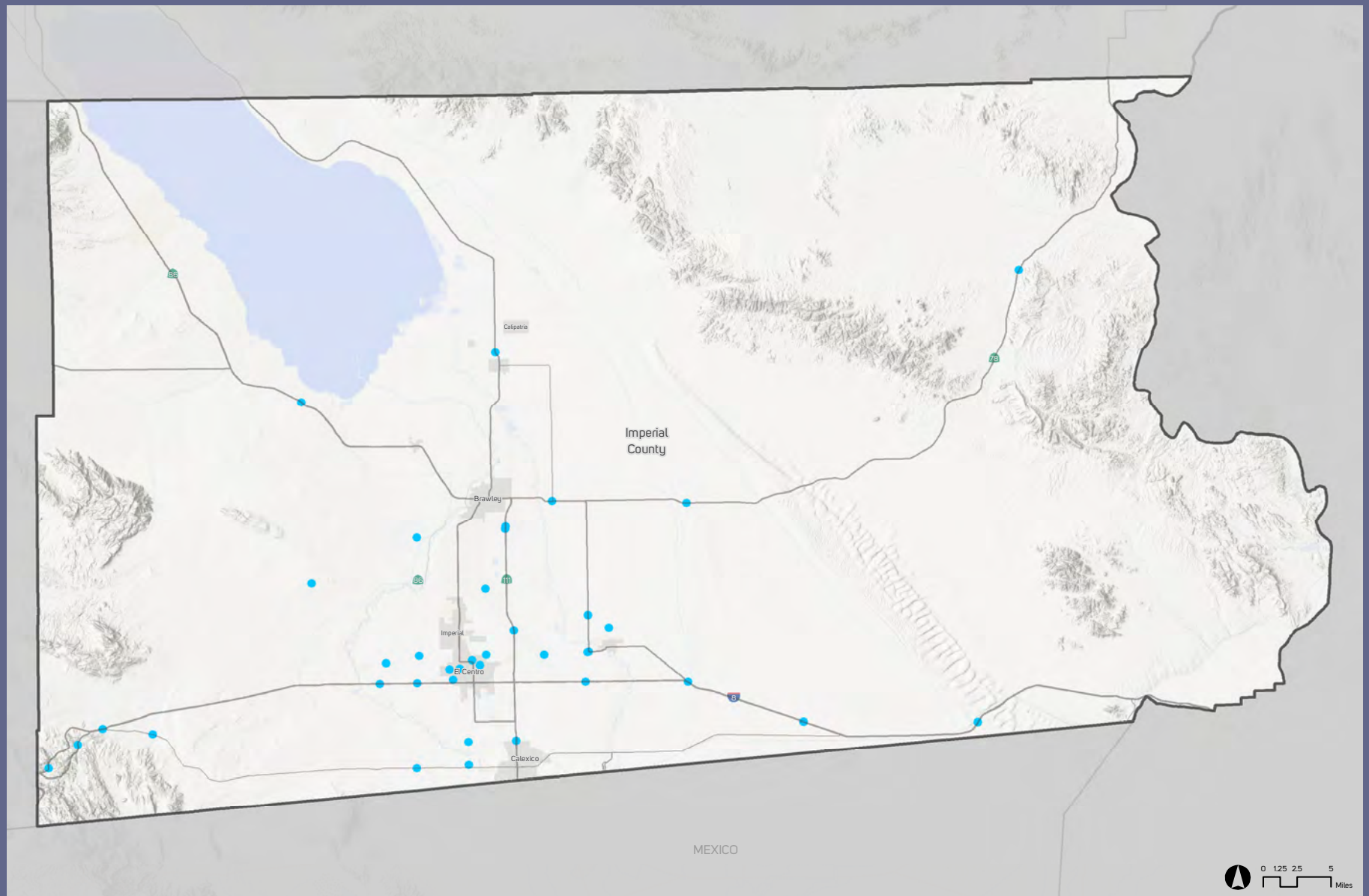
 County Boundaries  City Boundaries  2014 Fatal Collisions

Note: Each dot represents one collision.

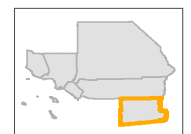
(Source: SWITRS and SCAG, 2017)



Map 2: Imperial County, 2014 Serious Injury Collisions

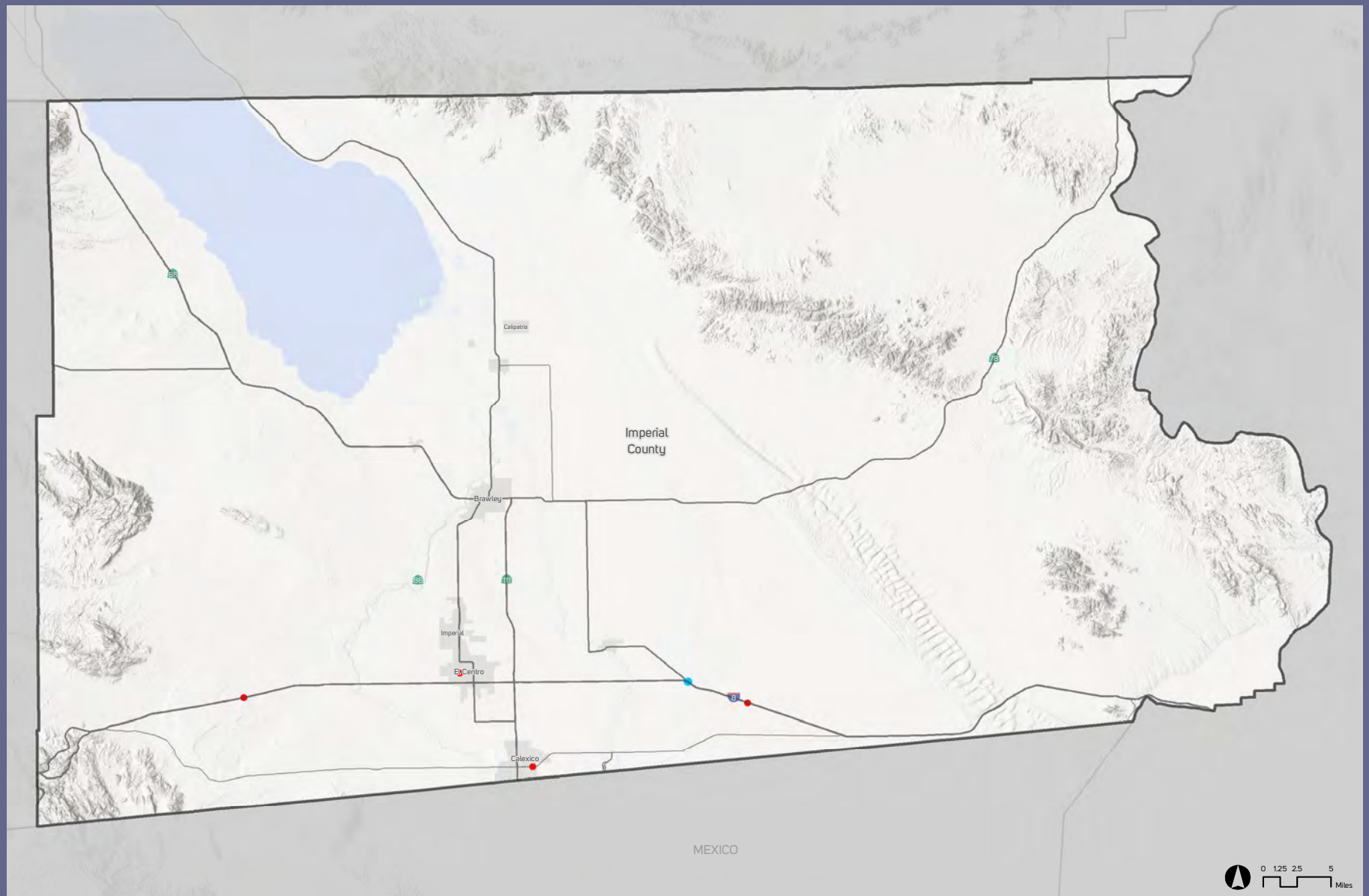


County Boundaries City Boundaries 2014 Serious Injury Collisions

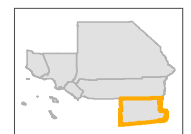


(Source: SWITRS and SCAG, 2017)

Map 3: Imperial County, 2014 Pedestrian-Involved Fatal and Serious Injury Collisions

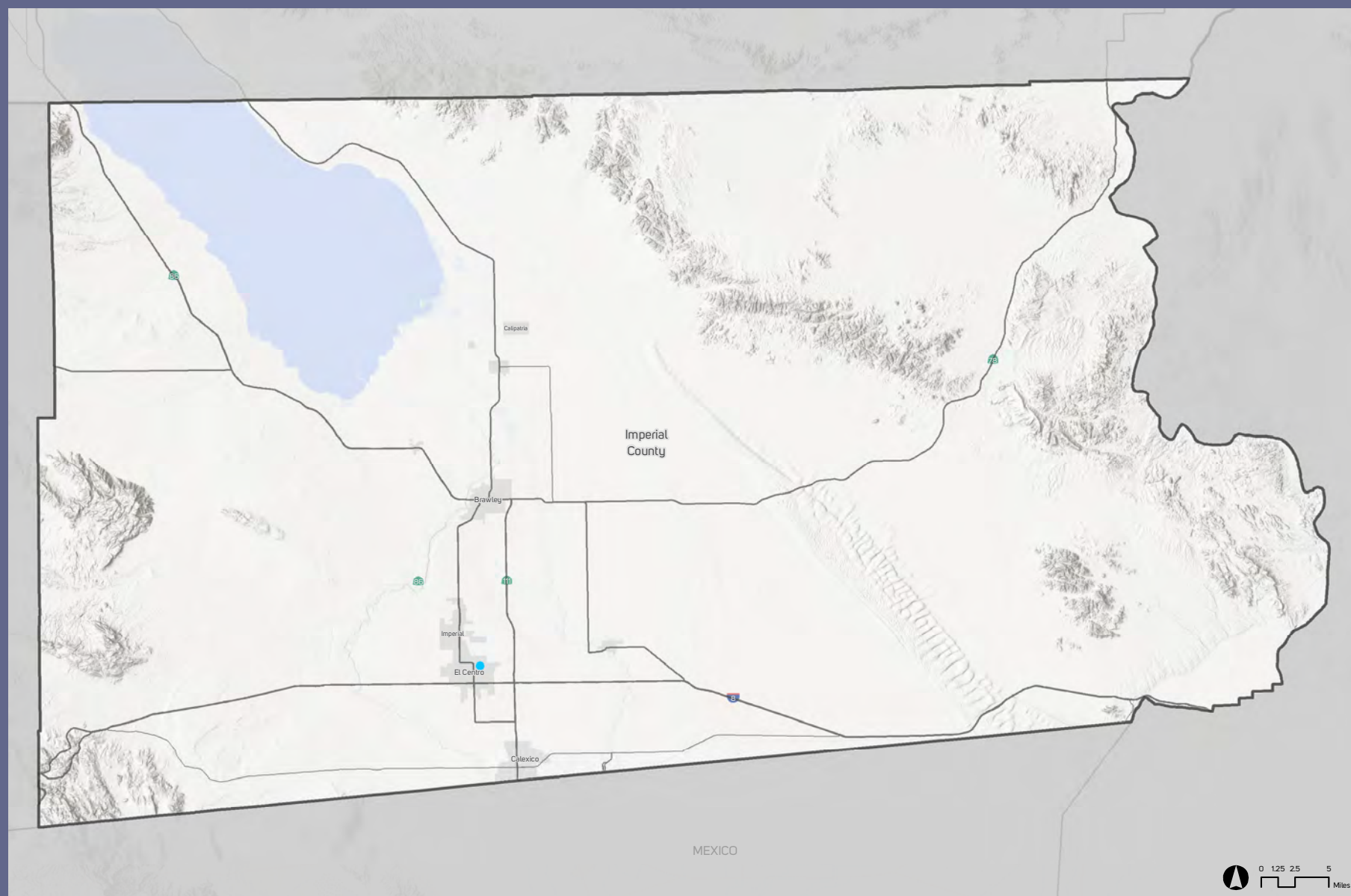


County Boundaries City Boundaries 2014 Pedestrian-Involved Serious Injury Collisions 2014 Pedestrian-Involved Fatal Collisions

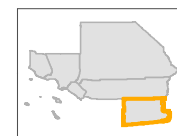


(Source: SWITRS and SCAG, 2017)

Map 4: Imperial County, 2014 Bicycle-Involved Fatal and Serious Injury Collisions

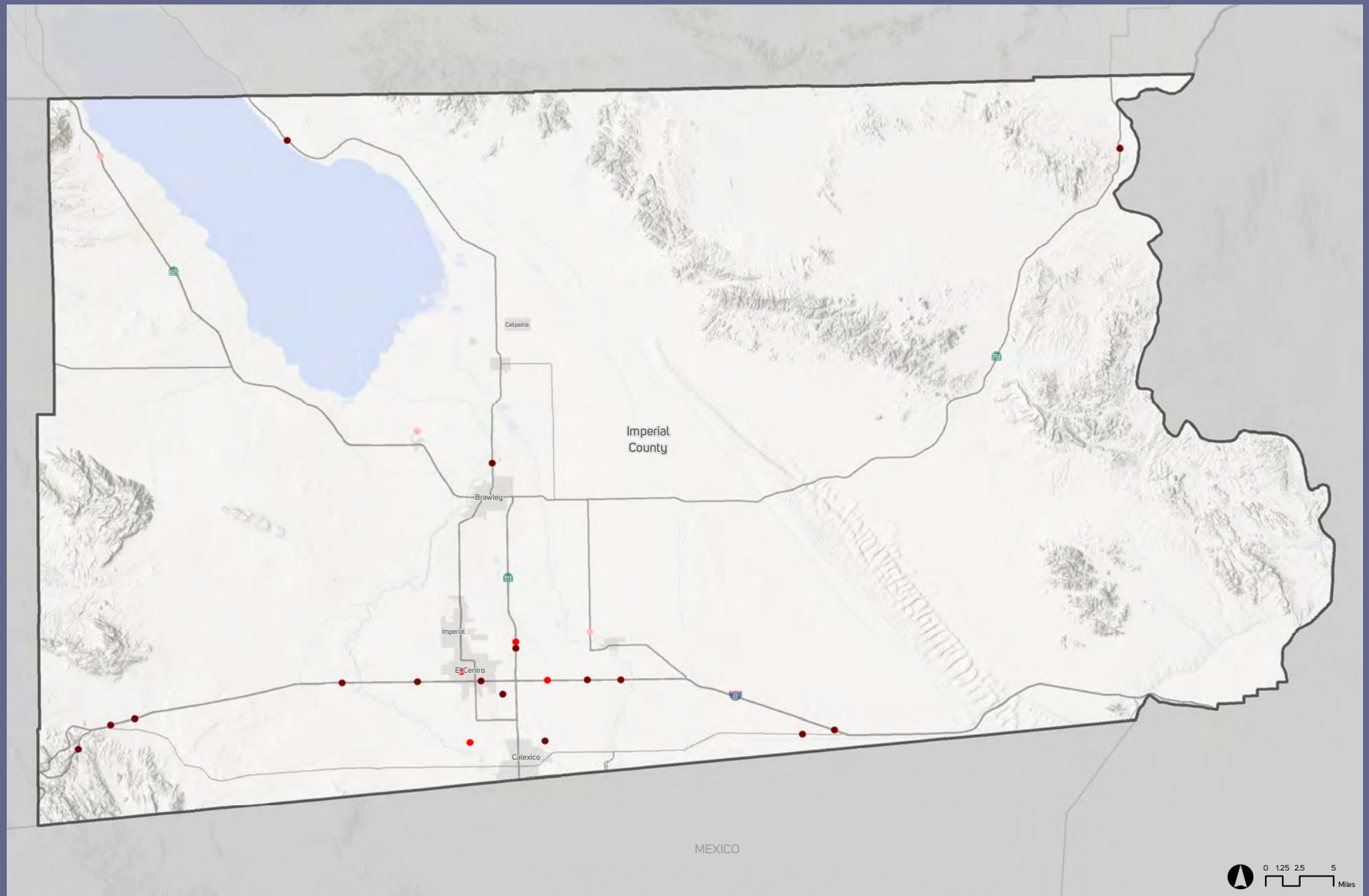


County Boundaries City Boundaries • 2014 Bicycle-Involved Serious Injury Collisions • 2014 Bicycle-Involved Fatal Collisions



(Source: SWITRS and SCAG, 2017)

Map 5: 2014 Top 3 Violation Categories of Fatal Collisions in Imperial County



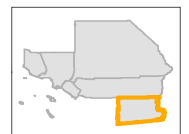
Administrative Boundaries

-  County Boundaries
-  City Boundaries

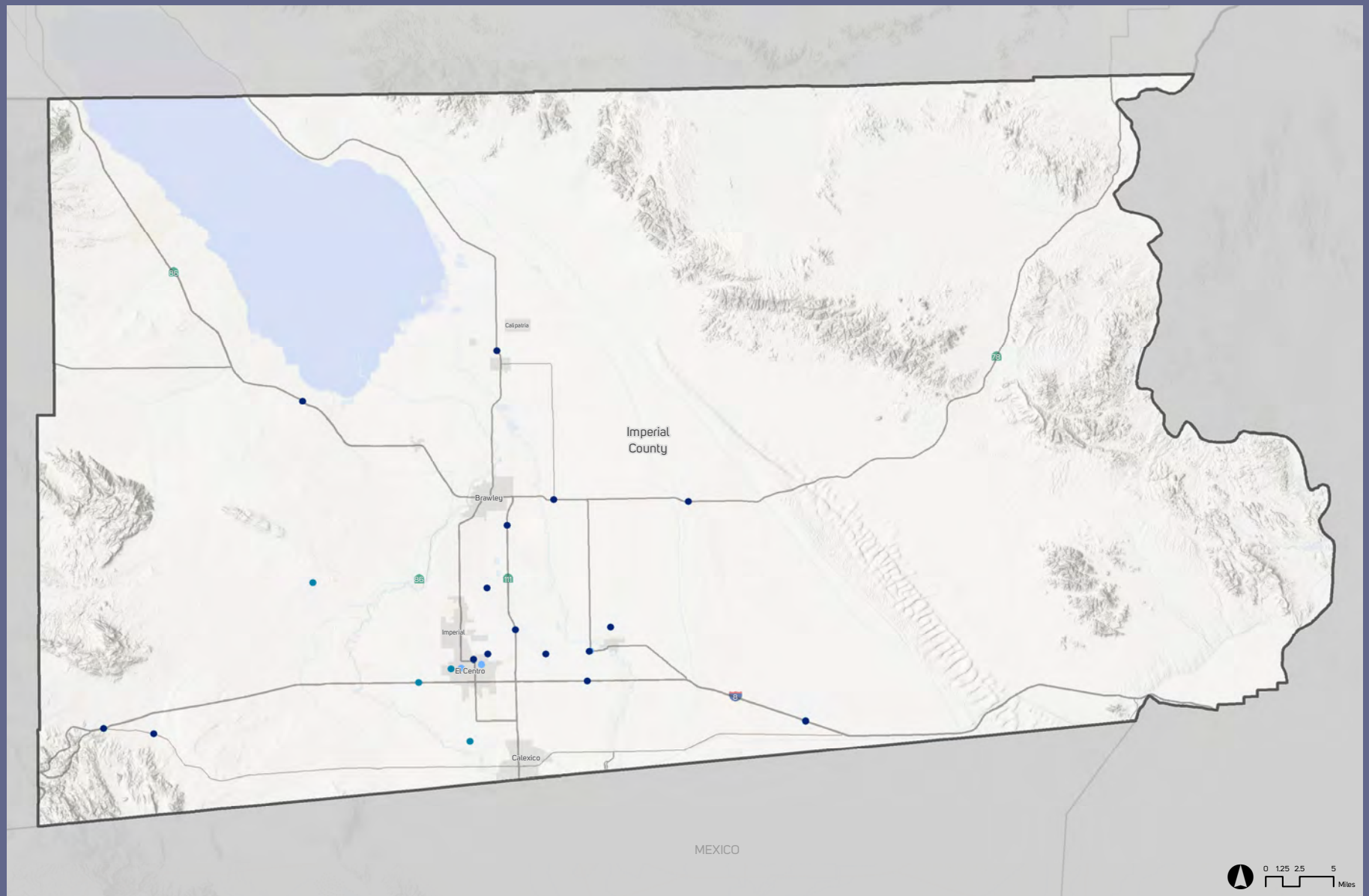
(Source: SWITRS, TIMS, and SCAG)

Top 3 Violation Categories of 2014 Fatal Collisions

-  Improper Turning (Top 1)
-  Unsafe Speed (Top 2)
-  Automobile Right-of-Way (Top 3)



Map 6: 2014 Top 3 Violation Categories of Serious Injury Collisions in Imperial County



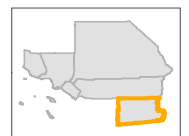
Administrative Boundaries

-  County Boundaries
-  City Boundaries

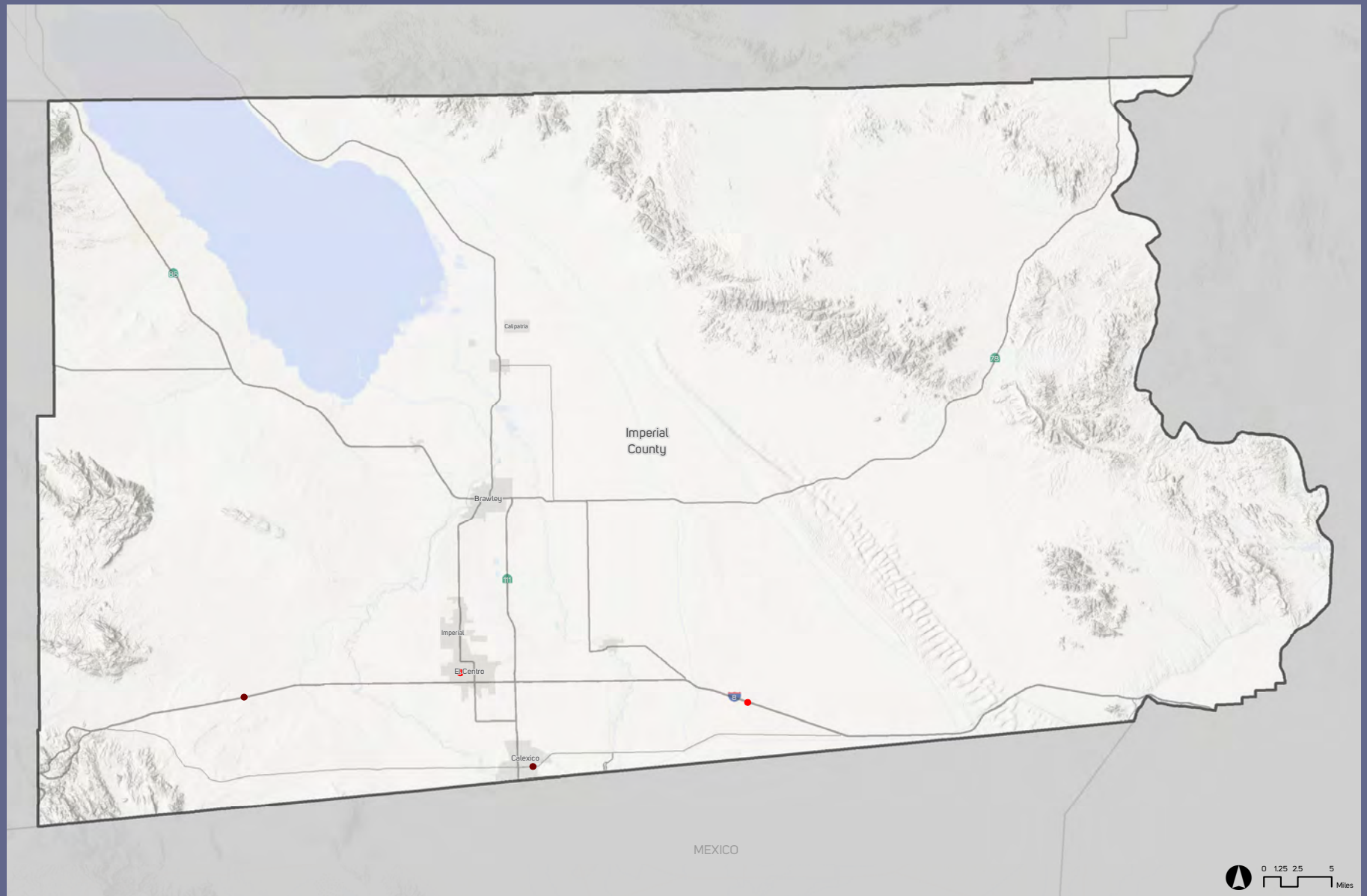
(Source: SWITRS, TIMS, and SCAG)

Top 3 Violation Categories of 2014 Serious Injury Collisions

-  Improper Turning (Top 1)
-  Driving or Bicycling Under the Influence of Alcohol or Drug (Top 2)
-  Automobile Right-of-Way (Top 3)



Map 7: Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Fatal Collisions in Imperial County



Administrative Boundaries

- County Boundaries
- City Boundaries

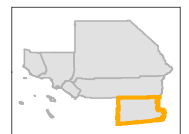
(Source: SWITRS, TIMS, and SCAG)

Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Fatal Collisions in Imperial County*

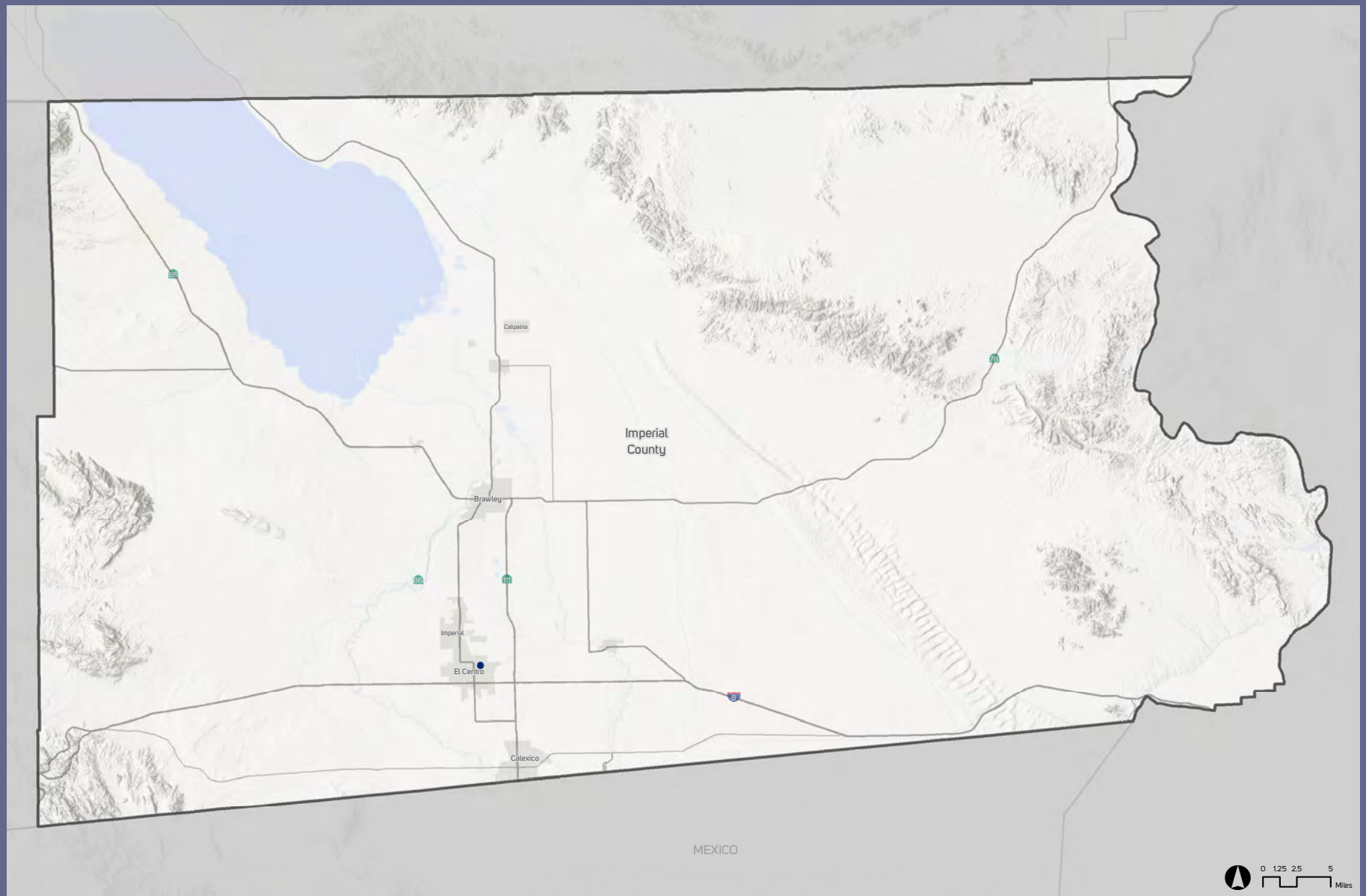
- Pedestrian Violation (Top 1)
- Unsafe Speed (Tied on Top 2)**
- Improper Turning (Tied on Top 2)**
- Hazardous Parking (Tied on Top 2)**

* There are no bicyclist-involved collisions.

** In the category of "Unsafe Speed," "Improper Turning," and "Hazardous Parking," there is one collision in each category.



Map 8: Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Serious Injury Collisions in Imperial County



Administrative Boundaries

County Boundaries

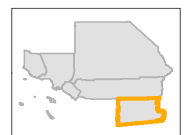
City Boundaries

(Source: SWITRS, TIMS, and SCAG)

Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Serious Injury Collisions in Imperial County

- Pedestrian Violation (Top 1)*
- Automobile Right-of-Way (Top 1)*

* Each category has one collision in record; and total number of collisions in the year 2014 is two.





LOS ANGELES COUNTY

Los Angeles County borders the counties of Kern (north), Orange (southeast), San Bernardino (east), and Ventura (northwest). To the west, Los Angeles County borders 70 miles of the Pacific Ocean. It contains 4,057 square miles of land and 10 million residents, who account for approximately 27 percent of California's population. Residents of Los Angeles County drive on average 8,000 miles each year, less than any other county in the region. This may be due to the density of land uses and options for alternative forms of transportation (e.g., light rail, active transportation).

LOS ANGELES COUNTY

BY THE NUMBERS



MORE THAN

690

PEOPLE DIE
EVERY YEAR
FROM COLLISIONS

2,800

PEOPLE SUSTAIN SERIOUS INJURIES
EVERY YEAR FROM COLLISIONS



80,000

PEOPLE SUSTAIN INJURIES
EVERY YEAR FROM COLLISIONS



150

COLLISIONS OCCUR PER DAY
ON THE STREETS



THAT IS ROUGHLY

54,000

PER YEAR



34%

OF ALL DEATHS INVOLVE
PEOPLE WALKING OR BICYCLING



90%

OF ALL COLLISIONS
OCCUR IN URBAN
AREAS



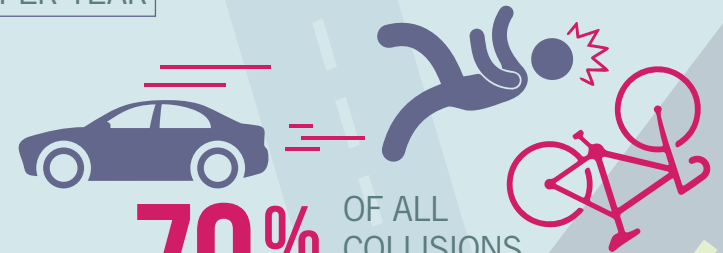
43%

OF ALL TRAFFIC COLLISION
VICTIMS ARE PEOPLE 18-34



70%

OF ALL
COLLISIONS
OCCUR ON LOCAL ROADS



20%

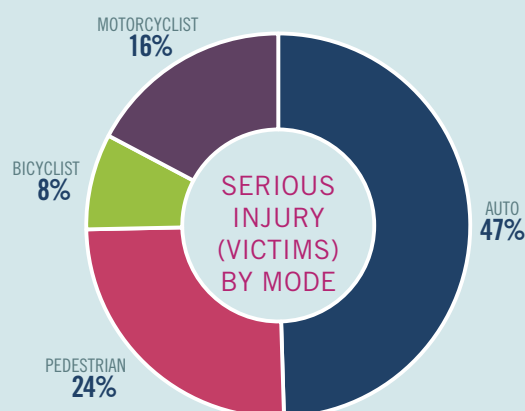
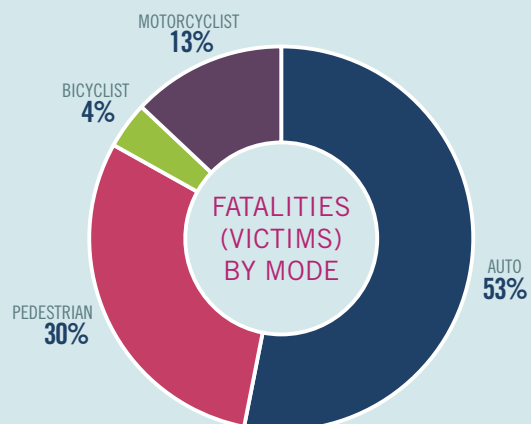
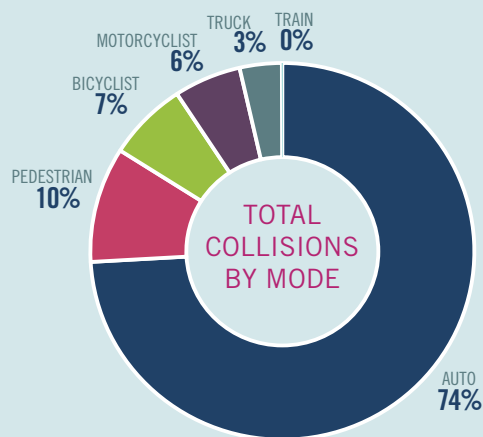
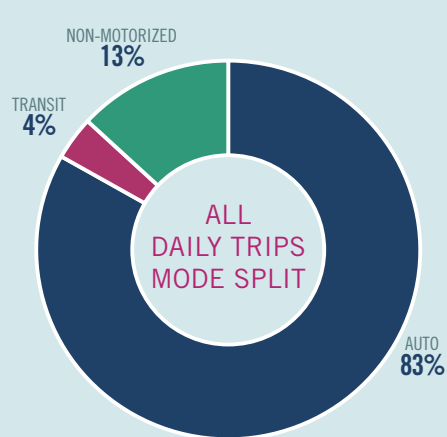
OF ALL COLLISIONS
OCCUR ON HIGHWAYS

8,000

ANNUAL VEHICLE MILES
TRAVELED PER CAPITA



PEOPLE WALKING AND BICYCLING ARE OVER-REPRESENTED AMONG TRAFFIC DEATHS COMPARED TO THEIR TOTAL MODE SHARE.



Why are collisions occurring?

The top contributing factor of all collisions and all fatal collisions is unsafe speed.



Speed is the critical factor in the severity of collisions

HIT BY A VEHICLE TRAVELING AT 25 MPH



9 out of 10 pedestrians survive

HIT BY A VEHICLE TRAVELING AT 50 MPH



2.5 out of 10 pedestrians survive



What are the overall trends?

Los Angeles County had been experiencing reductions in traffic-related fatalities and serious injuries until a recent uptick in the past couple of years. On average, each year in Los Angeles County, 690 people die in traffic collisions, 2,800 are seriously injured, and 80,000 people are injured. **Figures 1 and 2** show the total number of fatal and seriously injured victims since 2001, respectively. About 66 percent of those killed were in vehicles or on motorcycles, and 34 percent were walking or bicycling.

The total number of fatal and serious injury collisions has experienced a downward trend since 2006 for fatalities and 2007 for serious injuries – until 2016 when Los Angeles County experienced an uptick. Fatal collisions are now at their previous 2006 high- 748. **Map 1** reflects all fatal collisions occurring in Los Angeles County in 2014 (our most recent year of complete geocoded data). Serious injury collisions are now at their highest point in the past decade, 2,823. **Map 2** reflects all serious injury collisions occurring in Los Angeles County in 2014. Please note, total collisions does not equal total victims since multiple people can be involved in any one collision.

Of the roughly 650 fatal collisions occurring annually, more than 200, or about 35 percent, are active transportation collisions. The number of active transportation fatality collisions has remained fairly stable, with a recent sizeable uptick in 2016.

Of the 2,500 serious injury collisions occurring annually, more than 800, or about 34 percent, are active transportation collisions. The active transportation serious injury average has held fairly stable, with bicyclist serious injuries peaking in 2011 before beginning to decline.

Figures 3 and 4 show the total number of fatal and seriously injured pedestrians and bicyclists between 2001 and 2016. Pedestrian fatalities had been relatively consistent until 2011 (a low that year of 171 fatalities). Since 2011, pedestrian fatalities increased to around 220 in 2015 before spiking in 2016 to 275 pedestrian fatalities. The rate of pedestrians seriously injured in collisions had been decreasing until 2011 (570 seriously injured), and has since increased to 734 in 2016, which is still below the 2007 peak of 773 seriously injured.

Bicycling fatalities also peaked in 2016 with 40 fatalities in Los Angeles County, from a low of 18 in 2001. It is important to note that the rate of bicycling in Los Angeles County increased dramatically in the same time period. Bicyclists seriously injured tended to increase from 2002 to 2011, peaking at 276 in 2011, before declining to 216 in 2015. There was a slight uptick in serious injuries to 223 in 2016.

Maps 3 and 4 reflect the pedestrian- and bicycle-involved serious injury and fatal collisions occurring in Los Angeles County in 2014.

Figures 5 and 6 show the historical rates of fatalities and serious injuries per 1,000 people since 2001. Both rates have downward trends, with recent increases in the past year or so, that parallel those of the state. Because of the recent increases, the current fatality rate matches the last peak in 2007, 0.8 fatalities per 1,000 people, and the current serious injury rate, 0.31, comes close to the previous peak in 2007 of 0.32.

Figures 7 and 8 show the historical rates of fatal and serious injuries per 100 million vehicle miles traveled (VMT), respectively, since 2001. Both rates had been experiencing consistent declines over the past decade, until 2016.

Where are collisions occurring?

According to our most recent year of data (2016), as a largely urban area, nearly all (88 percent) collisions are occurring in urban areas and about 83 percent of all fatal and serious injury collisions are occurring in urban areas.

Los Angeles County includes an extensive roadway network consisting of 2,515 highway centerline miles, 6,117 arterial centerline miles, and 13,105 local road centerline miles. Local roads account for 60 percent of all roadways in terms of mileage within Los Angeles County.

More than 70 percent of all collisions are occurring on local streets, about 20 percent are occurring on highways, and the rest on major arterials. Interestingly, the percent of fatalities and serious injuries corresponds to this breakdown, with roughly 70 percent of fatalities and serious injuries occurring on local streets and 20 percent occurring on highways. For the most recent year of data (2014), all bicycle fatalities occurred on local streets and the majority of pedestrian fatalities (75 percent) also occurred on local streets. Meanwhile, the overwhelming majority of bicycle serious

injuries (92 percent) and pedestrian serious injuries (91 percent) occurred on local streets.

When are collisions occurring?

Most collisions are occurring during the evening commute period on weekdays, peaking around 6 pm and also during the same evening period on weekends as shown in **Figure 9**. Collisions tend to be lowest on Sundays as shown in **Figure 10**.

For our most recent year of data (2016), on average, about 5,200 collisions occurred each month as shown in **Figure 11**, and of these, about 60 were fatal collisions and 235 were serious injury collisions. Slightly more serious injuries tend to occur in the fall

Who is being hurt?

Walking or bicycling collisions account for about 34 percent of all fatal and serious injury collisions. To put this figure in context, about 13 percent of all daily trips are made via walking or biking.

Motorcyclists account for about 13 percent of all fatalities since 2001. Unfortunately, motorcycle fatalities as well as serious injuries have continued to significantly increase, from an annual low of 58 fatal collisions in 2001 to a high of 143 fatal collisions in 2016.

In any given year, the number of collisions involved with trains is very low. For example, over the course of more than a decade (2001-2016), 370 train-related collisions occurred, of which 30 resulted in fatalities and 31 in serious injuries.

Truck-involved collisions are more frequent, but also low in number. For example, over the course of more than a decade (2001-2016), 33,223 collisions occurred involving trucks (about 3 percent of all collisions), and of these, 868 resulted in fatalities and 1,747 resulted in serious injuries, or in other words, about 8 percent of all truck-involved collisions result in death or serious injury.

According to our most recent year of data (2016), 43 percent of all traffic collision victims are between the ages of 18 to 34, though this age group makes up about 26 percent of the county's population. About 9 percent of all traffic collision victims are under the age of 18 (about 23 percent of the county's population) and 8 percent of all traffic collision victims are 65 and older (about 12 percent of the county's population).

Also, according to our most recent year of data (2016), men and women appear to be involved in collisions at equal rates, though women are more often passengers in collisions (64 percent), while men are more often involved in collisions as drivers (53 percent), pedestrians (56 percent), or bicyclists (83 percent). Men are also more often involved in fatal collisions (73 percent) and serious injury collisions (70 percent).

Why are collisions occurring?

Maps 5-8 reflect the top three contributing factors of 2014 (our most recent year of complete geocoded data) for all fatal and serious collisions, and bicycle- and pedestrian-involved fatal and serious collisions.

THE TOP THREE CONTRIBUTING FACTORS FOR ALL COLLISIONS



THE TOP THREE CONTRIBUTING FACTORS FOR FATAL COLLISIONS



THE TOP THREE CONTRIBUTING FACTORS FOR SERIOUS INJURIES



Figure 1: Los Angeles County Total Number of Fatal Victims

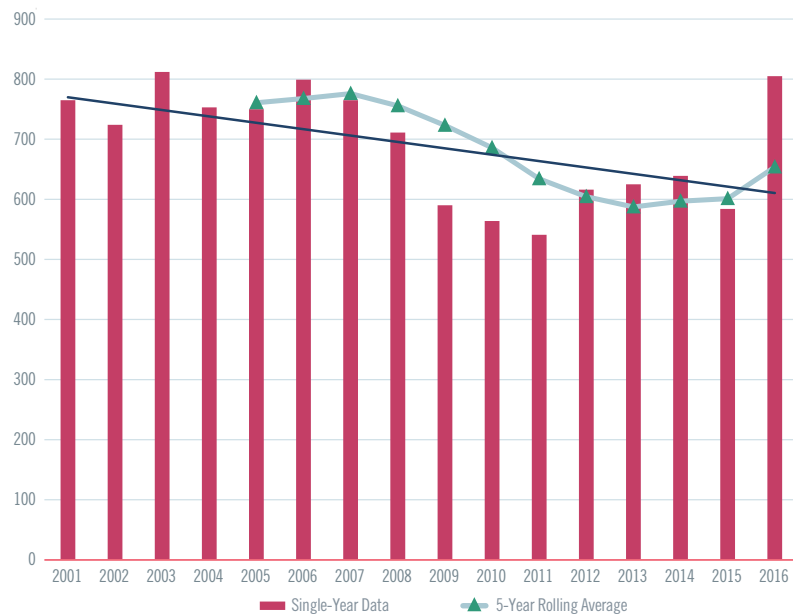


Figure 3: Los Angeles County Total Number of Pedestrian Fatal and Serious Injury Victims



Figure 2: Los Angeles County Total Number of Serious Injury Victims

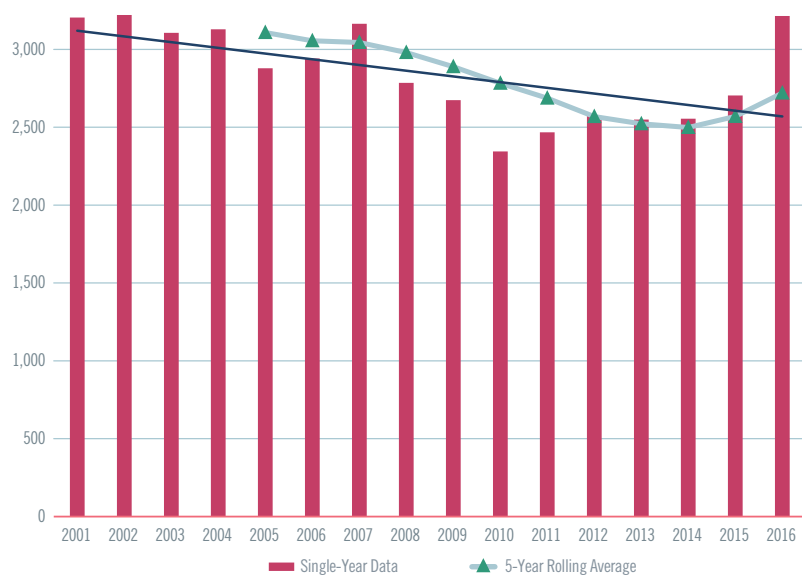


Figure 4: Los Angeles County Total Number of Bicyclist Fatal and Serious Injury Victims



Figure 5: Los Angeles County Fatal Victims per 1,000 Population



Figure 7: Los Angeles County Fatal Victims per 100M VMT

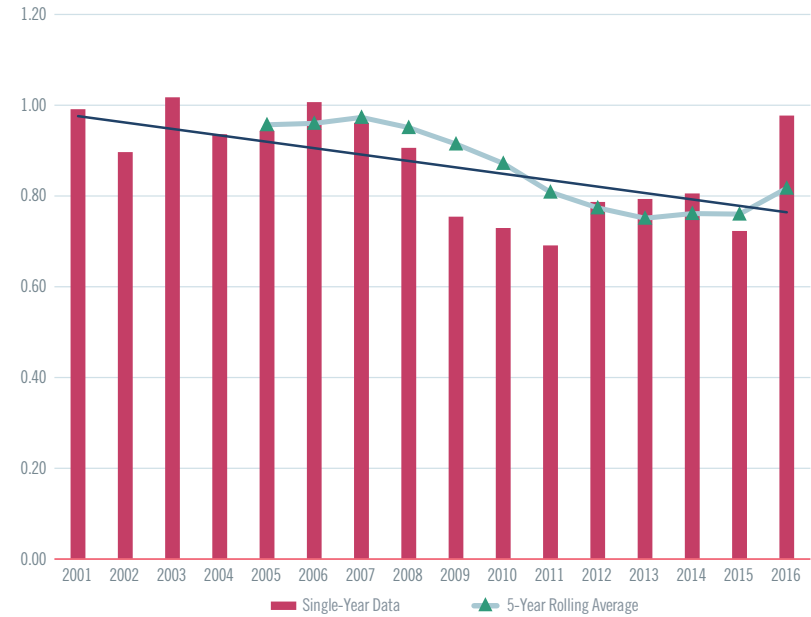


Figure 6: Los Angeles County Serious Injury Victims per 1,000 Population

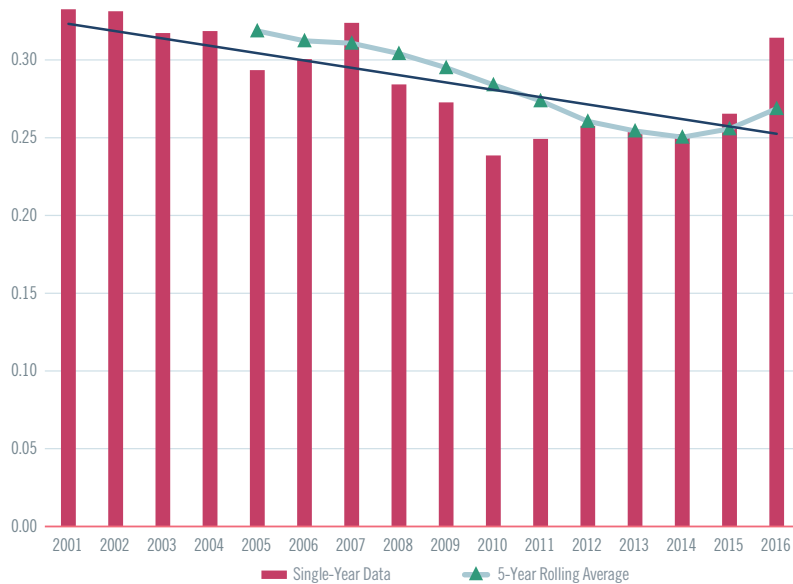


Figure 8: Los Angeles County Serious Injury Victims per 100M VMT

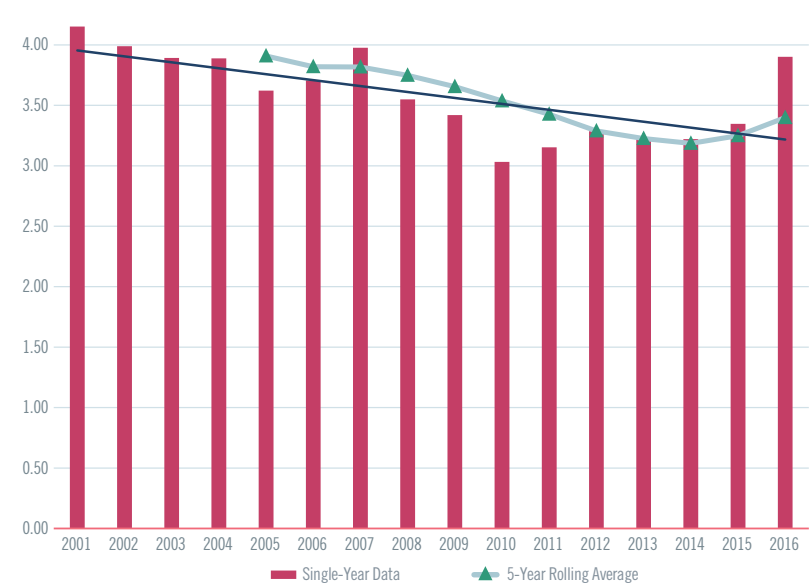


Figure 9: Los Angeles County Collisions by Time of Day (2016)

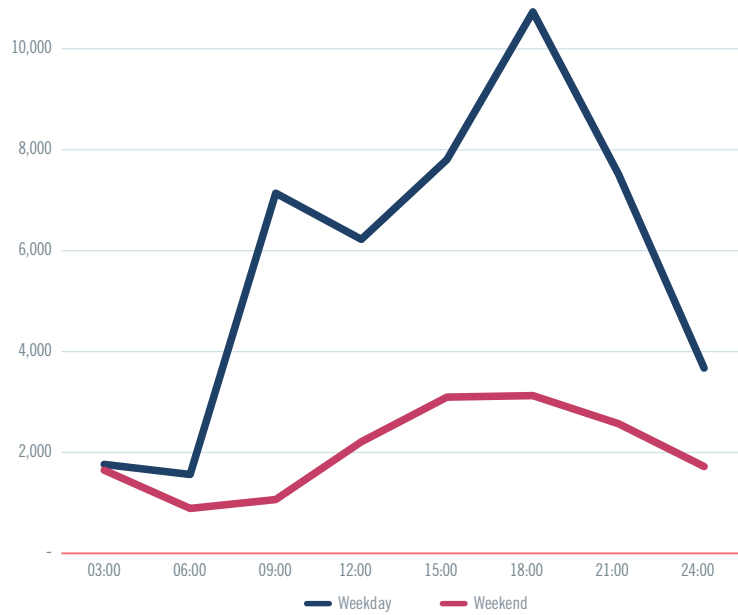


Figure 10: Los Angeles County Collisions by Day of the Week (2016)

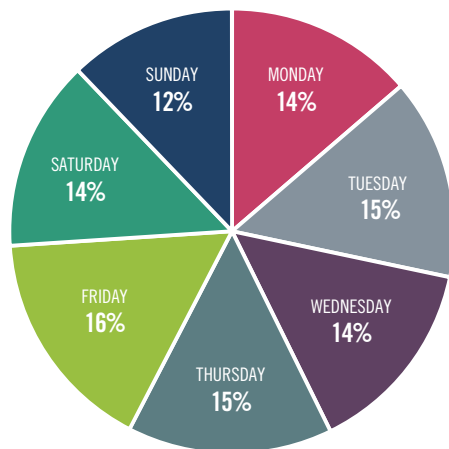
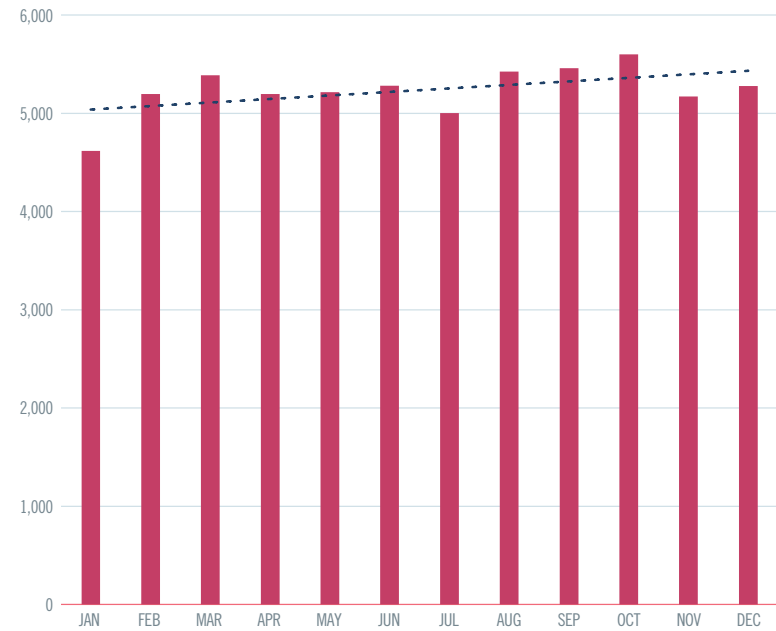


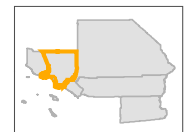
Figure 11: Los Angeles County Collisions by Month (2016)



[illegible]

Note: Each dot represents one collision.

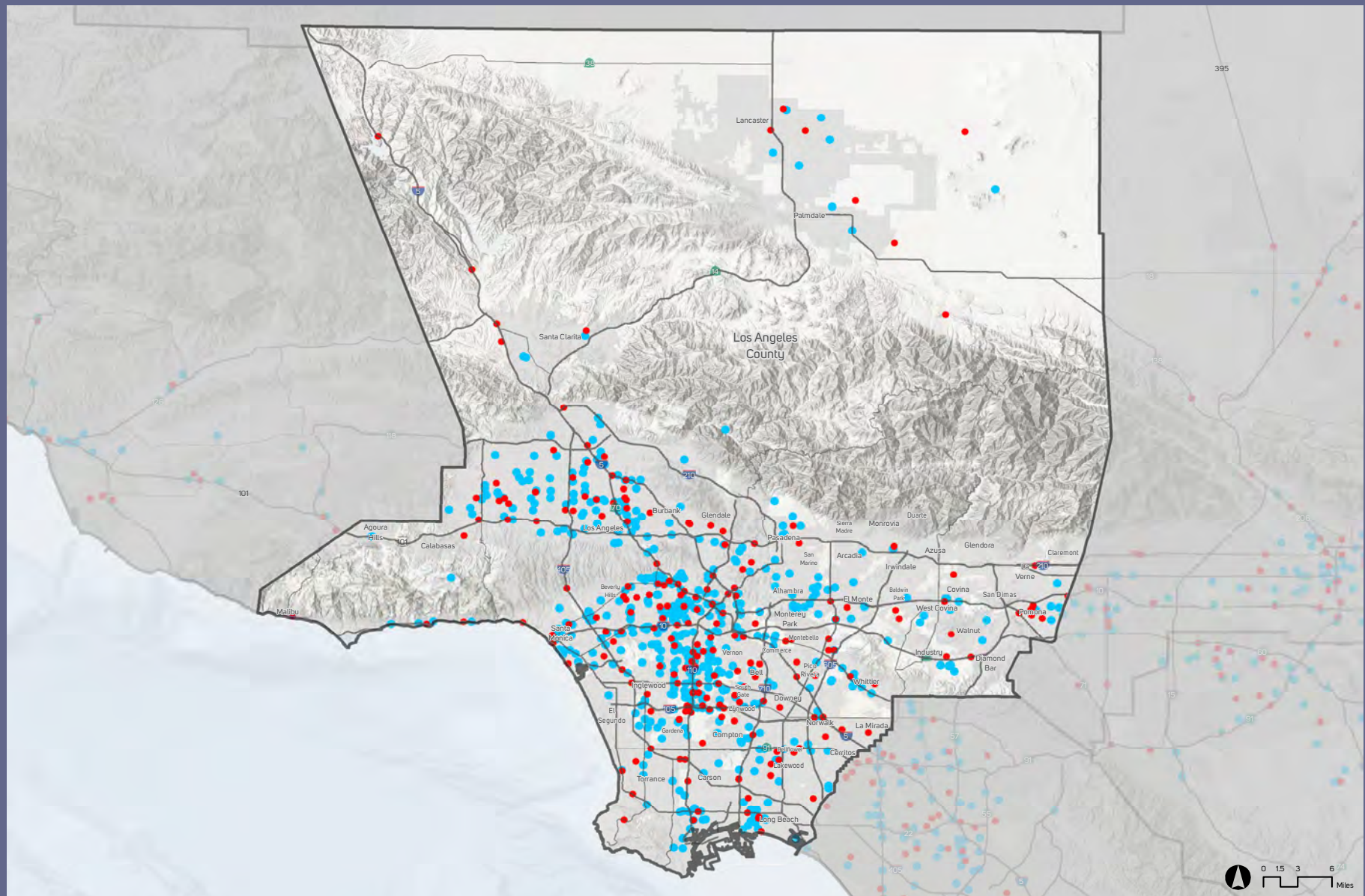
(Source: SWITRS and SCAG, 2017)



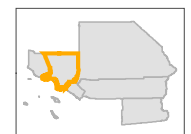
[illegible]

(Source: SWITRS and SCAG, 2017)

Map 3: Los Angeles County, 2014 Pedestrian-Involved Fatal and Serious Injury Collisions

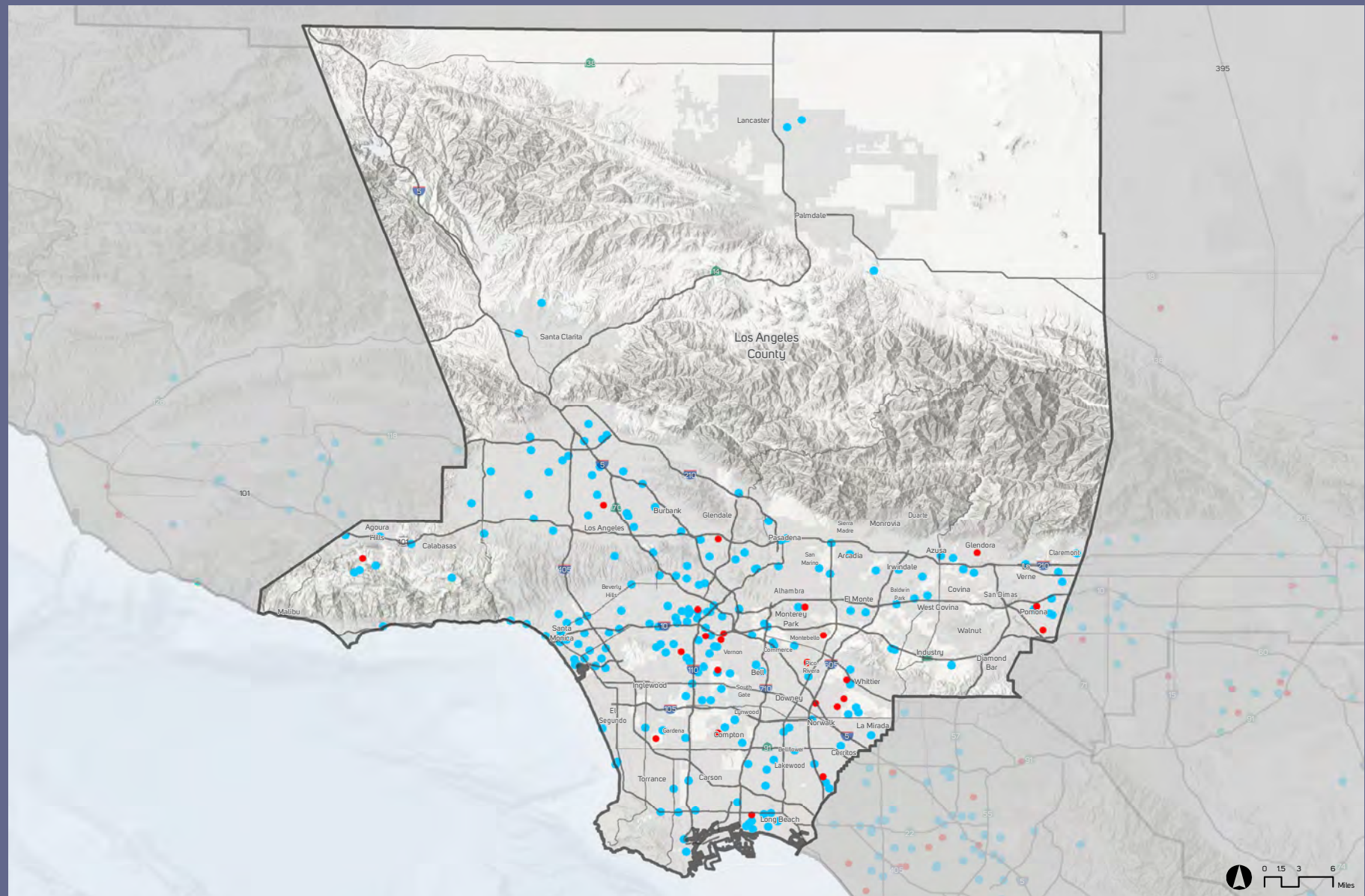


County Boundaries
 City Boundaries
 ● 2014 Pedestrian-Involved Serious Injury Collisions
 ● 2014 Pedestrian-Involved Fatal Collisions

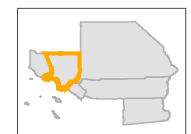


(Source: SWITRS and SCAG, 2017)

Map 4: Los Angeles County, 2014 Bicycle-Involved Fatal and Serious Injury Collisions

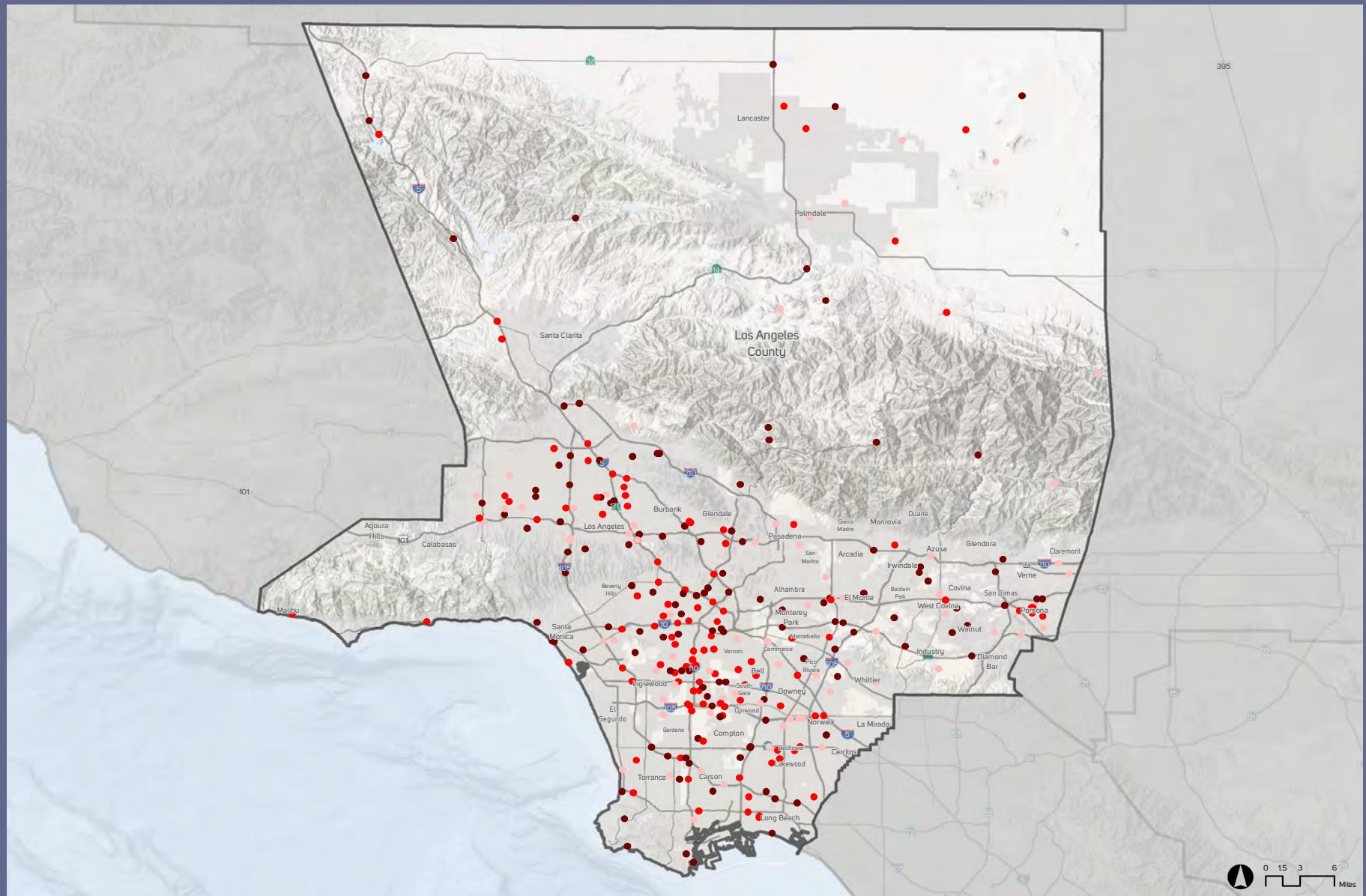


County Boundaries
 City Boundaries
 ● 2014 Bicycle-Involved Serious Injury Collisions
 ● 2014 Bicycle-Involved Fatal Collisions



(Source: SWITRS and SCAG, 2017)

Map 5: 2014 Top 3 Violation Categories of Fatal Collisions in Los Angeles County



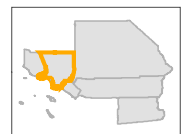
Administrative Boundaries

-  County Boundaries
-  City Boundaries

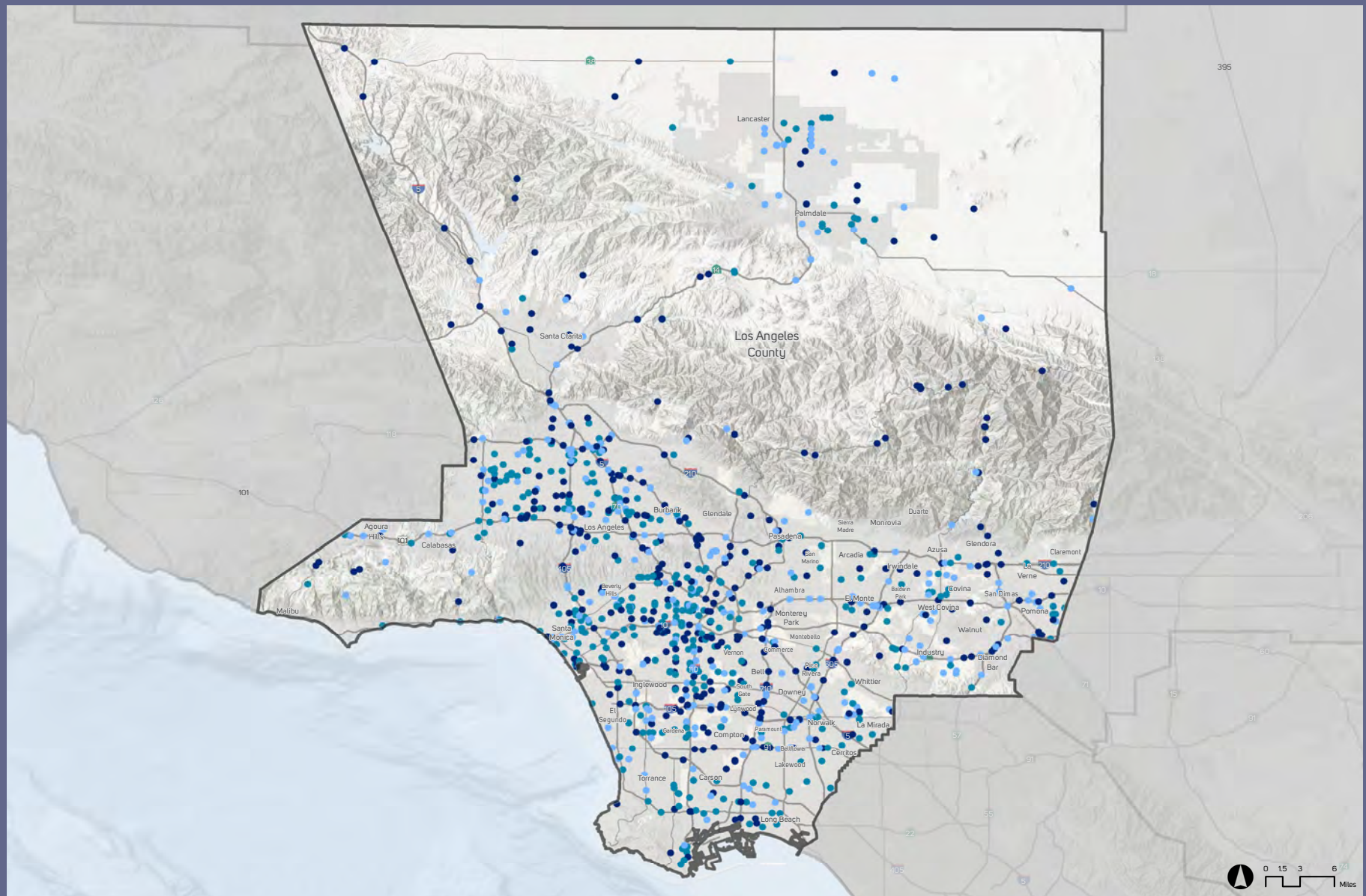
(Source: SWITRS, TIMS, and SCAG)

Top 3 Violation Categories of 2014 Fatal Collisions

-  Unsafe Speed (Top 1)
-  Pedestrian Violation (Top 2)
-  Driving or Bicycling Under the Influence of Alcohol or Drug (Top 3)



Map 6: 2014 Top 3 Violation Categories of Serious Injury Collisions in Los Angeles County



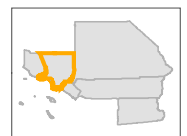
Administrative Boundaries

- County Boundaries
- City Boundaries

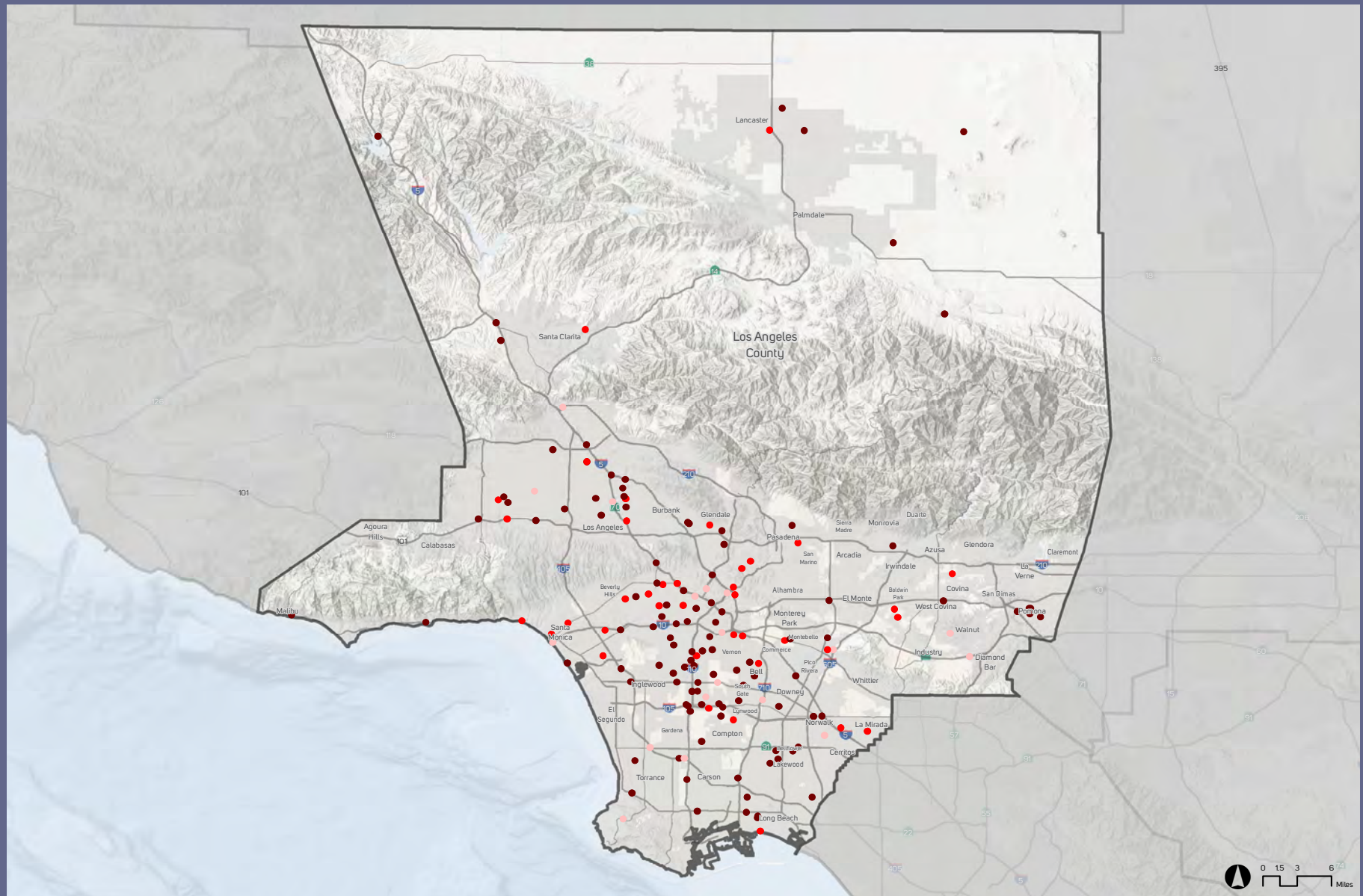
(Source: SWITRS, TIMS, and SCAG)

Top 3 Violation Categories of 2014 Serious Injury Collisions

- Unsafe Speed (Top 1)
- Automobile Right-of-Way (Top 2)
- Driving or Bicycling Under the Influence of Alcohol or Drug (Top 3)



Map 7: Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Fatal Collisions in Los Angeles County



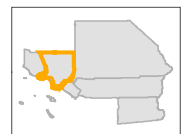
Administrative Boundaries

- County Boundaries
- City Boundaries

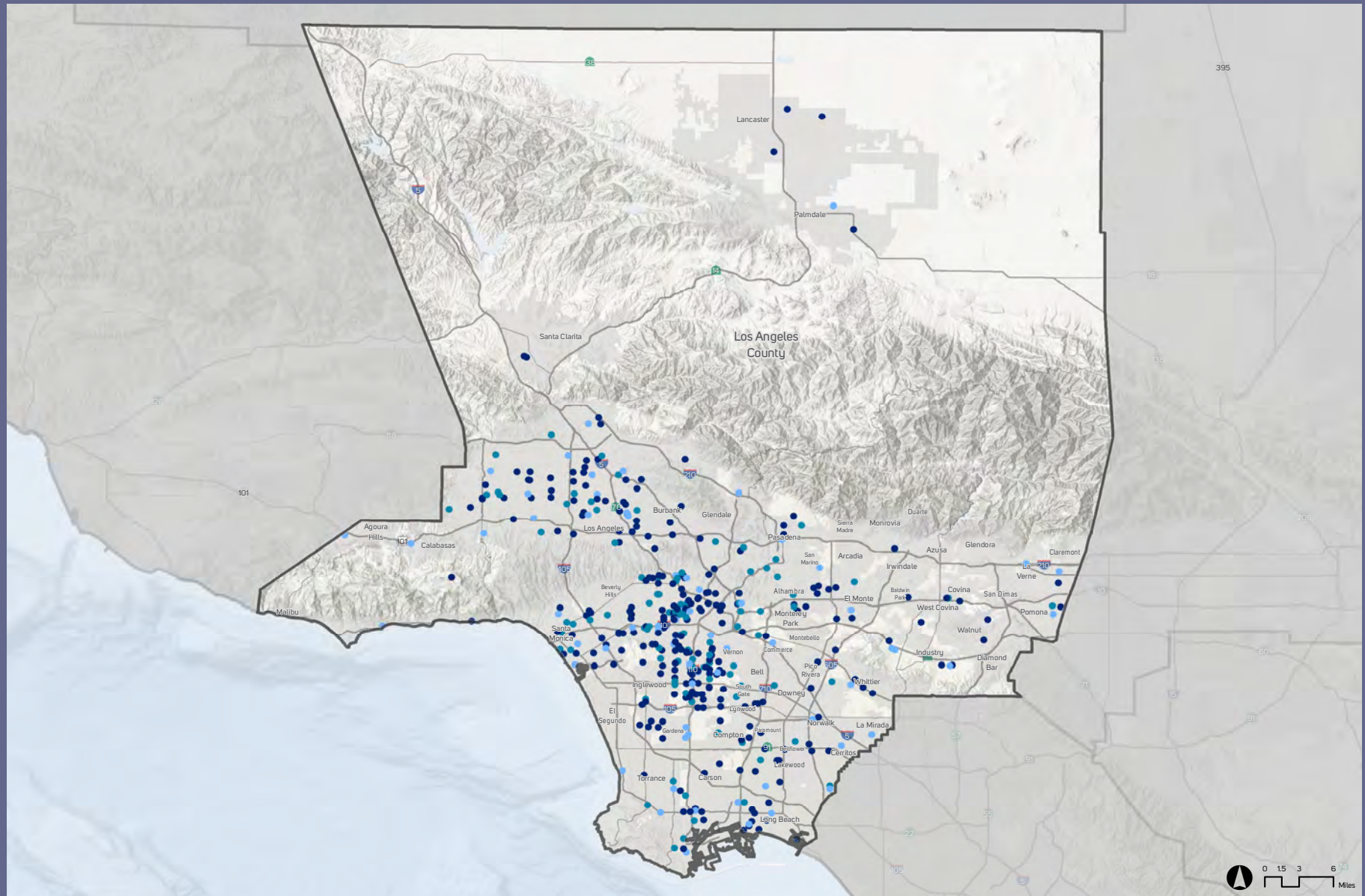
(Source: SWITRS, TIMS, and SCAG)

Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Fatal Collisions in Los Angeles County

- Pedestrian Violation (Top 1)
- Pedestrian Right-of-Way (Top 2)
- Unsafe Speed (Top 3)



Map 8: Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Serious Injury Collisions in Los Angeles County

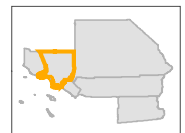


Administrative Boundaries
 County Boundaries
 City Boundaries

Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Serious Injury Collisions in Los Angeles County

- Pedestrian Violation (Top 1)

- Pedestrian Right of Way (Top 2)
- Automobile Right of Way (Top 3)



(Source: SWITRS, TIMS, and SCAG)



ORANGE COUNTY

Orange County borders the counties of Los Angeles (northwest), Riverside (east), San Bernardino (northeast), and San Diego (south). To the west, Orange County borders 42 miles of the Pacific Ocean. Orange County consists of 790 square miles and more than 3 million residents. Residents of Orange County on average drive 8,900 miles each year.

ORANGE COUNTY

BY THE NUMBERS

40

COLLISIONS OCCUR PER DAY
ON THE STREETS

THAT IS ROUGHLY **14,000** PER YEAR

40%

OF ALL TRAFFIC COLLISION
VICTIMS ARE PEOPLE 18-34

170

PEOPLE DIE
EVERY YEAR
FROM COLLISIONS

33%

OF ALL DEATHS INVOLVE
PEOPLE WALKING OR BICYCLING

65%

OF ALL
COLLISIONS
OCCUR ON LOCAL ROADS

700

PEOPLE SUSTAIN SERIOUS INJURIES
EVERY YEAR FROM COLLISIONS

27%

OF ALL COLLISIONS
OCCUR ON HIGHWAYS

20,000

PEOPLE SUSTAIN INJURIES
EVERY YEAR FROM COLLISIONS

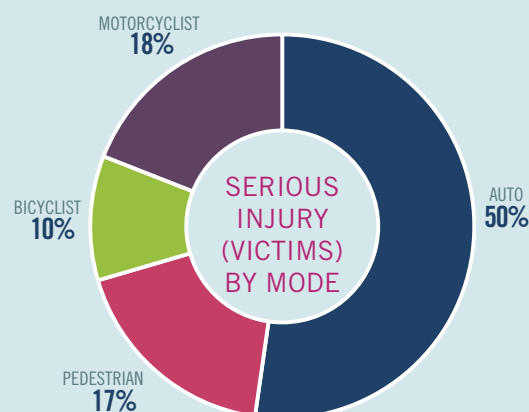
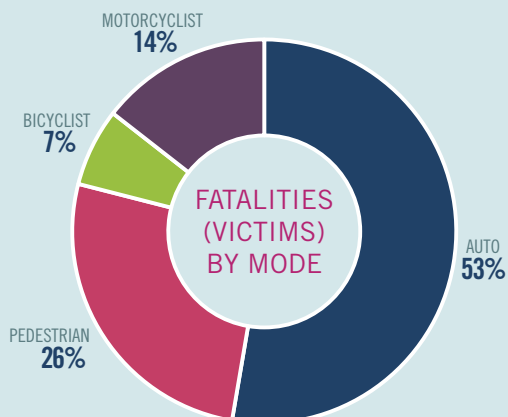
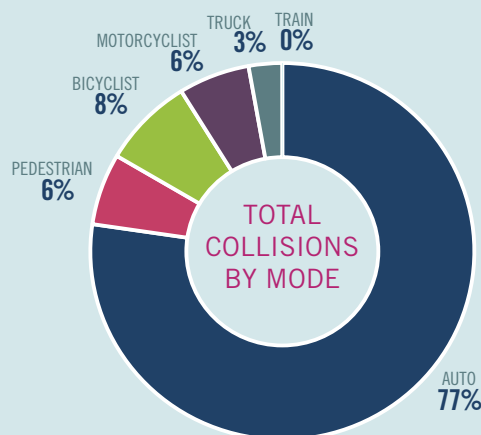
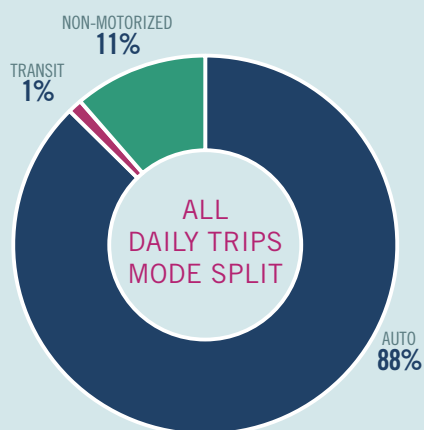
97%

OF ALL COLLISIONS
OCCUR IN URBAN
AREAS

8,900

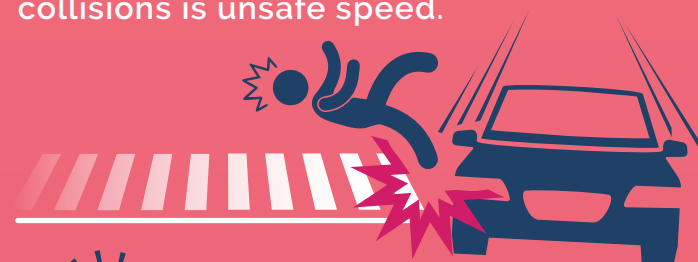
ANNUAL VEHICLE MILES
TRAVELED PER CAPITA

PEOPLE WALKING AND BICYCLING ARE OVER-REPRESENTED AMONG TRAFFIC DEATHS COMPARED TO THEIR TOTAL MODE SHARE.



Why are collisions occurring?

The top contributing factor of all collisions is unsafe speed.



Speed is the critical factor in the severity of collisions

HIT BY A VEHICLE TRAVELING AT 25 MPH



9 out of 10 pedestrians survive

HIT BY A VEHICLE TRAVELING AT 50 MPH



2.5 out of 10 pedestrians survive



What are the overall trends?

Orange County experienced a period of reductions in traffic-related fatalities (2003-2010) until 2011 when they started to rise. Similarly, Orange County experienced a period of reductions in serious injuries (2005-2010) when they started to steadily rise to the highest they have been in more than a decade (817 in 2016). On average, 170 people die in traffic collisions, 700 are seriously injured, and 20,000 people are injured each year in Orange County. **Figures 1 and 2** show the total number of fatal and seriously injured victims since 2001, respectively. About 67 percent of those killed were in vehicles or on motorcycles and 33 percent were walking or bicycling.

Although fatal collisions have been increasing in recent years, they have declined by 15 percent, from a high of 204 in 2004 to 173 in 2016. **Map 1** reflects all fatal collisions occurring in Orange County in 2014 (our most recent year of complete geocoded data). Serious injury collisions reached their highest point in more than a decade in 2016 (744 collisions). **Map 2** reflects all serious injury collisions occurring in Orange County in 2014. Please note, total collisions does not equal total victims since multiple people can be involved in any one collision.

Of the roughly 160 fatal collisions occurring annually, about more than 60, or well over a third, are active transportation collisions. Unfortunately the numbers of active transportation fatalities have remained fairly constant.

Of the roughly 600 serious injury collisions, more than 170 are active transportation collisions. The numbers of active transportation serious injuries have held fairly stable, with bicyclist serious injuries increasing slightly since 2010. **Maps 3 and 4** reflect the pedestrian- and bicycle-involved serious injury and fatal collisions occurring in Orange County in 2014.

Figures 3 and 4 show the total number of fatal and seriously injured pedestrians and bicyclists between 2001 and 2016. Pedestrian fatalities peaked in 2016 with 60, from a low of 31 in 2008. In the past decade, pedestrians seriously injured peaked in 2011, with 133 seriously injured, compared to a low of 99 in 2007.

Ten bicyclist fatalities occurred in 2016, down from 17 the previous year.

Bicyclist fatalities peaked in 2006, with 22 fatalities. The low was 3 fatalities in 2010. Bicyclists seriously injured peaked in 2012, with 84 seriously injured, compared to a low of 53 seriously injured in 2005.

Figures 5 and 6 show the historical rates of fatal and serious injuries per 1,000 people since 2001. The fatal collision rate has modestly declined, while the serious injury rate had been experiencing declines until an uptick in the past two years.

Figures 7 and 8 show the historical rates of fatal and serious injuries per 100 million vehicle miles traveled (VMT), respectively, since 2001. The fatal collision rate has experienced an overall decline since its previous highest point in 2001. Meanwhile, the serious collision rate experienced steady declines from 2005 to 2011, but then started rising.

Where are collisions occurring?

According to our most recent year of data (2016), nearly all (97 percent) of collisions are occurring in urban areas and over 90 percent of all fatal and serious injury collisions are occurring in urban areas.

Orange County includes an extensive roadway network consisting of 916 highway centerline miles, 1,103 arterial centerline miles, and 5,001 local road centerline miles. Local roads account for 71 percent of all roadways in terms of mileage within Orange County.

More than 65 percent of all collisions are occurring on local streets, 27 percent are occurring on highways, and the rest on major arterials. Interestingly, the percent of fatalities and serious injuries corresponds to this breakdown, with roughly 67 percent of fatalities and 65 percent of serious injuries occurring on local streets and 20 percent of fatalities and 23 percent of serious injuries occurring on highways. For the most recent year of data (2014), 75 percent of bicycle fatalities occurred on local streets and the overwhelming majority of pedestrian fatalities (80 percent) also occurred on local streets. Meanwhile, the overwhelming majority of bicycle serious injuries (93 percent) and pedestrian serious injuries (79 percent) occurred on local streets.

When are collisions occurring?

Most collisions are occurring during the evening commute period on weekdays, peaking around 6 pm and also during the same evening period on weekends as shown in **Figure 9**. Collisions tend to be lowest on Sundays as shown in **Figure 10**.

For our most recent year of data (2016), on average, about 1,300 collisions occurred each month as shown in Figure 11, and of these, about 14 were fatal collisions and 62 were serious injury collisions.

Who is being hurt?

Walking or bicycling collisions account for about 30 percent of all fatal and serious injury collisions. To put this figure in context, about 11 percent of all daily trips are made via walking or biking.

Motorcyclists account for about 15 percent of all fatalities over the past decade. Unfortunately, motorcycle fatalities as well as serious injuries continue to increase and are at their highest point in more than a decade.

In any given year, the number of collisions involved with trains is very low. For example, over more than a decade (2001-2016), 32 train-related collisions occurred, of which 6 resulted in fatalities and 4 in serious injuries.

Truck-involved collisions are more frequent, but also low in number. For example, over the course of more than a decade (2001-2016), 6,946 collisions occurred involving trucks (about 3 percent of all collisions), and of these, 168 resulted in fatalities and 376 resulted in serious injuries, or in other words, about 8 percent of all truck-involved collisions result in death or serious injury.

According to our most recent year of data (2016), 40 percent of all traffic collision victims are between the ages of 18 to 34, though this age group makes up about 24 percent of the county's population. About 9 percent of all traffic collision victims are under the age of 18 (about 23 percent of the county's population), and 10 percent of all traffic collision victims are 65 and older (they make up about 13 percent of the county's population).

According to our most recent year of data (2016), men and women appear to be involved in collisions at equal rates, though women are more often passengers in collisions (65 percent), while men are more often involved in collisions as drivers (52 percent), pedestrians (59 percent), or bicyclists (82 percent). Men are also more often involved in fatal collisions (79 percent) and serious injury collisions (69 percent).

Why are collisions occurring?

Maps 5-8 reflect the top three contributing factors of 2014 (our most recent year of complete geocoded data) for all fatal and serious collisions, and bicycle- and pedestrian-involved fatal and serious collisions.

THE TOP THREE CONTRIBUTING FACTORS FOR ALL COLLISIONS



THE TOP THREE CONTRIBUTING FACTORS FOR FATAL COLLISIONS



THE TOP THREE CONTRIBUTING FACTORS FOR SERIOUS INJURIES



Figure 1: Orange County Total Number of Fatal Victims



Figure 2: Orange County Total Number of Serious Injury Victims



Figure 3: Orange County Total Number of Pedestrian Fatal and Serious Injury Victims

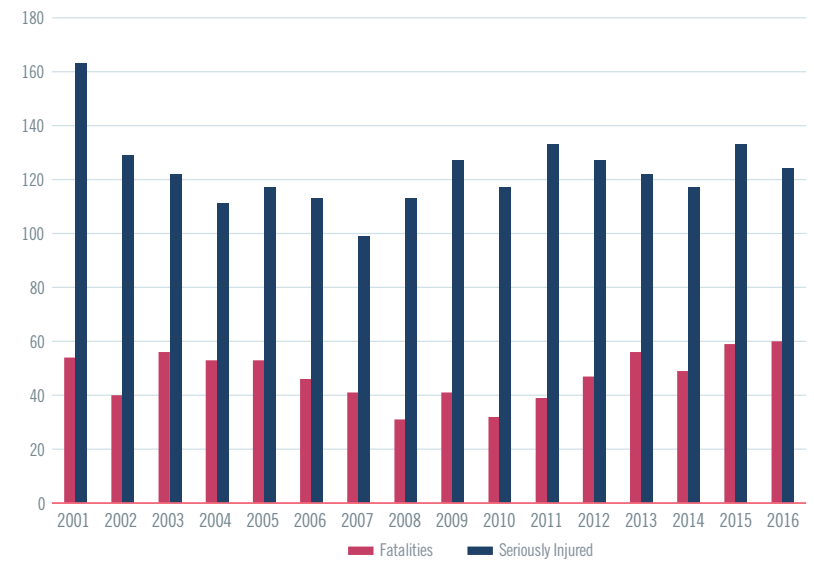


Figure 4: Orange County Total Number of Bicyclist Fatal and Serious Injury Victims

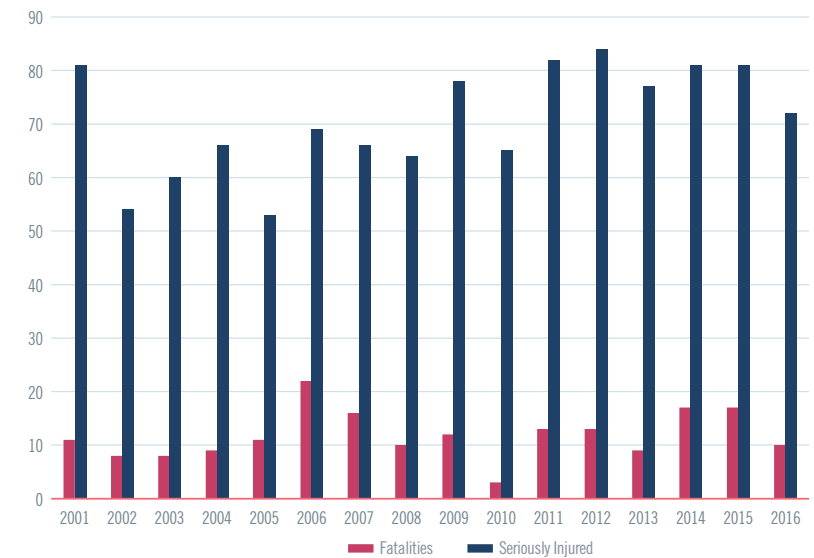


Figure 5: Orange County Fatal Victims per 1,000 Population



Figure 7: Orange County Fatal Victims per 100M VMT



Figure 6: Orange County Serious Injury Victims per 1,000 Population

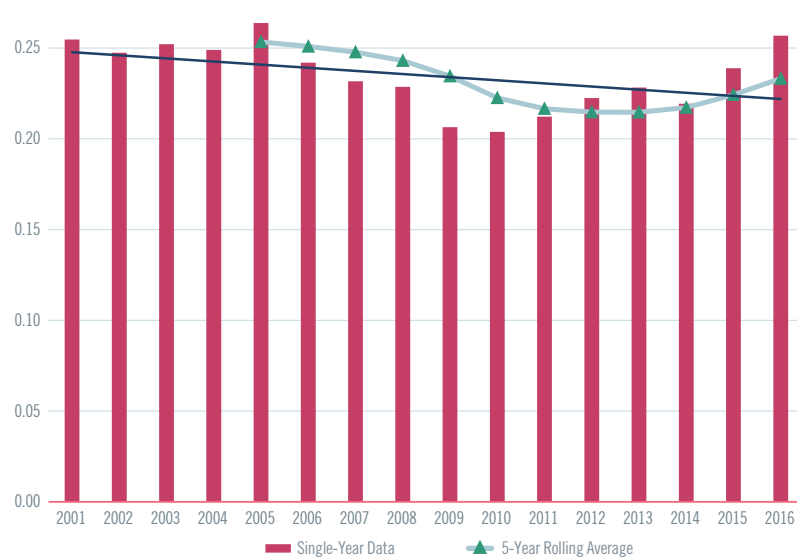


Figure 8: Orange County Serious Injury Victims per 100M VMT



Figure 9: Orange County Collisions by Time of Day (2016)

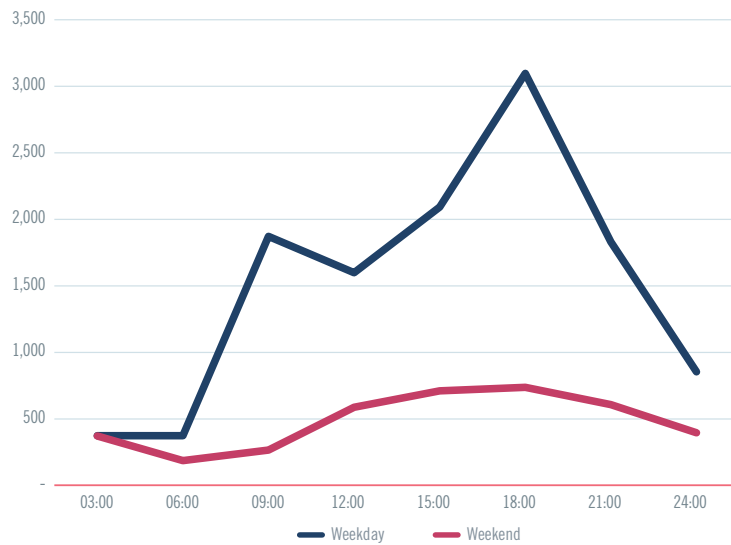


Figure 11: Orange County Collisions by Month (2016)

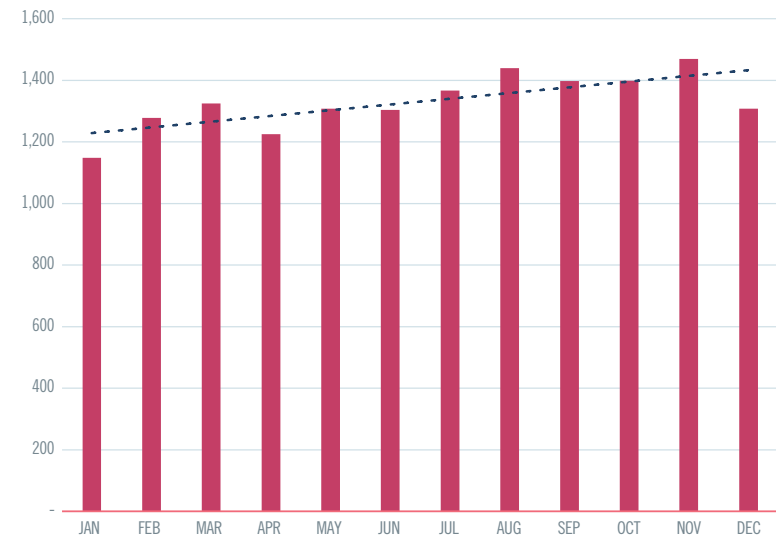
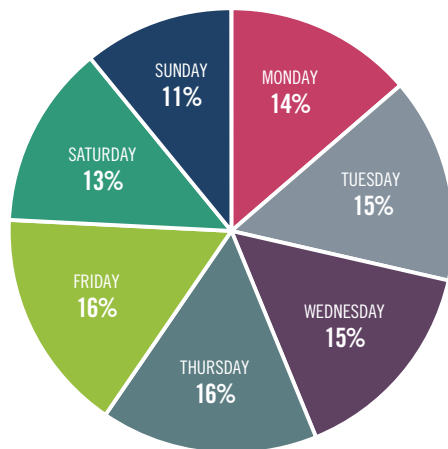
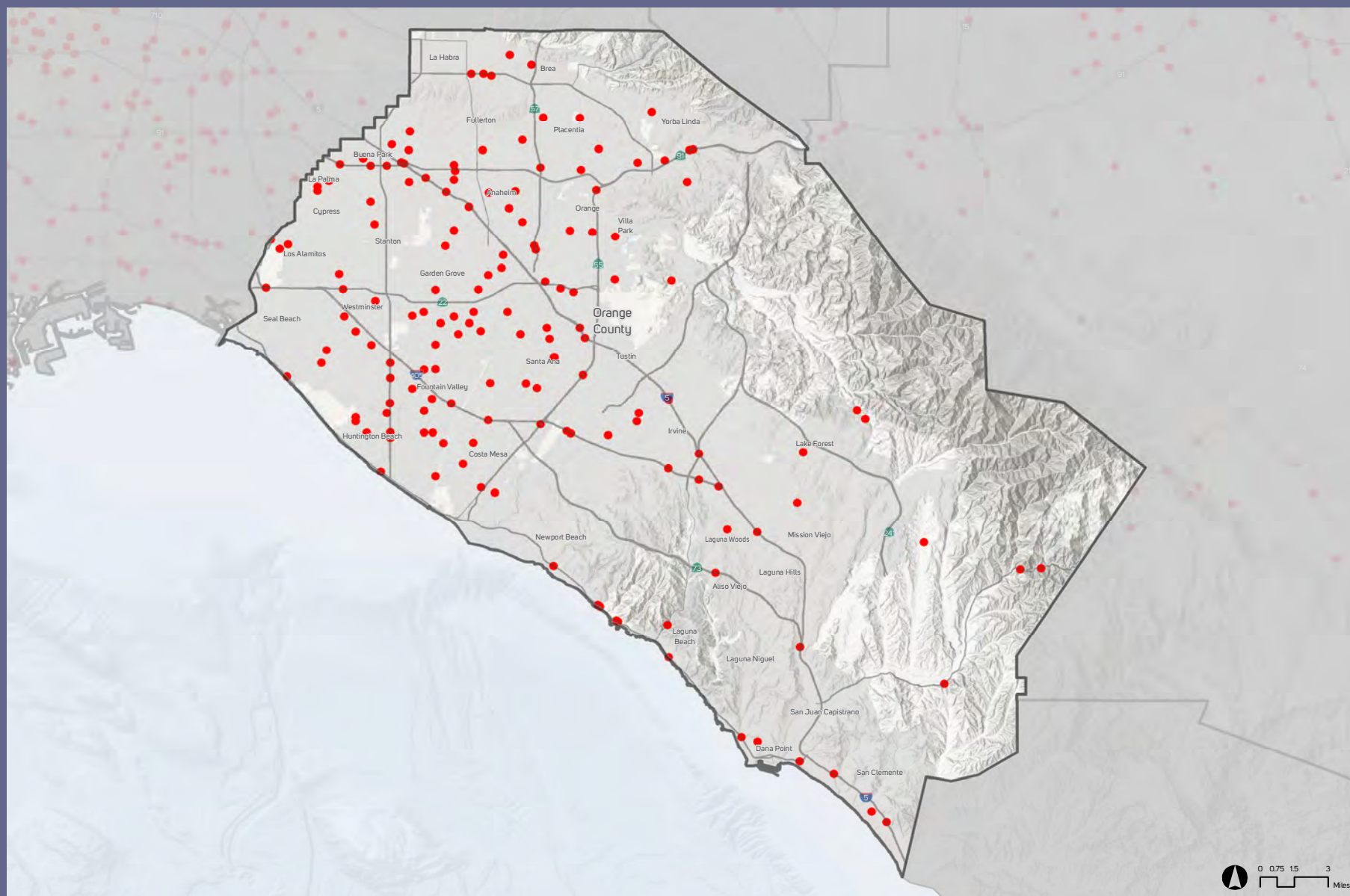


Figure 10: Orange County Collisions by Day of the Week (2016)



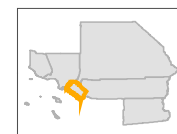
Map 1: Orange County, 2014 Fatal Collisions



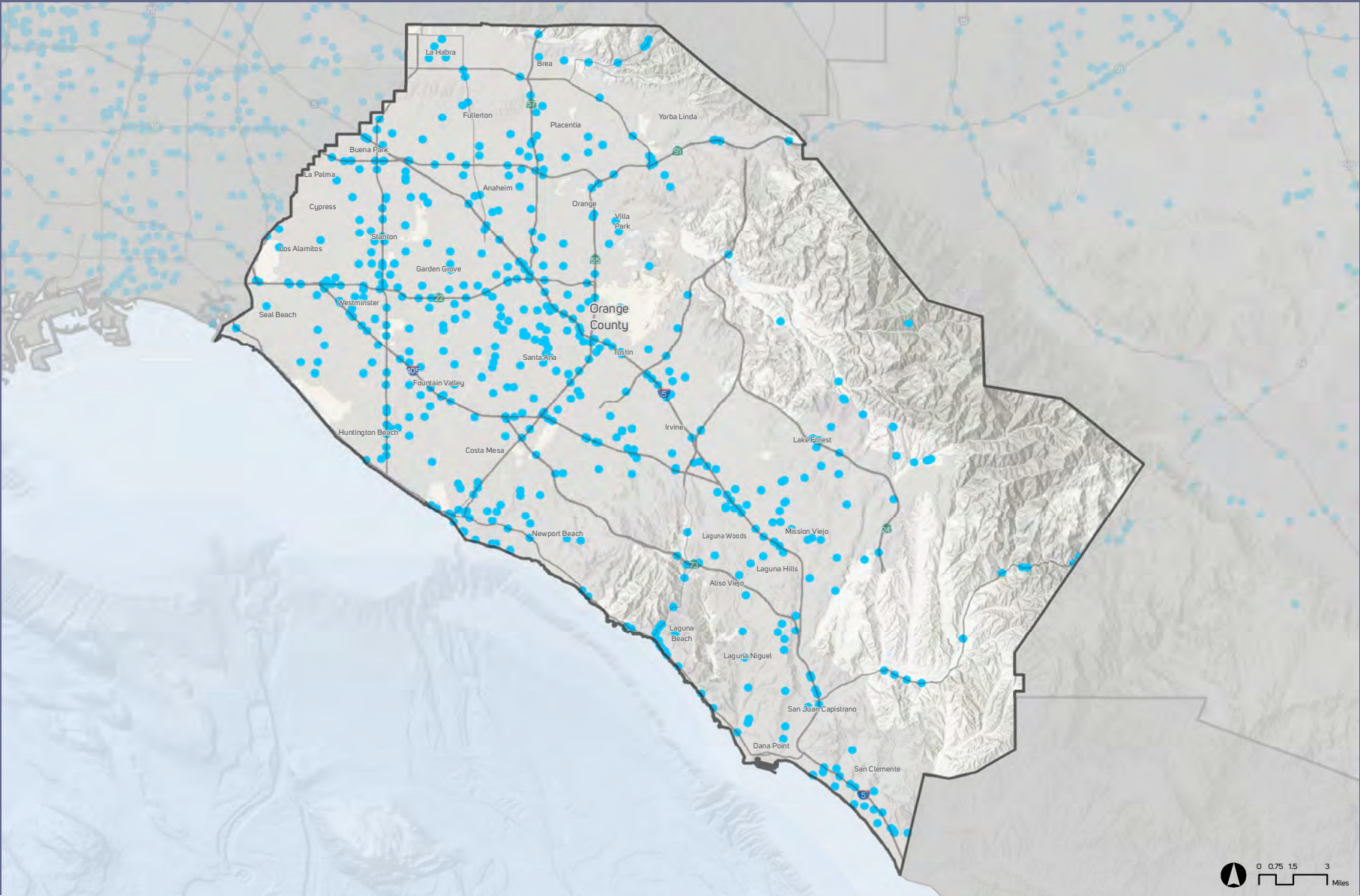
County Boundaries City Boundaries 2014 Fatal Collisions

Note: Each dot represents one collision.

(Source: SWITRS and SCAG, 2017)



Map 2: Orange County, 2014 Serious Injury Collisions

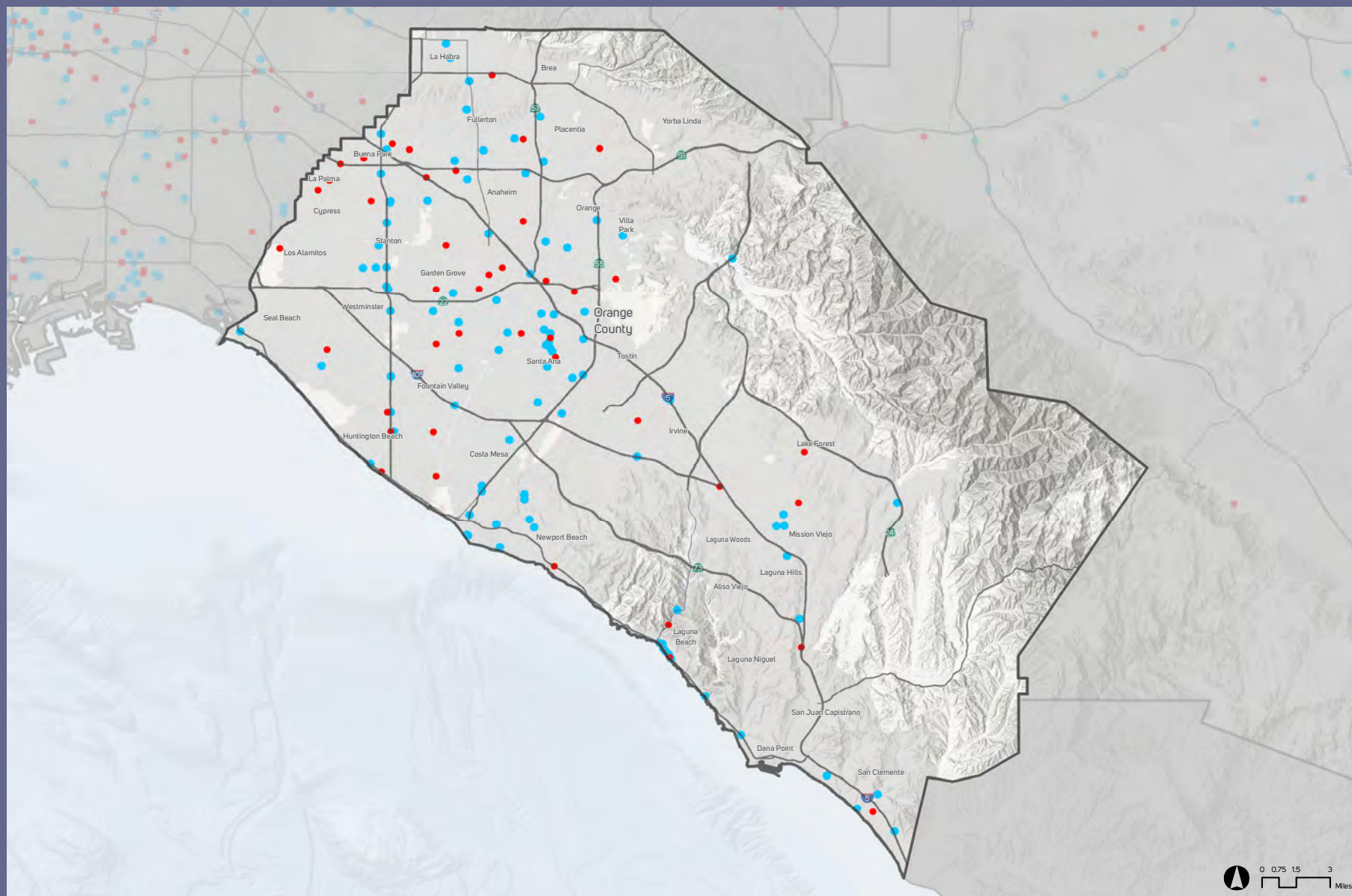


County Boundaries City Boundaries 2014 Serious Injury Collisions

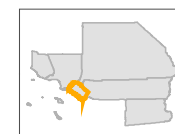


(Source: SWITRS and SCAG, 2017)

Map 3: Orange County, 2014 Pedestrian-Involved Fatal and Serious Injury Collisions

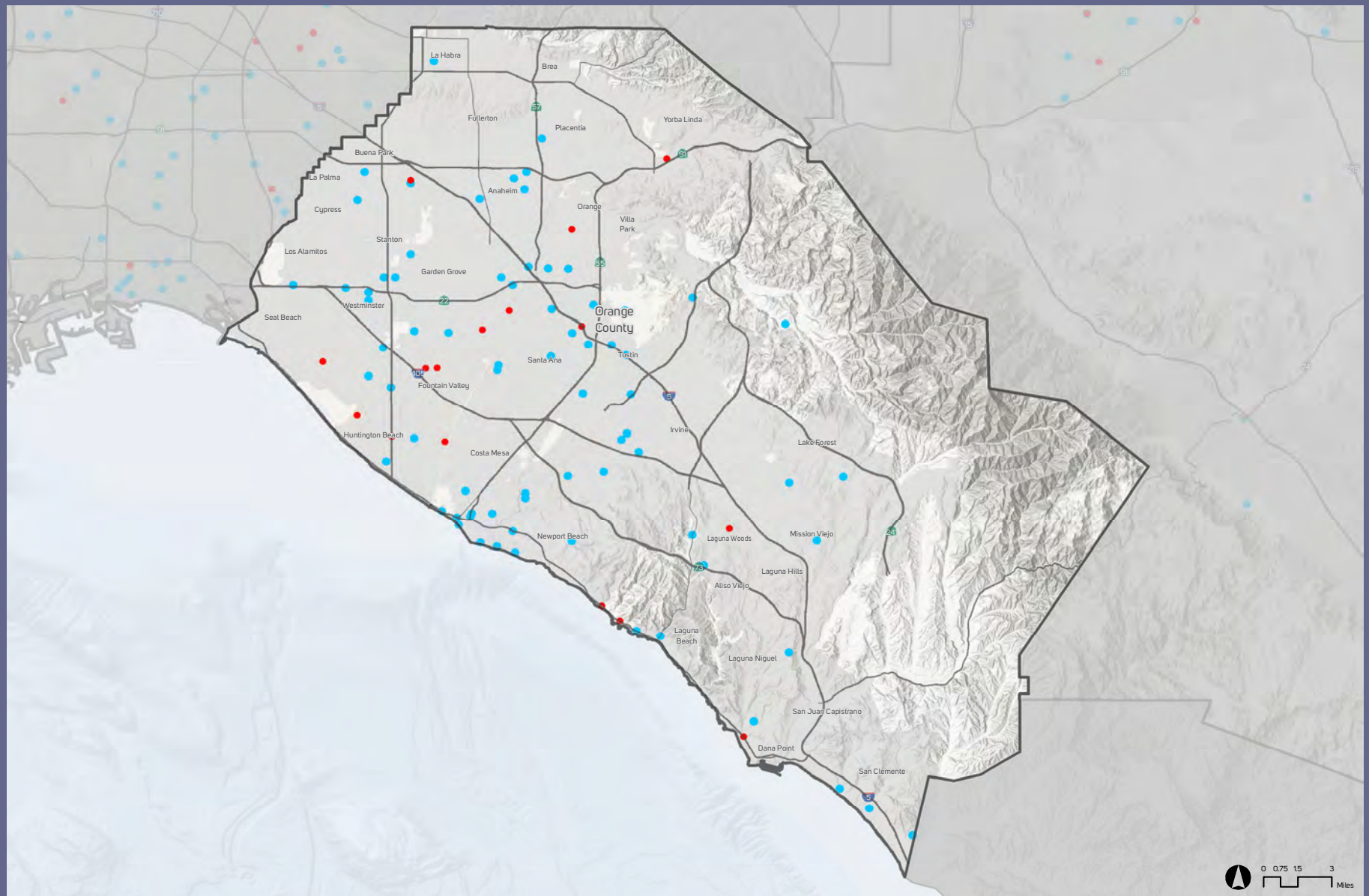


County Boundaries
 City Boundaries
 ● 2014 Pedestrian-Involved Serious Injury Collisions
 ● 2014 Pedestrian-Involved Fatal Collisions

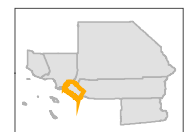


(Source: SWITRS and SCAG, 2017)

Map 4: Orange County, 2014 Bicycle-Involved Fatal and Serious Injury Collisions

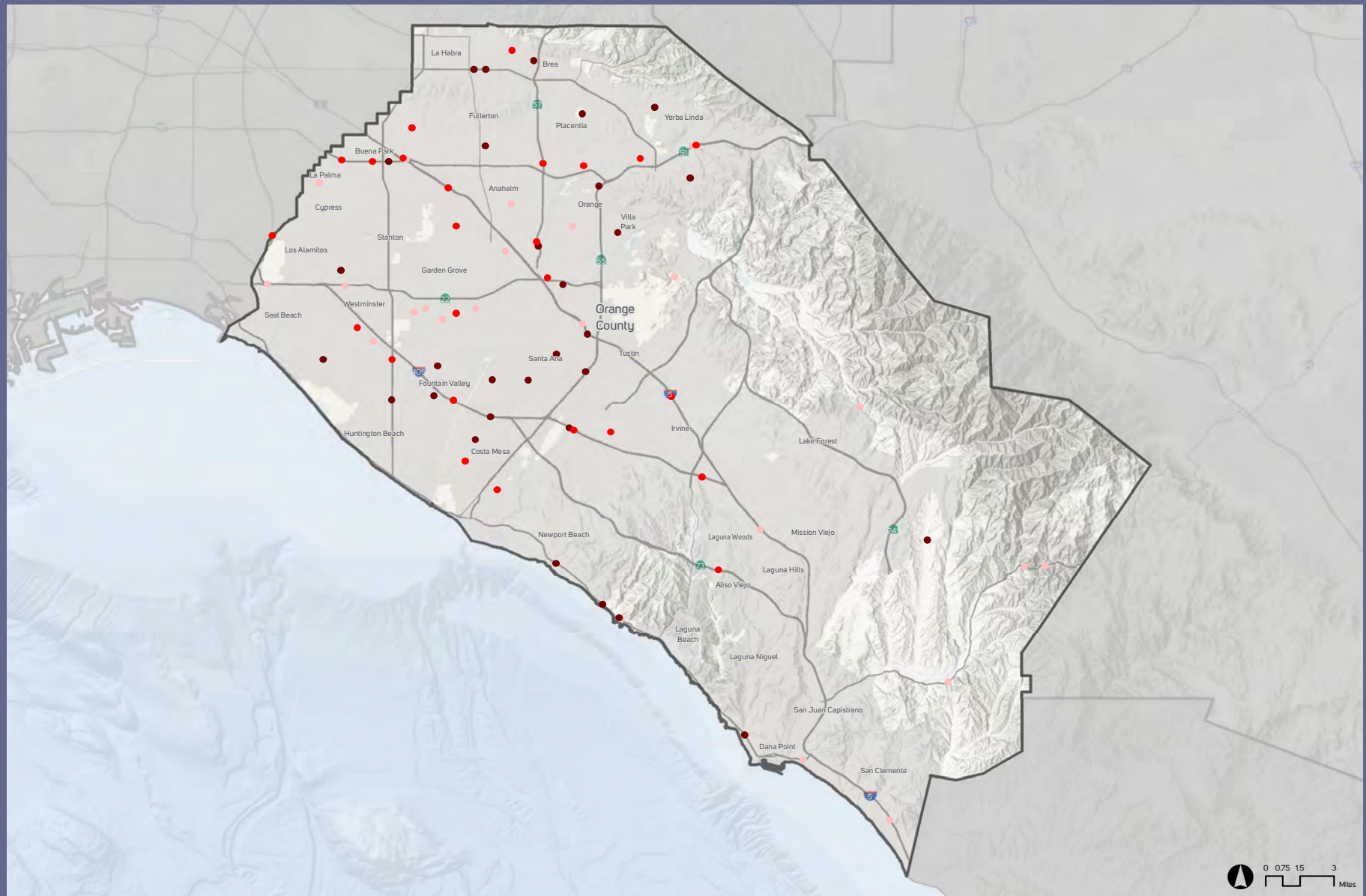


County Boundaries
 City Boundaries
 ● 2014 Bicycle-Involved Serious Injury Collisions
 ● 2014 Bicycle-Involved Fatal Collisions



(Source: SWITRS and SCAG, 2017)

Map 5: 2014 Top 3 Violation Categories of Fatal Collisions in Orange County



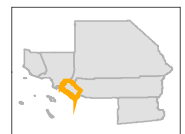
Administrative Boundaries

-  County Boundaries
-  City Boundaries

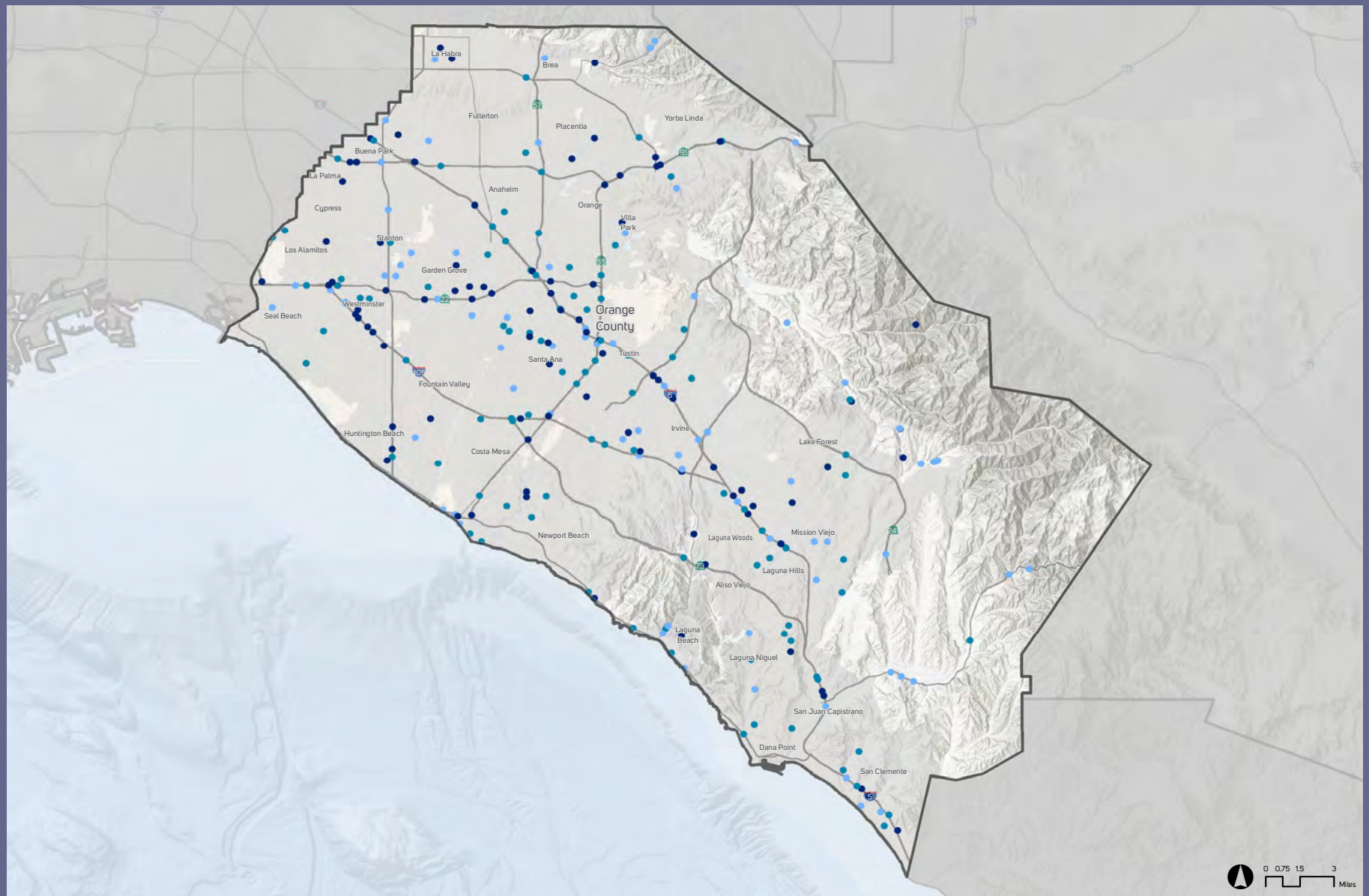
(Source: SWITRS, TIMS, and SCAG)

Top 3 Violation Categories of 2014 Fatal Collisions

-  Driving or Bicycling Under the Influence of Alcohol or Drug (Top 1)
-  Unsafe Speed (Top 2)
-  Improper Turning (Top 3)



Map 6: 2014 Top 3 Violation Categories of Serious Injury Collisions in Orange County



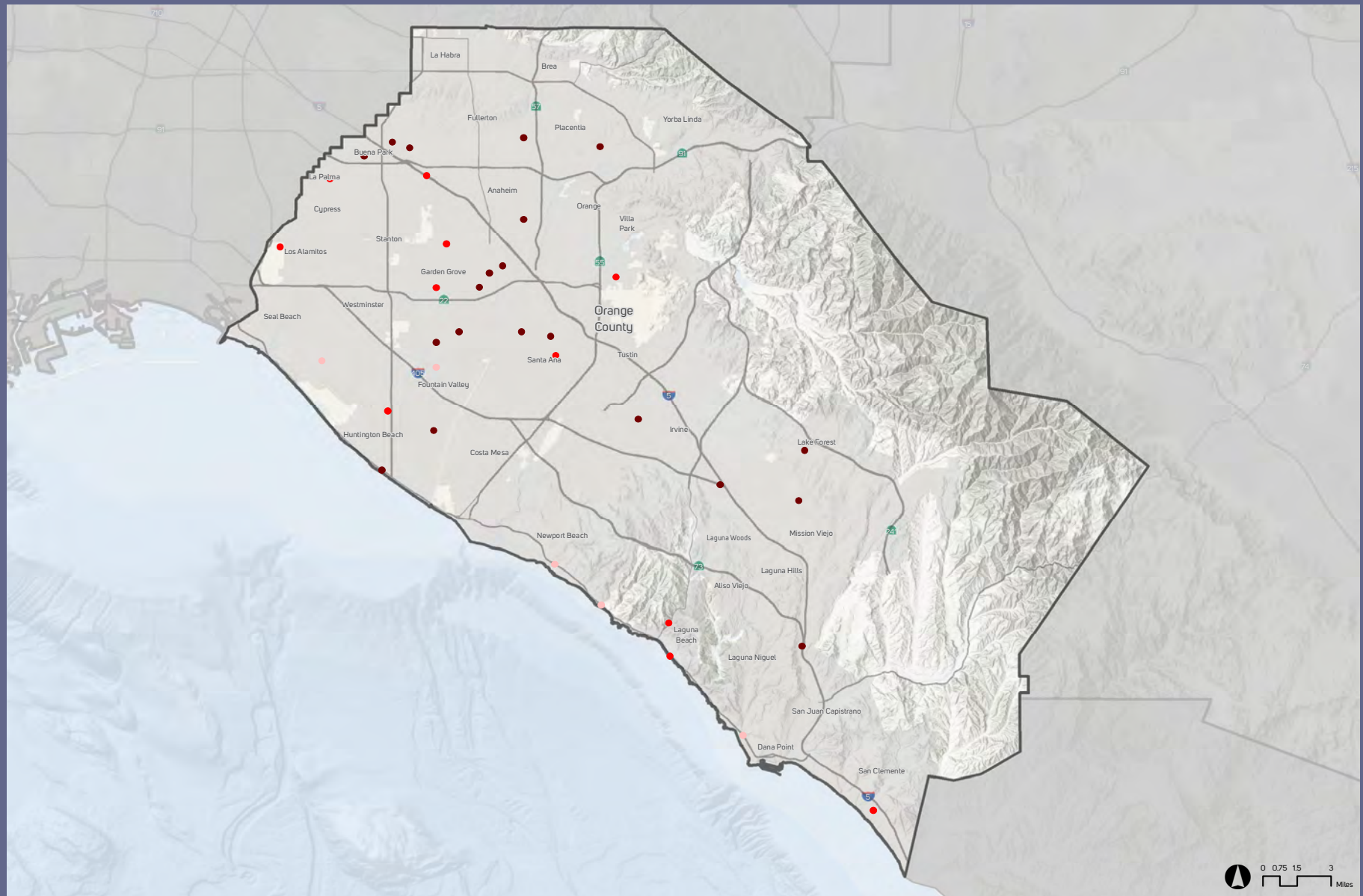
Administrative Boundaries
 County Boundaries
 City Boundaries

Top 3 Violation Categories of 2014 Serious Injury Collisions
 Unsafe Speed (Top 1)
 Driving or Bicycling Under the Influence of Alcohol or Drug (Top 2)
 Improper Turning (Top 3)

(Source: SWITRS, TIMS, and SCAG)



Map 7: Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Fatal Collisions in Orange County



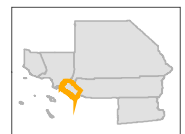
Administrative Boundaries

-  County Boundaries
-  City Boundaries

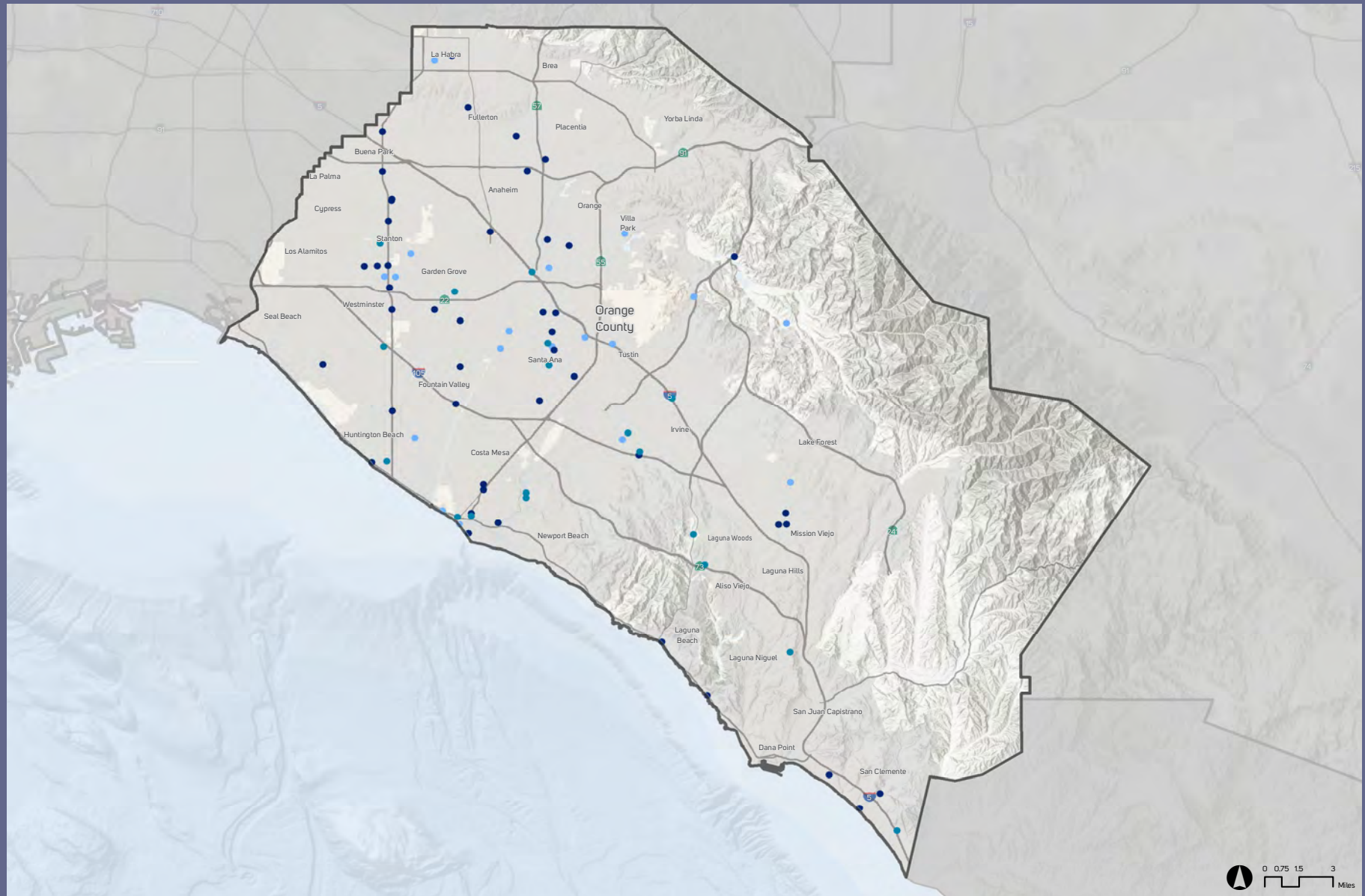
(Source: SWITRS, TIMS, and SCAG)

Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Fatal Collisions in Orange County

-  Pedestrian Violation (Top 1)
-  Pedestrian Right-of-Way (Top 2)
-  Driving or Bicycling Under the Influence of Alcohol or Drug (Top 3)



Map 8: Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Serious Injury Collisions in Orange County



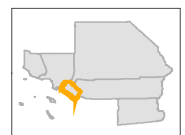
Administrative Boundaries
 County Boundaries
 City Boundaries

Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Serious Injury Collisions in Orange County

● Pedestrian Violation (Top 1)

● Unsafe Speed (Top 2)
 ● Improper Turning (Top 3)

(Source: SWITRS, TIMS, and SCAG)



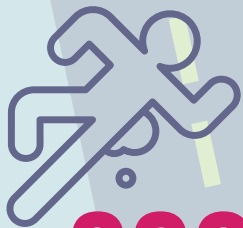


RIVERSIDE COUNTY

Riverside County borders the counties of Imperial (south), Orange (west), San Bernardino (north), and San Diego (south). It is one of the nation's largest counties, with 7,206 square miles of land. More than 2.3 million people call it home. Residents of Riverside County drive on average 9,400 miles each year.

RIVERSIDE COUNTY

BY THE NUMBERS



260 PEOPLE DIE EVERY YEAR FROM COLLISIONS

700 PEOPLE SUSTAIN SERIOUS INJURIES EVERY YEAR FROM COLLISIONS

13,000 PEOPLE SUSTAIN INJURIES EVERY YEAR FROM COLLISIONS



24 COLLISIONS OCCUR PER DAY ON THE STREETS

THAT IS ROUGHLY **9,000** PER YEAR



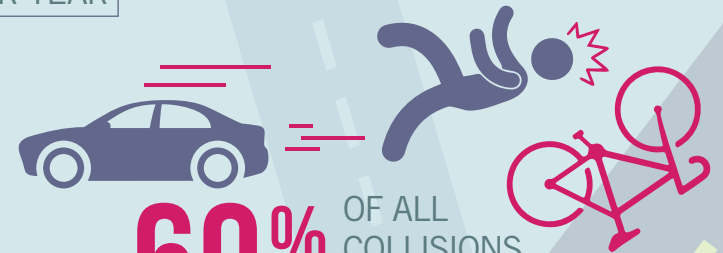
20% OF ALL DEATHS INVOLVE PEOPLE WALKING OR BICYCLING



80% OF ALL COLLISIONS OCCUR IN URBAN AREAS



41% OF ALL TRAFFIC COLLISION VICTIMS ARE PEOPLE 18-34



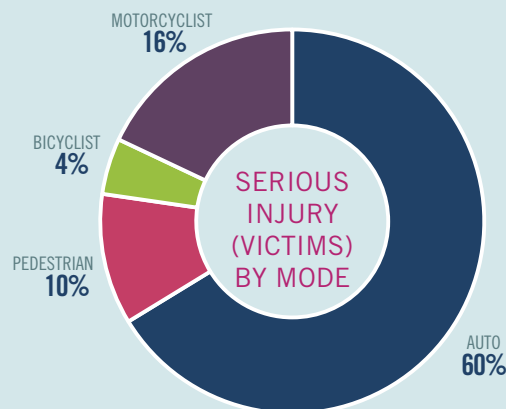
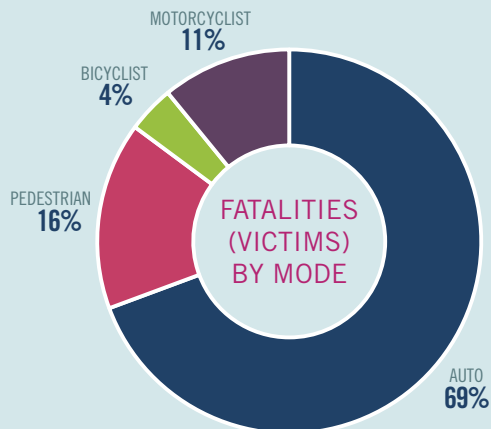
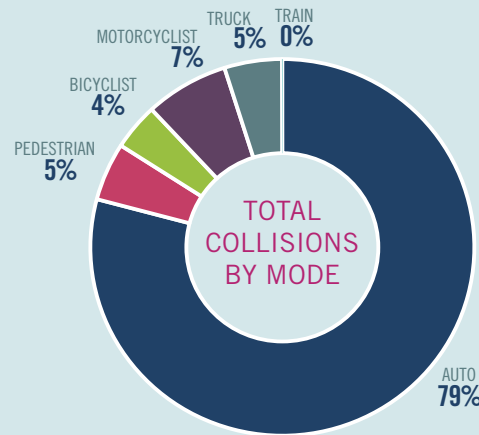
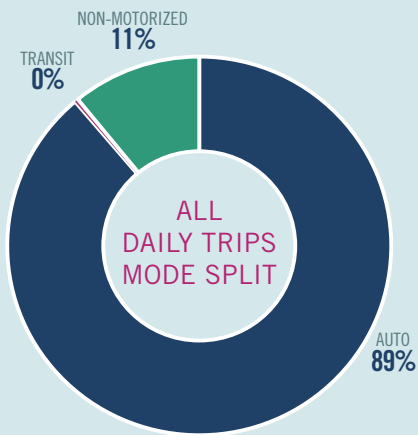
60% OF ALL COLLISIONS OCCUR ON LOCAL ROADS

29% OF ALL COLLISIONS OCCUR ON HIGHWAYS



9,400 ANNUAL VEHICLE MILES TRAVELED PER CAPITA

PEOPLE WALKING AND BICYCLING ARE OVER-REPRESENTED AMONG TRAFFIC DEATHS COMPARED TO THEIR TOTAL MODE SHARE.



Why are collisions occurring?

The top contributing factor of all collisions is unsafe speed.



Speed is the critical factor in the severity of collisions

HIT BY A VEHICLE TRAVELING AT 25 MPH



9 out of 10 pedestrians survive

HIT BY A VEHICLE TRAVELING AT 50 MPH



2.5 out of 10 pedestrians survive



What are the overall trends?

Over the course of the past decade, Riverside County experienced reductions in traffic-related fatalities and serious injuries, with upticks in the past few years. On average, 260 people die in traffic collisions, 700 are seriously injured, and 13,000 people are injured each year in Riverside County. **Figures 1 and 2** show the total number of fatal and seriously injured victims since 2001, respectively. About 80 percent of those killed were in vehicles or on motorcycles, while the remaining 20 percent were walking or bicycling.

Since 2006 the total number of fatal and serious injury collisions had been on a downward trend, with an uptick starting in the past two to three years. **Map 1** reflects all fatal collisions occurring in Riverside County in 2014 (our most recent year of geocoded data). **Map 2** reflects all serious injury collisions occurring in Riverside County in 2014. Please note, total collisions does not equal total victims since multiple people can be involved in any one collision.

Of the roughly 240 fatal collisions, about 50, or 21 percent, are active transportation collisions. Unlike the numbers of fatalities, the numbers of active transportation fatalities have not experienced a period of decline and remain fairly stable. **Maps 3 and 4** reflect the pedestrian- and bicycle-involved serious injury and fatal collisions occurring in Riverside County in 2014.

Of the 565 serious injury collisions, about 93, or 17 percent, are active transportation collisions. Unlike the numbers of serious injuries, the numbers of active transportation serious injuries have remained fairly stable.

Figures 3 and 4 show the total number of fatal and seriously injured pedestrians and bicyclists between 2001 and 2016. Fatalities for pedestrians peaked in 2016, with 53 fatalities, compared to a low of 28 in 2008. Serious injuries for pedestrians peaked in 2006, with 82 seriously injured, compared to a low of 52 in 2013, although serious injuries have climbed steadily since 2013, with 77 in 2016.

Bicyclist fatalities have hovered around 11 fatalities per year. The highest year with fatalities was 2005 with 17, compared to a low of 7 in 2009. In 2016,

there were 10 bicyclist fatalities. Bicyclists seriously injured has remained fairly stable, with a rise from 2012-2013, peaking with 43 seriously injured in 2013 before declining to 28 in 2016.

Figures 5 and 6 show the historical rates of fatalities and serious injuries per 1,000 people since 2001. The rate of fatalities has an appreciable downward trend, and while the rate of serious injuries also has a downward trend, in the past two years, the rate has increased.

Figures 7 and 8 show the historical rates of fatalities and serious injuries per 100 million vehicle miles traveled (VMT), respectively, since 2001. Both rates have experienced declines since 2006 and 2004, respectively. The rate of fatal fatalities has declined more significantly, while the rate of serious injuries has experienced an uptick in the past two years.

Where are collisions occurring?

According to our most recent year of data (2016), most collisions (80 percent) are occurring in urban areas, and nearly 60 percent of all fatal and serious injury collisions are occurring in urban areas.

Riverside County includes an extensive roadway network consisting of 621 highway centerline miles, 2,479 arterial centerline miles, and 5,257 local road centerline miles. Local roads account for 63 percent of all roadways in terms of mileage within Riverside County.

Nearly 60 percent of all collisions are occurring on local streets, 29 percent are occurring on highways, and the rest on major arterials. About half (52 percent) of all fatal collisions are occurring on local roads, while about a quarter are occurring on highways and major arterials, respectively. More than half (56 percent) of serious injury collisions are occurring on local roads, while a quarter (25 percent) are occurring on highways and 18 percent are occurring on major arterials. For the most recent year of data (2014), all of the bicycle fatalities occurred on local streets and the majority of pedestrian fatalities (70 percent) occurred on local streets. Meanwhile, the overwhelming majority of bicycle serious injuries (83 percent) and pedestrian serious injuries (79 percent) occurred on local streets

When are collisions occurring?

Most collisions are occurring during the evening commute period on weekdays, peaking around 6 pm and between 3-6 pm on weekends, as shown in **Figure 9**. Collisions tend to be lowest on Sundays as shown in **Figure 10**.

For our most recent year of data (2016), on average, about 870 collisions occur each month as shown in **Figure 11**, and of these, about 20 are fatal collisions and 55 are serious injury collisions.

Who is being hurt?

Walking or bicycling collisions account for about 18 percent of all fatal and serious injury collisions. To put this figure in context, about 11 percent of all daily trips are made via walking or biking.

Motorcyclists account for about 11 percent of all fatalities over the past decade. Unfortunately, motorcycle serious injuries have continued to increase in Riverside County and are now at the highest point they have been at in more than a decade (166 serious injuries in 2016).

In any given year the number of collisions involved with trains is very low. For example, over the course of more than a decade (2001-2016), 50 train-related collisions occurred, of which 11 resulted in fatalities and 6 in serious injuries.

Truck-involved collisions are more frequent, but also low in number. For example, over the course of more than a decade (2001-2016), 7,481 collisions occurred involving trucks (about 5 percent of all collisions), and of these, 311 resulted in fatalities and 533 resulted in serious injuries, or in other words, about 11 percent of all truck-involved collisions result in death or serious injury.

According to our most recent year of data (2016), 41 percent of all traffic collision victims are between the ages of 18 to 34, though this age group makes up about 24 percent of the county's population. About 11 percent of all traffic collision victims are under the age of 18 (about 27 percent of the county's population), and 10 percent of all traffic collision victims are 65 and older (about 13 percent of the county's population).

According to our most recent year of data (2016), men and women appear to be involved in collisions at equal rates, though women are more often passengers in collisions (63 percent), while men are more often involved in collisions as drivers (53 percent), pedestrians (61 percent), or bicyclists (84 percent). Men are also more often involved in fatal collisions (75 percent) and serious injury collisions (67 percent).

Why are collisions occurring?

Maps 5-8 reflect the top three contributing factors of 2014 (our most recent year of complete geocoded data) for all fatal and serious collisions, and bicycle- and pedestrian-involved fatal and serious collisions.

THE TOP THREE CONTRIBUTING FACTORS FOR ALL COLLISIONS



THE TOP THREE CONTRIBUTING FACTORS FOR FATAL COLLISIONS



THE TOP THREE CONTRIBUTING FACTORS FOR SERIOUS INJURIES

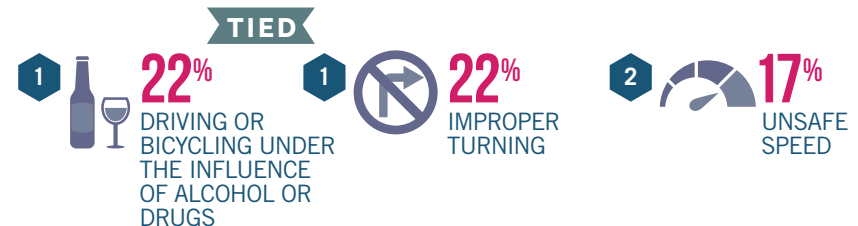


Figure 1: Riverside County Total Number of Fatal Victims



Figure 2: Riverside County Total Number of Serious Injury Victims



Figure 3: Riverside County Total Number of Pedestrian Fatal and Serious Injury Victims

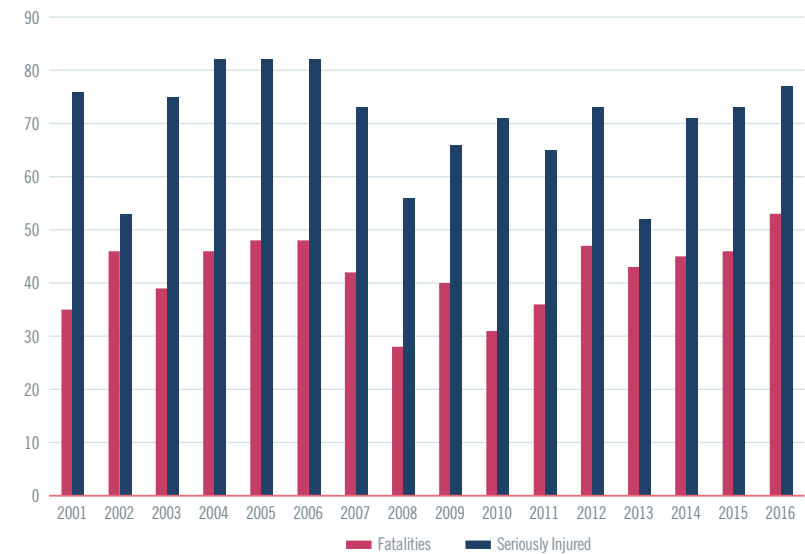


Figure 4: Riverside County Total Number of Bicyclist Fatal and Serious Injury Victims

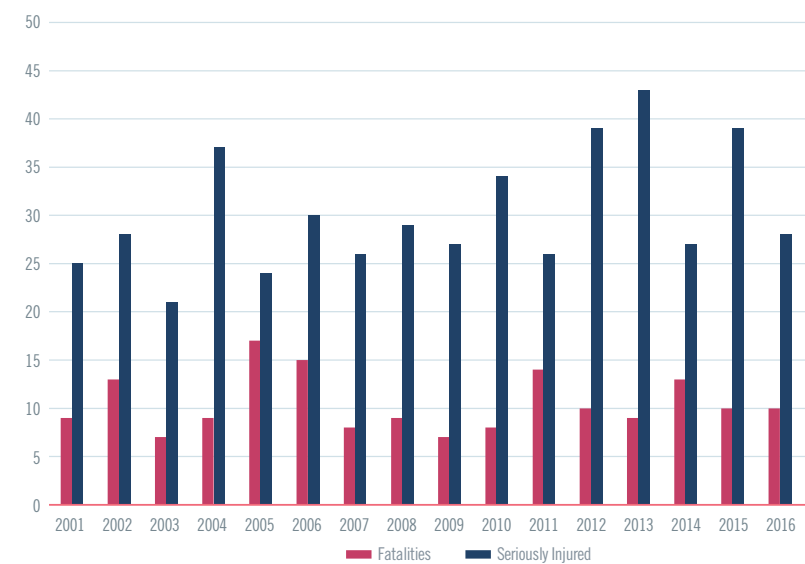


Figure 5: Riverside County Fatal Victims per 1,000 Population



Figure 7: Riverside County Fatal Victims per 100M VMT



Figure 6: Riverside County Serious Injury Victims per 1,000 Population



Figure 8: Riverside County Serious Injury Victims per 100M VMT

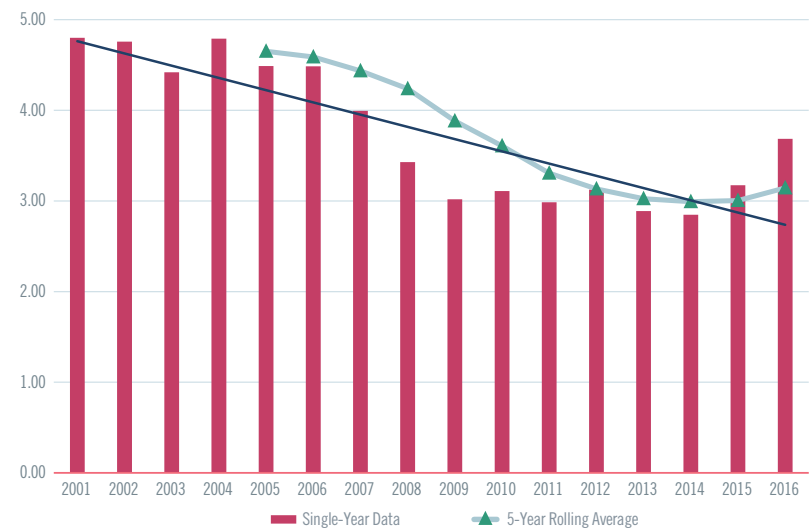


Figure 9: Riverside County Collisions by Time of Day (2016)

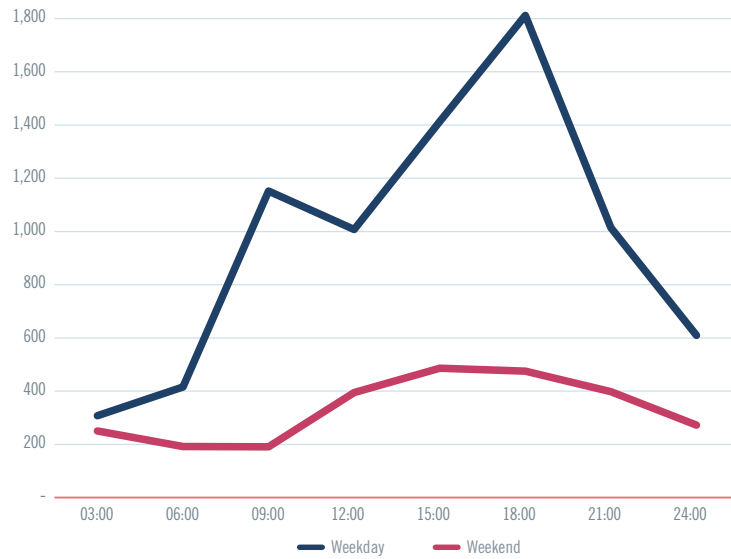


Figure 11: Riverside County Collisions by Month (2016)

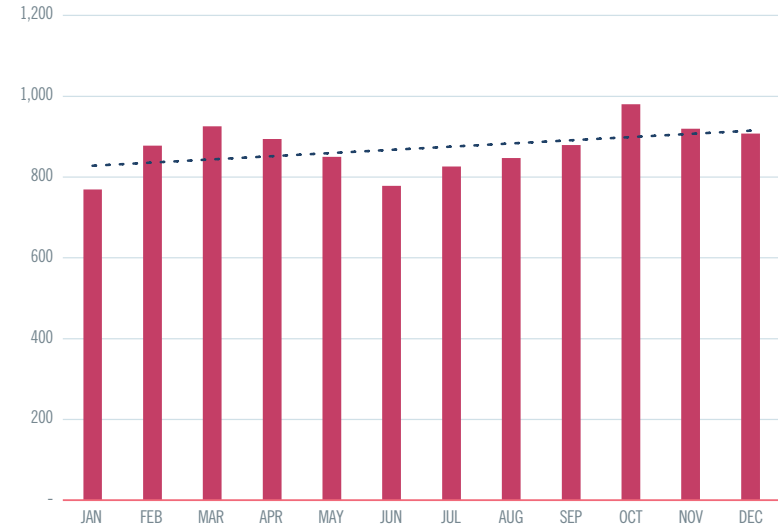
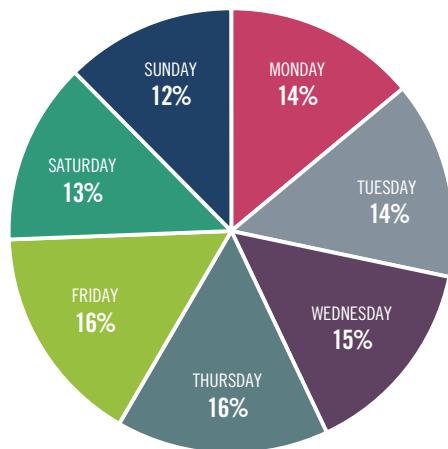
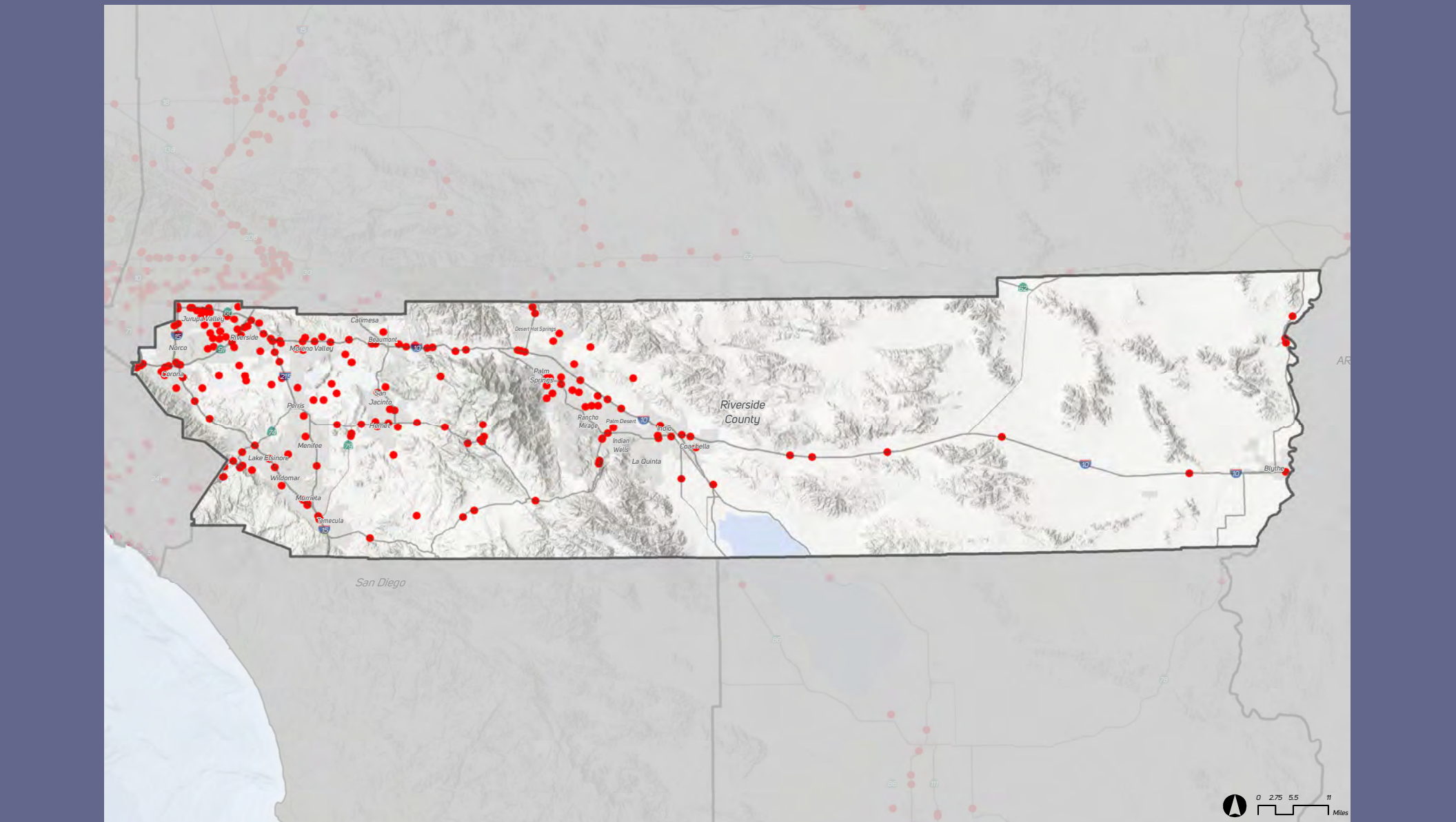


Figure 10: Riverside County Collisions by Day of the Week (2016)



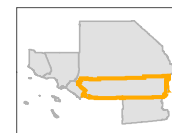
© 2010 Blackwell Publishing Ltd *Journal of Internal Medicine* 267: 105–114



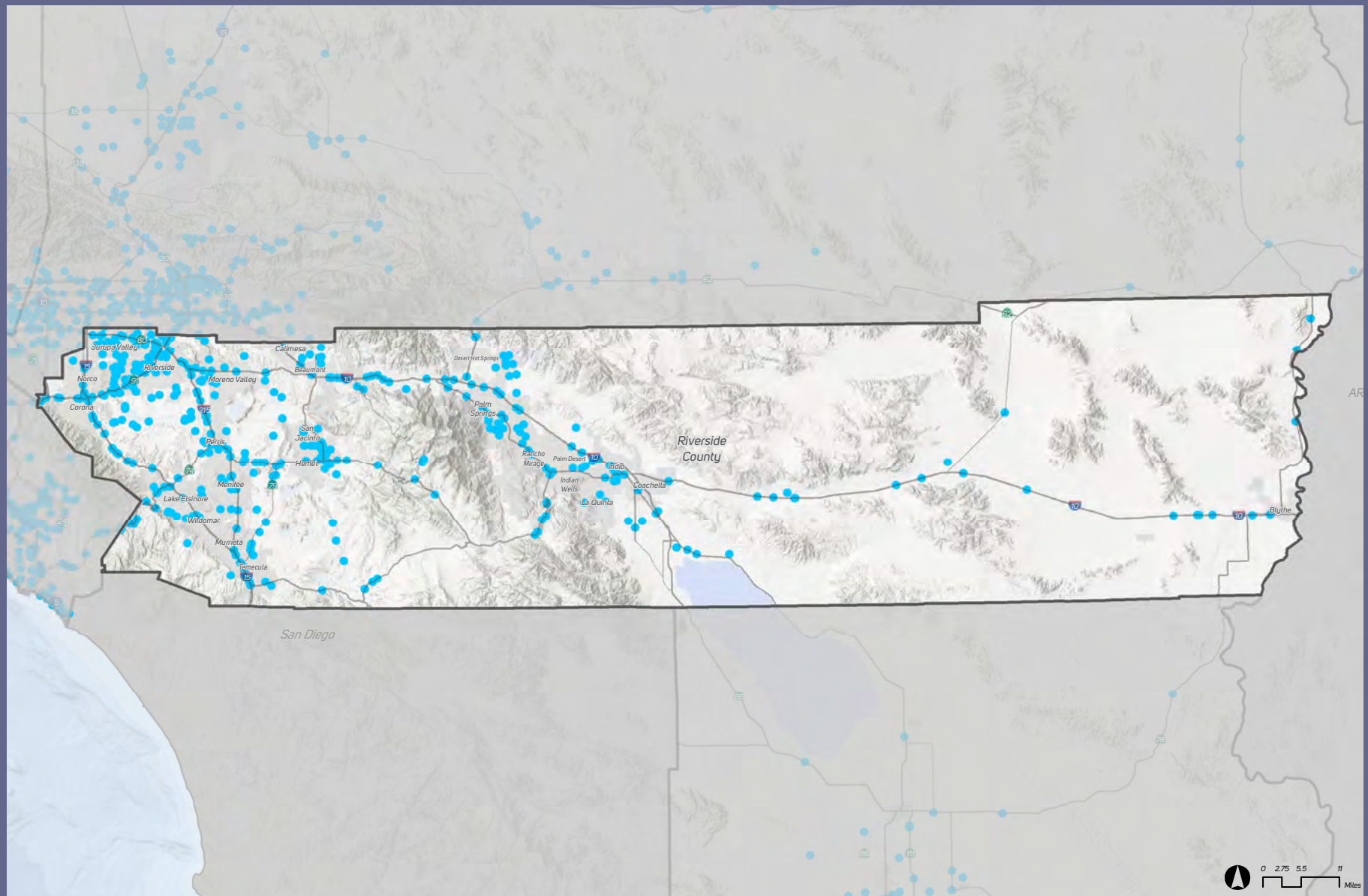
 County Boundaries  City Boundaries 2014 Fatal Collisions

Note: Each dot represents one collision.

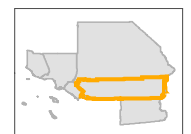
(Source: SWITRS and SCAG, 2017)



Map 2: Riverside County, 2014 Serious Injury Collisions

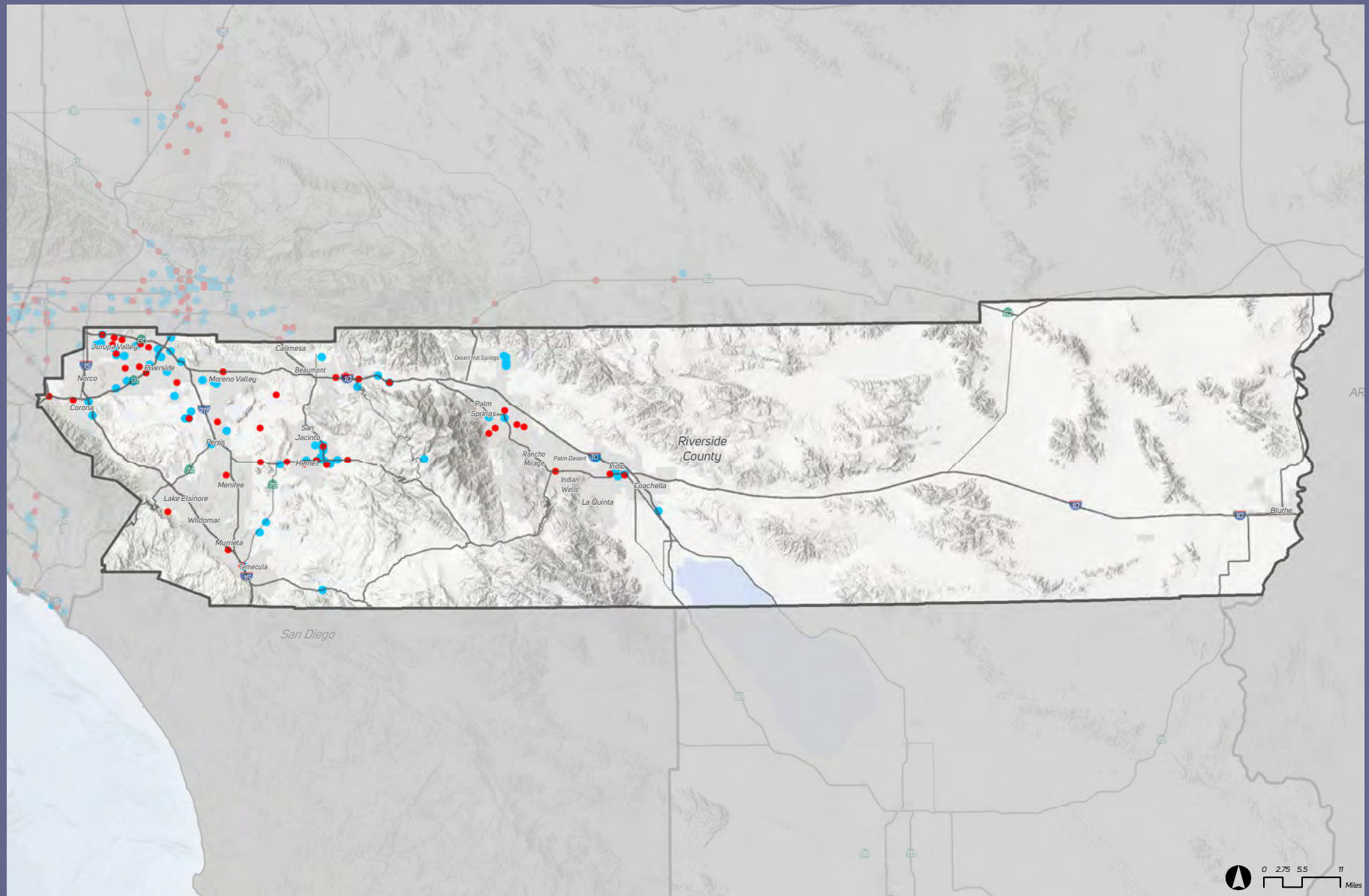


County Boundaries City Boundaries 2014 Serious Injury Collisions

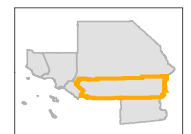


(Source: SWITRS and SCAG, 2017)

Map 3: Riverside County, 2014 Pedestrian-Involved Fatal and Serious Injury Collisions

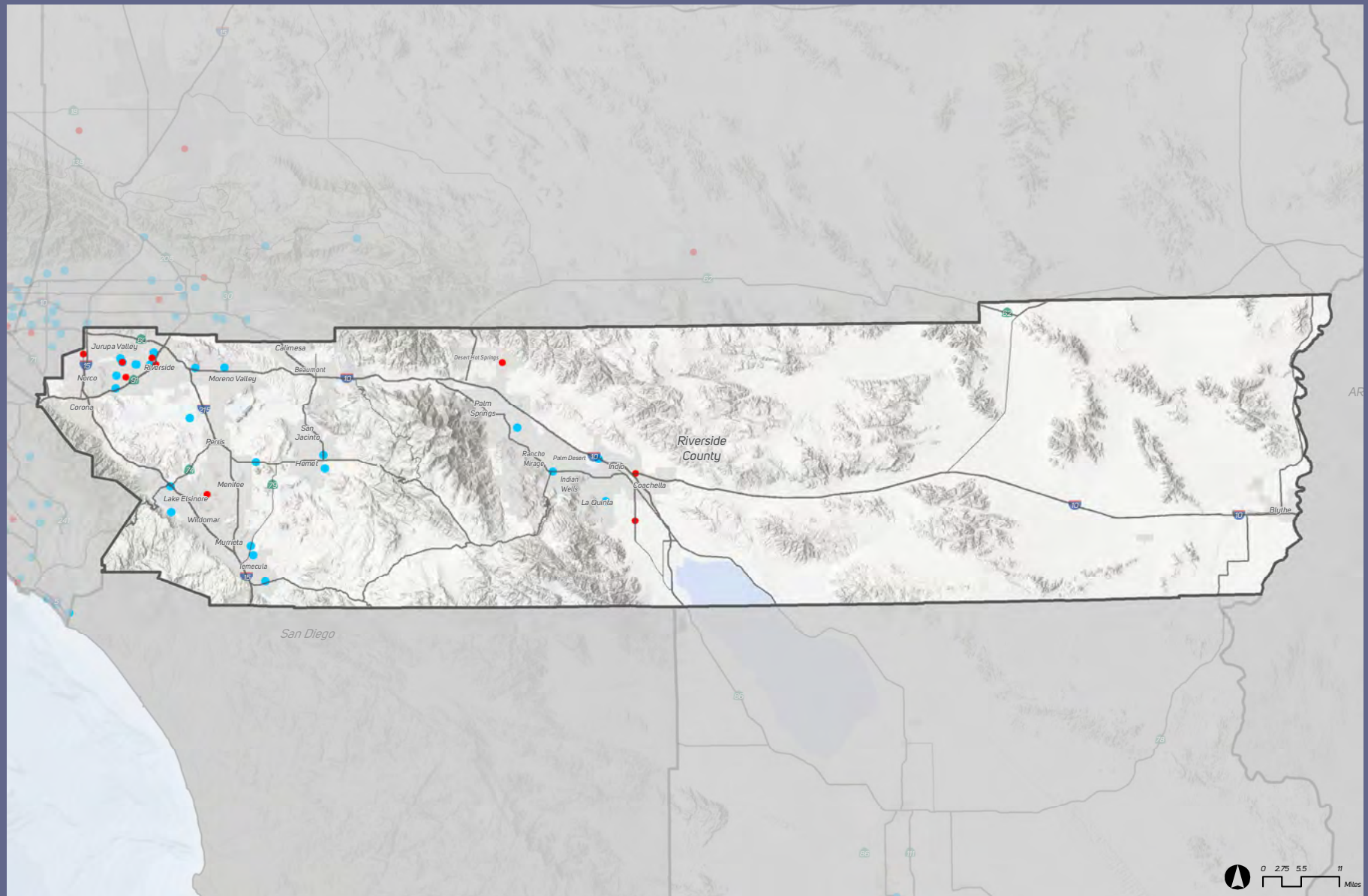


County Boundaries
 City Boundaries
 ● 2014 Pedestrian-Involved Serious Injury Collisions
 ● 2014 Pedestrian-Involved Fatal Collisions

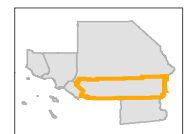


(Source: SWITRS and SCAG, 2017)

Map 4: Riverside County, 2014 Bicycle-Involved Fatal and Serious Injury Collisions

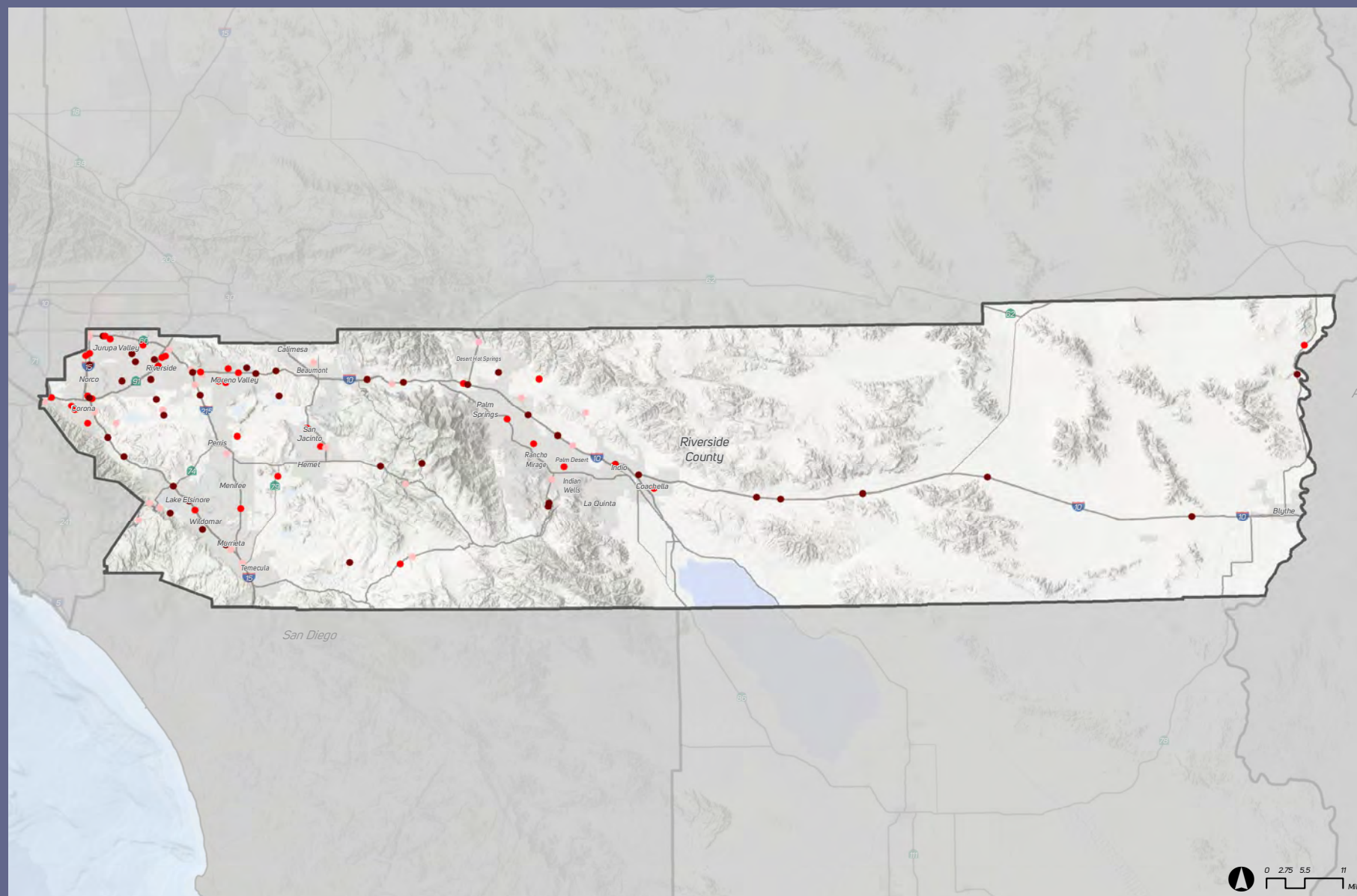


County Boundaries
 City Boundaries
 ● 2014 Bicycle-Involved Serious Injury Collisions
 ● 2014 Bicycle-Involved Fatal Collisions



(Source: SWTRIS and SCAG, 2017)

Map 5: 2014 Top 3 Violation Categories of Fatal Collisions in Riverside County



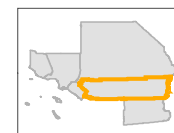
Administrative Boundaries

- County Boundaries
- City Boundaries

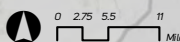
(Source: SWITRS, TIMS, and SCAG)

Top 3 Violation Categories of 2014 Fatal Collisions

- Improper Turning (Top 1)
- Driving or Bicycling Under the Influence of Alcohol or Drug (Top 2)
- Unsafe Speed (Top 3)



Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Population (millions)	7.7	7.9	8.1	8.3	8.5	8.7	8.9	9.1	9.3	9.5	9.7	9.9	10.1	10.3	10.5	10.7	10.9	11.1	11.3	11.5	11.7
GDP (trillion USD)	1.2	1.3	1.4	1.5	1.6	1.7	1.8	1.9	2.0	2.1	2.2	2.3	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.2
Urban population (millions)	4.5	4.7	4.9	5.1	5.3	5.5	5.7	5.9	6.1	6.3	6.5	6.7	6.9	7.1	7.3	7.5	7.7	7.9	8.1	8.3	8.5
Urban population (% of total)	58.3	59.5	60.4	61.3	62.2	63.1	64.0	64.9	65.8	66.7	67.6	68.5	69.4	70.3	71.2	72.1	73.0	73.9	74.8	75.7	76.6
Urban population (millions, 2020)	6.5	6.7	6.9	7.1	7.3	7.5	7.7	7.9	8.1	8.3	8.5	8.7	8.9	9.1	9.3	9.5	9.7	9.9	10.1	10.3	10.5
Urban population (% of total, 2020)	67.4	68.5	69.4	70.3	71.2	72.1	73.0	73.9	74.8	75.7	76.6	77.5	78.4	79.3	80.2	81.1	82.0	82.9	83.8	84.7	85.6
Urban population (millions, 2030)	10.5	10.7	10.9	11.1	11.3	11.5	11.7	11.9	12.1	12.3	12.5	12.7	12.9	13.1	13.3	13.5	13.7	13.9	14.1	14.3	14.5
Urban population (% of total, 2030)	68.8	69.9	70.8	71.7	72.6	73.5	74.4	75.3	76.2	77.1	78.0	78.9	79.8	80.7	81.6	82.5	83.4	84.3	85.2	86.1	87.0



Top 3 Violation Categories of 2014 Serious Injury Collisions

- *Driving or Bicycling Under the Influence of Alcohol or Drug (Top 1)*
- *Improper Turning (Top 2)*
- *Unsafe Speed (Top 3)*

Administrative Boundaries

- County Boundaries
- City Boundaries

(Source: SWITRS, TIMS, and SCAG)

Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Fatal Collisions in Riverside County

- Pedestrian Violation (Top 1)
- Driving or Bicycling Under the Influence of Alcohol or Drug (Top 2)*
- Improper Turning (Top 2)*
- Unsafe Speed (Top 3)*
- Traffic Signals and Signs (Top 3)*

* Number of collisions is equal for Top 2 and Top 3 violation categories.

 County Boundaries

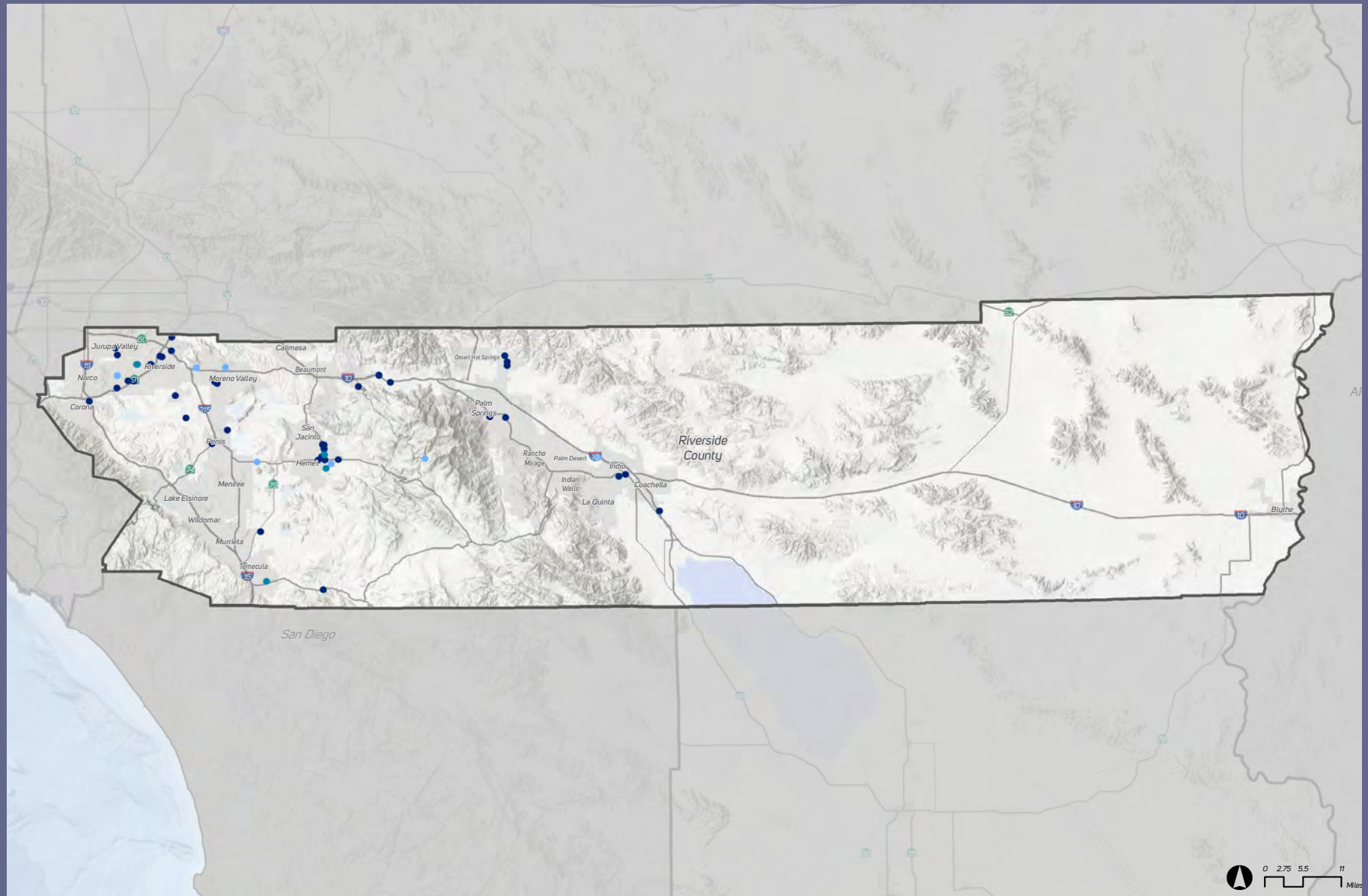
 City Boundaries

(Source: SWITRS, TIMS, and SCAG)

- *Pedestrian Violation (Top 1)*
- *Driving or Bicycling Under the Influence of Alcohol or Drug (Top 2)**

- *Improper Turning (Top 2)**
 - *Unsafe Speed (Top 3)**
 - *Traffic Signals and Signs (Top 3)**
- * Number of collisions is equal for Top 2 and Top 3 violation categories.

Map 8: Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Serious Injury Collisions in Riverside County



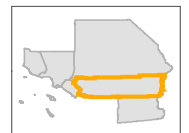
Administrative Boundaries
 County Boundaries
 City Boundaries

Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Serious Injury Collisions in Riverside County

- Pedestrian Violation (Top 1)

- Traffic Signals and Signs (Top 2)
- Improper Turning (Top 3)

(Source: SWITRS, TIMS, and SCAG)



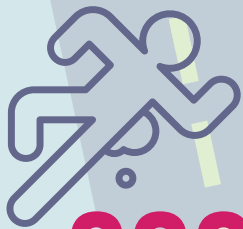


SAN BERNARDINO COUNTY

San Bernardino County borders the counties of Inyo (north), Kern (northwest), Los Angeles (west), Orange (southwest), and Riverside (south). It contains 20,056 square miles of land, making it the largest county in the region. Approximately 2.1 million people call it home. Residents of San Bernardino County drive on average 10,700 miles each year.

SAN BERNARDINO COUNTY

BY THE NUMBERS



300

PEOPLE DIE
EVERY YEAR
FROM COLLISIONS

740

PEOPLE SUSTAIN SERIOUS INJURIES
EVERY YEAR FROM COLLISIONS

14,000

PEOPLE SUSTAIN INJURIES
EVERY YEAR FROM COLLISIONS



26

COLLISIONS OCCUR PER DAY
ON THE STREETS

THAT IS ROUGHLY

9,300

PER YEAR



20%

OF ALL DEATHS INVOLVE
PEOPLE WALKING OR BICYCLING



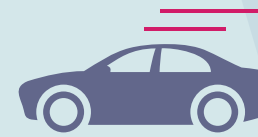
42%

OF ALL TRAFFIC COLLISION
VICTIMS ARE PEOPLE 18-34



57%

OF ALL
COLLISIONS
OCCUR ON LOCAL ROADS



30%

OF ALL COLLISIONS
OCCUR ON HIGHWAYS

10,700

ANNUAL VEHICLE MILES
TRAVELED PER CAPITA

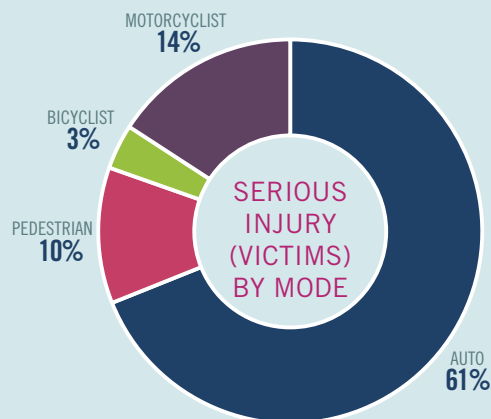
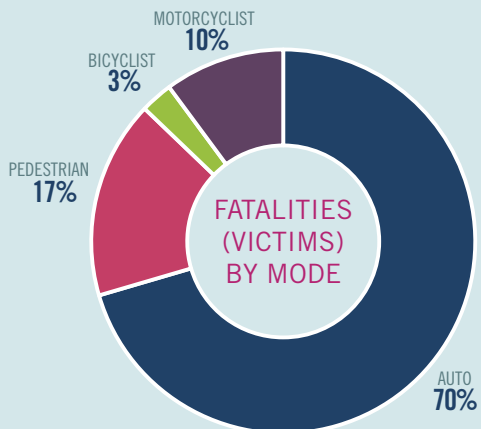
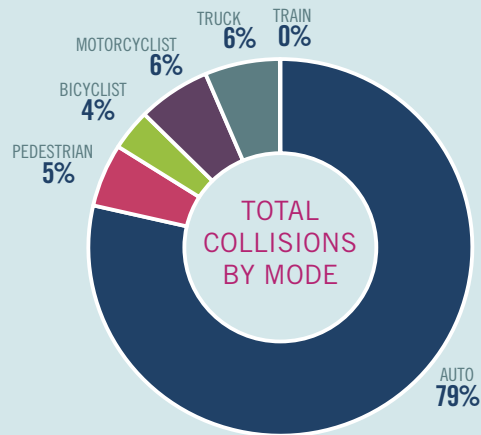
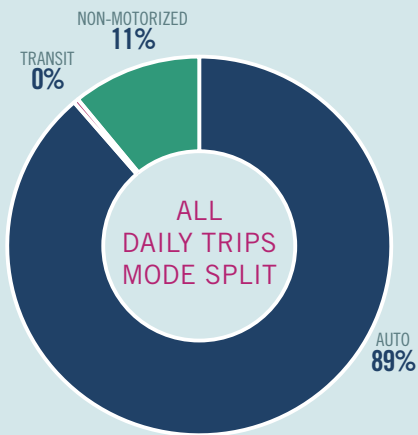


80%

OF ALL COLLISIONS
OCCUR IN URBAN
AREAS



PEOPLE WALKING AND BICYCLING ARE OVER-REPRESENTED AMONG TRAFFIC DEATHS COMPARED TO THEIR TOTAL MODE SHARE.



Why are collisions occurring?

The top contributing factor of all collisions is unsafe speed.



Speed is the critical factor in the severity of collisions

HIT BY A VEHICLE TRAVELING AT 25 MPH



9 out of 10 pedestrians survive

HIT BY A VEHICLE TRAVELING AT 50 MPH



2.5 out of 10 pedestrians survive



What are the overall trends?

San Bernardino County has experienced reductions in traffic-related fatalities and serious injuries over more than the past decade, though there has been an uptick in serious injuries over the past couple of years. On average, 300 people die in traffic collisions, 740 are seriously injured, and 14,000 people are injured each year in San Bernardino County. **Figures 1 and 2** show the total number of fatal and seriously injured victims since 2001, respectively, and the overall downward trend. About 80 percent of those killed were in vehicles or on motorcycles, while the remaining 20 percent were walking or bicycling.

Since 2005/6, there has been an overall downward trend in the total number of fatal and serious injury collisions. Fatal collisions have declined 34 percent, from a high of 361 in 2005 to 240 in 2016, our most recent year of data. **Map 1** reflects all fatal collisions occurring in San Bernardino County in 2014 (our most recent year of complete geocoded data). Similarly, serious injury collisions have declined 12 percent, from a high of 711 in 2006 to 627 in 2016. **Map 2** reflects all serious injury collisions occurring in San Bernardino County in 2014. Please note, total collisions does not equal total victims since multiple people can be involved in any one collision.

Of the roughly 270 fatal collisions, about 60, or 22 percent, are active transportation collisions, and though the fatality trend is one of overall decline, the numbers of active transportation fatalities have remained consistent. With that said, pedestrian fatalities have increased slightly each year since 2011.

Of the roughly 580 serious injury collisions, about 90, or about 16 percent, are active transportation collisions, and though the serious injury trend is one of overall decline (with an uptick only in the past two years), the numbers of active transportation serious injuries have held fairly stable. **Maps 3 and 4** reflect the pedestrian- and bicycle-involved serious injury and fatal collisions occurring in San Bernardino County in 2014.

Figures 3 and 4 show the total number of fatal and seriously injured pedestrians and bicyclists between 2001 and 2016. Pedestrian fatalities peaked in 2014 with 66 fatalities before declining to 59 fatalities in 2016. The low mark was 33 fatalities in 2010. Pedestrians seriously injured peaked in 2006, with 87 seriously injured, compared to a low of 51 in 2013. In 2016, 83

pedestrians were seriously injured.

Bicyclist fatalities peaked in 2003 with 16 bicyclists fatalities, compared to a low of 2 in 2015. There were five bicyclist fatalities in 2016. Bicyclists seriously injured peaked in 2012, with 33 seriously injured, compared to a low of 14 seriously injured in 2007.

Figures 5 and 6 show the historical rates of fatalities and serious injuries per 1,000 people since 2001. The fatality rate has a consistent downward trend, but the serious injury rate experienced an uptick in the past two years. The fatality rate has declined by 45 percent from its peak in 2005 and the serious injury rate has declined by 30 percent from its peak in 2004.

Figures 7 and 8 show the historical rates of fatalities and serious injuries per 100 million vehicle miles traveled (VMT), respectively, since 2001. Both rates have experienced significant declines since 2005 and 2004, respectively. The rate of fatalities per 100 million VMT has declined by 44 percent. Meanwhile the rate of serious injuries per 100 million VMT has declined by 31 percent.

Where are collisions occurring?

According to our most recent year of data (2014), most collisions (about 80 percent) are occurring in urban areas, and 60 percent of all fatal and serious injury collisions are occurring in urban areas.

San Bernardino County includes an extensive roadway network consisting of 1,084 highway centerline miles, 3,574 arterial centerline miles, and 6,560 local road centerline miles. Local roads account for 58 percent of all roadways in terms of mileage within San Bernardino County.

About 57 percent of all collisions are occurring on local streets, 30 percent are occurring on highways, and the rest on major arterials. About half (48 percent) of all fatal collisions are occurring on local roads, while about 36 percent are occurring on highways and 16 percent on major arterials. More than half (54 percent) of serious injury collisions are occurring on local roads, while 29 percent are occurring on highways and 17 percent are occurring on major arterials.

For the most recent year of data (2014), 57 percent of the bicycle fatalities

occurred on local streets and 54 percent of pedestrian fatalities occurred on local streets. Meanwhile, the overwhelming majority of bicycle serious injuries and pedestrian serious injuries occurred on local streets (76 percent for each).

When are collisions occurring?

Most collisions are occurring during the evening commute period on weekdays, peaking around 6 pm and also during the same evening period on weekends, as shown in **Figure 9**. Collisions tend to be lowest on Sundays as shown in **Figure 10**.

For our most recent year of data (2016), on average, about 920 collisions occur each month as shown in **Figure 11**, and of these, about 20 are fatal collisions and 50 are serious injury collisions.

Who is being hurt?

Walking or bicycling collisions account for about 18 percent of all fatal and serious injury collisions. To put this figure in context, about 11 percent of all daily trips are made via walking or biking.

Motorcyclists account for about 12 percent of all fatalities over the past decade. Unfortunately, motorcycle fatalities as well as serious injuries have continued to increase.

In any given year, the number of collisions involved with trains is very low. For example, over the course of more than a decade (2001-2016), 62 train-related collisions occurred, of which 11 resulted in fatalities and 7 in serious injuries.

Truck-involved collisions are more frequent, but also low in number. For example, over the course of more than a decade (2001-20146), more than 10,000 collisions occurred involving trucks (about 6 percent of all collisions), and of these, 500 resulted in fatalities and 724 resulted in serious injuries, or in other words, about 12 percent of all truck-involved collisions result in death or serious injury.

According to our most recent year of data (2016), 42 percent of all traffic collision victims are between the ages of 18 to 34, though this age group

makes up about 26 percent of the county's population. About 12 percent of all traffic collision victims are under the age of 18 (about 28 percent of the county's population), and 8 percent of all traffic collision victims are 65 and older (they make up about 10 percent of the county's population).

Also according to our most recent year of data (2016), men and women appear to be involved in collisions at roughly equal rates, though women are more often passengers in collisions (62 percent), while men are more often involved in collisions as drivers (53 percent), pedestrians (65 percent), or bicyclists (89 percent). Men are also more often involved in fatal collisions (72 percent) and serious injury collisions (66 percent).

Why are collisions occurring?

Maps 5-8 reflect the top three contributing factors of 2014 (our most recent year of complete geocoded data) for all fatal and serious collisions, and bicycle- and pedestrian-involved fatal and serious collisions.

THE TOP THREE CONTRIBUTING FACTORS FOR ALL COLLISIONS



THE TOP THREE CONTRIBUTING FACTORS FOR FATAL COLLISIONS



THE TOP THREE CONTRIBUTING FACTORS FOR SERIOUS INJURIES



Figure 1: San Bernardino County Total Number of Fatal Victims

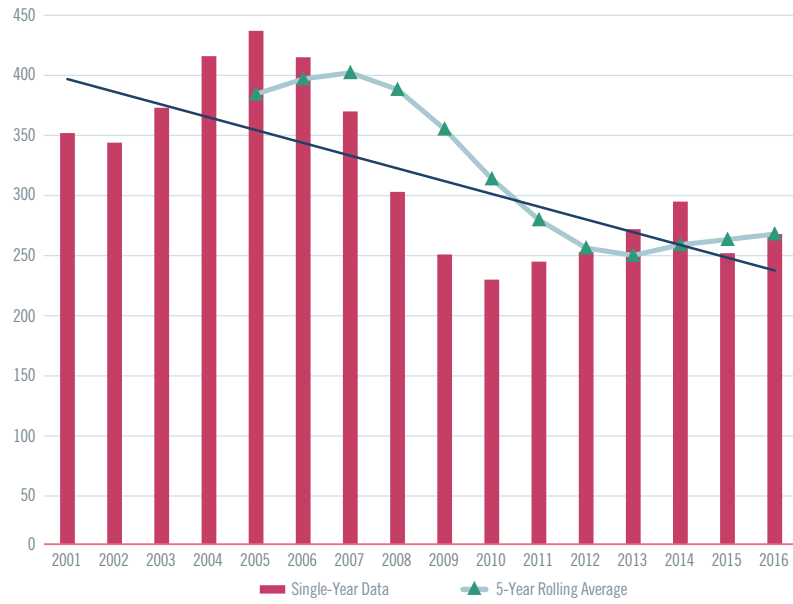


Figure 2: San Bernardino County Total Number of Serious Injury Victims



Figure 3: San Bernardino County Total Number of Pedestrian Fatal and Serious Injury Victims

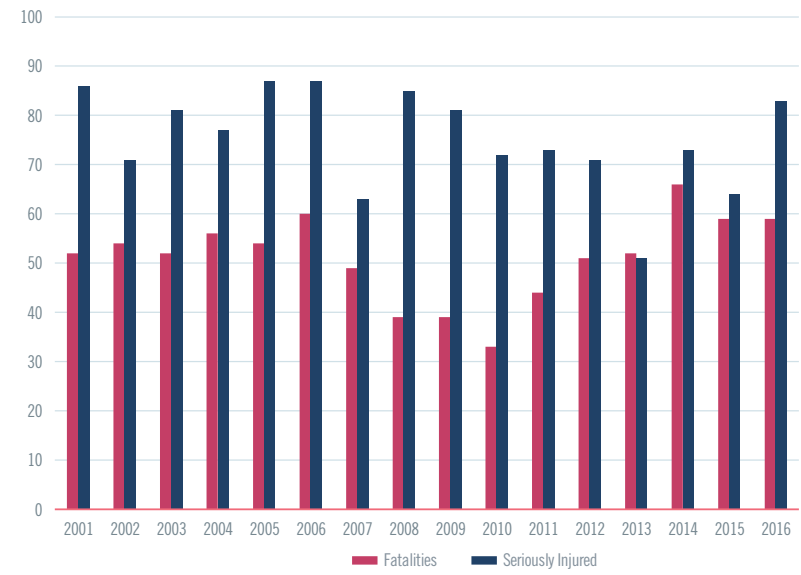


Figure 4: San Bernardino County Total Number of Bicyclist Fatal and Serious Injury Victims

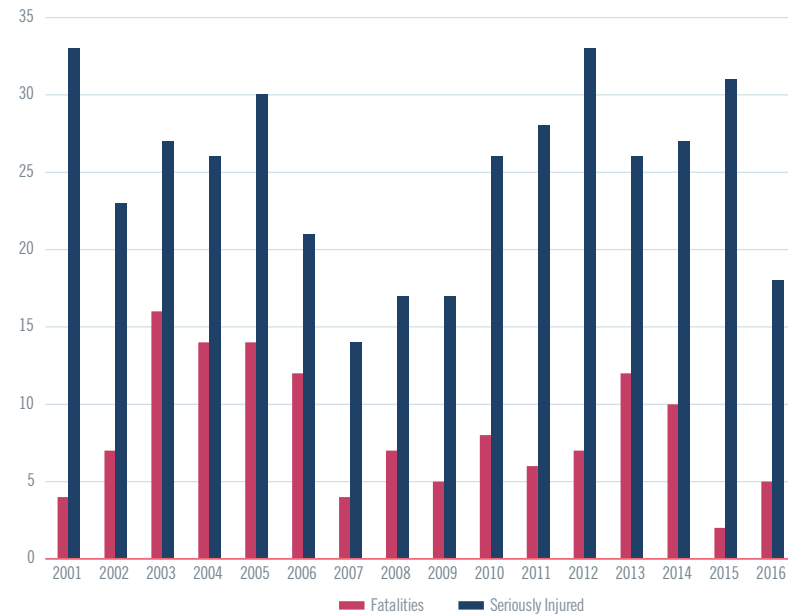


Figure 5: San Bernardino County Fatal Victims per 1,000 Population



Figure 6: San Bernardino County Serious Injury Victims per 1,000 Population

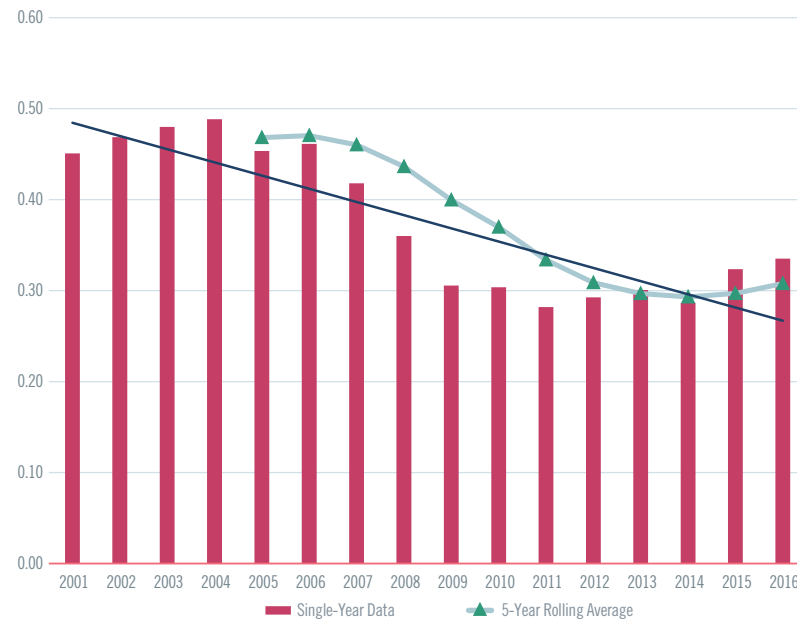


Figure 7: San Bernardino County Fatal Victims per 100M VMT



Figure 8: San Bernardino County Serious Injury Victims per 100M VMT



Figure 9: San Bernardino County Collisions by Time of Day (2016)

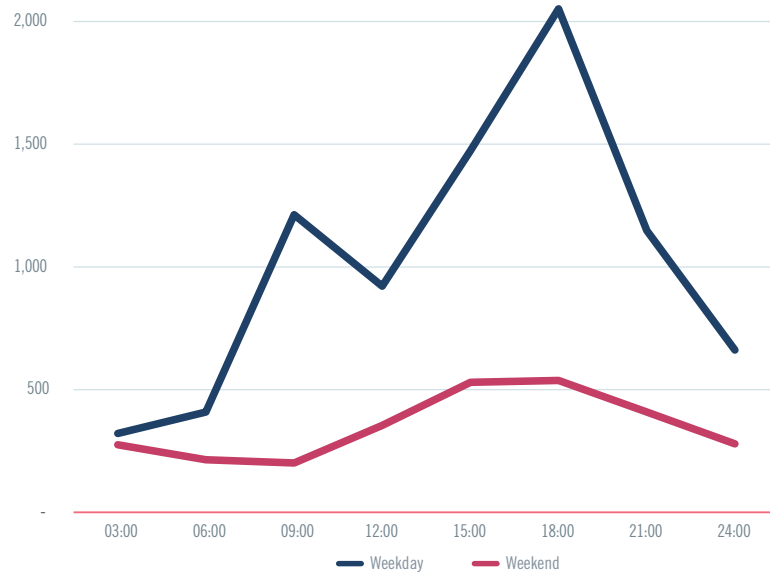


Figure 10: San Bernardino County Collisions by Day of the Week (2016)

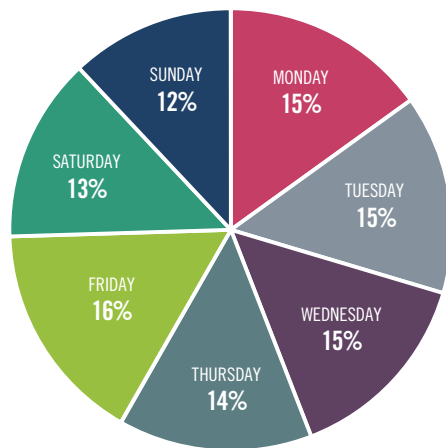
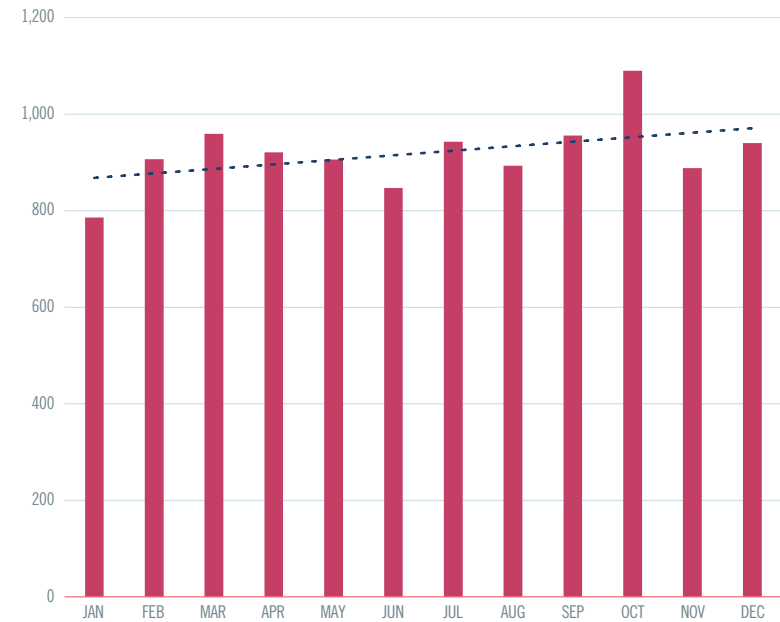
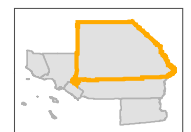


Figure 11: San Bernardino County Collisions by Month (2016)

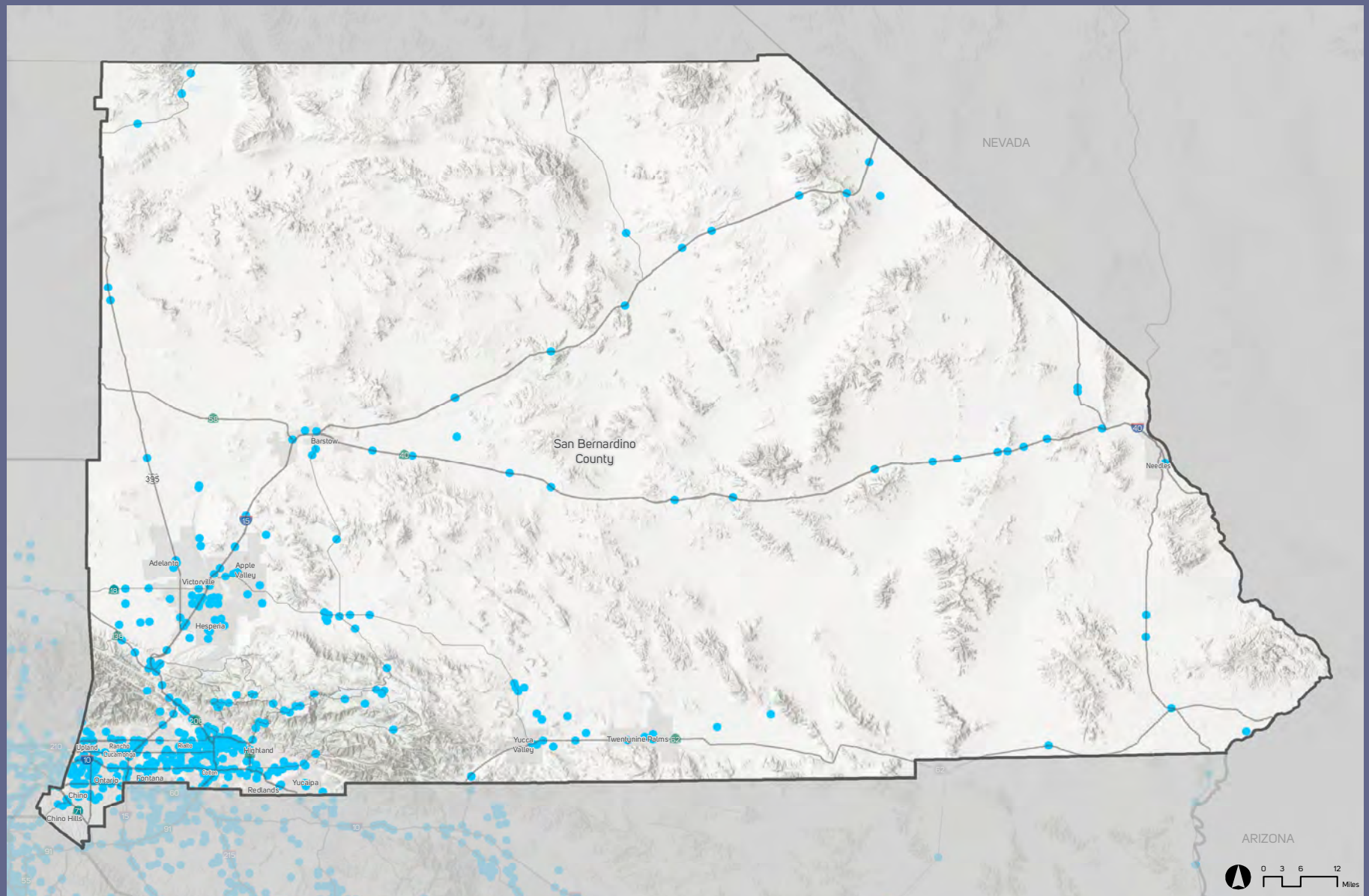




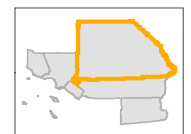
(Source: SWITRS and SCAG, 2017)



Map 2: San Bernardino County, 2014 Serious Injury Collisions

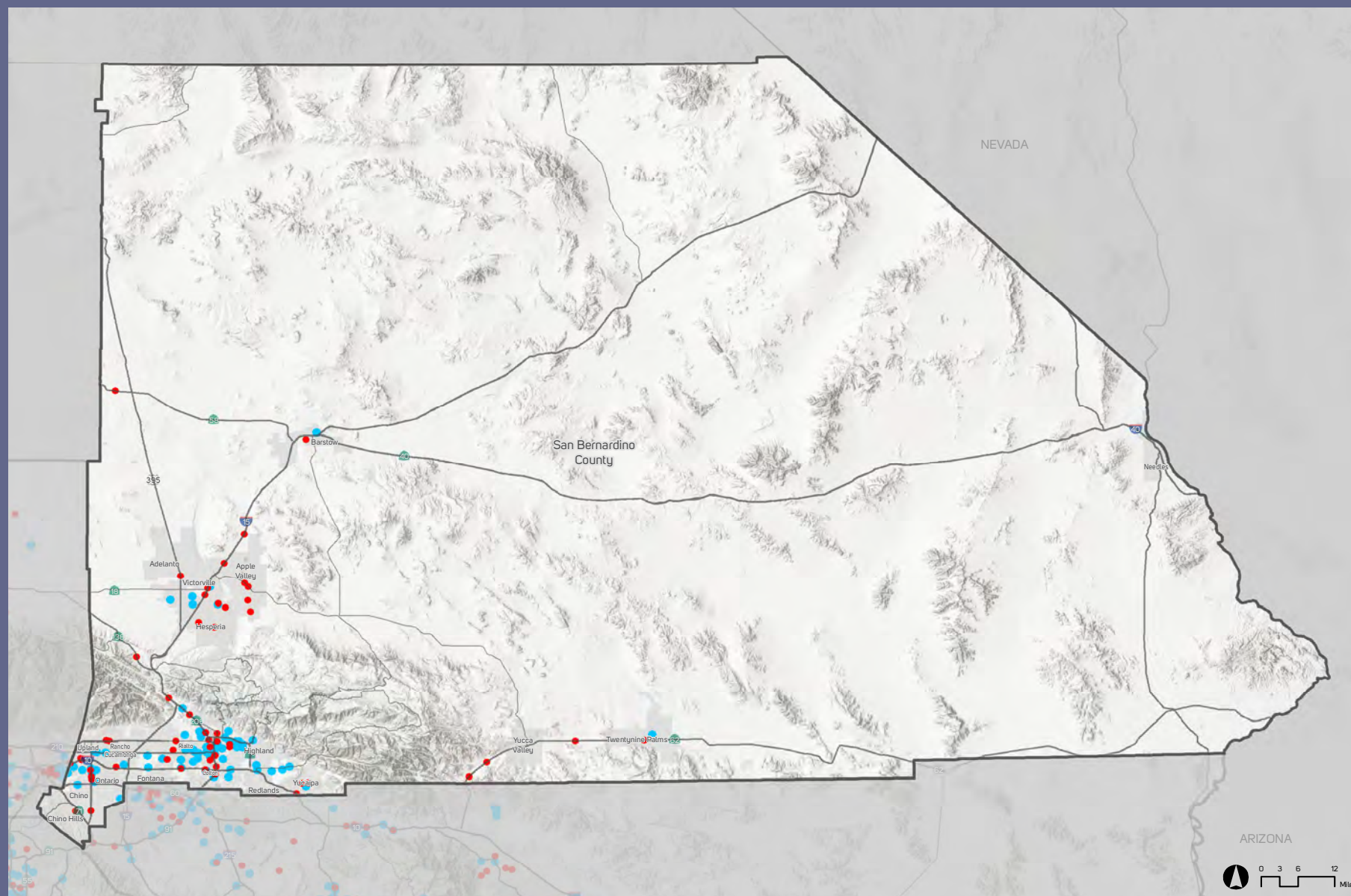


County Boundaries City Boundaries 2014 Serious Injury Collisions

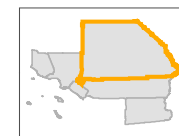


(Source: SWITRS and SCAG, 2017)

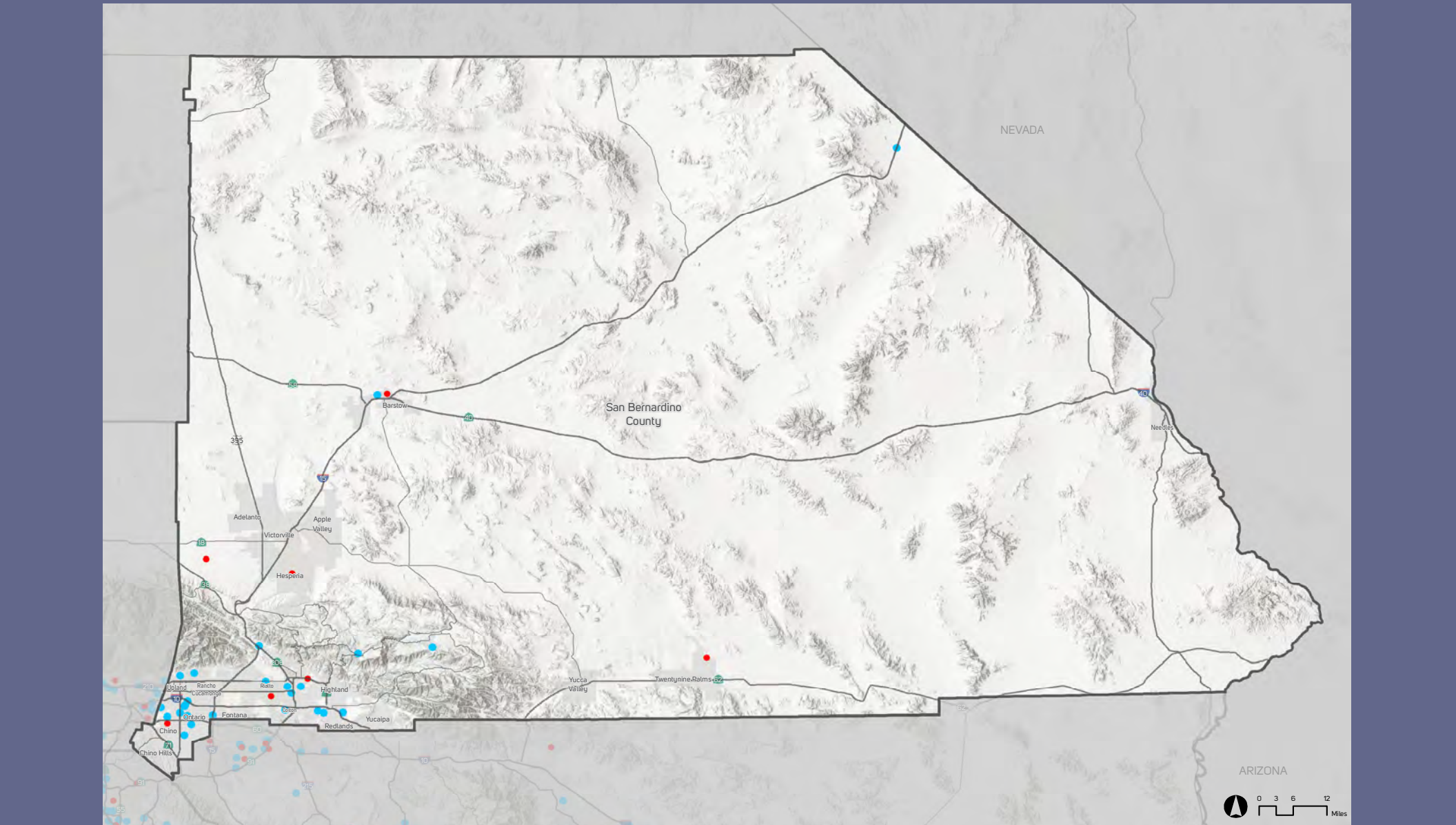
Map 3: San Bernardino County, 2014 Pedestrian-Involved Fatal and Serious Injury Collisions



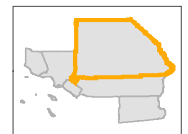
County Boundaries
 City Boundaries
 ● 2014 Pedestrian-Involved Serious Injury Collisions
 ● 2014 Pedestrian-Involved Fatal Collisions



(Source: SWITRS and SCAG, 2017)

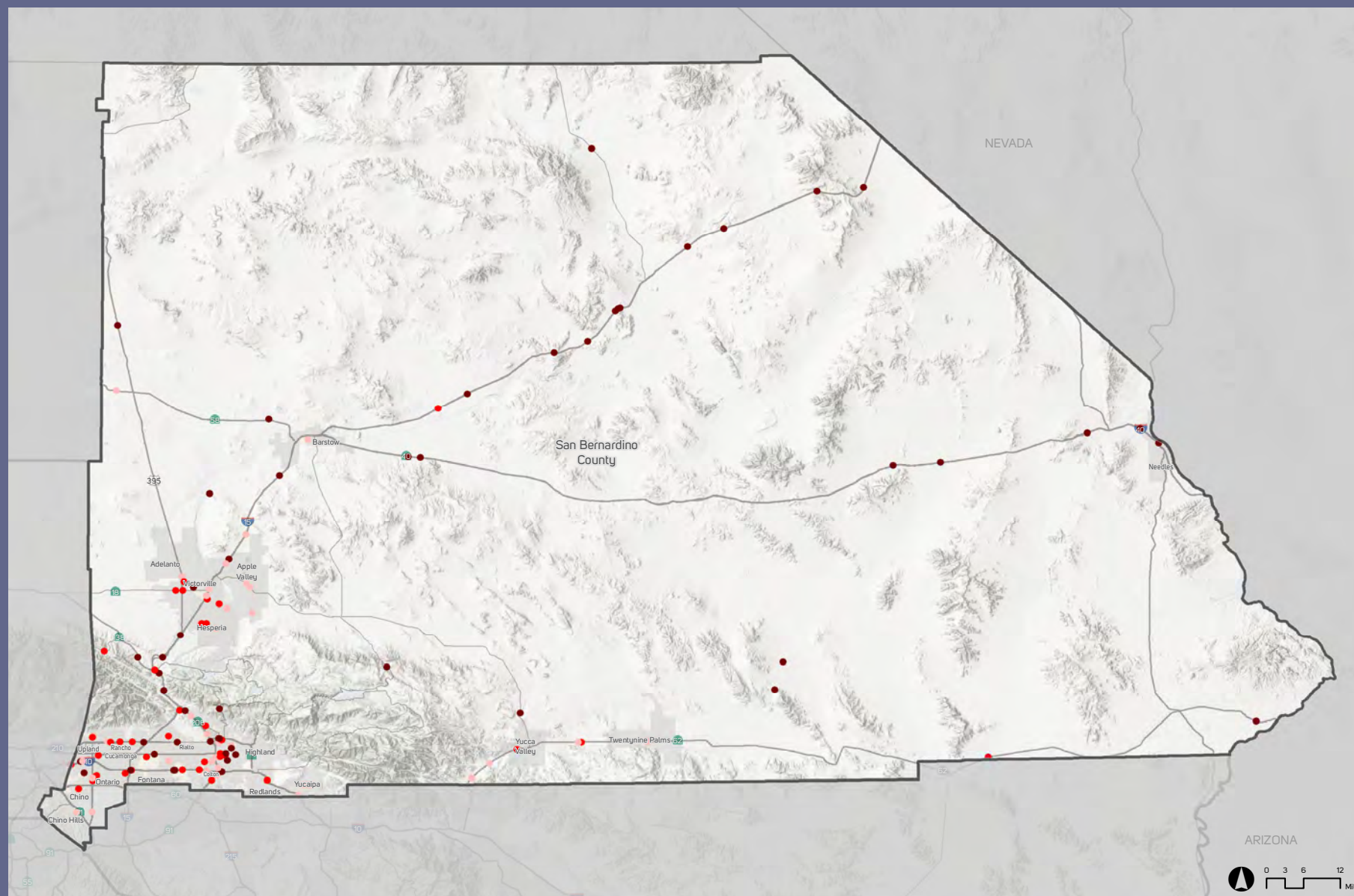


 County Boundaries
  City Boundaries
  2014 Bicycle-Involved Serious Injury Collisions
  2014 Bicycle-Involved Fatal Collisions



(Source: SWITRS and SCAG, 2017)

Map 5: 2014 Top 3 Violation Categories of Fatal Collisions in San Bernardino County



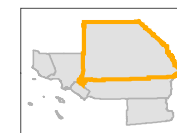
Administrative Boundaries

- County Boundaries
- City Boundaries

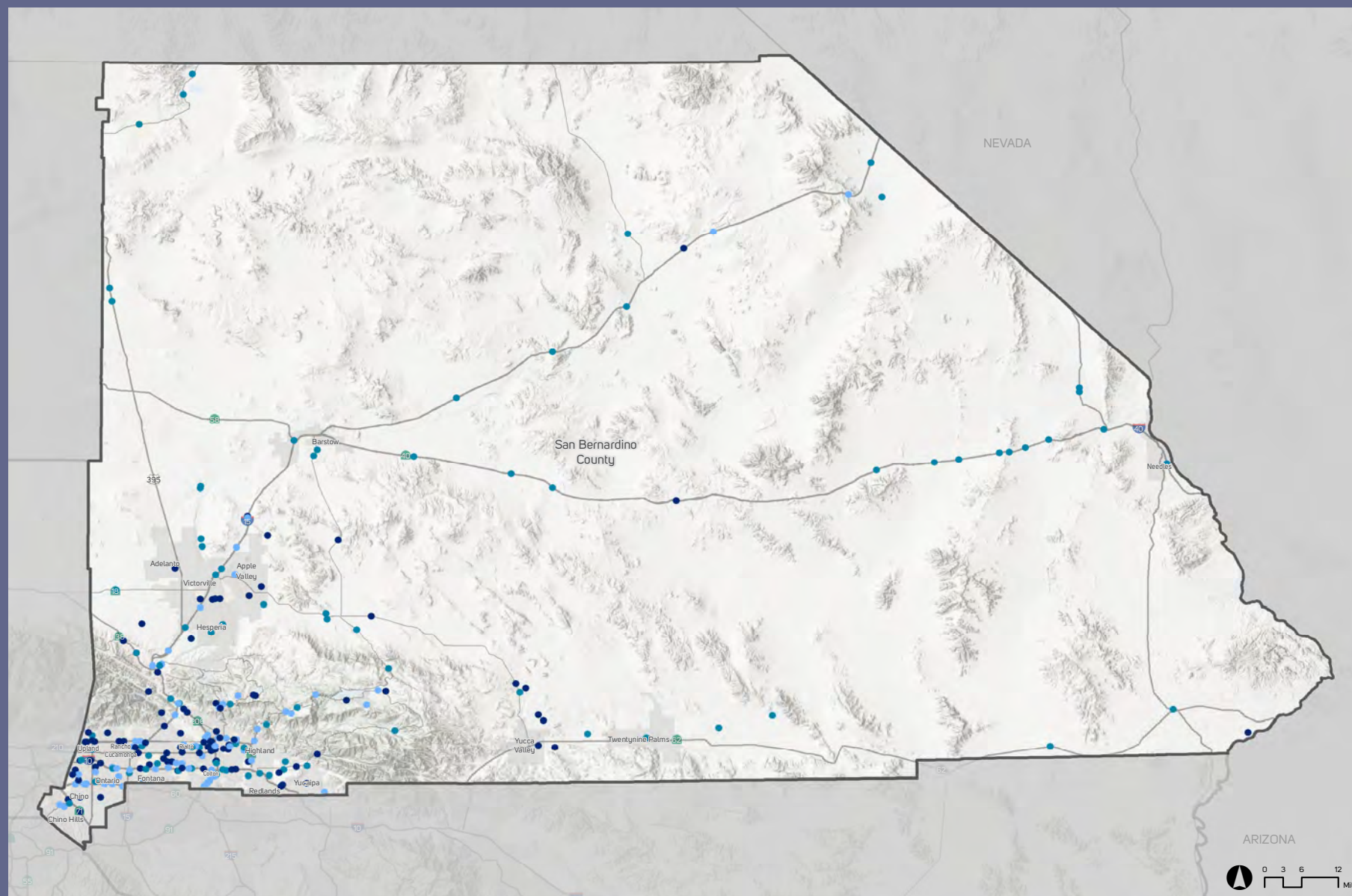
(Source: SWITRS, TIMS, and SCAG)

Top 3 Violation Categories of 2014 Fatal Collisions

- Improper Turning (Top 1)
- Driving or Bicycling Under the Influence of Alcohol or Drug (Top 2)
- Pedestrian Violation (Top 3)



Map 6: 2014 Top 3 Violation Categories of Serious Injury Collisions in San Bernardino County



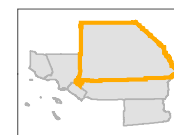
Administrative Boundaries

- County Boundaries
- City Boundaries

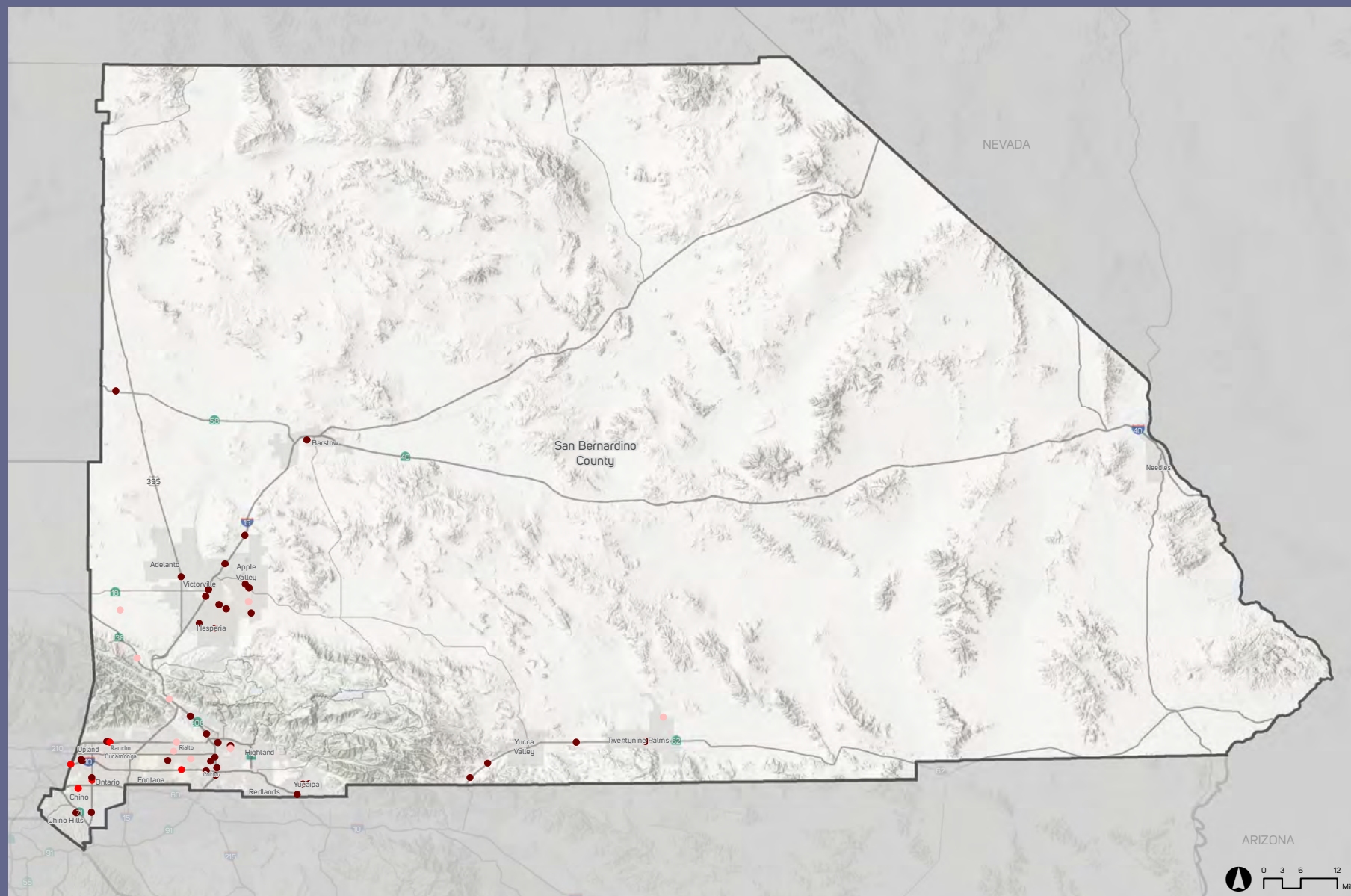
(Source: SWITRS, TIMS, and SCAG)

Top 3 Violation Categories of 2014 Serious Injury Collisions

- Driving or Bicycling Under the Influence of Alcohol or Drug (Top 1)
- Improper Turning (Top 2)
- Unsafe Speed (Top 3)



Map 7: Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Fatal Collisions in San Bernardino County



Administrative
Boundaries

County Boundaries

City Boundaries

(Source: SWITRS, TMS, and SCAG)

Top 3 Violation Categories of 2014 Bicyclist- and
Pedestrian-Involved Fatal Collisions in San Bernardino
County

• Pedestrian Violation (Top 1)

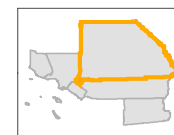
• Driving or Bicycling Under the Influence of Alcohol or Drug (Top 2)

• Improper Turning (Top 3)*

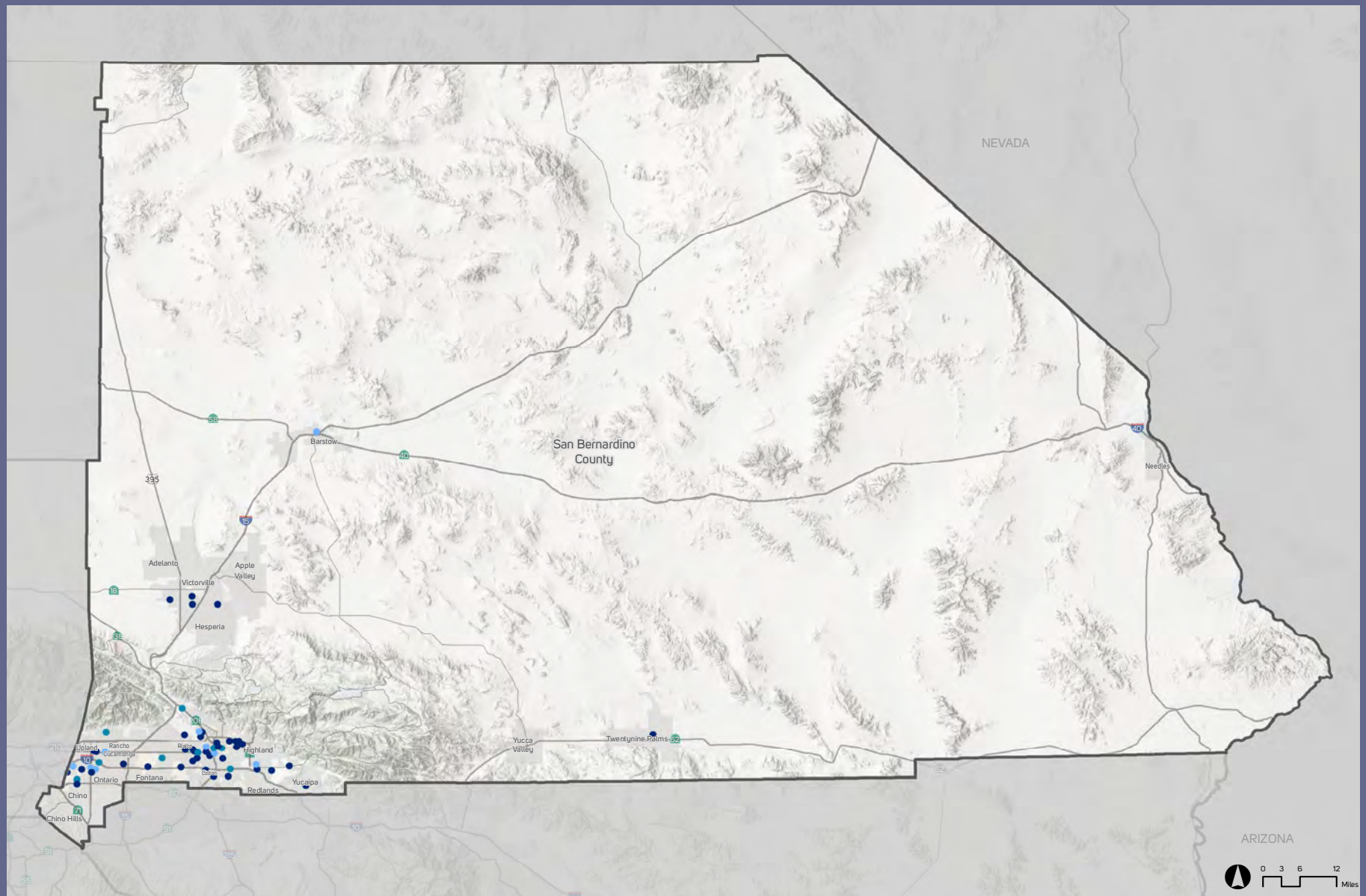
• Wrong Side of Road (Top 3)*

• Unsafe Speed (Top 3)*

* Number of collisions is equal for Top 3 violation categories.



Map 8: Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Serious Injury Collisions in San Bernardino County



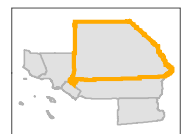
Administrative Boundaries

- County Boundaries
- City Boundaries

Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Serious Injury Collisions in San Bernardino

- Pedestrian Violation (Top 1)
- Driving or Bicycling Under the Influence of Alcohol or Drug (Top 2)
- Pedestrian Right-of-Way (Top 3)

(Source: SWITRS, TIMS, and SCAG)





VENTURA COUNTY

Ventura County borders the counties of Kern (north), Los Angeles (southeast), and Santa Barbara (northwest). Ventura County contains 1,843 square miles of land. Approximately 850,000 people call it home. Residents of Ventura County drive on average 8,360 miles each year.

VENTURA COUNTY

BY THE NUMBERS



65 PEOPLE DIE EVERY YEAR FROM COLLISIONS

260 PEOPLE SUSTAIN SERIOUS INJURIES EVERY YEAR FROM COLLISIONS

5,400 PEOPLE SUSTAIN INJURIES EVERY YEAR FROM COLLISIONS



10 COLLISIONS OCCUR PER DAY ON THE STREETS

THAT IS ROUGHLY **3,800** PER YEAR



20% OF ALL DEATHS INVOLVE PEOPLE WALKING OR BICYCLING

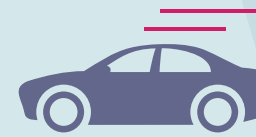


80% OF ALL COLLISIONS OCCUR IN URBAN AREAS



38%

OF ALL TRAFFIC COLLISION VICTIMS ARE PEOPLE 18-34



60%

OF ALL COLLISIONS OCCUR ON LOCAL ROADS



27%

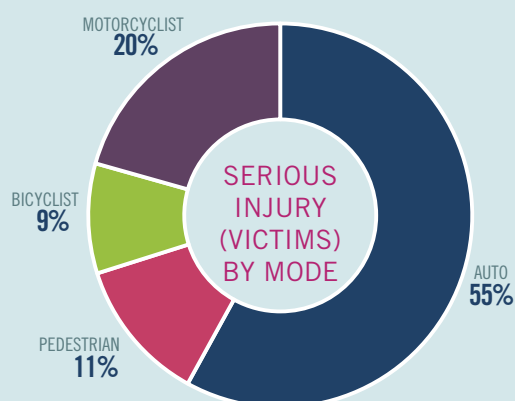
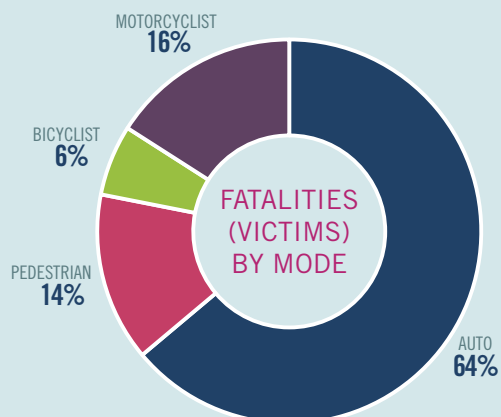
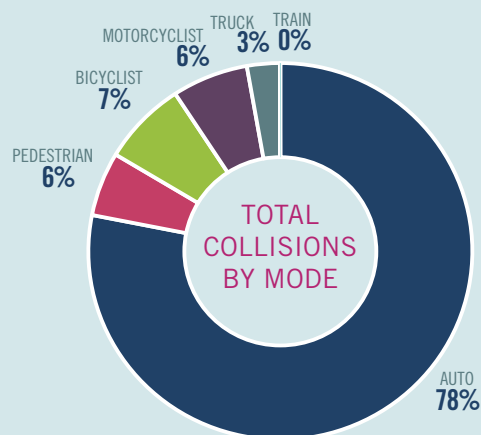
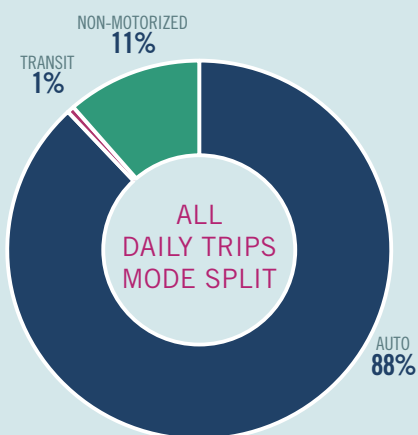
OF ALL COLLISIONS OCCUR ON HIGHWAYS

8,300

ANNUAL VEHICLE MILES TRAVELED PER CAPITA

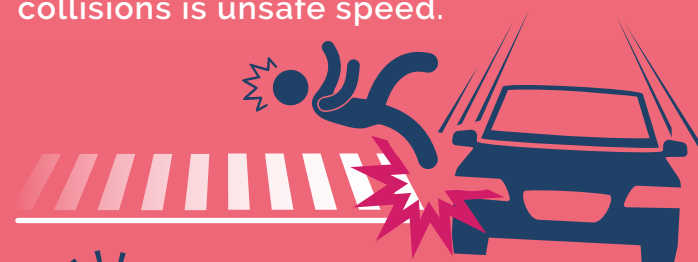


PEOPLE WALKING AND BICYCLING ARE OVER-REPRESENTED AMONG TRAFFIC DEATHS COMPARED TO THEIR TOTAL MODE SHARE.



Why are collisions occurring?

The top contributing factor of all collisions is unsafe speed.



Speed is the critical factor in the severity of collisions

HIT BY A VEHICLE TRAVELING AT 25 MPH



9 out of 10 pedestrians survive

HIT BY A VEHICLE TRAVELING AT 50 MPH



2.5 out of 10 pedestrians survive



What are the overall trends?

Ventura County traffic-related fatalities and serious injuries have not experienced consistent declines over the course of the past decade. On average, 65 people die in traffic collisions, 260 are seriously injured, and 5,400 people are injured each year in Ventura County. **Figures 1 and 2** show the total number of fatal and seriously injured victims since 2001, respectively. About 80 percent of those killed were in vehicles or on motorcycles, while the remaining 20 percent were walking or bicycling.

Each year in Ventura County, there are on average 60 fatal collisions and 222 serious injury collisions. **Map 1** reflects all fatal collisions occurring in Ventura County in 2014 (our most recent year of complete geocoded data). **Map 2** reflects all serious injury collisions occurring in Ventura County in 2014. Please note, total collisions does not equal total victims since multiple people can be involved in any one collision.

Of the 60 fatal collisions, on average, about 13 or 22 percent, are active transportation collisions. Similar to fatal collisions, the number of active transportation fatalities have remained fairly stable. Of the 222 serious injury collisions, about 48, or 22 percent, are active transportation collisions. Similar serious injury collisions, the numbers of active transportation serious injuries have also held fairly stable. **Maps 3 and 4** reflect the pedestrian- and bicycle-involved serious injury and fatal collisions occurring in Ventura County in 2014.

Figures 3 and 4 show the total number of fatal and seriously injured pedestrians and bicyclists between 2001 and 2016. Pedestrian fatalities peaked in 2015 with 12 (same as 2014 and 2011), compared to a low of 5 in 2010. The number of pedestrians seriously injured peaked in 2012, with 46 seriously injured, and has declined each year to 24 seriously injured in 2016. This is compared to the low of 21 in 2005.

Bicyclist fatalities have historically stayed less than 5 per year, with 2 bicyclist fatalities in 2016. This is compared to the low of 1 in 2010, and the high of 11 in 2006. Bicyclists seriously injured declined to a low of 17 in 2016, compared to a high of 27 in 2011.

Figures 5 and 6 show the historical rates of fatalities and serious injuries per 1,000 people since 2001. The rates of fatalities and serious injuries have experienced overall declines.

Figures 7 and 8 show the historical rates of fatalities and serious injuries per 100 million vehicle miles traveled (VMT), respectively, since 2001. Both rates have experienced declines since 2006 and 2005, respectively. The rate of fatalities per 100 million VMT has declined by 30 percent. Meanwhile the rate of serious injuries per 100 million VMT has declined by 34 percent.

Where are collisions occurring?

According to our most recent year of data (2016), most collisions (80 percent) are occurring in urban areas, and about 44 percent of all fatal and 69 percent of all serious injury collisions are occurring in urban areas.

Ventura County includes an extensive roadway network consisting of 316 highway centerline miles, 713 arterial centerline miles, and 1,954 local road centerline miles. Local roads account for 66 percent of all roadways in terms of mileage within Ventura County.

Nearly 60 percent of all collisions are occurring on local streets, 27 percent are occurring on highways, and the rest on major arterials. About half (48 percent) of all fatal collisions are occurring on local roads, while about a quarter are occurring on highways and arterials, respectively.

More than half (58 percent) of serious injury collisions are occurring on local roads, while 21 percent are occurring on highways and 20 percent are occurring on major arterials. For the most recent year of data (2014), the majority of bicycle fatalities (67 percent) and pedestrian fatalities (55 percent) occurred on local streets, and the majority of bicycle serious injuries (83 percent) and pedestrian serious injuries (59 percent) occurred on local roads.

When are collisions occurring?

Most collisions are occurring during the evening commute period on weekdays, peaking around 6 p.m. and also during the same evening period on weekends, as shown in **Figure 9**. Collisions tend to be lowest on Sundays as shown in **Figure 10**.

For our most recent year of data (2016), on average, about 263 collisions occur each month as shown in Figure 11, and of these, about 5 are fatal collisions and 14 are serious injury collisions.

Who is being hurt?

Walking or bicycling collisions account for about 22 percent of all fatal and serious injury collisions. Only about 11 percent of all daily trips are made via walking or biking and so people walking or biking are overrepresented.

Motorcyclists account for about 17 percent of all fatalities, and in 2016, there were a total of 17 fatalities, the highest number in more than a decade.

In any given year, the number of collisions involved with trains is very low. Over the course of more than a decade (2001-2016), 22 train-related collisions occurred, of which 6 resulted in fatalities and 3 in serious injuries.

Truck-involved collisions are more frequent, but also low in number. Over the course of more than a decade (2001-2016), 1,807 collisions occurred involving trucks (about 3 percent of all collisions), and of these, 73 resulted in fatalities and 142 resulted in serious injuries, or in other words, about 12 percent of all truck-involved collisions result in death or serious injury.

According to our most recent year of data (2016), 38 percent of all traffic collision victims are between the ages of 18 to 34, though this age group makes up about 23 percent of the county's population. About 11 percent of all traffic collision victims are under the age of 18 (about 25 percent of the county's population), and 11 percent of all traffic collision victims are 65 and older (they make up about 13 percent of the county's population).

Also according to our most recent year of data (2016), men and women appear to be involved in collisions at equal rates, though women are more often passengers in collisions (64 percent), while men are slightly more often involved in collisions as drivers (51 percent), pedestrians (62 percent), or bicyclists (83 percent). Men are also more often involved in fatal collisions (78 percent) and serious injury collisions (64 percent).

Why are collisions occurring?

Maps 5-8 reflect the top three contributing factors of 2014 (our most recent year of complete geocoded data) for all fatal and serious collisions, and bicycle- and pedestrian-involved fatal and serious collisions.

THE TOP THREE CONTRIBUTING FACTORS FOR ALL COLLISIONS



THE TOP THREE CONTRIBUTING FACTORS FOR FATAL COLLISIONS



THE TOP THREE CONTRIBUTING FACTORS FOR SERIOUS INJURIES



Figure 1: Ventura County Total Number of Fatal Victims

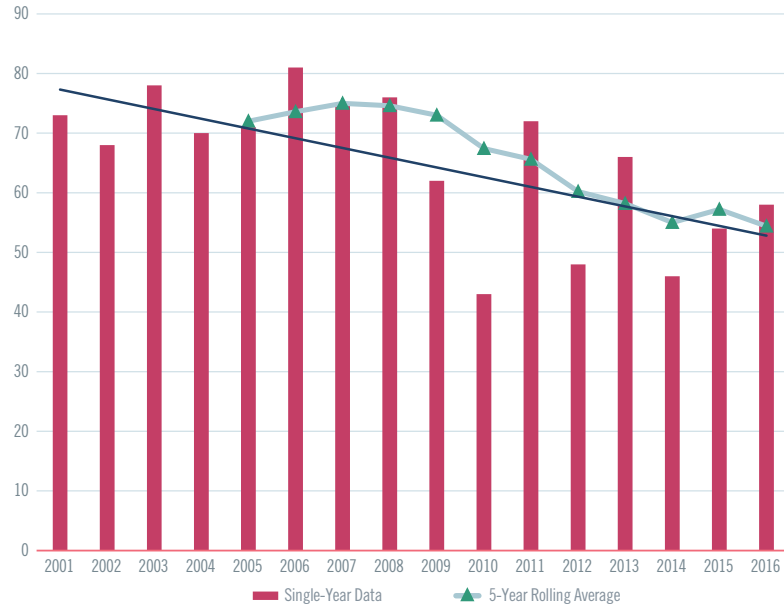


Figure 2: Ventura County Total Number of Serious Injury Victims



Figure 3: Ventura County Total Number of Pedestrian Fatal and Serious Injury Victims



Figure 4: Ventura County Total Number of Bicyclist Fatal and Serious Injury Victims

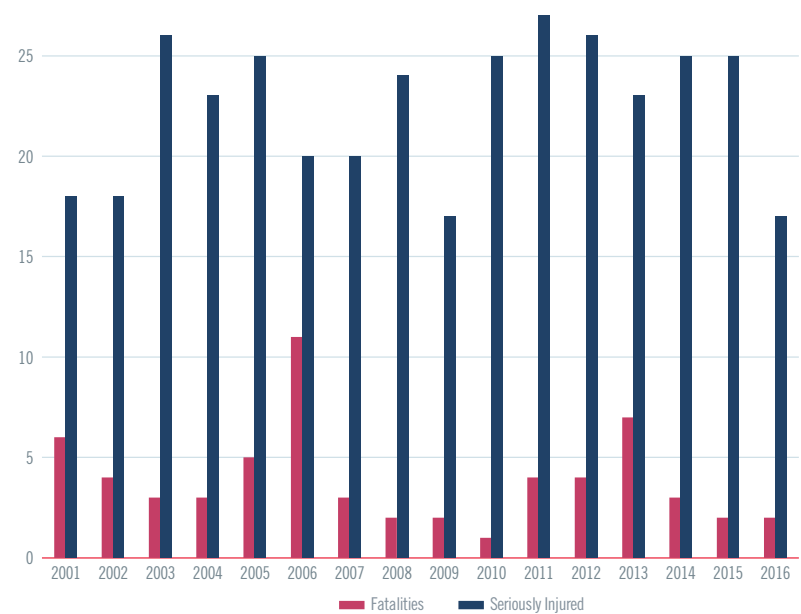


Figure 5: Ventura County Fatal Victims per 1,000 Population



Figure 7: Ventura County Fatal Victims per 100M VMT



Figure 6: Ventura County Serious Injury Victims per 1,000 Population



Figure 8: Ventura County Serious Injury Victims per 100M VMT

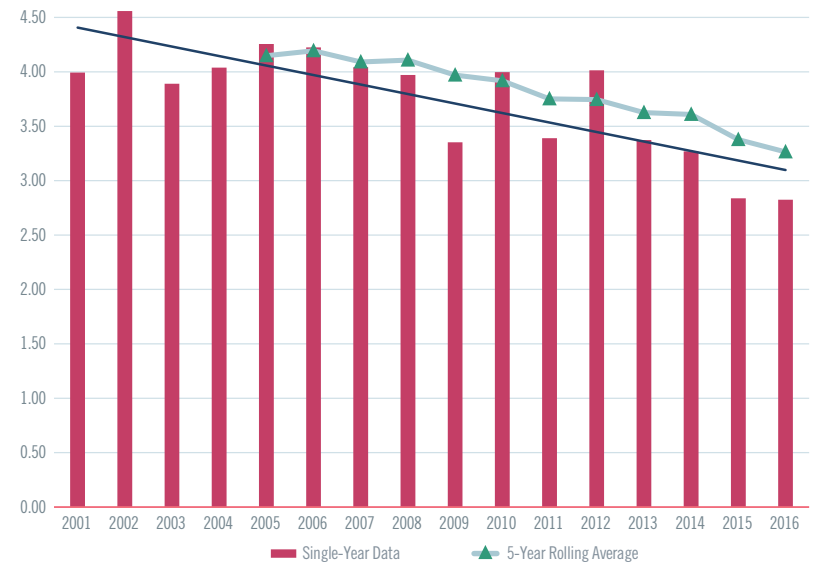


Figure 9: Ventura County Collisions by Time of Day (2016)

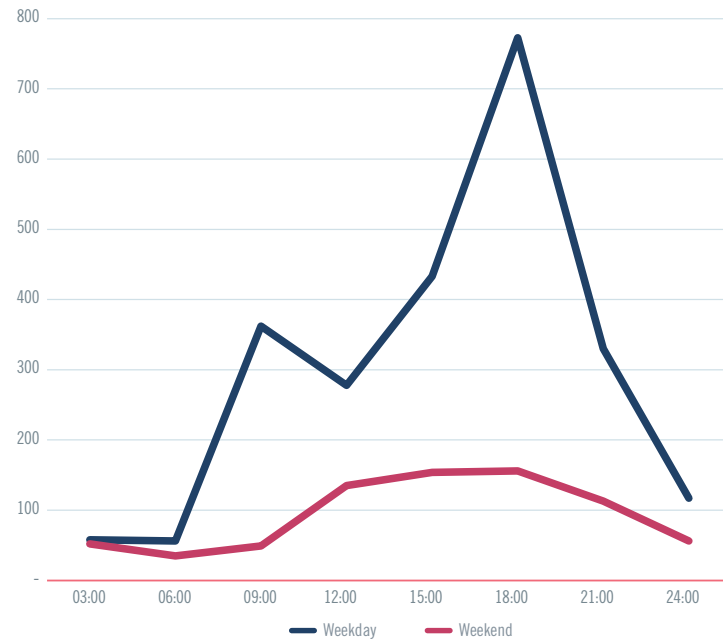


Figure 11: Ventura County Collisions by Month (2016)

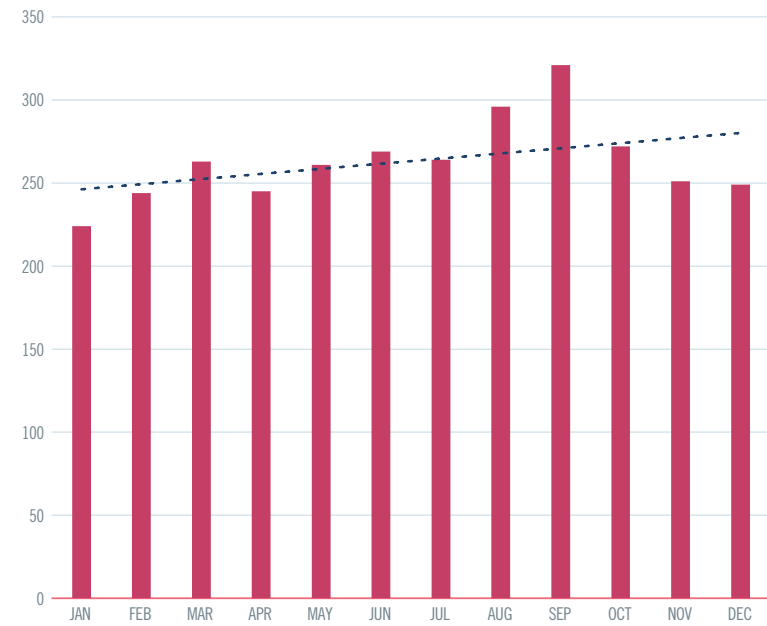
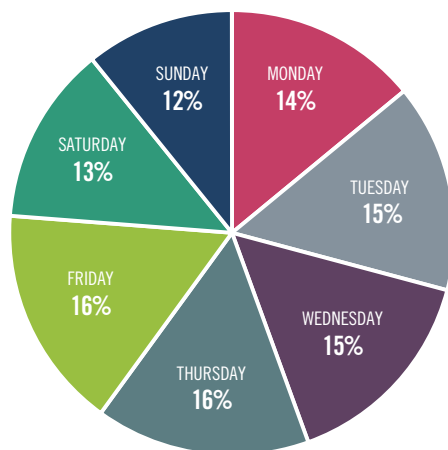
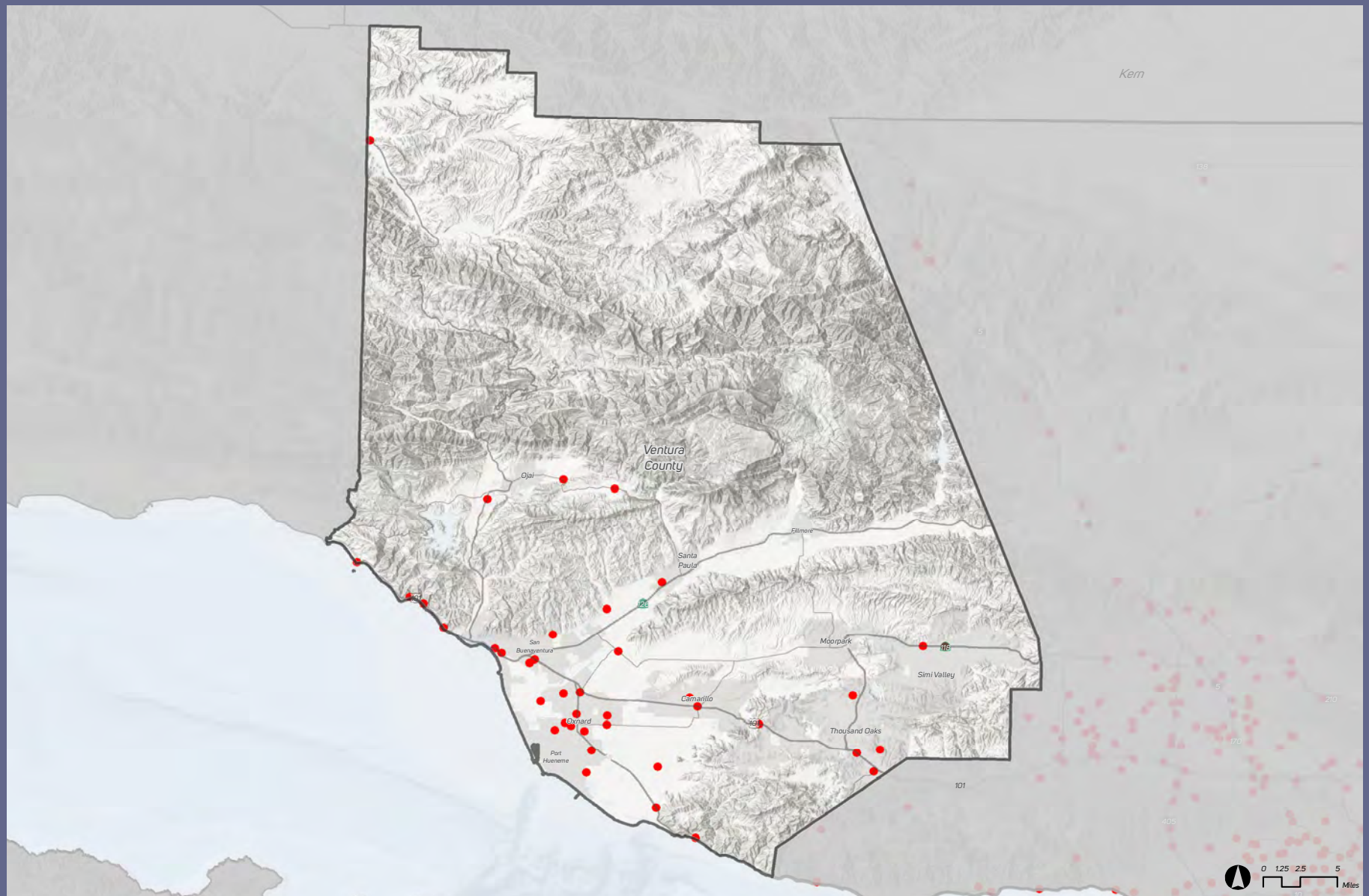


Figure 10: Ventura County Collisions by Day of the Week (2016)



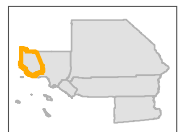
Map 1: Ventura County, 2014 Fatal Collisions



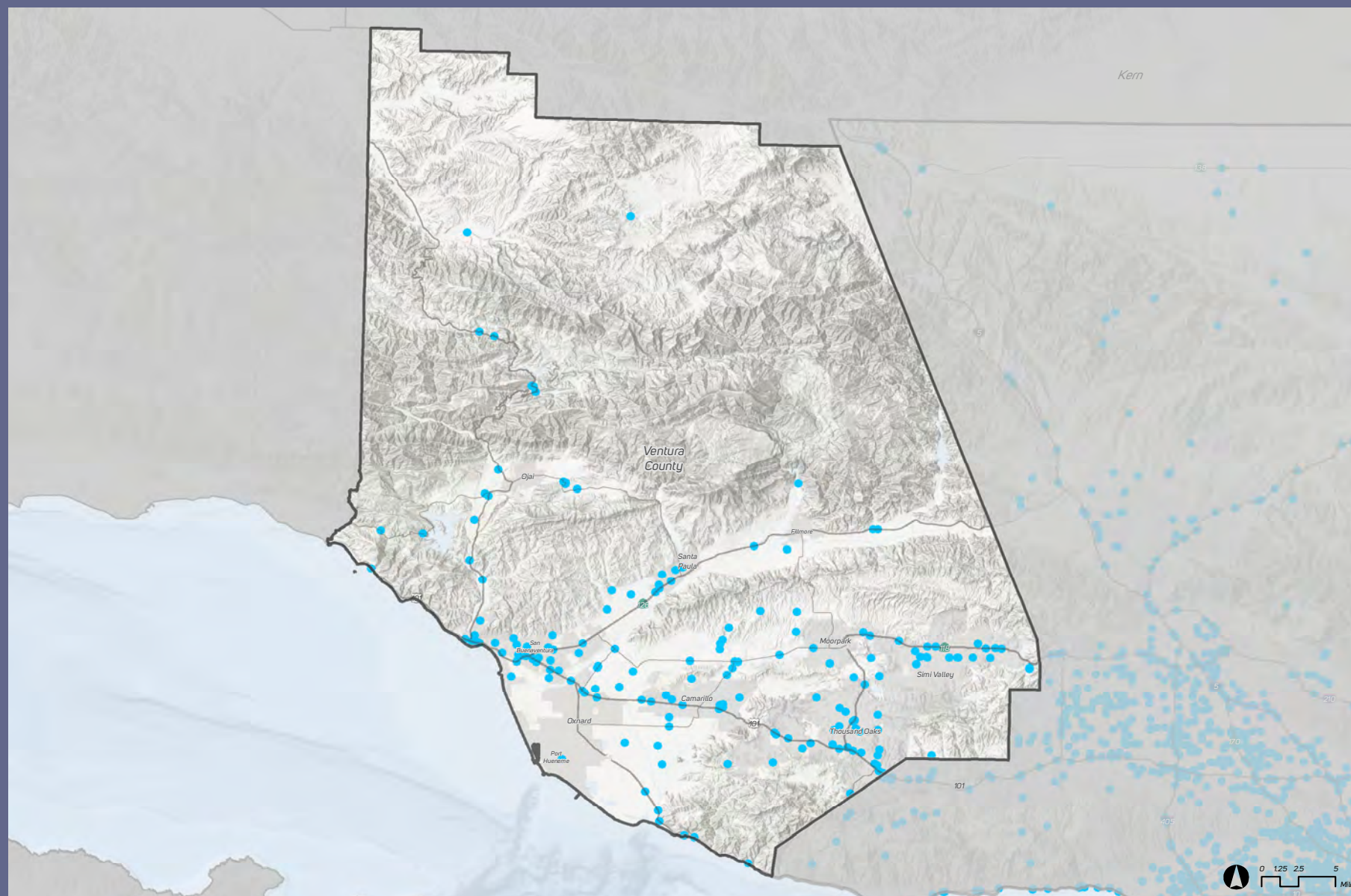
 County Boundaries  City Boundaries  2014 Fatal Collisions

Note: Each dot represents one collision.

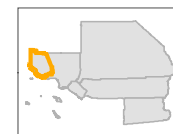
(Source: SWITRS and SCAG, 2017)



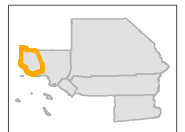
Map 2: Ventura County, 2014 Serious Injury Collisions



 County Boundaries City Boundaries 2014 Serious Injury Collisions

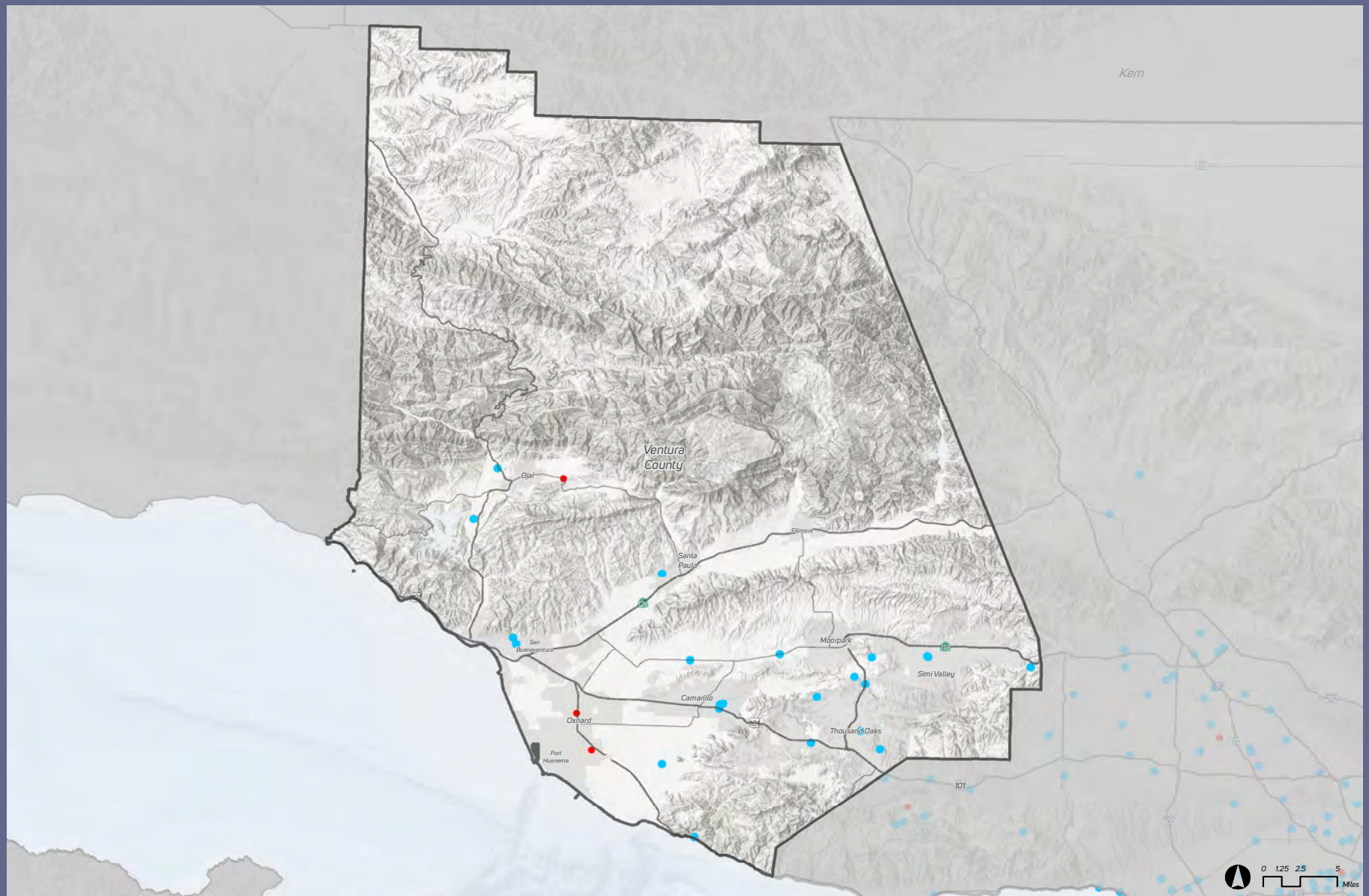


(Source: SWITRS and SCAG, 2017)

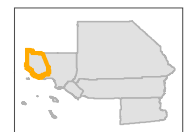
[illegible]

(Source: SWITRS and SCAG, 2017)

Map 4: Ventura County, 2014 Bicycle-Involved Fatal and Serious Injury Collisions

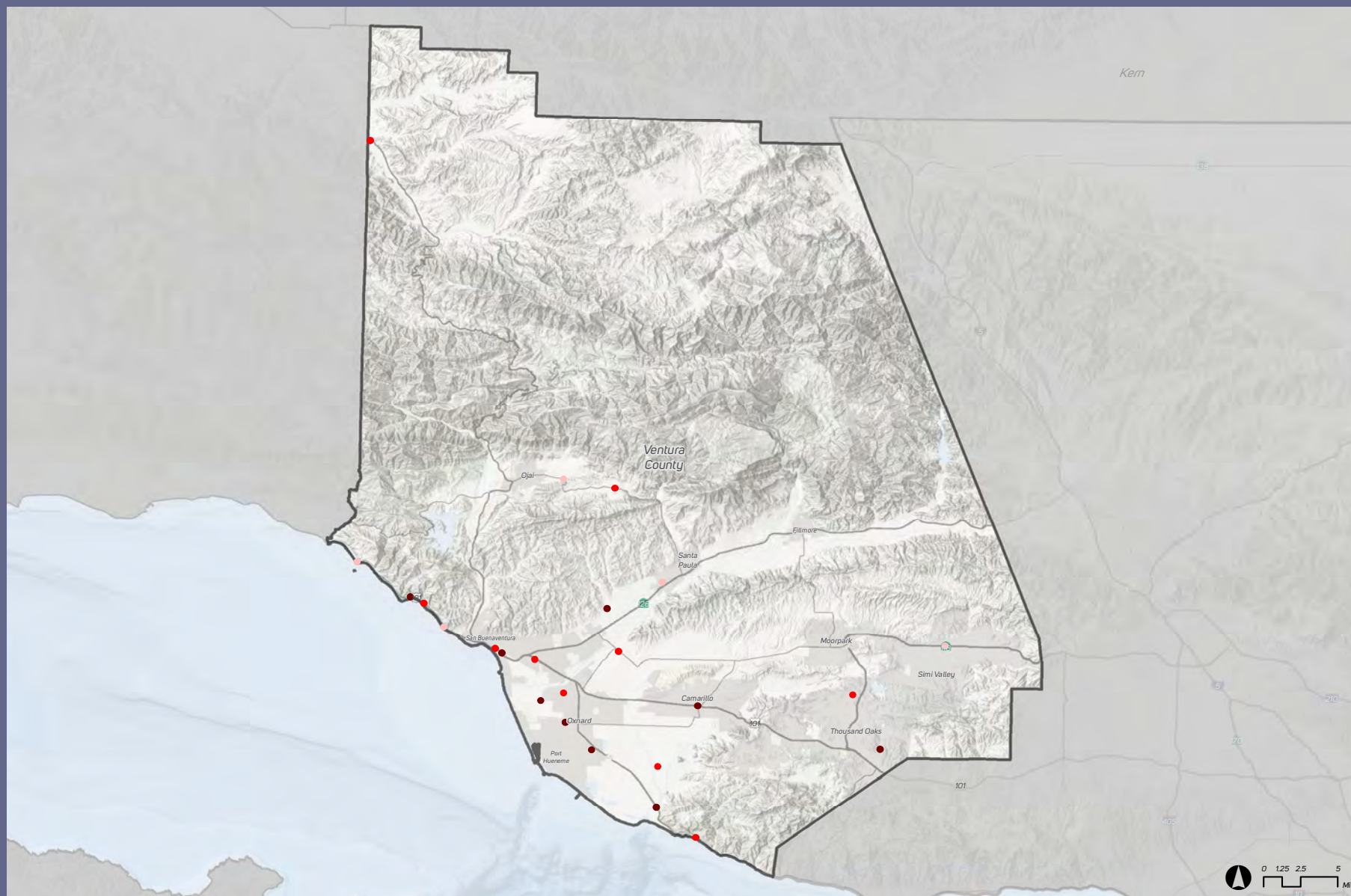


County Boundaries City Boundaries 2014 Bicycle-Involved Serious Injury Collisions 2014 Bicycle-Involved Fatal Collisions



(Source: SWITRS and SCAG, 2017)

Map 5: 2014 Top 3 Violation Categories of Fatal Collisions in Ventura County



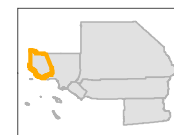
Administrative Boundaries

-  County Boundaries
-  City Boundaries

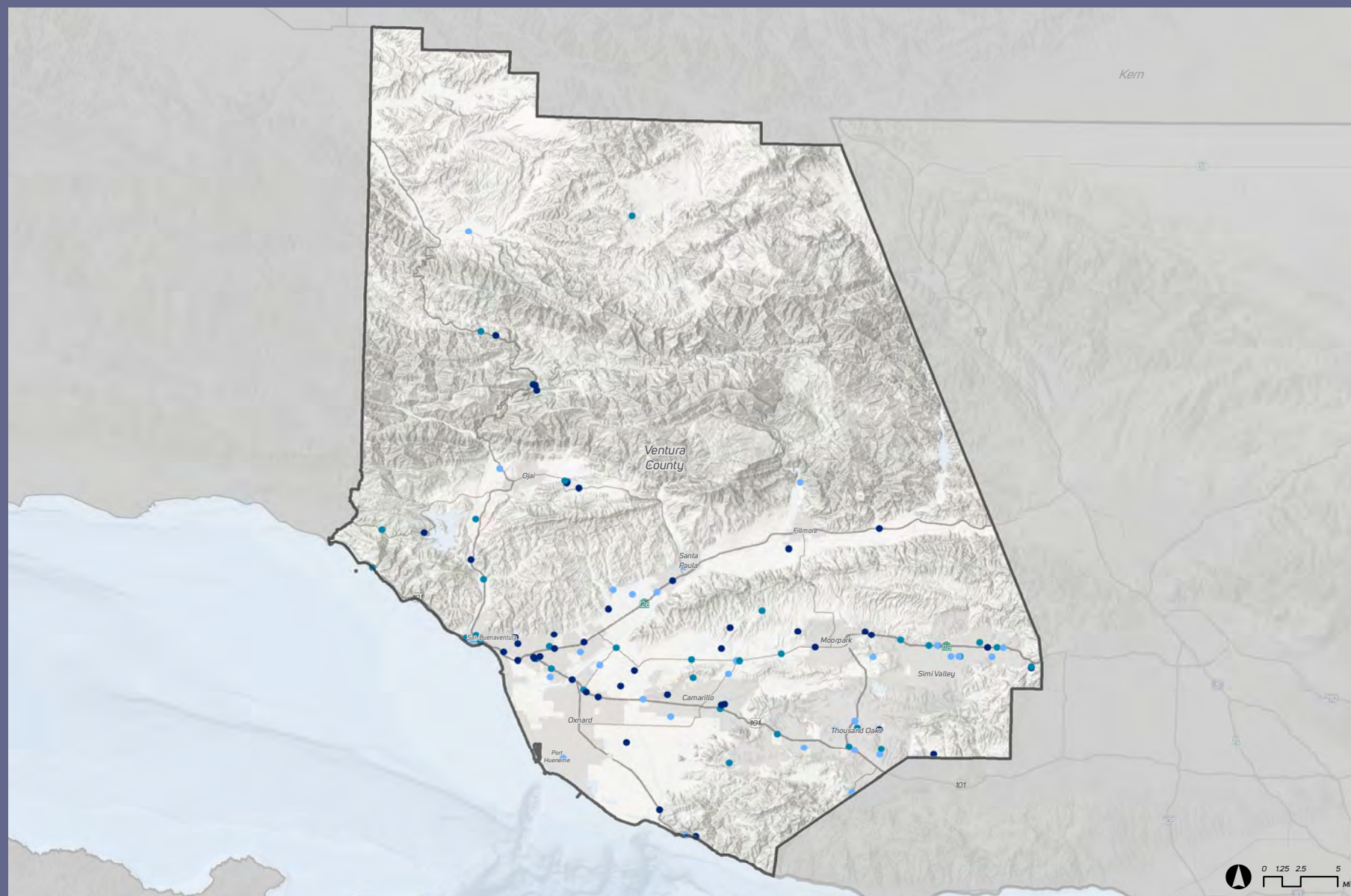
(Source: SWITRS, TIMS, and SCAG)

Top 3 Violation Categories of 2014 Fatal Collisions

-  Driving or Bicycling Under the Influence of Alcohol or Drug (Top 1)
-  Improper Turning (Top 2)
-  Unsafe Speed (Top 3)



Map 6: 2014 Top 3 Violation Categories of Serious Injury Collisions in Ventura County



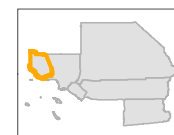
Administrative Boundaries

- County Boundaries
- City Boundaries

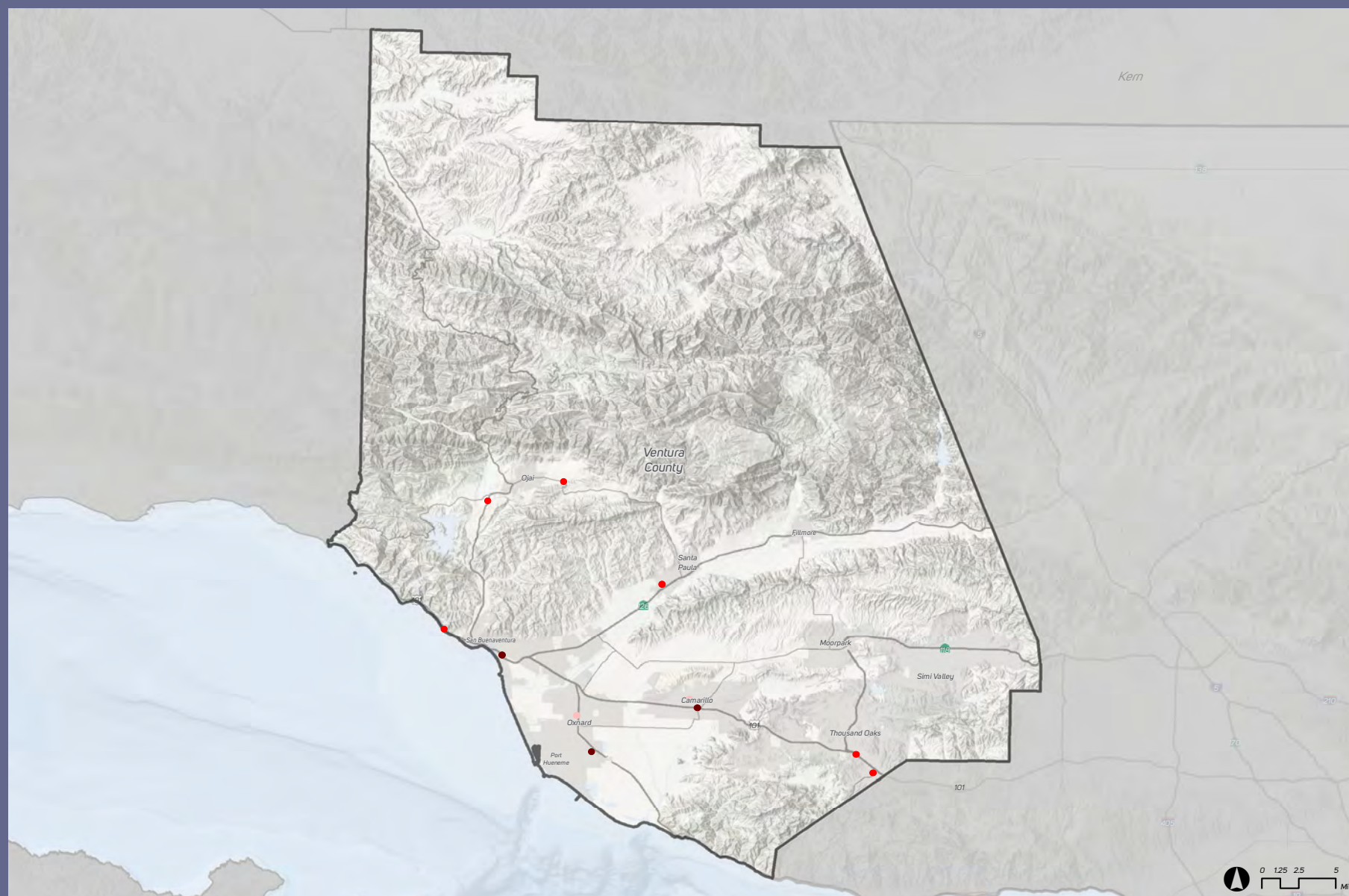
(Source: SWITRS, TIMS, and SCAG)

Top 3 Violation Categories of 2014 Serious Injury Collisions

- Improper Turning (Top 1)
- Unsafe Speed (Top 2)
- Driving or Bicycling Under the Influence of Alcohol or Drug (Top 3)



Map 7: Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Fatal Collisions in Ventura County



**Administrative
Boundaries**

- County Boundaries
- City Boundaries

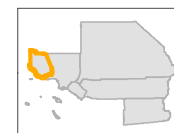
(Source: SWITRS, TIMS, and SCAG)

**Top 3 Violation Categories of 2014 Bicyclist- and
Pedestrian-Involved Fatal Collisions in Ventura County**

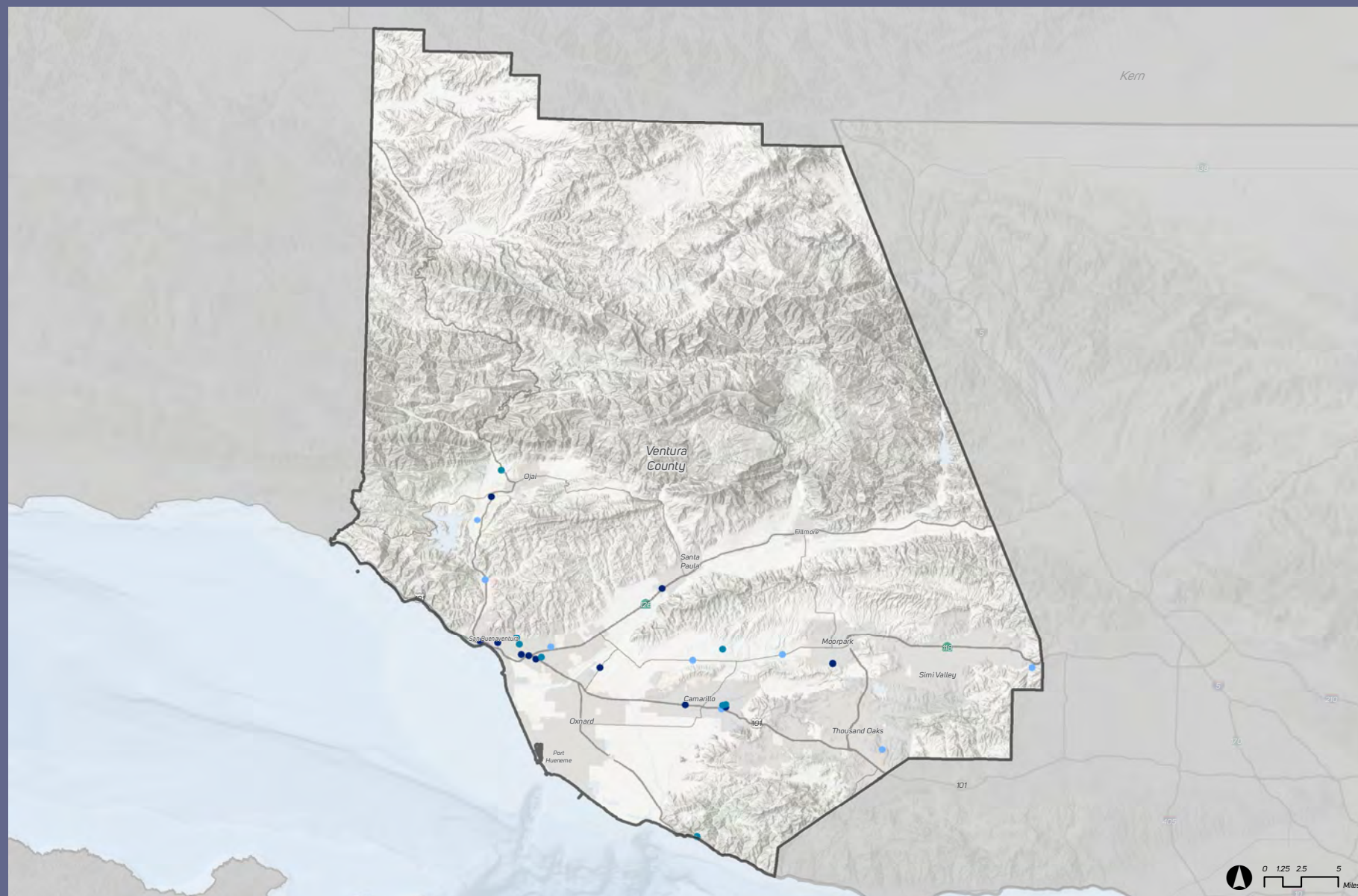
- Driving or Bicycling Under the Influence of Alcohol or Drug (Top 1)
- Unsafe Speed (Top 2)*

- Pedestrian Violation (Top 2)*
- Improper Passing (Top 3)*
- Other Improper Driving (Top 3)*

* Number of collisions is equal for
Top 2 and Top 3 violation categories.



Map 8: Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Serious Injury Collisions in Ventura County



Administrative Boundaries

- County Boundaries
- City Boundaries

(Source: SWITRS, TIMS, and SCAG)

Top 3 Violation Categories of 2014 Bicyclist- and Pedestrian-Involved Serious Injury Collisions in Ventura County

- Pedestrian Violation (Top 1)

- Improper Turning (Top 2)
- Unsafe Speed (Top 3)

