County of Orange

Local Road Safety Plan

Prepared for:

OC Public Works

Fehr & Peers

2026

Acknowledgements

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- Orange County Fire Authority
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- Orange County Parks
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- Orange County Transportation Authority

Consultant Team

- Fehr & Peers
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Statement of Protection of Data from Discovery and Admissions

Section 148 of Title 23, United States Code

REPORTS DISCOVERY AND ADMISSION INTO EVIDENCE OF CERTAIN REPORTS, SURVEYS, AND INFORMATION — Notwithstanding any other provisions of law, reports, surveys, schedules, lists, or data compiled or collected for any purpose relating to this section, shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at the location identified or addressed in the reports, surveys, schedules, lists, or other data.

This report is dedicated to those who lost their lives on roadways within Unincorporated Orange County.
Their loss reminds us that every life is precious and inspires us all to continue our efforts toward the collective vision of zero traffic deaths.

Table of Contents

This plan is organized into five chapters that move from understanding roadway safety conditions to identifying priorities, engaging the community, and implementing strategies to reduce serious injuries and fatalities.

Chapter 1:
Introduction

> *Far too many Americans die each year to traffic fatalities to take our eye off the ball."*
>
> **Sean P. Duffy**
> United States Secretary of Transportation

Every year, thousands of lives are cut short on America's roads, and behind each statistic is a family, a friend, a neighbor. The County of Orange refuses to accept roadway deaths and serious injuries as an unavoidable cost of travel. Whether someone is walking to school, biking to work, or driving home, they should arrive safely.

The County of Orange Local Road Safety Plan (LRSP) is a strategic framework for identifying, evaluating, and prioritizing roadway safety improvements within Unincorporated Orange County. Developed in alignment with the FHWA SS4A initiative and California Department of Transportation (Caltrans) Zero Traffic Fatalities Task Force goals, the LRSP reflects a shared commitment to building safer, more equitable, and more sustainable transportation systems.

This plan is more than a policy - it's a call to action. Over the next five years, the LRSP will guide the County's safety initiatives, inform funding applications, and support the implementation of life-saving infrastructure and programs. Achieving the goals of this LRSP demands a clear and unified vision of how the County approaches roadway safety.

Vision Statement

The County will work to significantly reduce fatalities and serious injuries on unincorporated County roadways and endeavor to eliminate these crashes by 2050.

Guiding Principles

The following guiding principles reflect the values, strategies, and long-term commitments that will shape the County's efforts over the life of the plan. Grounded in best practices and responsive to local needs, these principles provide the foundation for building a safer and more accessible transportation system for everyone in Unincorporated Orange County.

1. Adopt the principles of the Safe System Approach to build multiple layers of protection to prevent crashes and minimize harm when crashes do occur.
2. Foster a culture of shared roadway safety amongst transportation professionals and the public.
3. Proactively implement safety measures for people across all modes of travel.
4. Collaborate with emergency responders, traffic enforcement professionals and community partners to build a comprehensive safety program.
5. Take an equitable approach to roadway safety and reduce disparities in roadway safety outcomes.

The study area encompasses County-maintained roadways within Unincorporated Orange County. Roadways owned and maintained by the State of California, such as interstate freeways and state routes, are not considered local roadways and are generally excluded from the analysis. However, State Route 74 (SR-74) is included in the study area, as it intersect with numerous local roadways within unincorporated areas.

This LRSP fulfills the requirements of a Comprehensive Safety Action Plan (CSAP), positioning the County of Orange to pursue additional federal funds to implement high-impact safety improvements in the communities that need them most.

What is a Local Road Safety Plan?

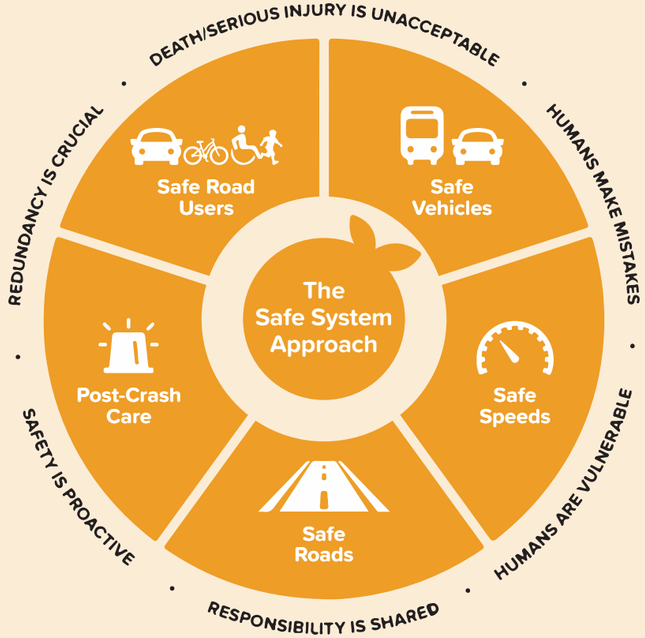
A Local Road Safety Plan (LRSP) provides a framework for identifying, evaluating, and prioritizing roadway safety improvements on local roads. Recognizing the diverse transportation needs and challenges across rural, suburban, and urban communities, the LRSP development process is tailored to local conditions and concerns. The process results in a prioritized list of safety issues, contributing risk factors, recommended countermeasures, and actionable strategies to reduce fatalities and serious injuries.

An LRSP also serves as a critical tool for securing state and federal safety funding, enabling jurisdictions to proactively invest in infrastructure, policies, and programs that support safe, equitable, and sustainable transportation systems. The development of an LRSP is a collaborative effort involving local agencies, stakeholders, and the community.

The Safe System Approach

The Safe System Approach aims to eliminate fatal and serious injuries by designing a transportation system that accounts for human mistakes and limits crash forces to survivable levels. It is built on the understanding that people will sometimes make errors, but those errors should not result in death or life-altering injury.

Rather than relying solely on individual behavior, the Safe System Approach emphasizes shared responsibility among transportation agencies, vehicle manufacturers, policymakers, and road users. It promotes safer road design, safer speeds, safer vehicles, and improved post-crash care, with overlapping layers of protection to reduce risk and improve outcomes. This approach is central to achieving Vision Zero (i.e., zero traffic deaths) and has been adopted by United States Department of Transportation (USDOT) as part of its National Roadway Safety Strategy.



Orange County Unincorporated Communites

Unincorporated Orange County includes areas in Orange County, California, that are not governed by a local municipality (a city or town) and are instead governed directly by the County. These areas include residential neighborhoods, commercial zones, and rural lands that rely on the County for municipal services such as law enforcement, public works, and land use planning.

- Anaheim Island
- Andora/Fairhope Island
- Beach/McFadden Island
- Bolsa/Pacific Island
- Costa Mesa Island
- Country Club Island
- Dale/Augusta Island
- Dana Point Harbor
- El Modena Islands
- Fairlynn Island
- Fountain Valley Island
- John Wayne Airport
- Katella/Rustic Island
- Ladera Ranch
- Las Flores
- Lincoln/Glassell Island
- Orange Park Acres
- Mac/Syracuse Island
- McFadden/Monroe
- Midway City
- Modjeska Canyon
- North Tustin
- Olive Heights
- Rancho Mission Viejo
- Rossmoor
- Santa Ana Country Club
- Santa Ana River Bridges
- Santiago Canyon Road
- Santiago Creek Island
- Silverado Canyon
- Trabuco Canyon
- Wagon Wheel

Chapter 2:
Crash Analysis

> *We can no longer accept death and serious injuries as just a consequence of using our roads. As users of the road, we share in the responsibility of keeping ourselves and other safe. Together we can drive culture change and prioritize roadway safety for all."*

Barbara Rooney
Director of the California Office of Traffic Safety

Improving roadway safety begins with a clear understanding of the factors contributing to crashes, injuries, and fatalities within a community. This chapter examines the unique safety challenges facing the local road network, including crash patterns, high-risk locations, and contributing behaviors. This foundational understanding enables the development of targeted strategies that address root causes and reflect the community's values, ultimately guiding the implementation of effective, data-driven solutions.

Collision Data Overview

The safety analysis focuses on fatal and injury crashes that occurred during the five-year period from 2019 to 2023 using data from UC Berkeley's Transportation Injury Mapping System (TIMS). Crashes that resulted in property damage only (PDO) were excluded from the analysis. The dataset includes crashes reported to law enforcement and geocoded by TIMS, allowing for location-based analysis.

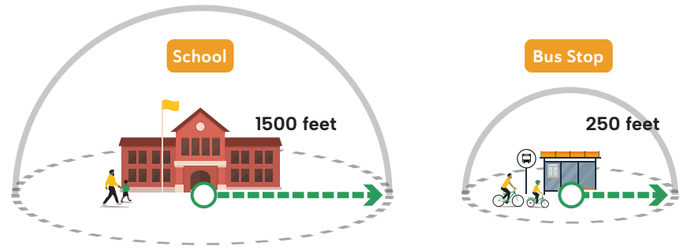
The study area encompasses County maintained roadways within Unincorporated Orange County. Unincorporated Orange County includes areas that are not governed by a local municipality (a city or town). Roadways owned and maintained by the State of California such as interstate freeways and state routes are not considered local roadways. However, State Route 74 (SR-74) was included as part of the study area, since many local roadways intersect SR-74 in unincorporated areas.

Contextual Data Overview

In safety analysis, a **contextual factor** refers to an environmental or situational element that may influence the likelihood, frequency, or severity of traffic crashes. These factors go beyond the immediate details of the crash itself and instead focus on the broader setting in which the crash occurred.

Examples include intersection characteristics (e.g., stop signs or signals), roadway characteristics (e.g., number of lanes, posted speed limit), proximity to transportation infrastructure (e.g., bike lanes or bus stops), geography, and land use (e.g., proximity to schools or parks). By analyzing these contextual factors, the safety analysis is able identify systemic risks and prioritize improvements that address the root causes of crashes rather than treating each crash as an isolated event.

The distance considered around each contextual factor depends on its area of influence. Contextual factors with localized influence on crash conditions, such as roadway characteristics, intersection characteristics, and presence of transportation infrastructure, were evaluated using smaller buffer distances. Intersection characteristics and the presence of transportation infrastructure at intersections (such as bus stops) use a value of 250 feet, consistent with Caltrans guidance, larger than the 100-foot buffer applied to roadway characteristics.



Land use and geographic contextual factors use defined catchment areas for schools parks, and other land-use categories, whereas specific geographic boundaries were applied as binary classifications based on whether a collision occurred within the designated boundary, without applying a buffer distance.

Contextual Factors

Intersection Characteristics

Traffic Signals	250ft
Stop Signs	250ft
Roundabouts	250ft

Roadway Characteristics

Number of Lanes	100ft
Posted Speed	100ft
Observed Speed	100ft
Divided/Undivided Median	100ft

Transportation Infrastructure

Bus Stops	250ft
Bicycle Facilities	100ft

Geography

Disadvantaged Communities	250ft
Community Groups	Within
Supervisorial District	Within

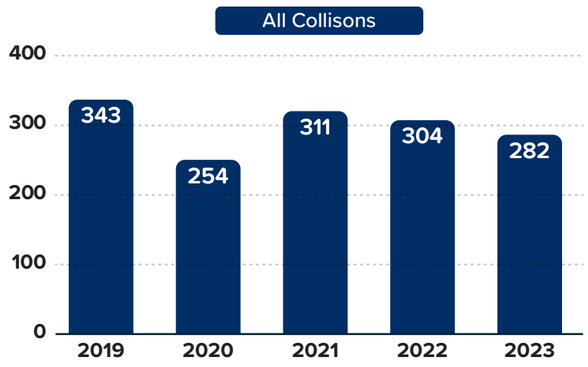
Land Use

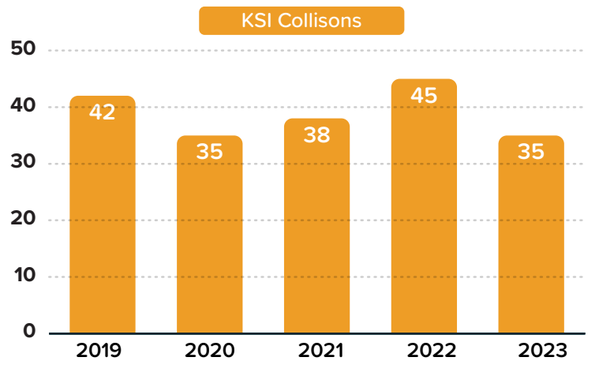
Schools	1,500ft
Parks	1,000ft
Other Land Uses	250ft

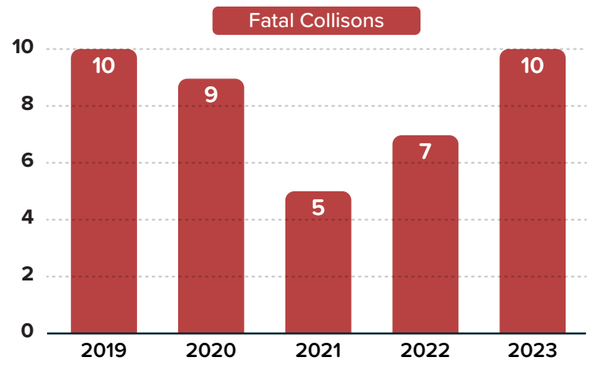
Collisions by Year, Month, and Day of Week

Crashes by Year

Between 2019 and 2023, the number of crashes decreased by 18%, but the number of fatal crashes in 2023 remained the same as in 2019.

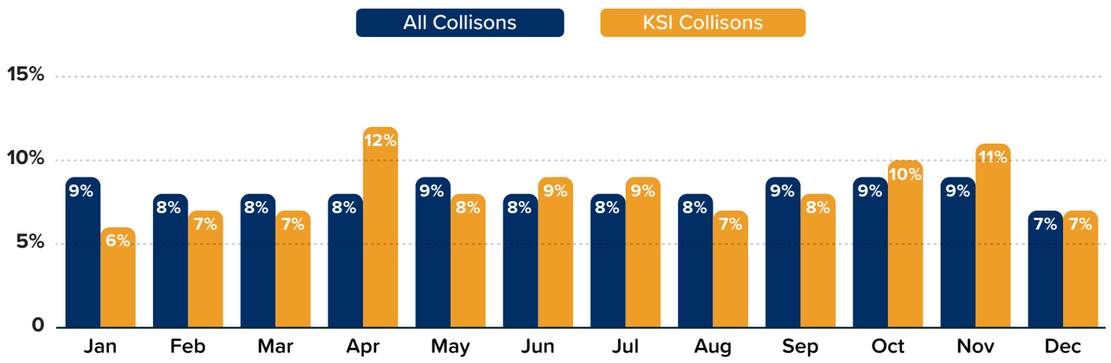






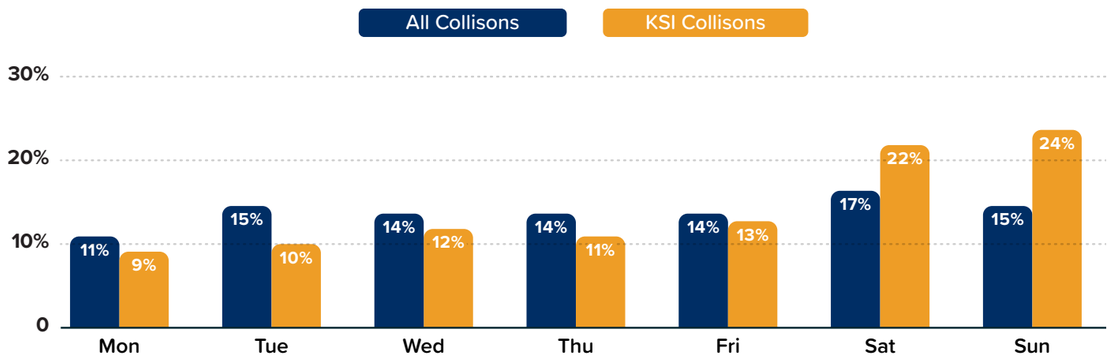
Crashes by Month

Crashes are relatively evenly distributed throughout the year. KSI Crashes show more variation, with notable peaks in April with 12%, October with 10%, and November with 11% of KSI crashes occurring within each month.



Crashes by Day of Week

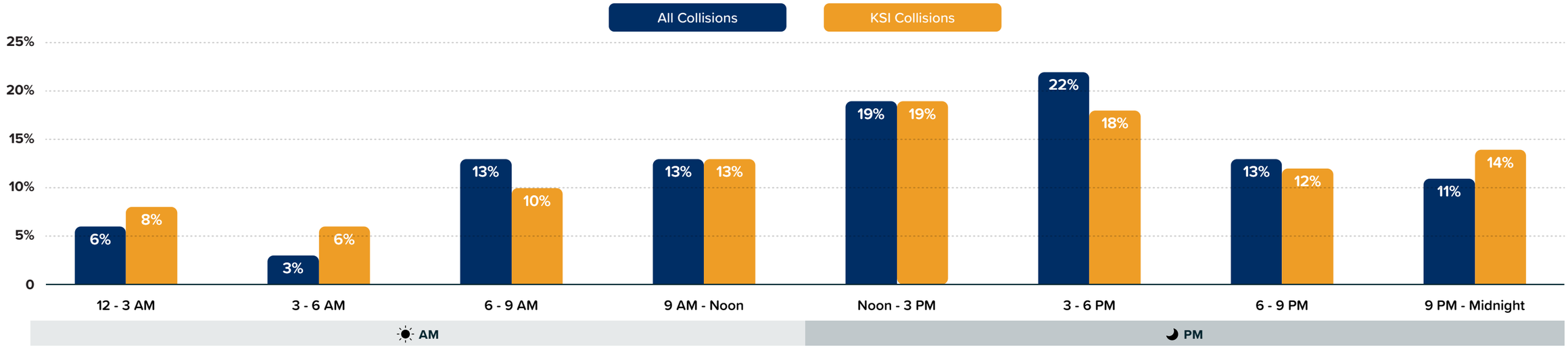
Generally, crashes are relatively evenly distributed throughout the week. KSI crashes occur more frequently on weekends, with Saturday and Sunday collectively accounting for 46% of KSI crashes.



Time of Day and Lighting Condition

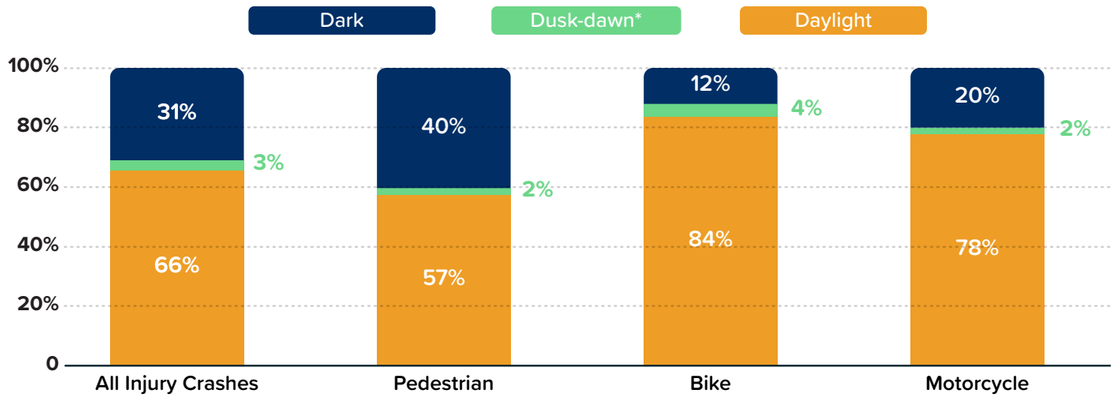
Crashes by Time of Day

The largest share of injury and KSI crashes occurred in the afternoon/evening between 12 - 6 PM, making up 41% of all crashes and 37% of KSI crashes.



Time of Day and Mode

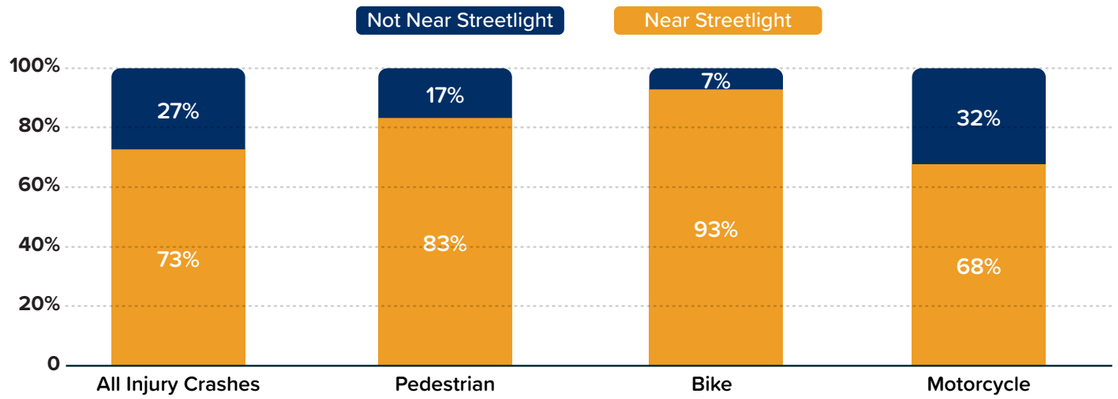
Roadway lighting conditions can influence the visibility of vulnerable roadway users. Crashes involving pedestrians occur more frequently at night (40%) when compared to other modes (31%).



*Dusk–dawn refers to low-light conditions occurring around sunrise and sunset. Although these periods generally fall within roughly 30 minutes of sunrise/sunset, crash records classify dusk–dawn based on the responding officer's judgment at the scene.

Lighting Condition

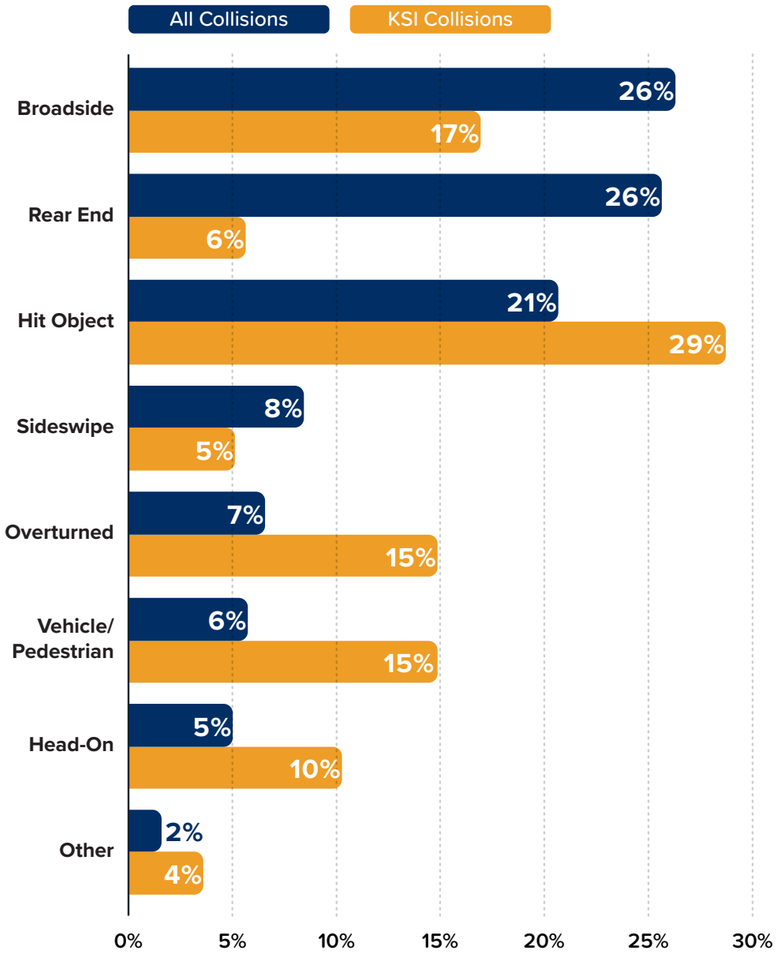
Of the crashes that occurred at night, no street lighting is a higher factor in motorcycle-involved crashes (32%) when compared to all crashes (27%).



Crash Type

The three most common crash types on Unincorporated Orange County roadways are Broadside (26%), Rear End (26%), and Hit Object (21%) crashes.

For KSI crashes, Hit Object crashes account for the largest share of crash types (29%), followed by Broadside (17%), then Overturned and Vehicle/ Pedestrian (15%).

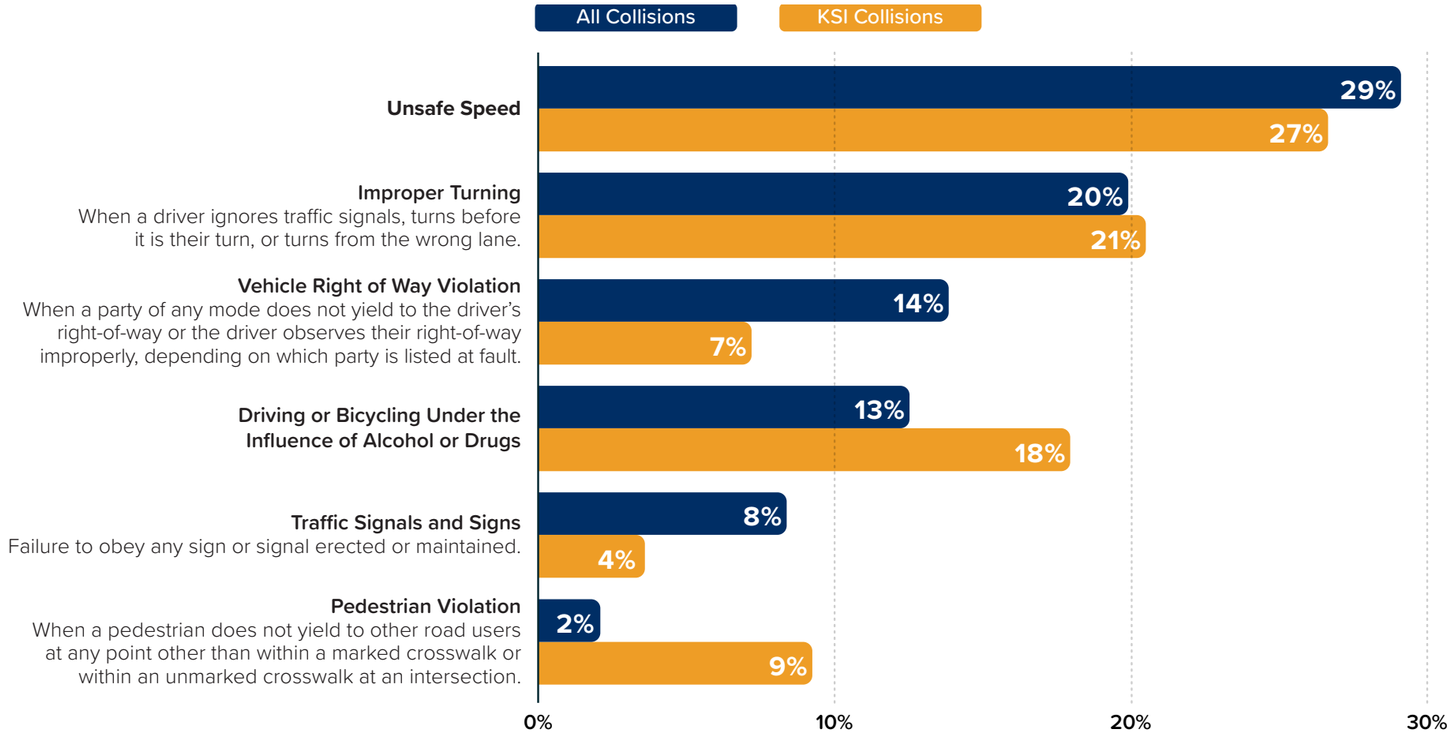


Primary Crash Factor

There may be multiple factors at play in any given crash. The primary crash factor is the one element or driving action which in an officer's opinion best describes the main cause of the crash.

On Unincorporated Orange County roadways, the most common primary crash factors are Unsafe Speed (29%), Improper Turning, commonly referred to as Unsafe Lane Change (20%), Vehicle Right-of-Way (14%), and Driving or Bicycling Under the Influence of Alcohol or Drugs (13%).

For KSI crashes, the most common primary crash factors are Unsafe Speed (27%), Improper Turning (21%), and Driving or Bicycling Under the Influence of Alcohol or Drugs (18%).



Note: Chart shows only the most common Primary Crash Factors and does not sum to 100%.

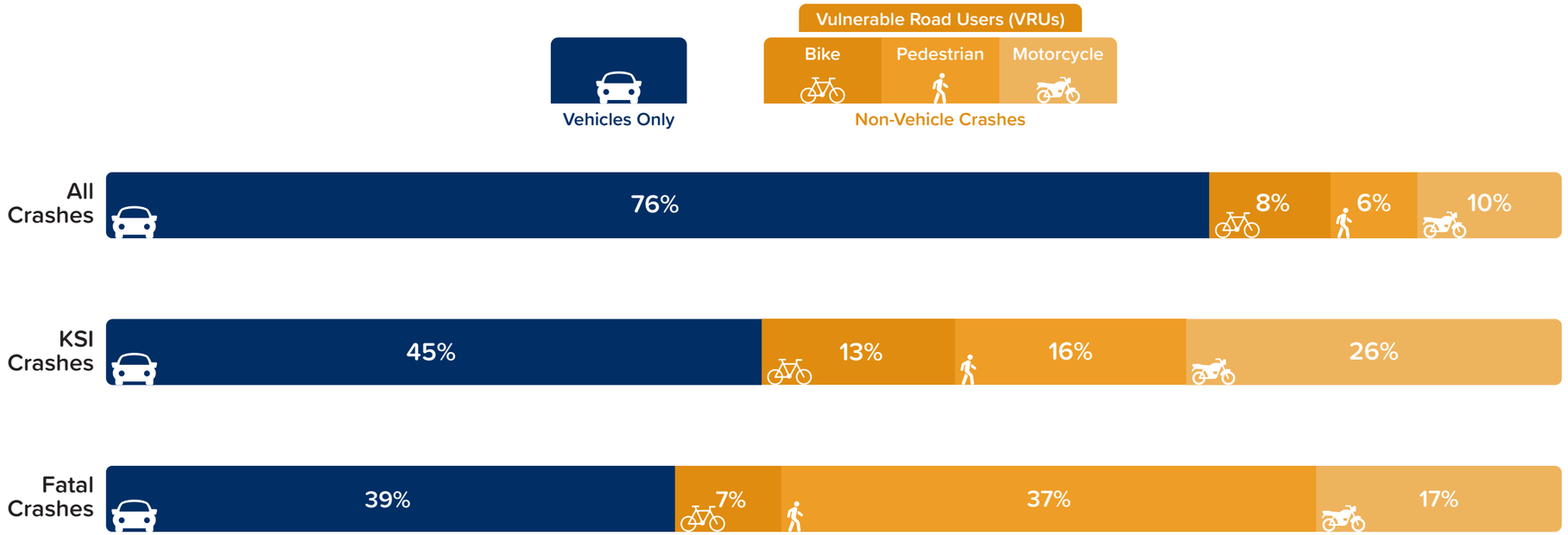
Driving or Bicycling Under the Influence of Alcohol or Drugs

Alcohol and/or drug impairment among drivers or bicyclists increases the risk of crashes resulting in severe injury or fatality. Between 2019 and 2023, 13% of crashes involved a driver under the influence, increasing to 18% among KSI crashes.

Mode of Transportation

Although people walking, biking, or riding motorcycles were involved in 24% of all crashes, they accounted for approximately 55% of KSI crashes and 61% of fatal crashes.

This disparity highlights the heightened risks faced by individuals who are not protected by the frame of a vehicle. It underscores the need for targeted safety improvements, such as enhanced pedestrian crossings, protected bike infrastructure, reduced vehicle speeds, and improved visibility. Addressing these risks is critical not only for reducing severe injuries and fatalities, but also for supporting a more equitable and multimodal transportation system that allows all users to travel safely, regardless of how they choose to get around.



Vulnerable Road Users (VRUs) are people who travel without the protection of an enclosed motor vehicle and are therefore at greater risk of serious injury or fatality in a traffic collision. This group includes pedestrians, bicyclists (including electric bicycles), users of micromobility devices (such as scooters), and motorcyclists. **Vulnerable road users face a disproportionate share of severe crashes, highlighting why safer, more equitable street design is essential.**

Note: Collision data does not distinguish e-bikes from conventional bicycles, and other micromobility devices are not separately reported or reliably captured.

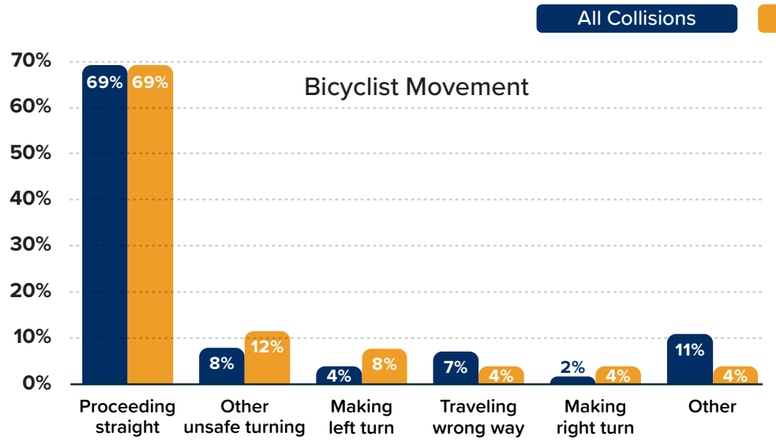
Vulnerable Users

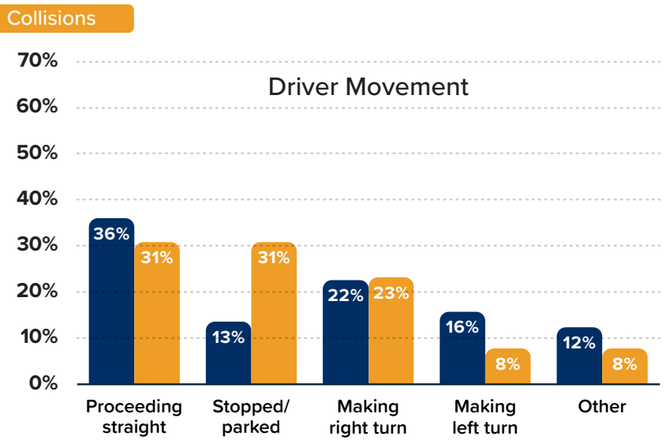
Bicyclists

Most bicycle crashes occurred when bicyclists were proceeding straight. While proceeding straight, bicyclists are able to travel at higher speeds, resulting in more severe crash outcomes.

Drivers involved in bicyclist collisions were often engaged in turning movements prior to the crash. These turning maneuvers often introduce conflict points with through-traveling bicyclists, particularly at intersections and driveways.

Note: Collision data does not distinguish e-bikes from conventional bicycles, and other micromobility devices are not separately reported or reliably captured.

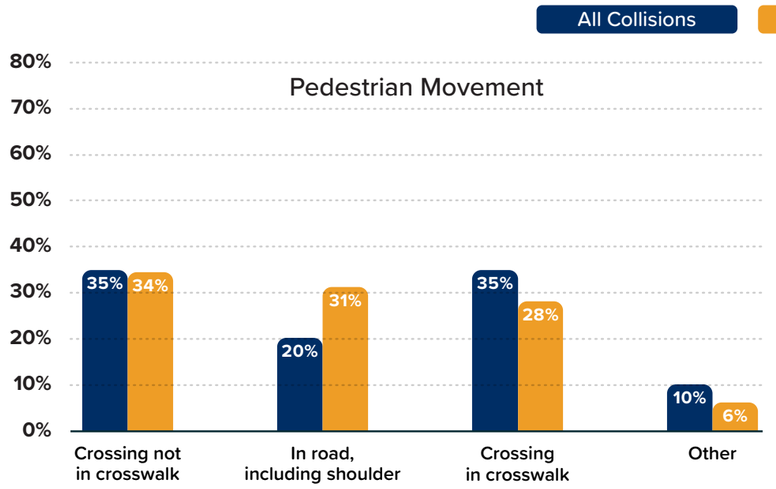


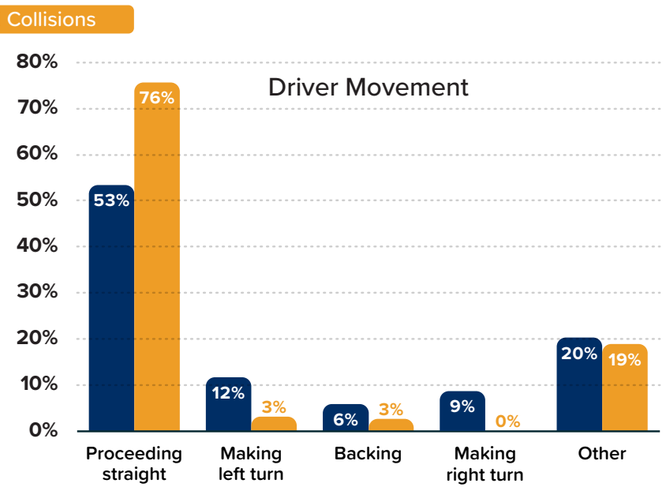


Pedestrians

Most pedestrian crashes occurred when pedestrians were in the roadway, either not at a marked crosswalk or along the shoulder. The high proportion of pedestrians crossing outside of crosswalks or walking within the roadway highlights the importance of identifying opportunities to improve pedestrian infrastructure, such as adding crosswalks or sidewalks.

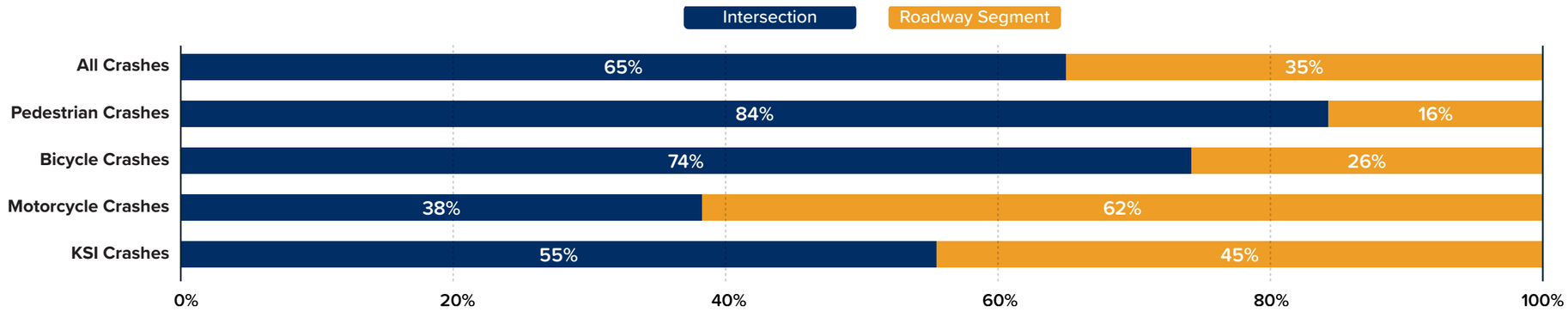
Most drivers involved in pedestrian collisions were proceeding straight prior to the crash. While proceeding straight, drivers are able to travel at higher speeds, resulting in more severe crash outcomes.





Where are Crashes Occurring?

Crashes are more likely to occur at intersections than midblock along a roadway segment because people walking, biking, and driving are interacting with others, changing directions, and making decisions. 65% of crashes and 55% of KSI crashes on Unincorporated Orange County roadways occur within 250 feet of an intersection. The percentage of crashes increases to 74% for bicycle crashes and 84% for pedestrian crashes. However, in contrast, most motorcycle crashes occur along roadway segments. The distance considered around each contextual factor depends on its area of influence. For example, a school affects a much larger surrounding area compared to a bus stop.

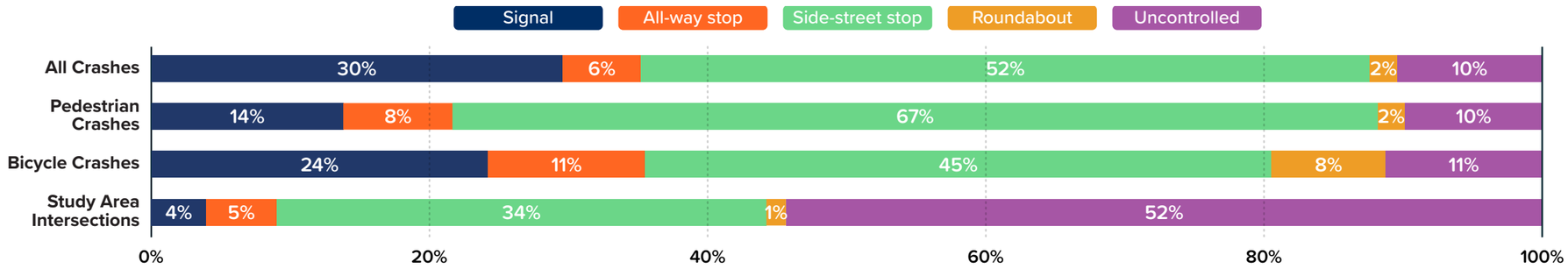


Most crashes occur at intersections, especially pedestrian and bicycle crashes, while motorcycle crashes are more likely to occur along roadway segments.

Intersection Characteristics

Intersection Control

Taking a closer look at crashes that occurred at intersections - most of the intersection crashes occurred at Side-Street Stop-Controlled intersections (52%), despite representing only 34% of intersections within Unincorporated Orange County. The percentage of pedestrian crashes at Side-Street Stop-Controlled intersections jumps to 67%. Crashes at traffic signals are disproportionately represented; despite representing only 4% of intersections within Unincorporated Orange County, 30% of crashes, 14% of pedestrian crashes, and 24% of bicycle crashes occurred at traffic signals.

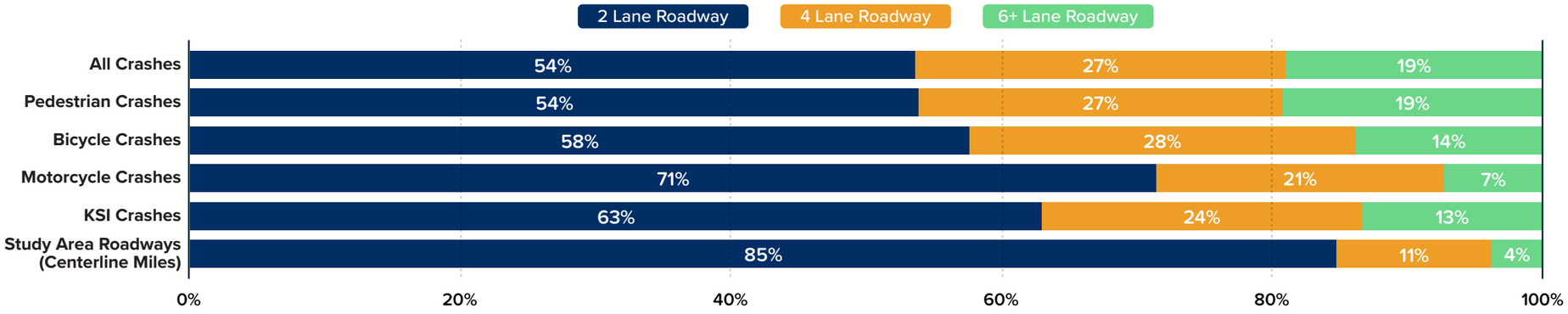


Side-street stop-controlled intersections account for a disproportionate share of crashes, particularly pedestrian crashes.

Roadway Characteristics

Number of Lanes

Roads with four or more travel lanes make up 15% of the roadway network but disproportionately account for 46% of crashes and 40% of KSI crashes. Comparatively, motorcycle crashes occur more frequently on roads with two travel lanes.

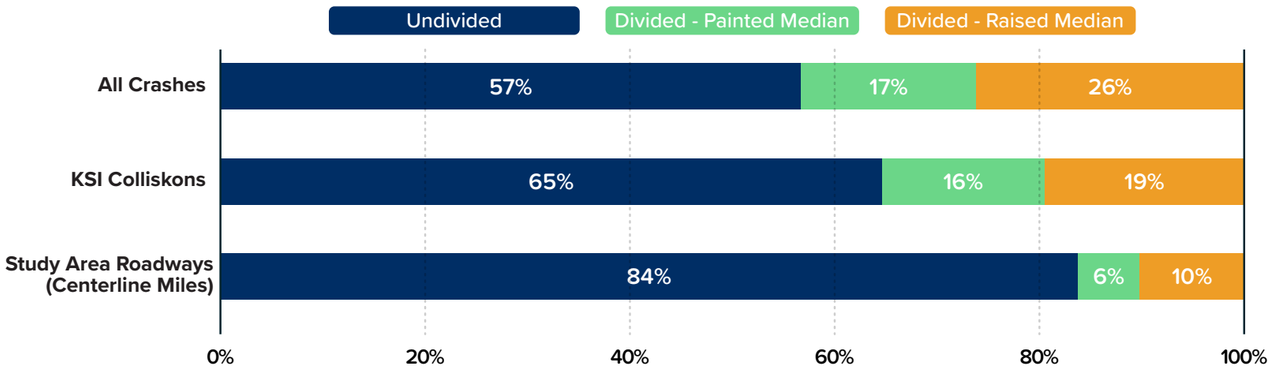


Crash risk increases with roadway width, especially for severe crashes, but motorcycle crashes are most common on two lane roads.

Divided/Undivided Median

Divided roadways with raised medians experience a higher percentage of total crashes relative to their share of the roadway network. This is expected, as raised medians are typically constructed on roadways with higher traffic volumes and more travel lanes—conditions that naturally generate a larger number of overall crashes.

However, when comparing all crashes to KSI crashes, the graphic shows that raised-median corridors experience a lower proportion of KSI crashes. This indicates that while these roadways may see more crashes in total due to higher exposure, the presence of a raised median reduces the likelihood that a crash will result in severe or fatal injury.



Undivided

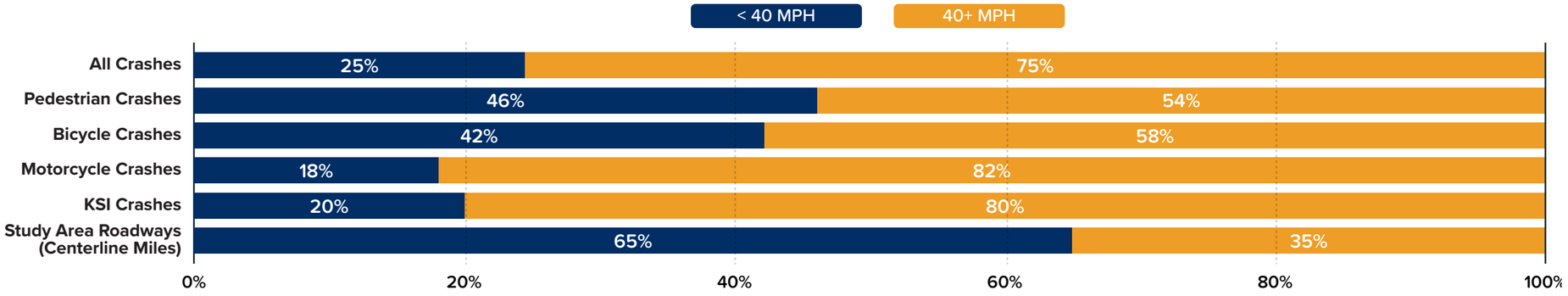
Divided - Painted Median

Divided - Raised Median

Roadway Characteristics

Observed Speed

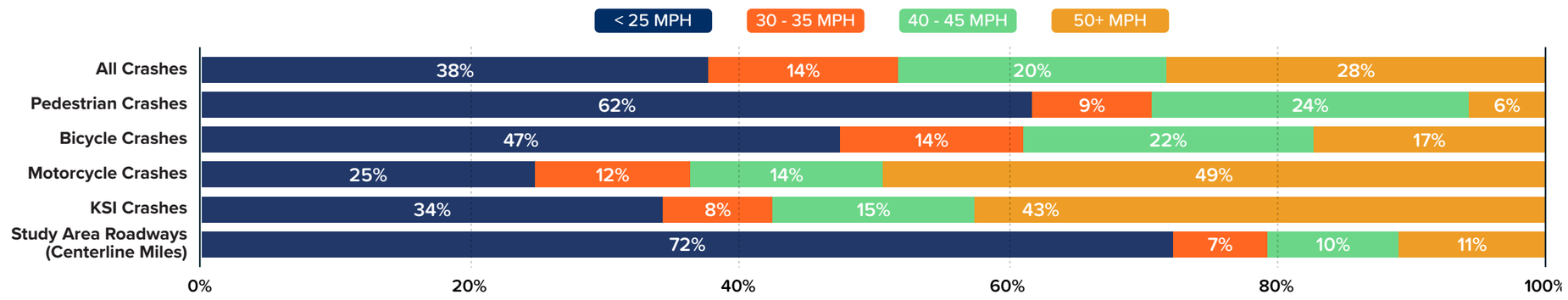
Roadways with an average observed speed of 40+ mph make up for 35% of the roadway network but disproportionately account for 75% of crashes, 80% of KSI crashes, and 82% of motorcycle-involved injury crashes. Observed speed data are sourced from Wejo vehicle probe data and reflect the daily 85th-percentile speed (i.e., the speed at or below which 85% of observed vehicles travel each day).



Roadways with observed speeds of 40+ mph make up a smaller share of the network but account for a disproportionate share of crashes and severe injuries, especially motorcycle and KSI crashes.

Posted Speed

Roadways with a posted speed limit of 40+ mph make up for 21% of the roadway network but disproportionately account for 48% of crashes, 58% of KSI crashes, and 63% of motorcycle-involved injury crashes.

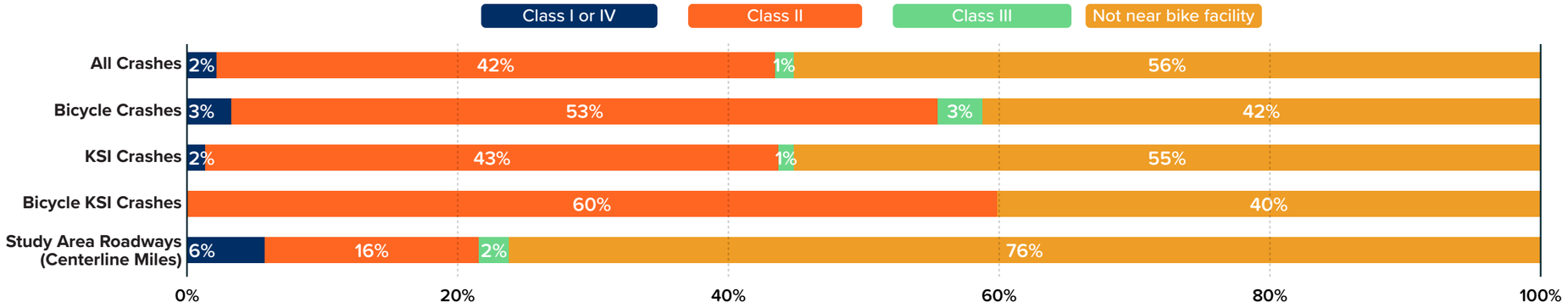


Higher posted speed limits are associated with a greater share of crashes and severe outcomes, even though these roadways represent a relatively small portion of the roadway network.

Transportation Infrastructure

Proximity to Bike Lanes

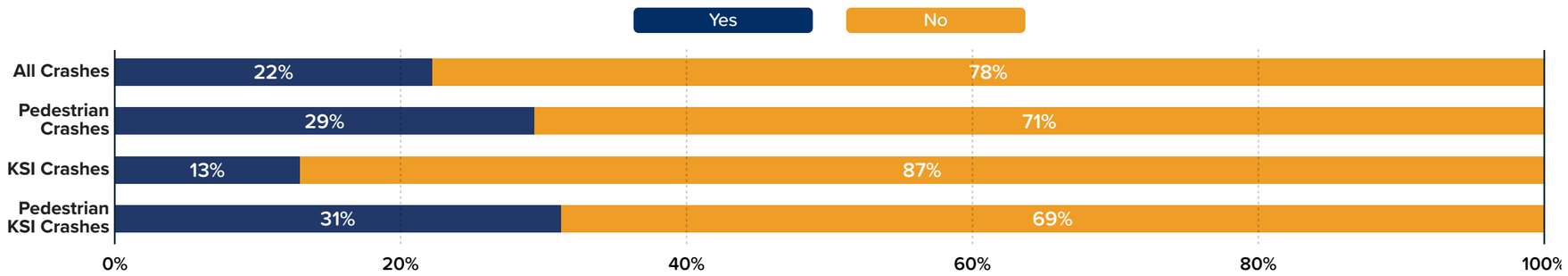
People biking are more likely to use roadways with bicycle facilities. 45% of crashes and 45% of KSI crashes occurred on a roadway with a bicycle facility. In comparison, 60% of bicycle crashes and 60% of bicycle KSI crashes occurred on a roadway with a bicycle facility. Bicycle crashes on roadways with protected bicycle facilities (Class I or IV) tend to be less severe.



Most bicycle crashes occur on roadways with bike facilities, reflecting higher bicycle activity. Crashes on roadways with protected facilities tend to be less severe.

Proximity to Bus Stops

Areas near bus stops generally have higher pedestrian activity as people are traveling to and from transit. Crash victims are more often male: men account for 54% of drivers/passengers, 63% of pedestrian victims, and 69% of bicycle victims, even though they make up about 50% of the County of Orange (incorporated and unincorporated) population.

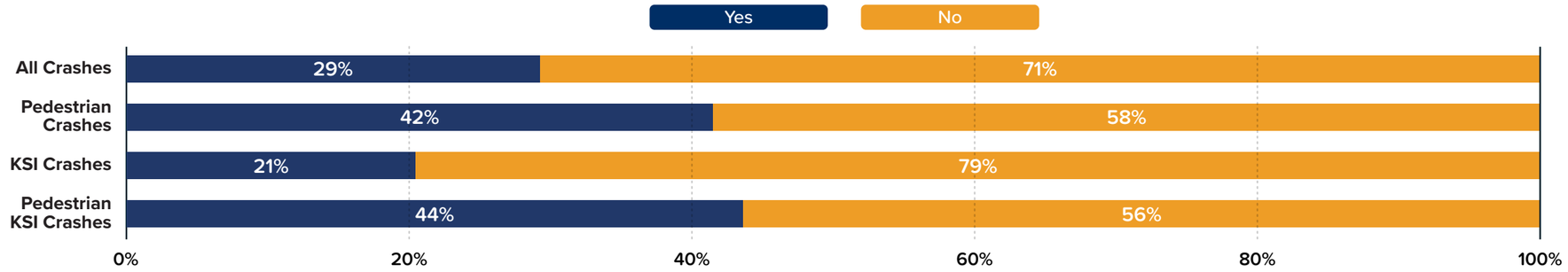


Most crashes occur away from bus stops, but pedestrian crashes are more common near bus stops, where pedestrian activity is higher.

Land Use

Proximity to Schools

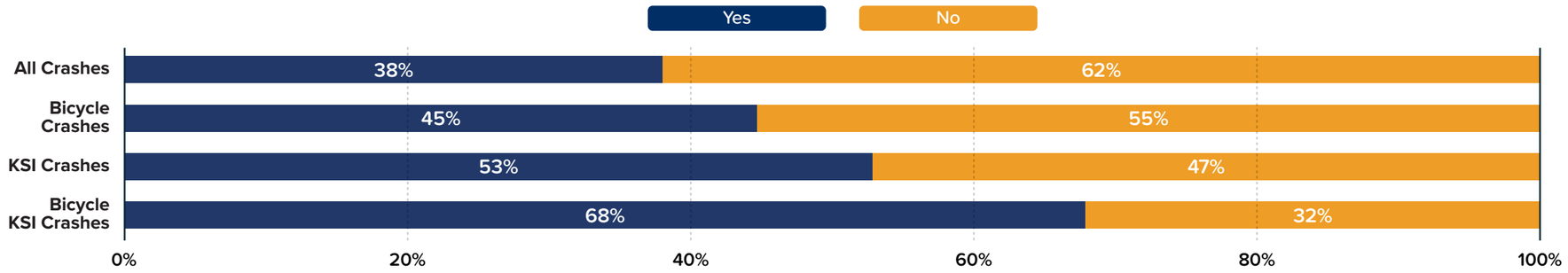
Schools have higher pedestrian activity, especially during arrival and dismissal periods. 29% of crashes and 21% of KSI crashes occurred within 1,500 feet of a school. In comparison, 42% of pedestrian crashes and 44% of pedestrian KSI crashes occurred within 1,500 feet of a school. Crashes involving people walking are disproportionately overrepresented near schools.



Pedestrian crashes and severe injuries are disproportionately concentrated near schools, reflecting higher walking activity during arrival and dismissal periods.

Proximity to Parks

Parks have higher bicyclist activity. 38% of crashes and 53% of KSI crashes occurred within 1,000 feet of a park. In comparison, 45% of bicycle crashes and 68% of bicycle KSI crashes occurred within 1,000 feet of a park. Crashes involving people biking are disproportionately overrepresented near parks.

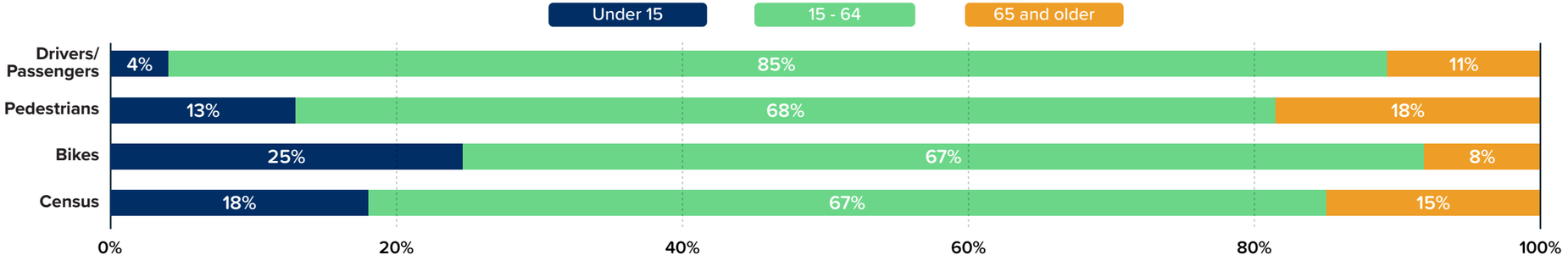


Bicycle crashes and severe injuries are more common near parks, where bicyclist activity is higher.

Demographics and Geography

Victim Profile by Age

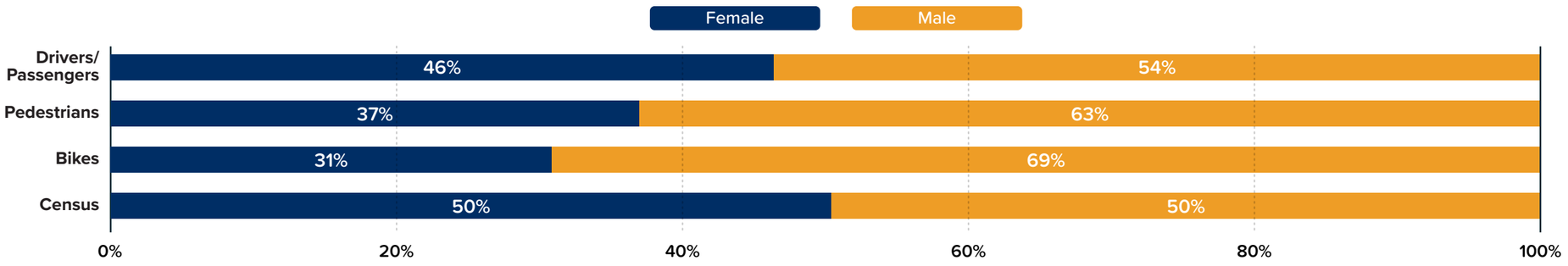
Vulnerable age groups (i.e., younger children and older adults) experience a disproportionate share of crashes in Orange County. People under the age of 15 make up 18% of the County of Orange population (incorporated and unincorporated) but represent 25% of the victims of bicycle crashes. Additionally, people over the age of 64 represent 15% of the County of Orange population (incorporated and unincorporated) yet represent 18% of the victims of pedestrian crashes.



Children and older adults experience a disproportionate share of pedestrian and bicycle crash injuries compared to their share of the population.

Victim Profile by Sex

Crash victims are more often male: men account for 54% of drivers/passengers, 63% of pedestrian victims, and 69% of bicycle victims, even though they make up about 50% of the County of Orange (incorporated and unincorporated) population.

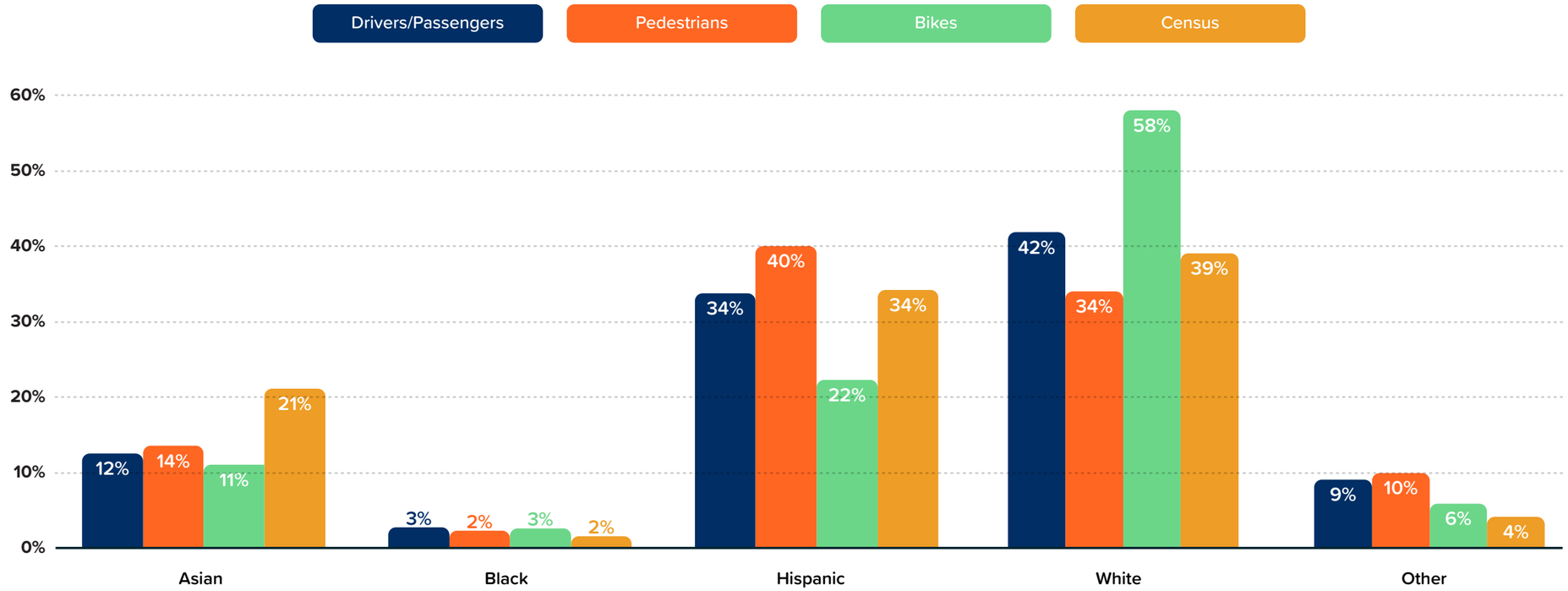


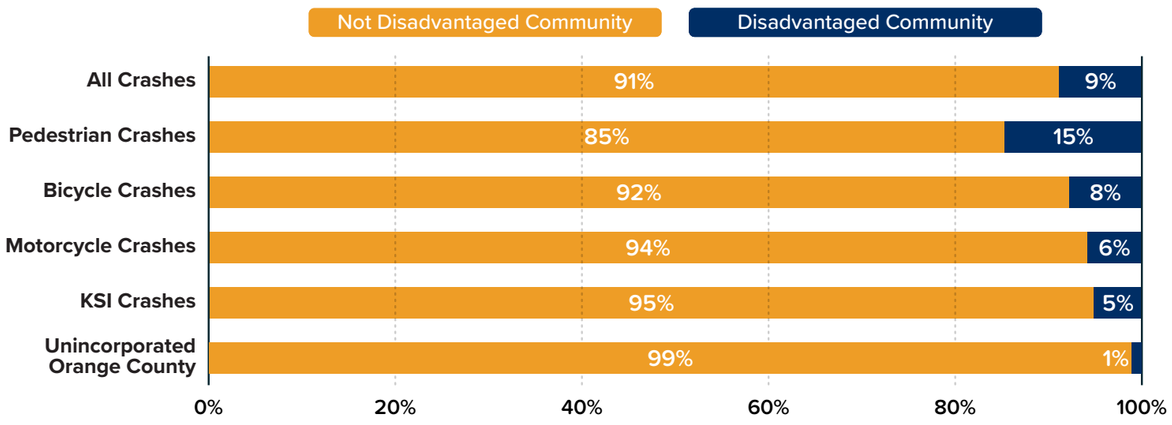
Men account for a higher share of crash victims across all modes, particularly among pedestrians and bicyclists.

Demographics and Geography

Victim Profile by Race

Victim race is determined at the discretion of the reporting officer and is only reported at the party level. This means that if people of multiple races are present in a vehicle, only the driver's race will be reported. Additionally, not all roadway users live within Orange County, and racial breakdown of crash victims may be further influenced by regional demographics.





Disadvantaged Communities

In the State of California, disadvantaged communities are defined as census tracts that experience the greatest burdens from a combination of economic, health, and environmental challenges. These include factors such as poverty, high unemployment, air and water pollution, hazardous waste exposure, and elevated rates of asthma and heart disease. Disadvantaged Communities within Unincorporated Orange County include Dale/Augusta Island and portions of Midway City.

Although less than 1% of roadways in Unincorporated Orange County are within state-designated disadvantaged communities, these areas account for a disproportionately high share of crashes: 9% of all reported crashes and 15% of pedestrian crashes.

Safety Focus Areas

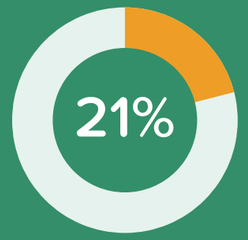
Crashes were mapped to identify intersections and roadways with the highest concentration of KSI crashes. The purpose of establishing Safety Focus Areas is to prioritize locations that experience a disproportionate share of KSI crashes, enabling focused investments in safety improvements where they are most needed. Although SR-74 is included in the overall study area as it intersects with numerous local roadways within unincorporated areas, it was excluded from the development of Safety Focus Areas to target County-maintained roadways and intersections.

Safety Focus Areas prioritize locations that experience a disproportionate share of KSI crashes, enabling focused investments in safety improvements where they are most needed.

Comprehensive Safety Focus Area

Reflective of County-maintained roadways and intersections where the highest concentrations of KSI crashes have occurred involving any mode of travel.

Percentage of County-maintained roadways:



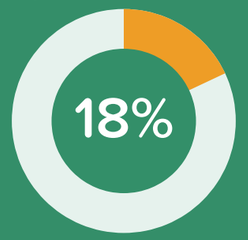
All KSI crashes:

A relatively **small** portion of the County-maintained roadway system, which excludes SR-74 (**21%**), accounts for nearly **70%** of KSI crashes in unincorporated Orange County.

Non-motorized Safety Focus Area ("Safety Corridors")

Reflective of County-maintained roadways and intersections with the highest concentrations of KSI crashes involving pedestrians and bicyclists.

Percentage of County-maintained roadways:



Pedestrian and bicycle KSI crashes:

This concentration is even **more pronounced** for pedestrians and bicyclists, as **88%** of their KSI crashes occurred on only **18%** of County-maintained roadways.

California Assembly Bill 43 - Safety Corridors

Prior to California Assembly Bill (AB) 43, speed limits were primarily determined by the "85th%ile rule". This traditional traffic engineering method sets speed limits based on the speed at or below which 85% of drivers travel in free-flowing conditions, under the assumption that most drivers choose safe and reasonable speeds.

AB 43 grants cities and counties greater flexibility to proactively lower speed limits in areas with high crash risk. The law prioritizes safety improvements for vulnerable road users such as pedestrians, bicyclists, seniors, children, and transit riders, who are disproportionately affected by high-speed crashes. Under AB 43, local jurisdictions may designate up to one-fifth (20%) of their local roads as Safety Corridors.

Within these Safety Corridors, local agencies are empowered to reduce speed limits by up to 5 mph below what would traditionally be allowed. This provides a powerful tool to reduce severe crashes and enhance safety on the most dangerous roadways.

California Assembly Bill 43 prioritizes safety improvements for vulnerable road users such as pedestrians, bicyclists, seniors, children, and transit riders, who are disproportionately affected by high-speed crashes.

Orange County Unincorporated Communites

Unincorporated Orange County includes areas in Orange County, California, that are not governed by a local municipality (a city or town) and are instead governed directly by the County. These areas include residential neighborhoods, commercial zones, and rural lands that rely on the County for municipal services such as law enforcement, public works, and land use planning.

- Anaheim Island
- Andora/Fairhope Island
- Beach/McFadden Island
- Bolsa/Pacific Island
- Costa Mesa Island
- Country Club Island
- Dale/Augusta Island
- Dana Point Harbor
- El Modena Islands
- Fairlynn Island
- Fountain Valley Island
- John Wayne Airport
- Katella/Rustic Island
- Ladera Ranch
- Las Flores
- Lincoln/Glassell Island
- Orange Park Acres
- Mac/Syracuse Island
- McFadden/Monroe
- Midway City
- Modjeska Canyon
- North Tustin
- Olive Heights
- Rancho Mission Viejo
- Rossmoor
- Santa Ana Country Club
- Santa Ana River Bridges
- Santiago Canyon Road
- Santiago Creek Island
- Silverado Canyon
- Trabuco Canyon
- Wagon Wheel

1 Northeast Communities

Country Club, Fairlynn, Lincoln/Glassell, Olive Heights, and Santiago Creek Islands

Key Takeaway: Over a third of crashes in the Northeast Communities are due to **unsafe vehicle speeds**.

Injury Crash Summary (2019 - 2023)

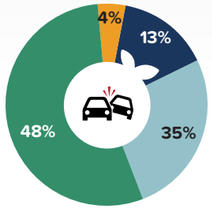
46 Total Injury Crashes

2 Pedestrian Crashes **(100% KSI)**

1 Bike Crashes **(0% KSI)**

2 Motorcycle Crashes **(50% KSI)**

Crash Severity



- **2** Fatal
- **6** Severe Injury
- **16** Other Visible Injury
- **22** Complaint of Pain

Impacted Populations

8 Crashes with Senior Victims (Age 65+)

4 Crashes with Youth Victims (Under age 18)

Top Violations

The most common primary causes of crashes in this community.

16 **35%** of all injury crashes caused by unsafe speed

3 **38%** of KSI crashes caused by improper turning

Top Crash Types

The most common injury-causing crash events in this community.

15 **33%** of all injury crashes were rear end

3 **38%** of KSI crashes were hit object

Behavior

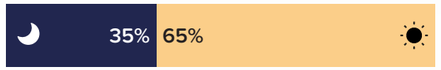
7 **15%** of all injury crashes involved at-fault drivers making left turns

2 **4%** of all injury crashes were hit and runs

7 **15%** of all injury crashes were primarily caused by someone driving or bicycling under the influence of drugs or alcohol

Crash Lighting Condition

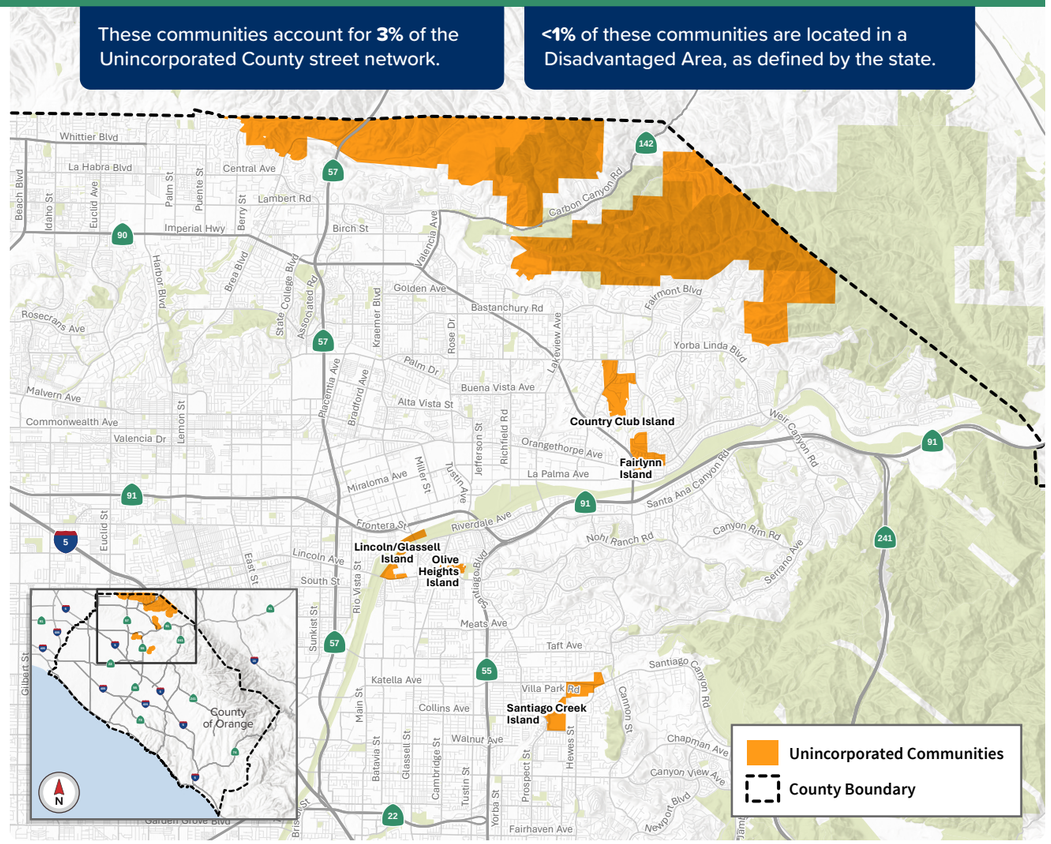
30 crashes occurred during daylight



16 crashes occurred at night/dusk-dawn

These communities account for **3%** of the Unincorporated County street network.

<1% of these communities are located in a Disadvantaged Area, as defined by the state.



Of all crashes within Unincorporated Orange County, this community accounts for...

3% of Total Injury Crashes

4% of KSI Crashes

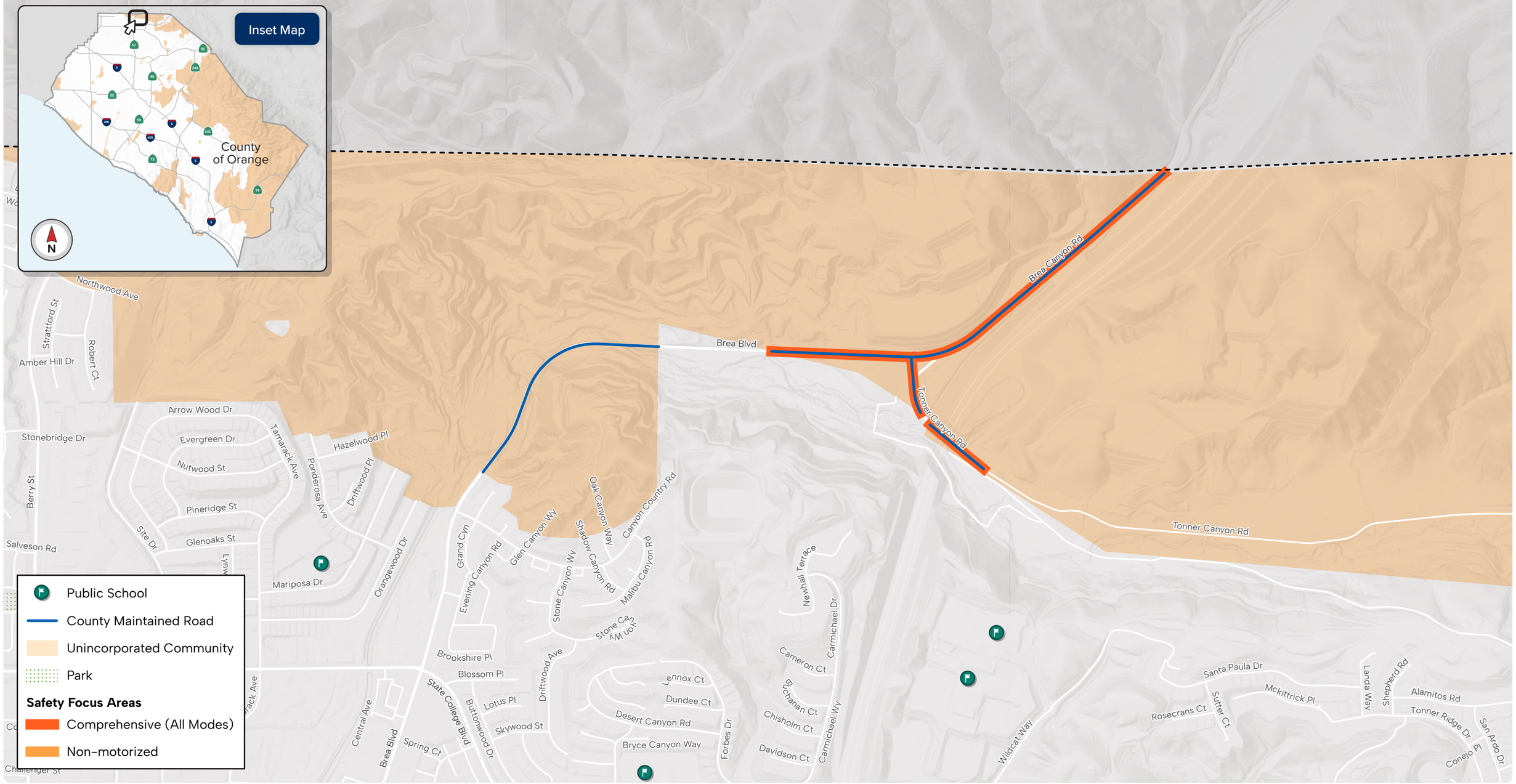
2% of Pedestrian Crashes

1% of Bike Crashes

1% of Motorcycle Crashes

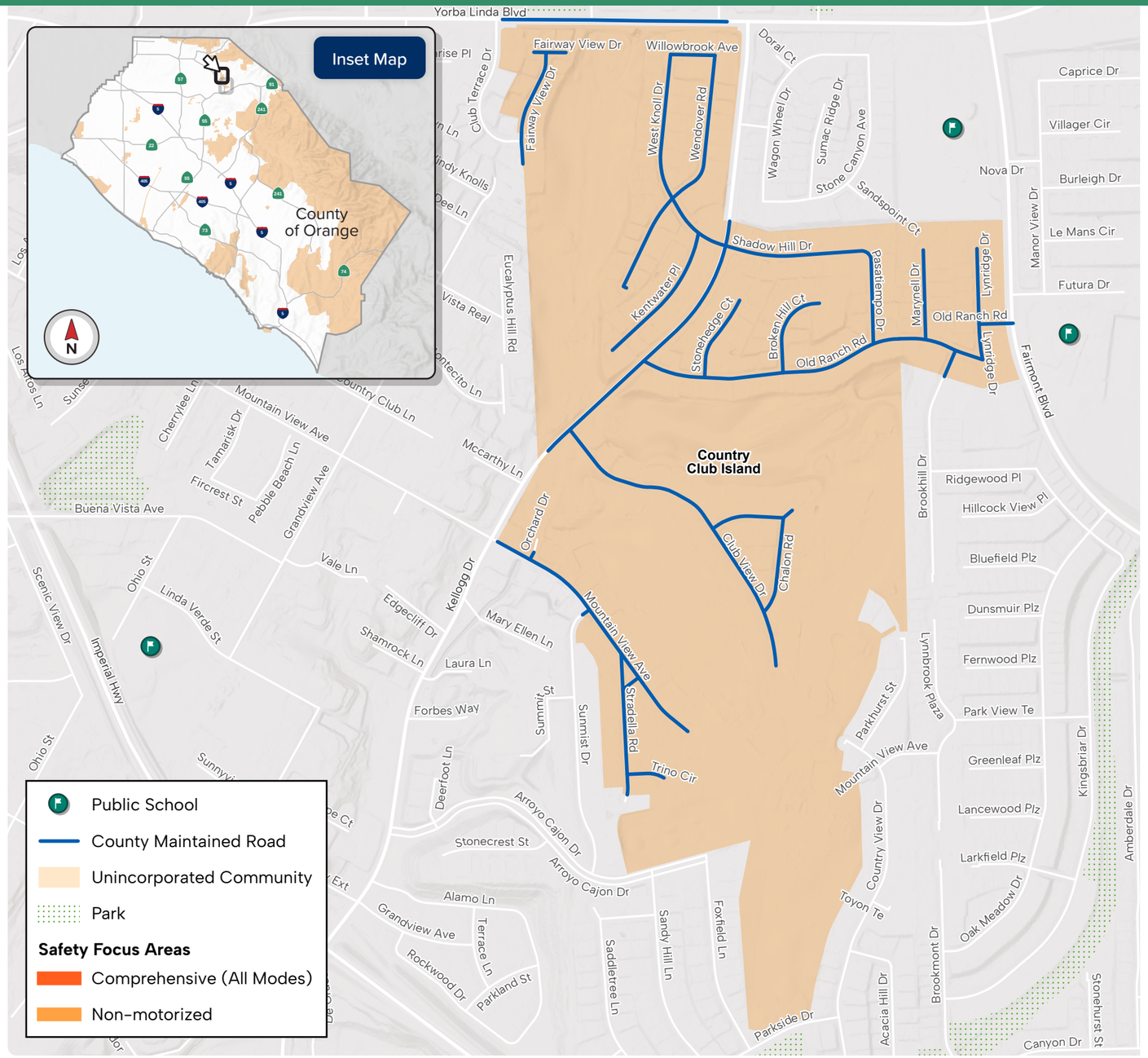
1 Northeast Communities

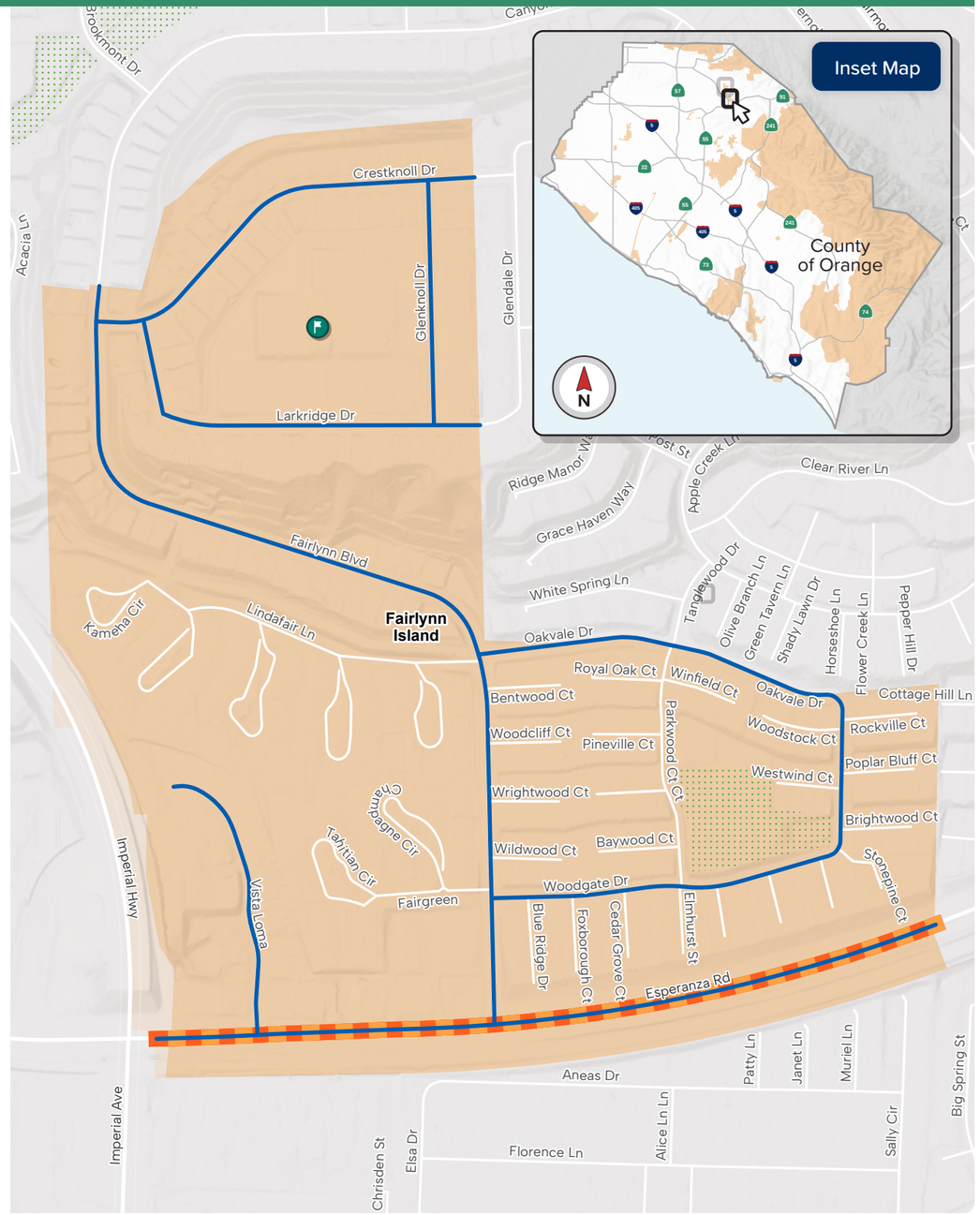
Brea Canyon/Tonner Canyon Road



1 Northeast Communities

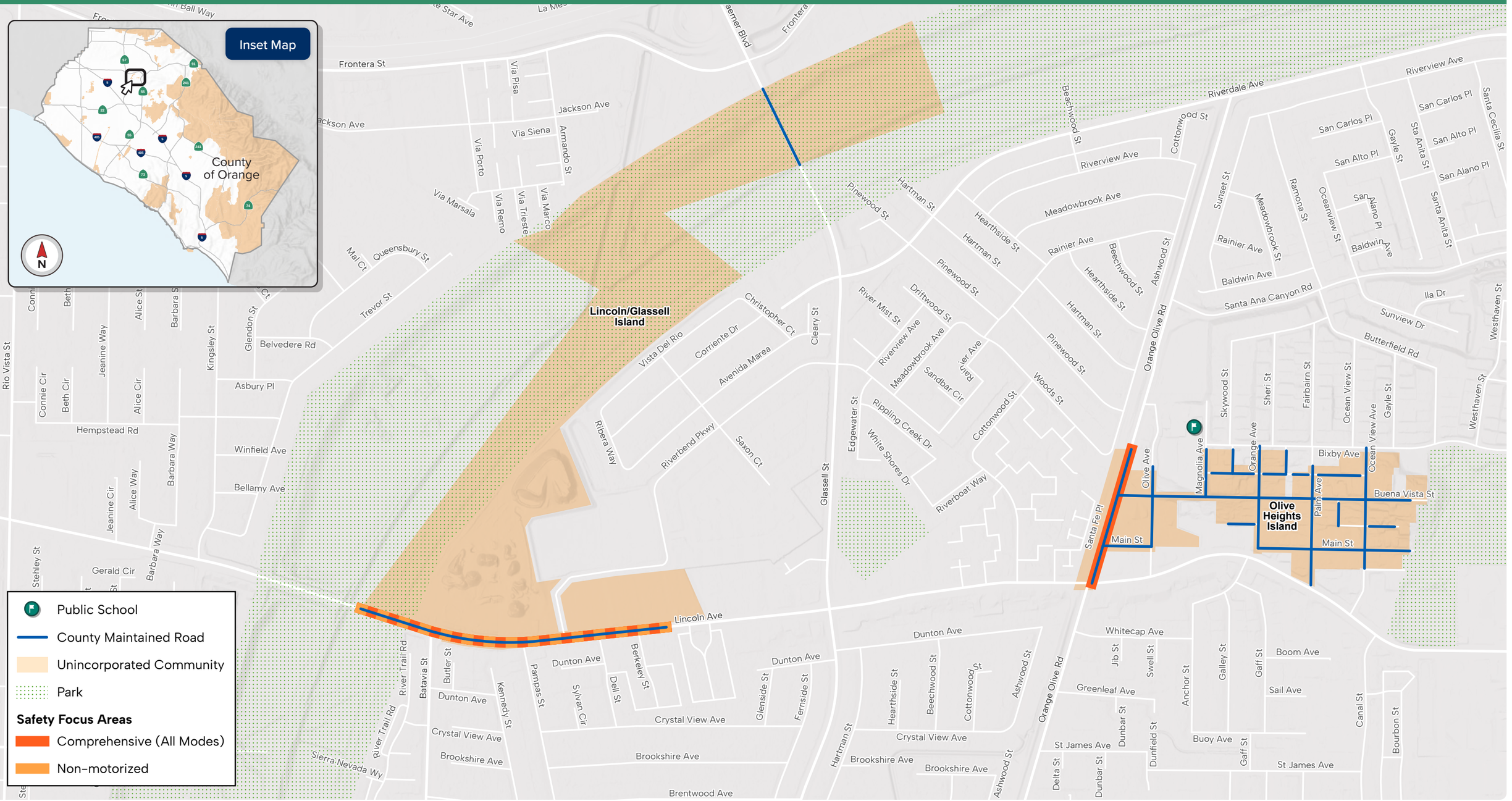
Country Club Island and Fairlynn Island





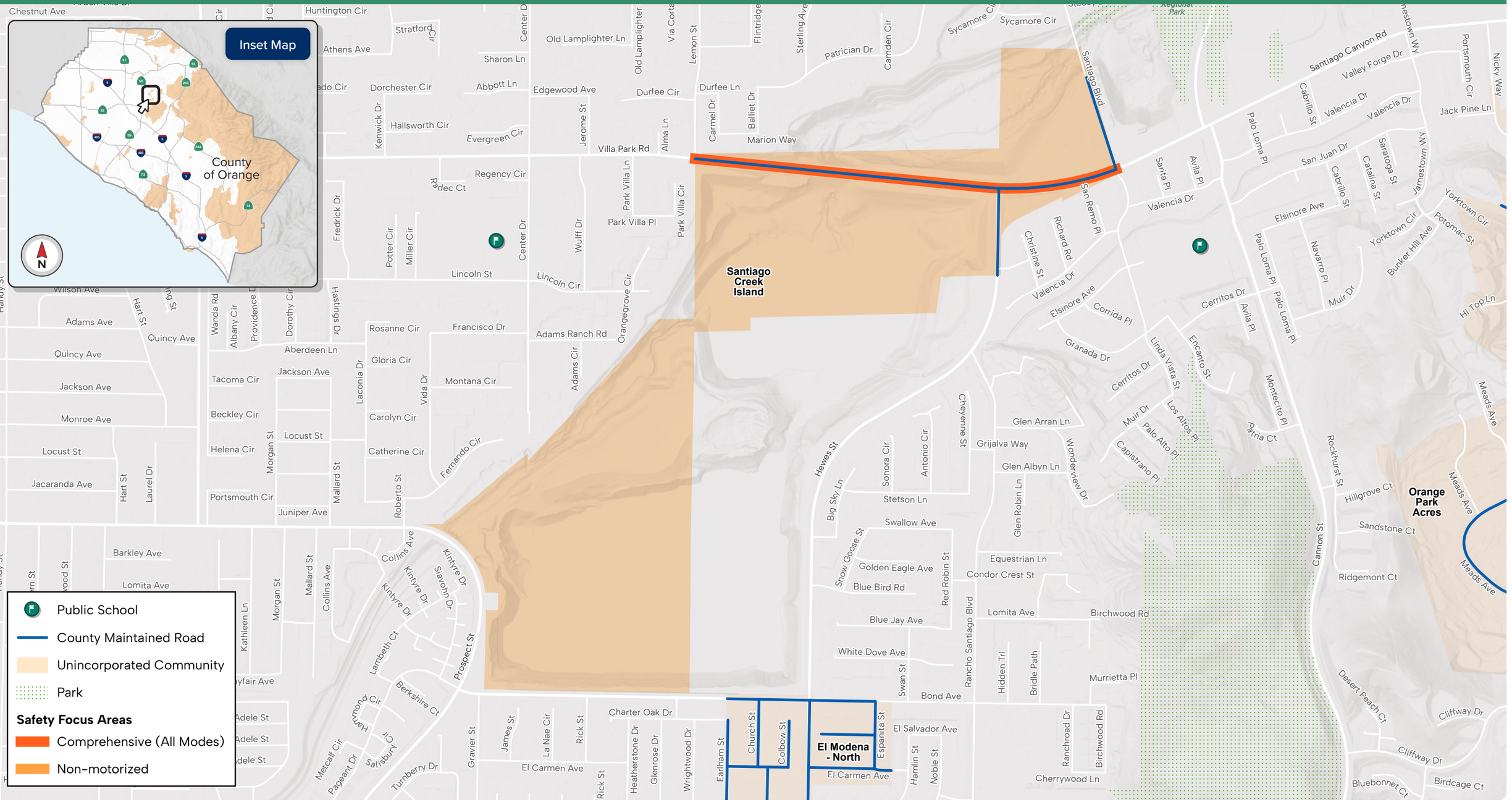
1 Northeast Communities

Lincoln/Glassell Island and Olive Heights Island



1 Northeast Communities

Santiago Creek Island



2 Anaheim Island and Surrounding Communities

Anaheim, Andora/Fairhope, Dale/Augusta, Katella/Rustic, and Mac/Syracuse Islands

Key Takeaway: Within Unincorporated Orange County, one in every five crashes in the Anaheim Island and Surrounding Communities was a **hit and run**—the highest rate of any community.

Injury Crash Summary (2019 - 2023)

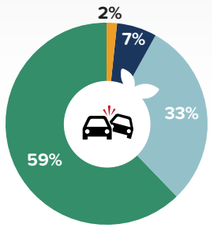
208 Total Injury Crashes

16 Pedestrian Crashes **(50% KSI)**

13 Bike Crashes **(8% KSI)**

10 Motorcycle Crashes **(20% KSI)**

Crash Severity



- **4** Fatal
- **14** Severe Injury
- **68** Other Visible Injury
- **122** Complaint of Pain

Impacted Populations

26 Crashes with Senior Victims (Age 65+)

23 Crashes with Youth Victims (Under age 18)

Top Violations

The most common primary causes of crashes in this community.

55 **26%** of all injury crashes caused by unsafe speed

7 **39%** of KSI crashes caused by pedestrian violation

Top Crash Types

The most common injury-causing crash events in this community.

69 **33%** of all injury crashes were rear end

8 **44%** of KSI crashes were vehicle/pedestrian

Behavior

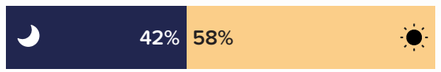
27 **13%** of all injury crashes involved at-fault drivers making left turns

42 **20%** of all injury crashes were hit and runs

28 **13%** of all injury crashes were primarily caused by someone driving or bicycling under the influence of drugs or alcohol

Crash Lighting Condition

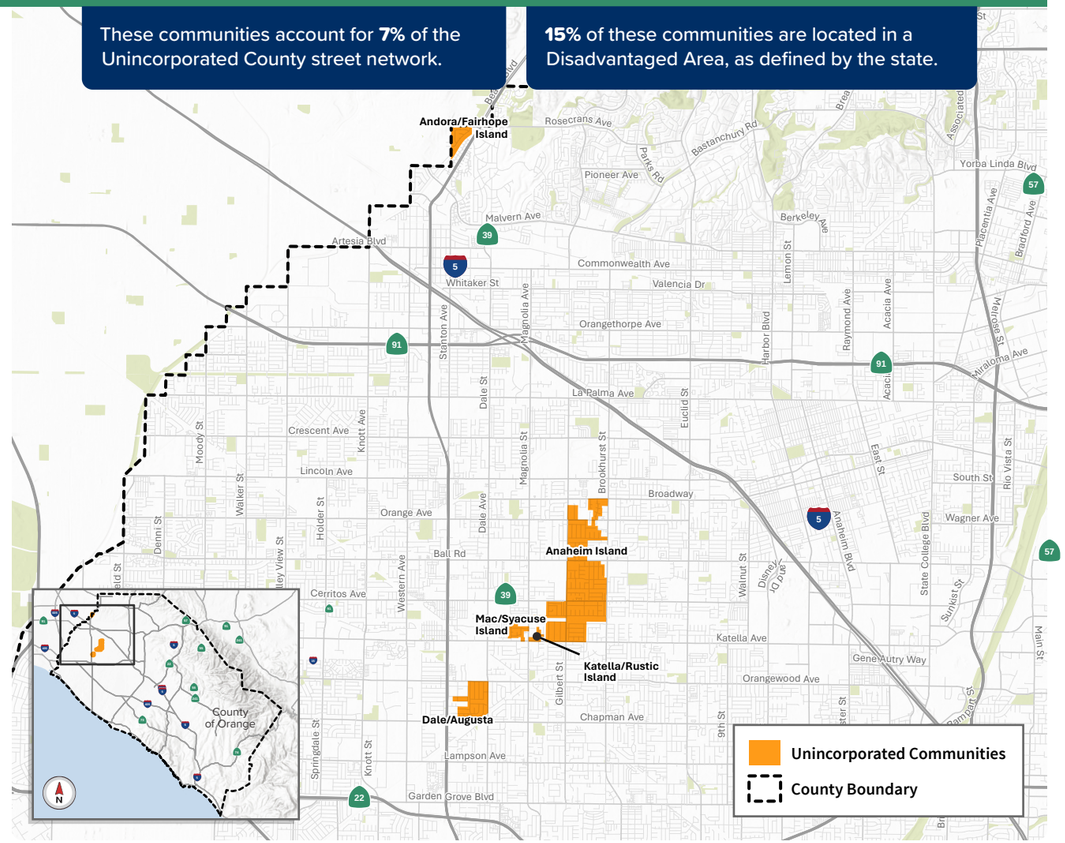
121 crashes occurred during daylight



87 crashes occurred at night/dusk-dawn

These communities account for **7%** of the Unincorporated County street network.

15% of these communities are located in a Disadvantaged Area, as defined by the state.



Of all crashes within Unincorporated Orange County, this community accounts for...

14% of Total Injury Crashes

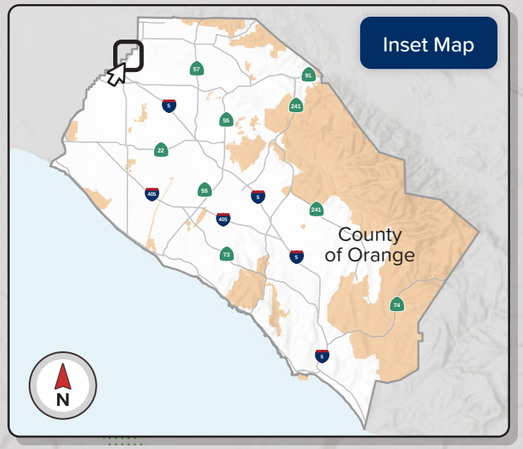
9% of KSI Crashes

18% of Pedestrian Crashes

11% of Bike Crashes

7% of Motorcycle Crashes

2 Anaheim Island and Surrounding Communities



Public School
County Maintained Road
Unincorporated Community
Park

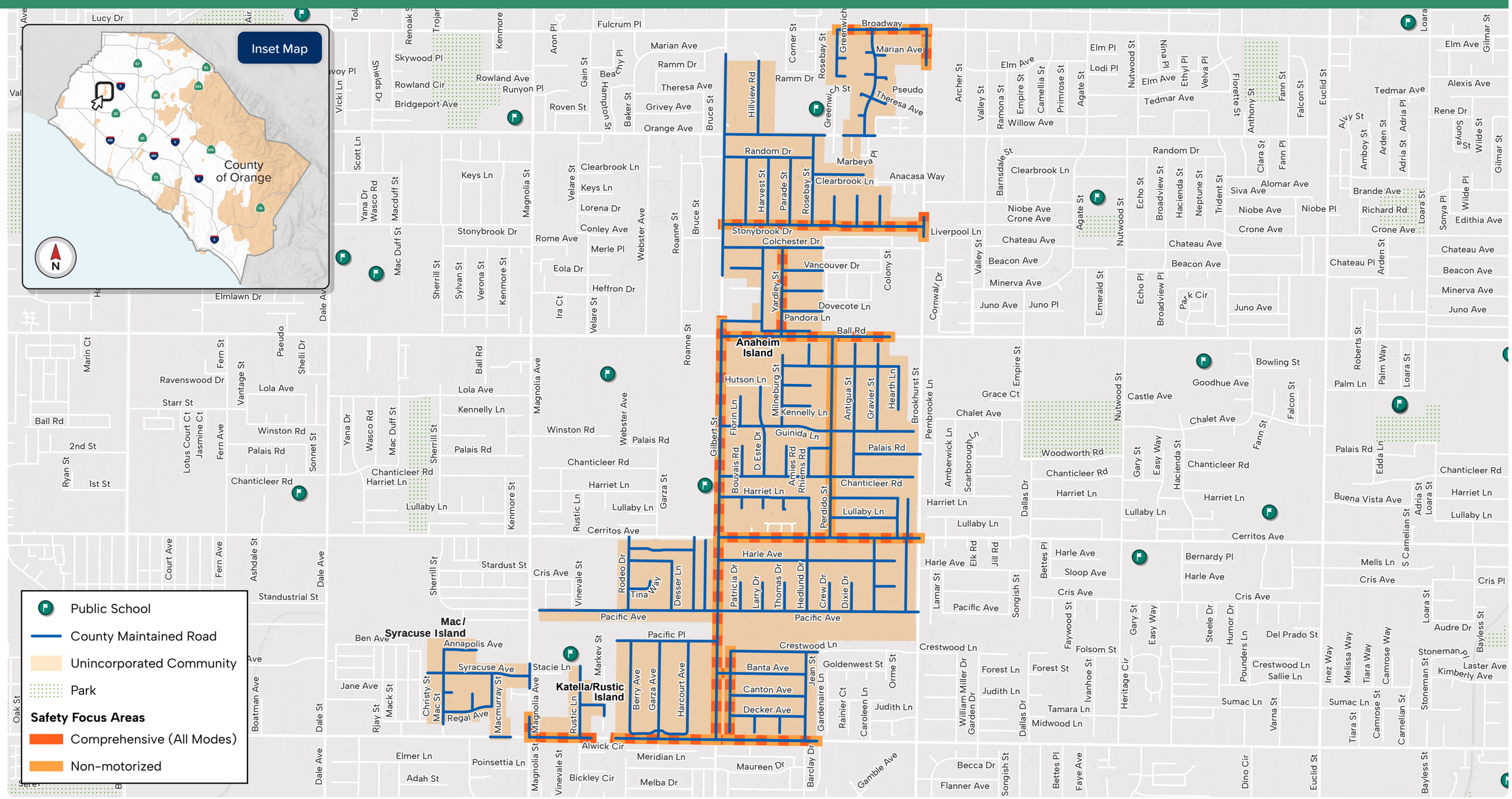
Safety Focus Areas

Comprehensive (All Modes)
Non-motorized

Ashgrove Dr
Mercado Ave
Andora Dr
Barrington Dr
Andora/Fairhope Island
Stanton Ave
Delafield Dr
Fairhope Dr
Stanbrook Dr
Carrey Ave
Alondra Blvd
Alameda Wy
Rosecrans Ave
Emery Ranch Rd
Primrose Ln
Candlewood Way
Buena Tierra Pl
Buena Tierra Cir
Pebble Beach Dr
Knollwood Ct
Hillcrest St
Trevino Wy
Waverly Cir
Minorca Wy
Toledo Wy
Waverly Dr
Waverly Pl
Los Coyotes Dr
Madrid Plaza
Elliot Green
Elliott Green
Bonnie Brae Dr
Durango Dr
Guadalajara Wy
Erskine Green
Galloway Green
St Andrews Ave
Beach Blvd
Guadalajara Way
Ridglea Ave
Estepona Wy
Ferguson Green
Daroca Way
Argyle Dr
Ginnis Green
Sunnybrook Ave
Lincolnshire Ave
St Andrews Cir
Daroca Wy
Avila Wy
Firth Green
Glasgow Green
Argyle Way
Somerset St

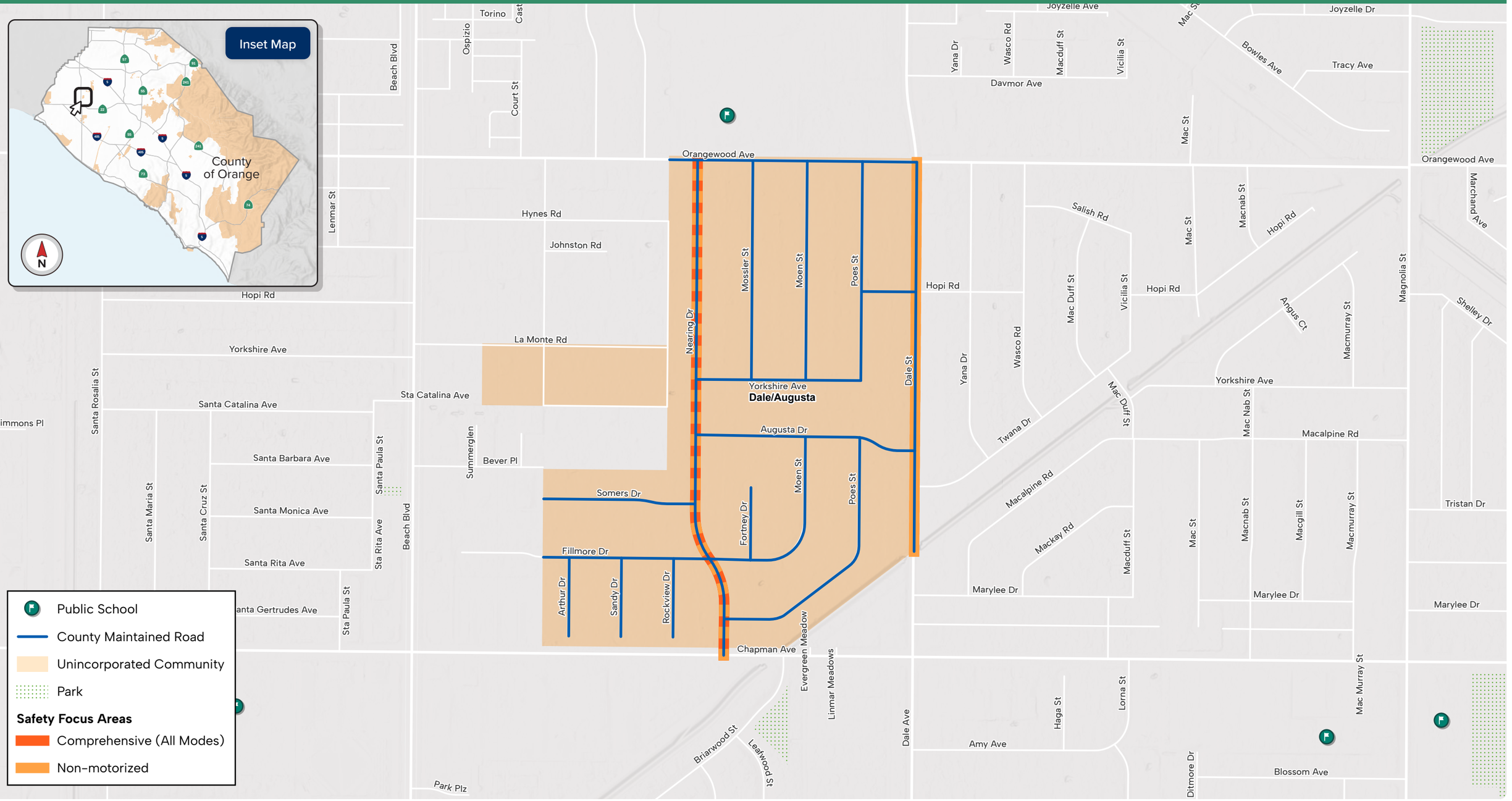
2 Anaheim Island and Surrounding Communities

Anaheim, Katella/Rustic Island, and Mac/Syracuse Island



2 Anaheim Island and Surrounding Communities

Dale/Augusta Island



3 Rossmoor

Key Takeaway: Within Unincorporated Orange County, Rossmoor has the highest proportion of crashes involving **senior victims** (26%) and **youth victims** (23%).

Injury Crash Summary (2019 - 2023)

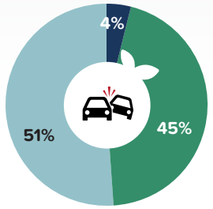
47 Total Injury Crashes

8 Pedestrian Crashes **(25% KSI)**

6 Bike Crashes **(0% KSI)**

1 Motorcycle Crashes **(0% KSI)**

Crash Severity



- **0** Fatal
- **2** Severe Injury
- **24** Other Visible Injury
- **21** Complaint of Pain

Impacted Populations

12 Crashes with Senior Victims (Age 65+)

11 Crashes with Youth Victims (Under age 18)

Top Violations

The most common primary causes of crashes in this community.

11 **23%** of all injury crashes caused by automobile right of way violation

1 **50%** of KSI crashes caused by pedestrian right of way violation

Top Crash Types

The most common injury-causing crash events in this community.

18 **38%** of all injury crashes were broadside

2 **100%** of KSI crashes were vehicle/pedestrian

Behavior

7 **15%** of all injury crashes involved at-fault drivers making left turns

4 **9%** of all injury crashes were hit and runs

2 **4%** of all injury crashes were primarily caused by someone driving or bicycling under the influence of drugs or alcohol

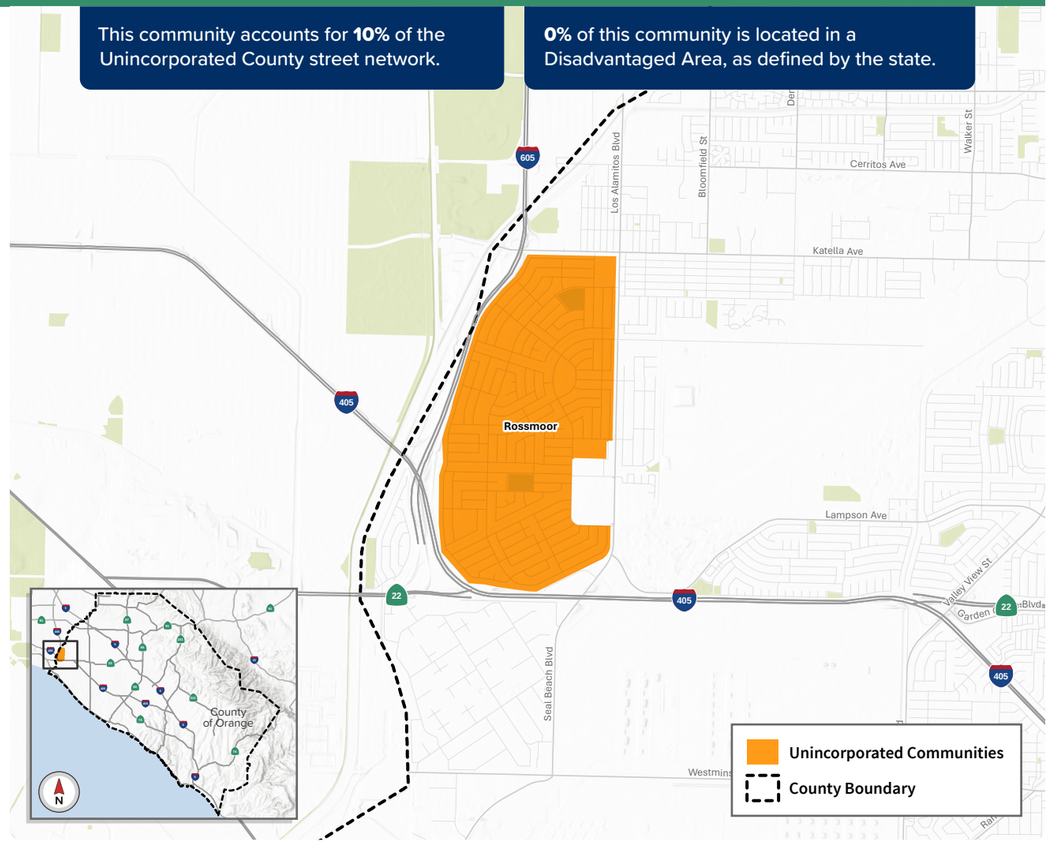
Crash Lighting Condition

39 crashes occurred during daylight

8 crashes occurred at night/dusk-dawn

This community accounts for **10%** of the Unincorporated County street network.

0% of this community is located in a Disadvantaged Area, as defined by the state.



Of all crashes within Unincorporated Orange County, this community accounts for...

3% **of Total Injury Crashes**

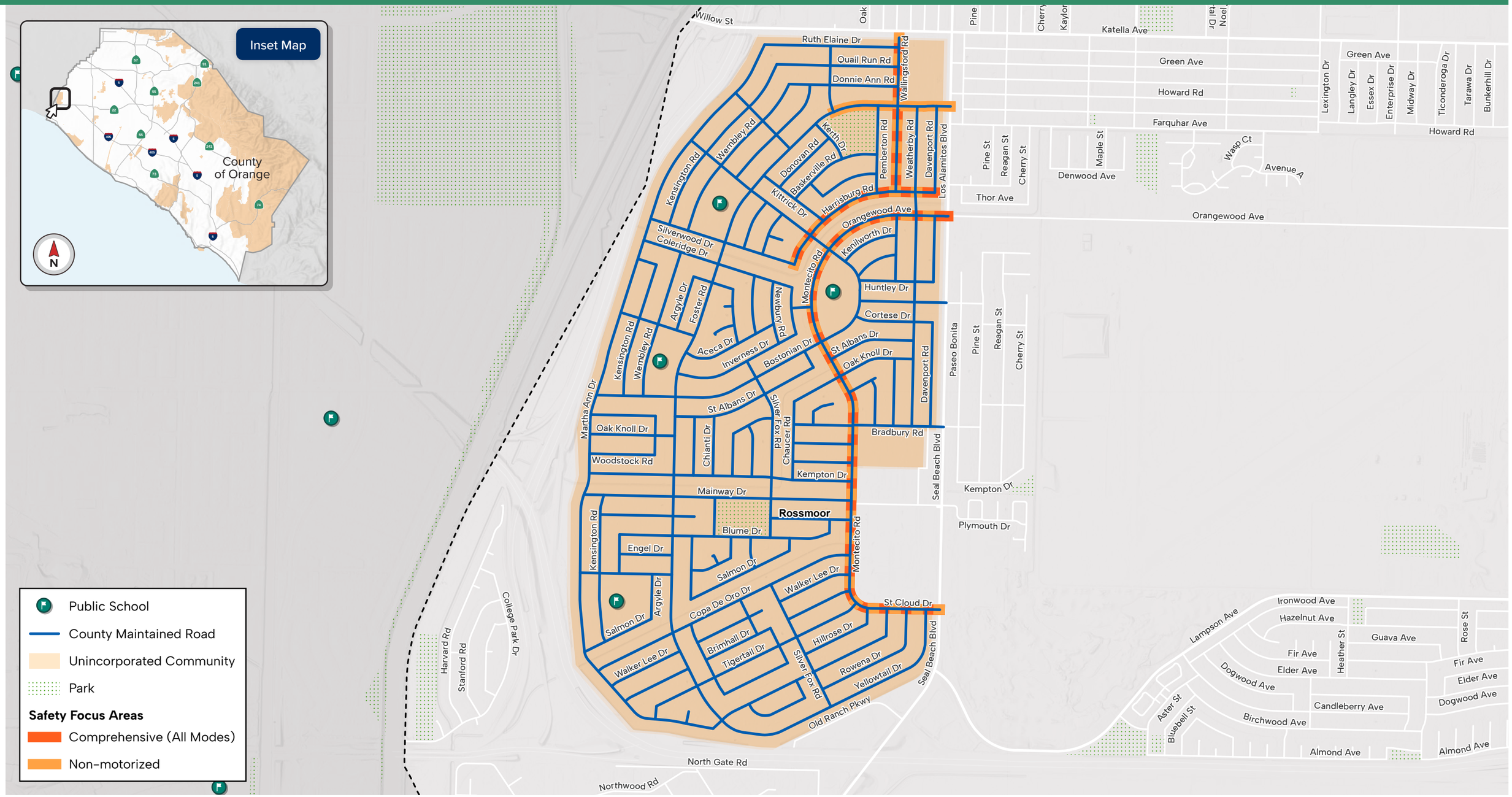
1% of KSI Crashes

9% of Pedestrian Crashes

5% of Bike Crashes

1% of Motorcycle Crashes

3 Rossmoor


Inset Map
County of Orange
N
Willow St
Ruth Elaine Dr
Quail Run Rd
Donnie Ann Rd
Wallingsford Rd
Katella Ave
Green Ave
Howard Rd
Farquhar Ave
Lexington Dr
Langley Dr
Essex Dr
Enterprise Dr
Midway Dr
Ticonderoga Dr
Tarawa Dr
Bunkerhill Dr
Wembley Rd
Kensington Rd
Keith Dr
Donovan Rd
Baskerville Rd
Pemberton Rd
Weatherby Rd
Davenport Rd
Los Alamitos Blvd
Harrisburg Rd
Kittrick Dr
Orangewood Ave
Kenilworth Dr
Montecito Rd
Silverwood Dr
Coleridge Dr
Argyle Dr
Foster Rd
Newbury Rd
Huntley Dr
Cortese Dr
St Albans Dr
Oak Knoll Dr
Aceca Dr
Inverness Dr
Bostonian Dr
Martha Ann Dr
Chianti Dr
Silver Fox Rd
Chaucer Rd
Bradbury Rd
Seal Beach Blvd
Paseo Bonita
Pine St
Reagan St
Cherry St
Maple St
Denwood Ave
Thor Ave
Wasp Ct
Avenue A
Kempton Dr
Plymouth Dr
Woodstock Rd
Mainway Dr
Rossmoor
Blume Dr
Engel Dr
Salmon Dr
Copa De Oro Dr
Walker Lee Dr
Brimhall Dr
Tigertail Dr
Hillrose Dr
Rowena Dr
Yellowtail Dr
St Cloud Dr
Old Ranch Pkwy
North Gate Rd
Northwood Rd
Harvard Rd
Stanford Rd
College Park Dr
Lampson Ave
Ironwood Ave
Hazelnut Ave
Guava Ave
Rose St
Heather St
Fir Ave
Elder Ave
Dogwood Ave
Candleberry Ave
Birchwood Ave
Aster St
Bluebell St
Almond Ave
Public School
County Maintained Road
Unincorporated Community
Park
Safety Focus Areas
Comprehensive (All Modes)
Non-motorized

4 El Modena Island

Key Takeaway: El Modena is the only community in Unincorporated Orange County with **no fatalities or severe injuries** within the five year period.

Injury Crash Summary (2019 - 2023)

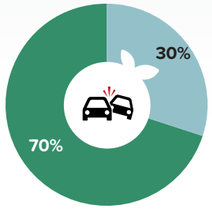
54 Total Injury Crashes

10 Pedestrian Crashes **(0% KSI)**

2 Bike Crashes **(0% KSI)**

0 Motorcycle Crashes **(0% KSI)**

Crash Severity



- **0** Fatal
- **0** Severe Injury
- **16** Other Visible Injury
- **38** Complaint of Pain

Impacted Populations

8 Crashes with Senior Victims (Age 65+)

11 Crashes with Youth Victims (Under age 18)

Top Violations

The most common primary causes of crashes in this community.

14 **26%** of all injury crashes caused by automobile right of way violation

Top Crash Types

The most common injury-causing crash events in this community.

16 **30%** of all injury crashes were broadside

Behavior

11 **20%** of all injury crashes involved at-fault drivers making left turns

4 **7%** of all injury crashes were hit and runs

8 **15%** of all injury crashes were primarily caused by someone driving or bicycling under the influence of drugs or alcohol

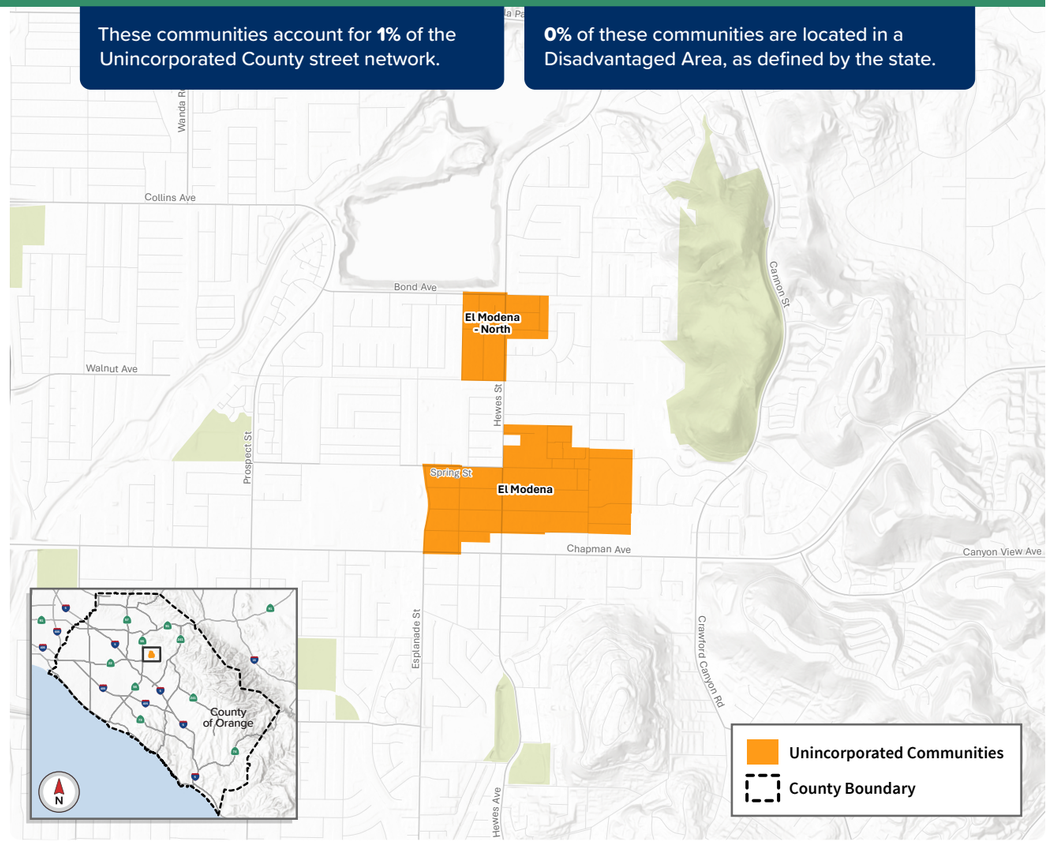
Crash Lighting Condition

37 crashes occurred during daylight

17 crashes occurred at night/dusk-dawn

These communities account for **1%** of the Unincorporated County street network.

0% of these communities are located in a Disadvantaged Area, as defined by the state.



Of all crashes within Unincorporated Orange County, this community accounts for...

4% of Total Injury Crashes

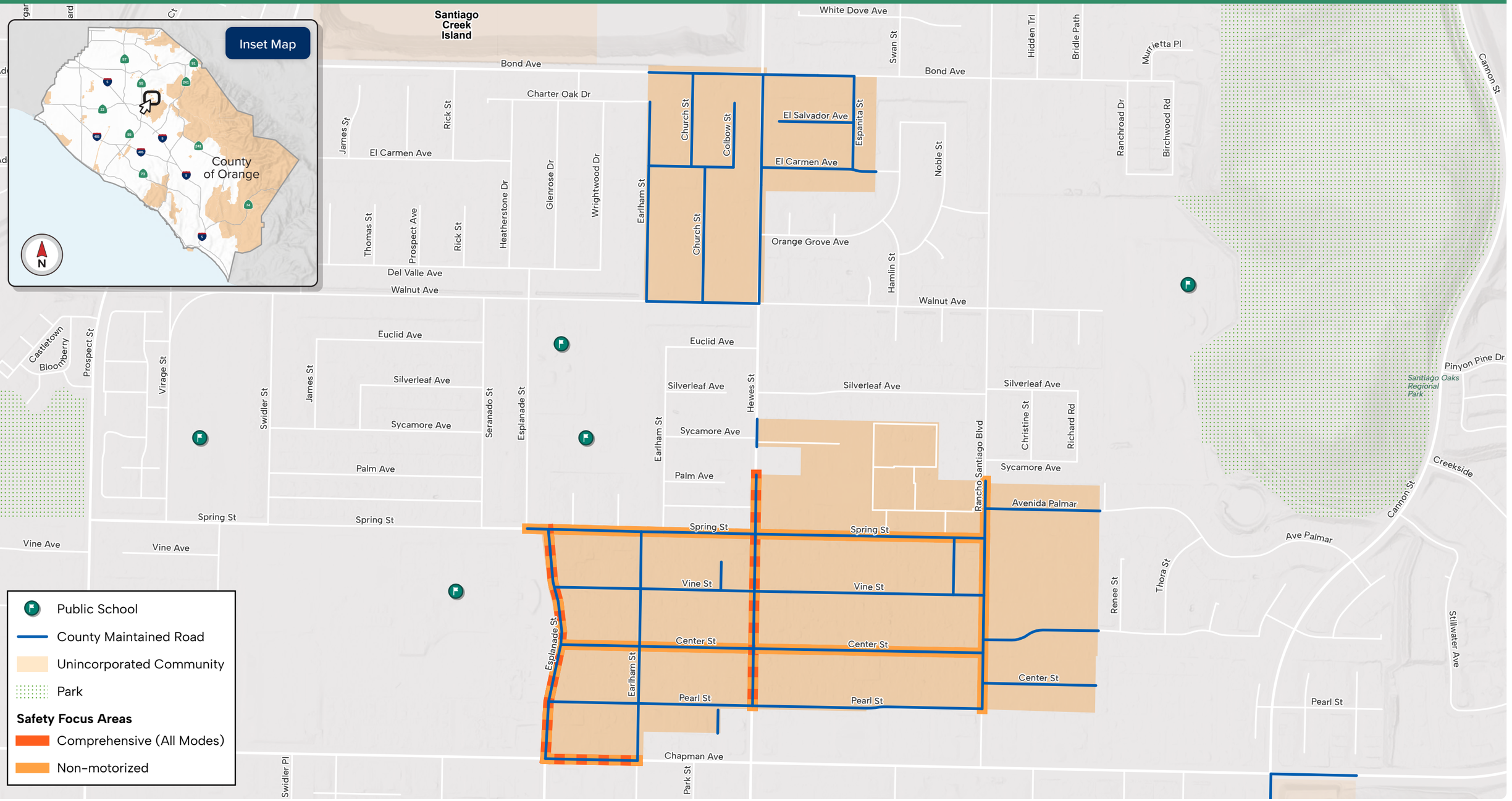
0% of KSI Crashes

11% of Pedestrian Crashes

2% of Bike Crashes

0% of Motorcycle Crashes

4 El Modena Island



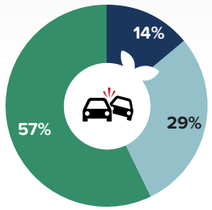
5 Orange Park Acres

Key Takeaway: Most crashes in Orange Park Acres were caused by **unsafe vehicle speed** violations.

Injury Crash Summary (2019 - 2023)

7	0	0	1
Total Injury Crashes	Pedestrian Crashes (#% KSI)	Bike Crashes (#% KSI)	Motorcycle Crashes (#% KSI)

Crash Severity



- 0 Fatal
- 1 Severe Injury
- 2 Other Visible Injury
- 4 Complaint of Pain

Impacted Populations

- 0 Crashes with Senior Victims (Age 65+)
- 0 Crashes with Youth Victims (Under age 18)

Top Violations

The most common primary causes of crashes in this community.

- 5 **71%** of all injury crashes caused by unsafe speed
- 1 **100%** of KSI crashes caused by automobile right of way violation

Top Crash Types

The most common injury-causing crash events in this community.

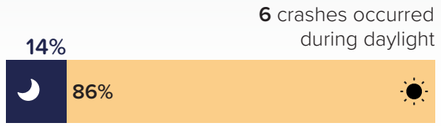
- 5 **71%** of all injury crashes were rear end
- 1 **100%** of KSI crashes were broadside

Behavior

- 1 **14%** of all injury crashes involved at-fault drivers making left turns
- 0 **0%** of all injury crashes were hit and runs
- 0 **0%** of all injury crashes were primarily caused by someone driving or bicycling under the influence of drugs or alcohol

Crash Lighting Condition

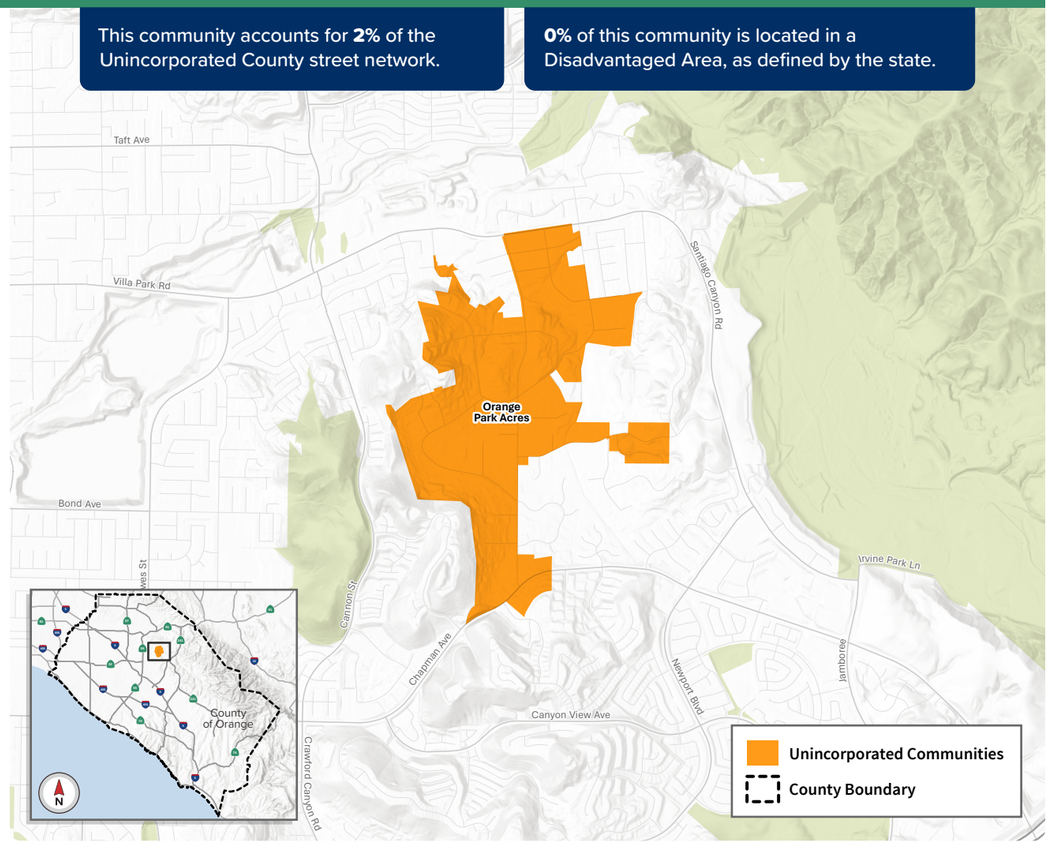
6 crashes occurred during daylight



1 crashes occurred at night/dusk-dawn

This community accounts for **2%** of the Unincorporated County street network.

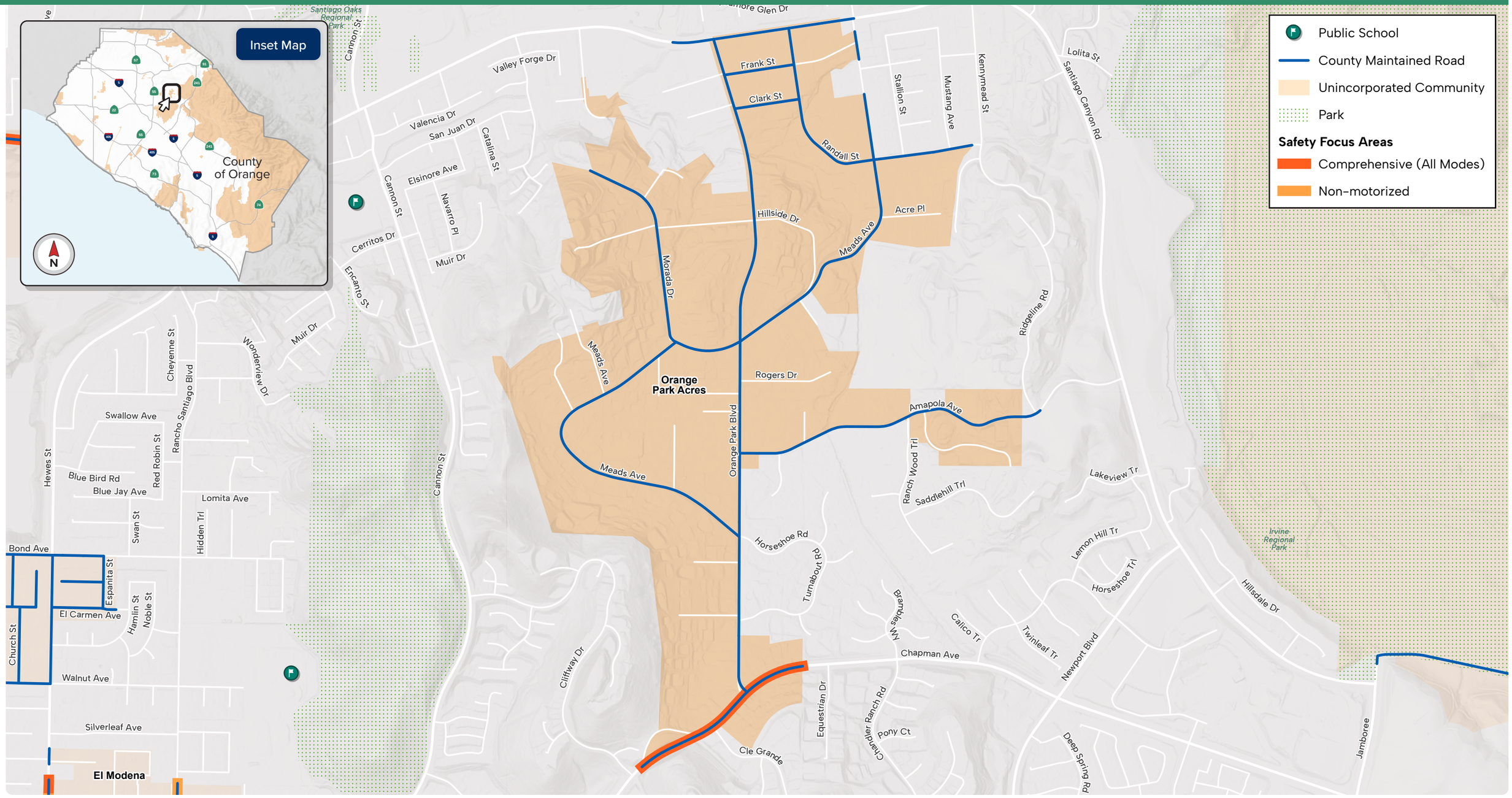
0% of this community is located in a Disadvantaged Area, as defined by the state.



Of all crashes within Unincorporated Orange County, this community accounts for...

0%	1%	0%
of Total Injury Crashes	of KSI Crashes	of Pedestrian Crashes
0%	1%	
of Bike Crashes	of Motorcycle Crashes	

5 Orange Park Acres



6 North Tustin

Key Takeaway: Within Unincorporated Orange County, 17% of crashes in North Tustin were primarily caused by a driver or bicyclist under the **influence of alcohol or drugs**—the highest share of any community.

Injury Crash Summary (2019 - 2023)

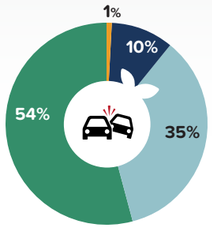
190 Total Injury Crashes

12 Pedestrian Crashes **(42% KSI)**

14 Bike Crashes **(14% KSI)**

8 Motorcycle Crashes **(38% KSI)**

Crash Severity



- **2** Fatal
- **19** Severe Injury
- **66** Other Visible Injury
- **103** Complaint of Pain

Impacted Populations

28 Crashes with Senior Victims (Age 65+)

29 Crashes with Youth Victims (Under age 18)

Top Violations

The most common primary causes of crashes in this community.

46 **24%** of all injury crashes caused by unsafe speed

7 **33%** of KSI crashes caused by driving or bicycling under the influence or alcohol

Top Crash Types

The most common injury-causing crash events in this community.

66 **35%** of all injury crashes were broadside

5 **24%** of KSI crashes were broadside

Behavior

40 **21%** of all injury crashes involved at-fault drivers making left turns

11 **6%** of all injury crashes were hit and runs

32 **17%** of all injury crashes were primarily caused by someone driving or bicycling under the influence of drugs or alcohol

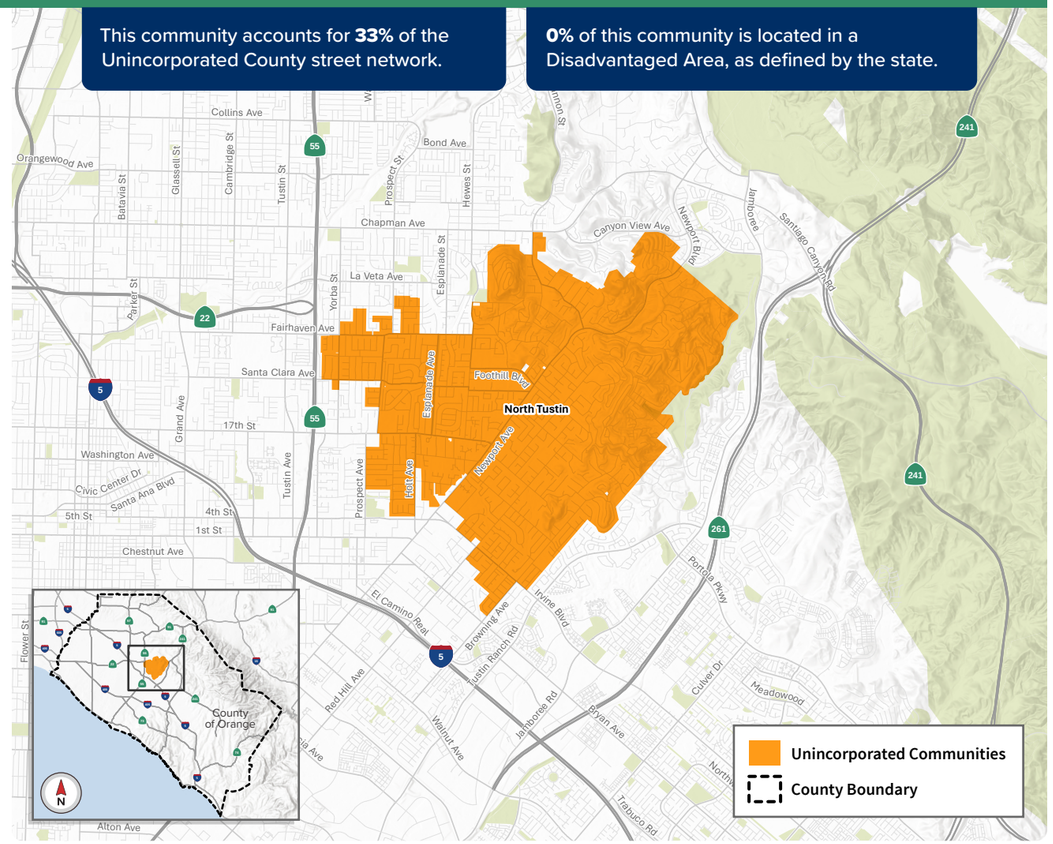
Crash Lighting Condition

131 crashes occurred during daylight

59 crashes occurred at night/dusk-dawn

This community accounts for 33% of the Unincorporated County street network.

0% of this community is located in a Disadvantaged Area, as defined by the state.



Of all crashes within Unincorporated Orange County, this community accounts for...

13% of Total Injury Crashes

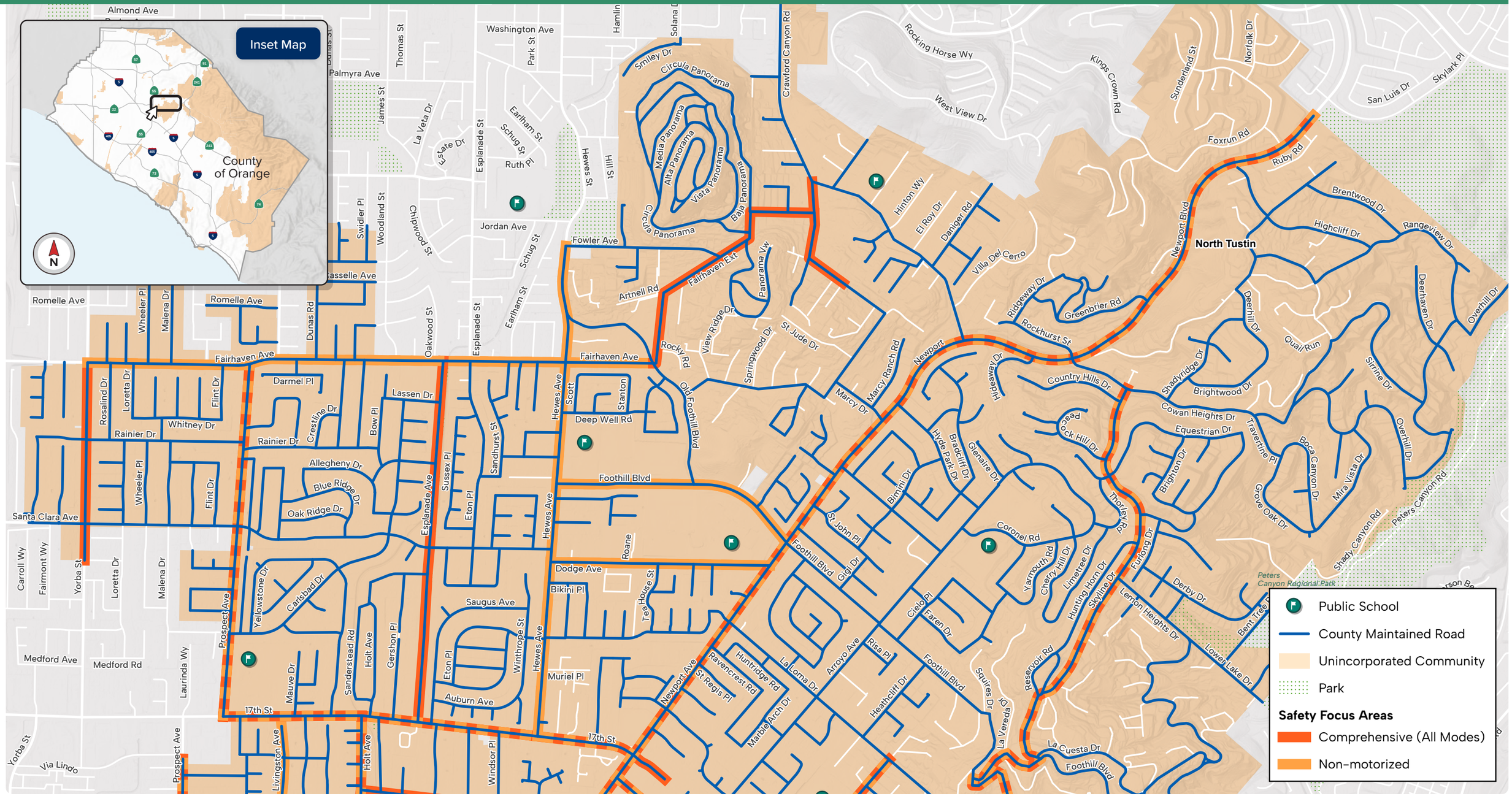
11% of KSI Crashes

13% of Pedestrian Crashes

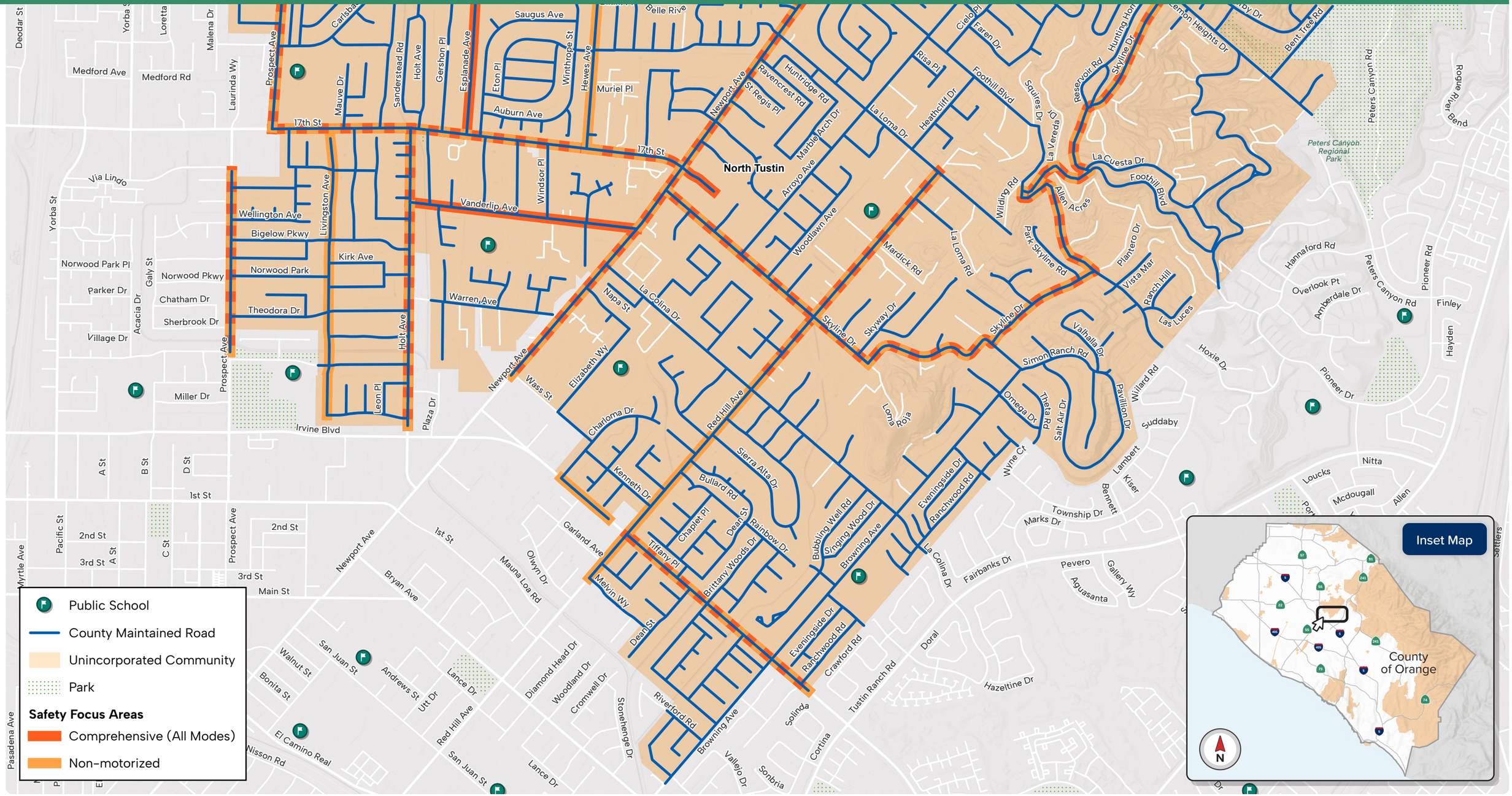
12% of Bike Crashes

5% of Motorcycle Crashes

6 North Tustin



6 North Tustin



7 Midway City and Surrounding Communities

Midway City and Beach/McFadden, Bolsa/Pacific, Fountain Valley, and McFadden/Monroe Islands

Key Takeaway: These communities account for just 4% of the Unincorporated County street network, but 25% of the **pedestrian crashes** in Unincorporated Orange County.

Injury Crash Summary (2019 - 2023)

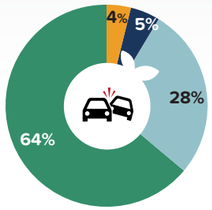
209 **Total Injury Crashes**

22 Pedestrian Crashes **(27% KSI)**

17 Bike Crashes **(12% KSI)**

13 Motorcycle Crashes **(21% KSI)**

Crash Severity



- **8** Fatal
- **10** Severe Injury
- **58** Other Visible Injury
- **133** Complaint of Pain

Impacted Populations

38 Crashes with Senior Victims (Age 65+)

23 Crashes with Youth Victims (Under age 18)

Top Violations

The most common primary causes of crashes in this community.

59 **28%** of all injury crashes caused by unsafe speed

6 **33%** of KSI crashes caused by pedestrian violation

Top Crash Types

The most common injury-causing crash events in this community.

69 **33%** of all injury crashes were rear end

6 **33%** of KSI crashes were vehicle/pedestrian

Behavior

27 **13%** of all injury crashes involved at-fault drivers making left turns

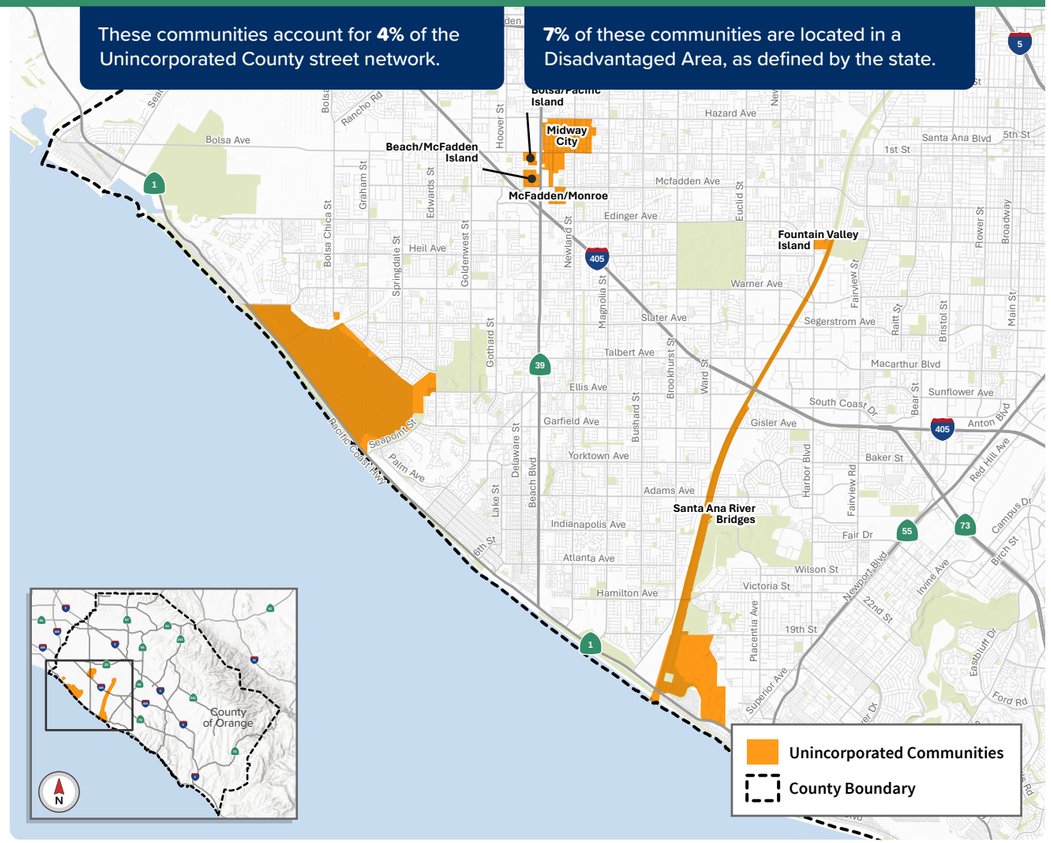
24 **11%** of all injury crashes were hit and runs

31 **15%** of all injury crashes were primarily caused by someone driving or bicycling under the influence of drugs or alcohol

Crash Lighting Condition

145 crashes occurred during daylight

64 crashes occurred at night/dusk-dawn



Of all crashes within Unincorporated Orange County, this community accounts for...

14% **of Total Injury Crashes**

9% of KSI Crashes

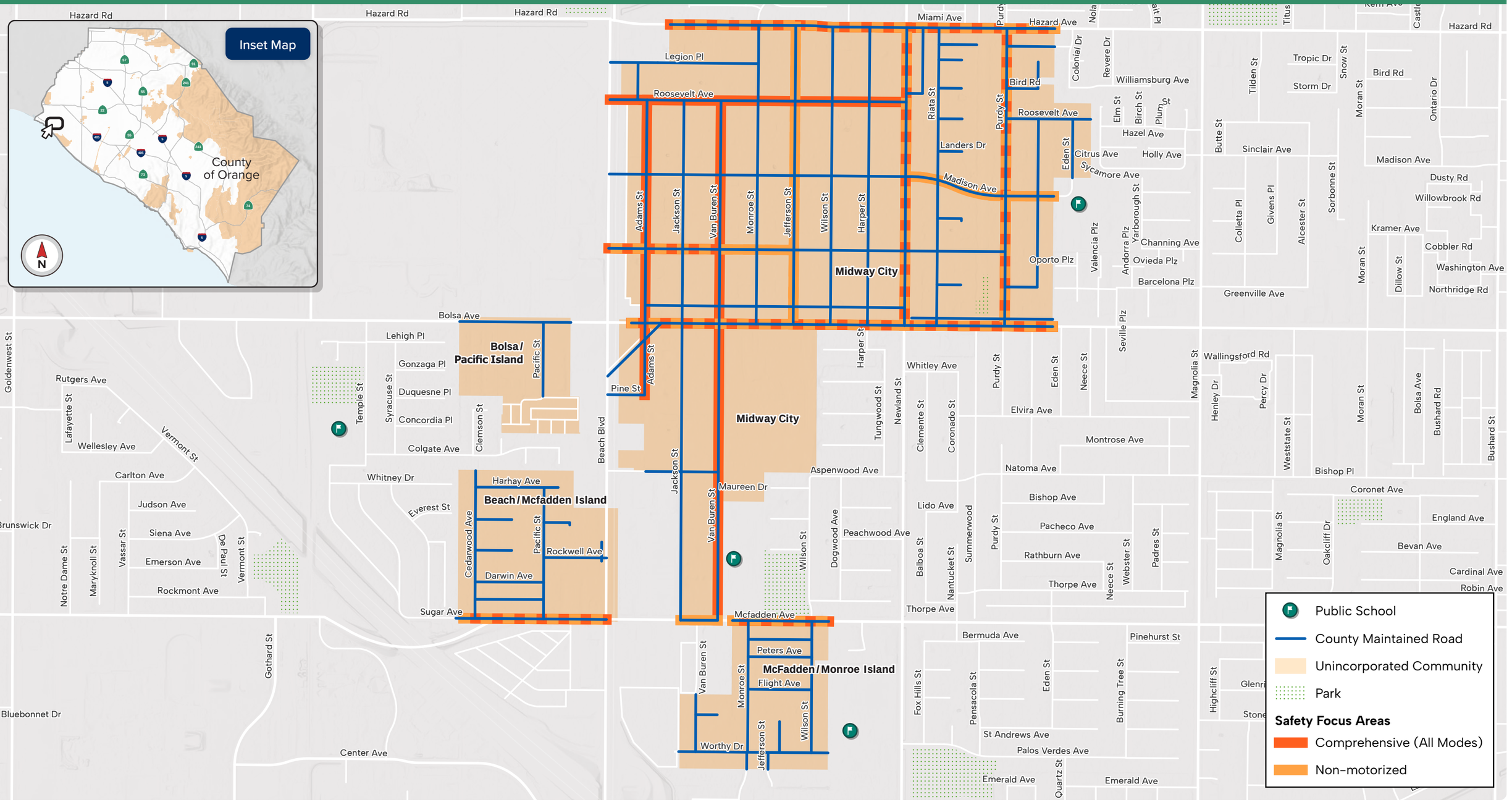
25% of Pedestrian Crashes

15% of Bike Crashes

8% of Motorcycle Crashes

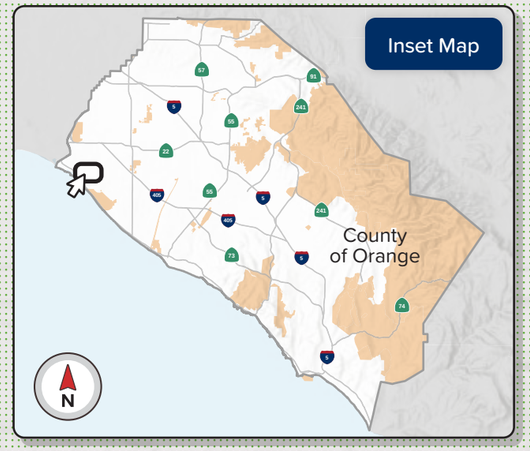
7 Midway City and Surrounding Communities

Midway City and Beach/McFadden, Bolsa/Pacific, and McFadden/Monroe Islands



7 Midway City and Surrounding Communities

Edinger Avenue



Edinger Ave
Bravata Dr
Countess Dr
Sparkler Dr
Tempe Dr
Windspun Dr

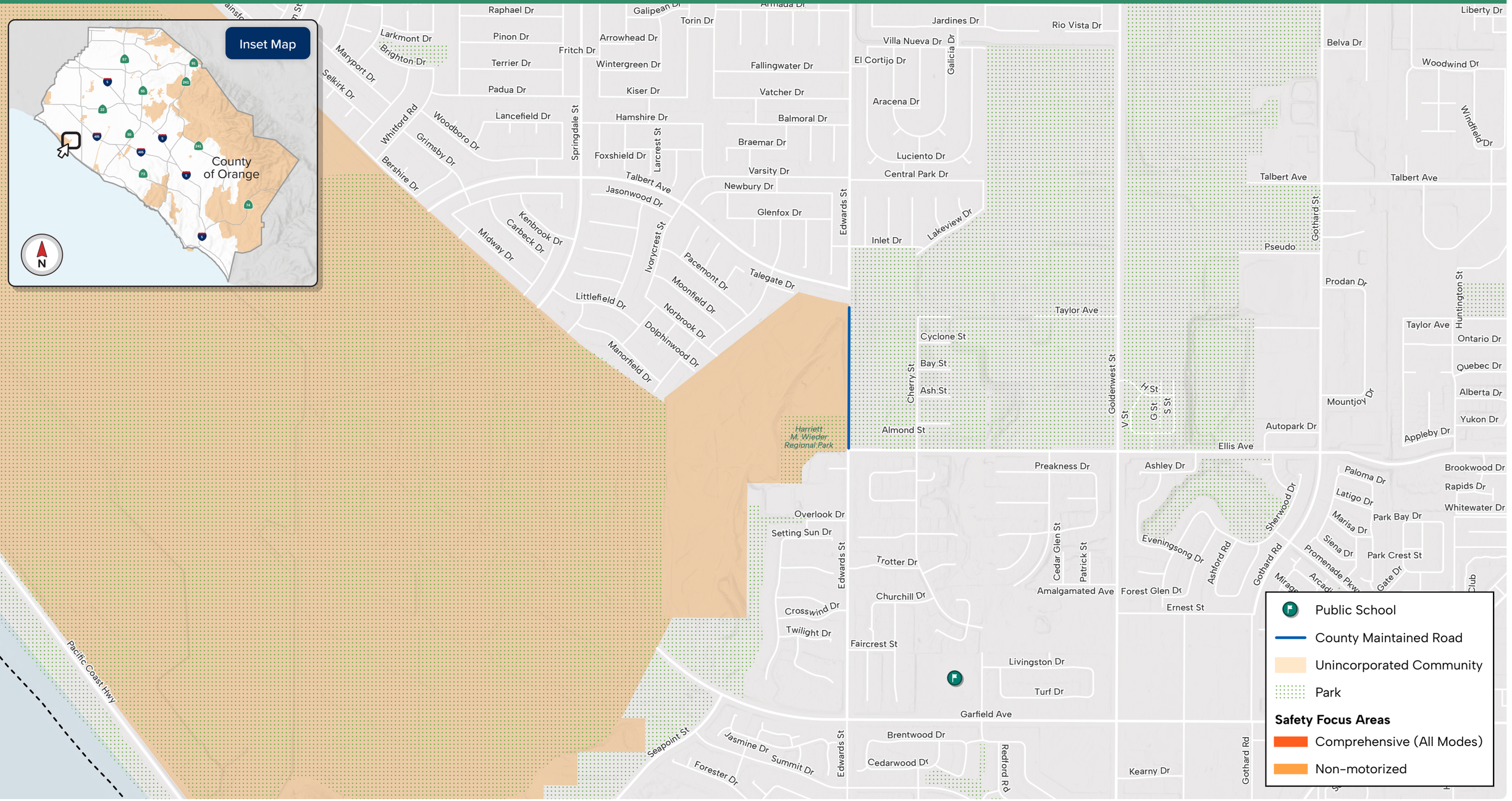
Public School
County Maintained Road
Unincorporated Community
Park

Safety Focus Areas

Comprehensive (All Modes)
Non-motorized

7 Midway City and Surrounding Communities

Edwards Street

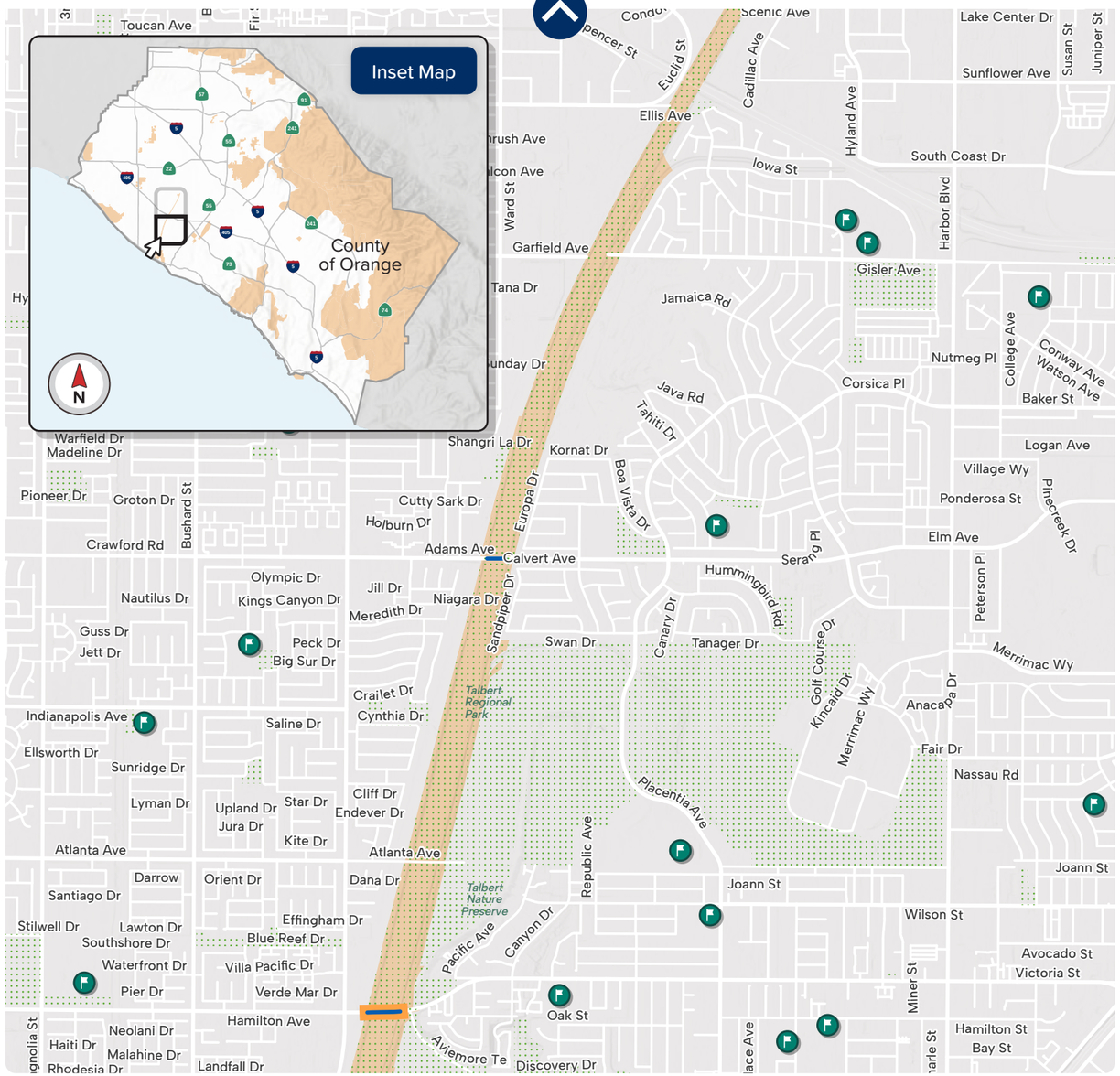


7 Midway City and Surrounding Communities

Fountain Valley Island and Santa Ana River Bridges

Continuation shown on right panel

Continuation shown on left panel



8 Santa Ana Country Club & Costa Mesa Island

Key Takeaway: In Santa Ana Country Club & Costa Mesa Island, four of the five **pedestrian crashes** resulted in either a fatality or a severe injury.

Injury Crash Summary (2019 - 2023)

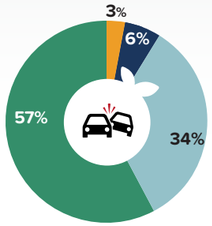
101 Total Injury Crashes

5 Pedestrian Crashes **(80% KSI)**

5 Bike Crashes **(0% KSI)**

8 Motorcycle Crashes **(13% KSI)**

Crash Severity



- **3** Fatal
- **6** Severe Injury
- **34** Other Visible Injury
- **58** Complaint of Pain

Impacted Populations

17 Crashes with Senior Victims (Age 65+)

9 Crashes with Youth Victims (Under age 18)

Top Violations

The most common primary causes of crashes in this community.

20 **20%** of all injury crashes caused by unsafe speed

3 **33%** of KSI crashes caused by unsafe speed

Top Crash Types

The most common injury-causing crash events in this community.

55 **54%** of all injury crashes were broadside

4 **44%** of KSI crashes were broadside

Behavior

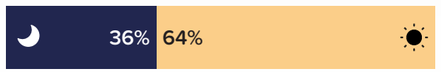
11 **11%** of all injury crashes involved at-fault drivers making left turns

10 **10%** of all injury crashes were hit and runs

12 **12%** of all injury crashes were primarily caused by someone driving or bicycling under the influence of drugs or alcohol

Crash Lighting Condition

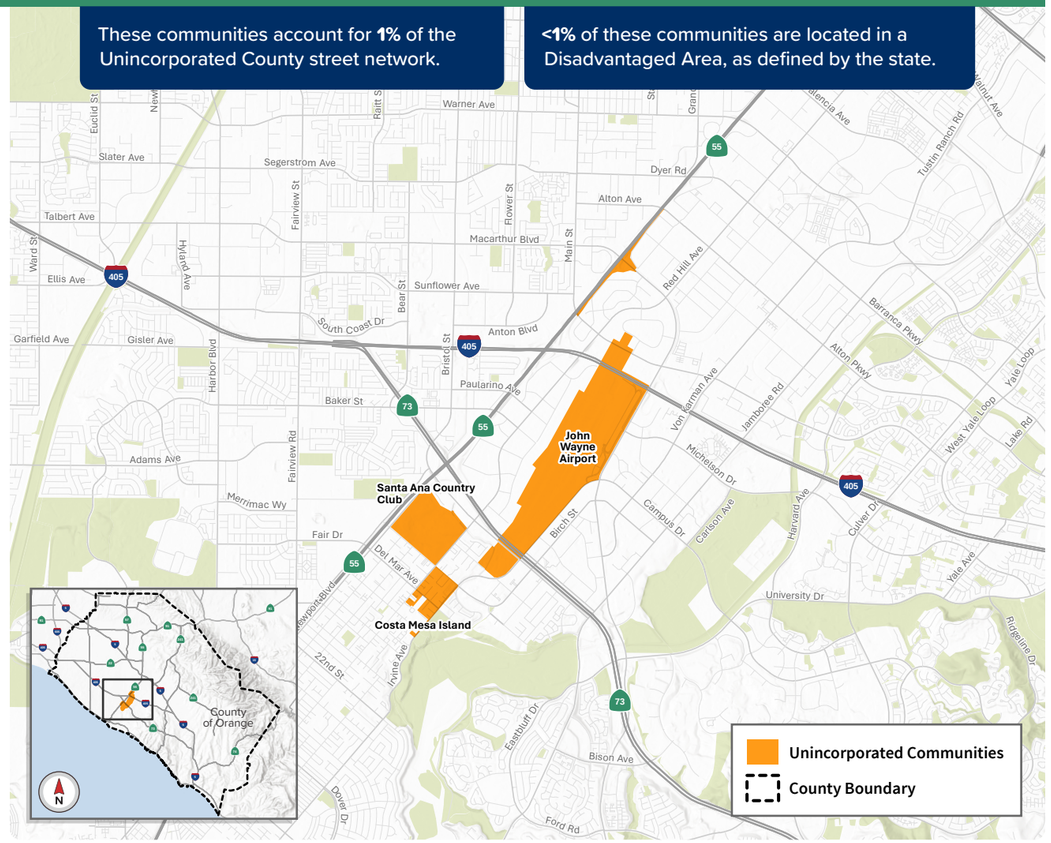
65 crashes occurred during daylight



36 crashes occurred at night/dusk-dawn

These communities account for **1%** of the Unincorporated County street network.

<1% of these communities are located in a Disadvantaged Area, as defined by the state.



Of all crashes within Unincorporated Orange County, this community accounts for...

7% of Total Injury Crashes

4% of KSI Crashes

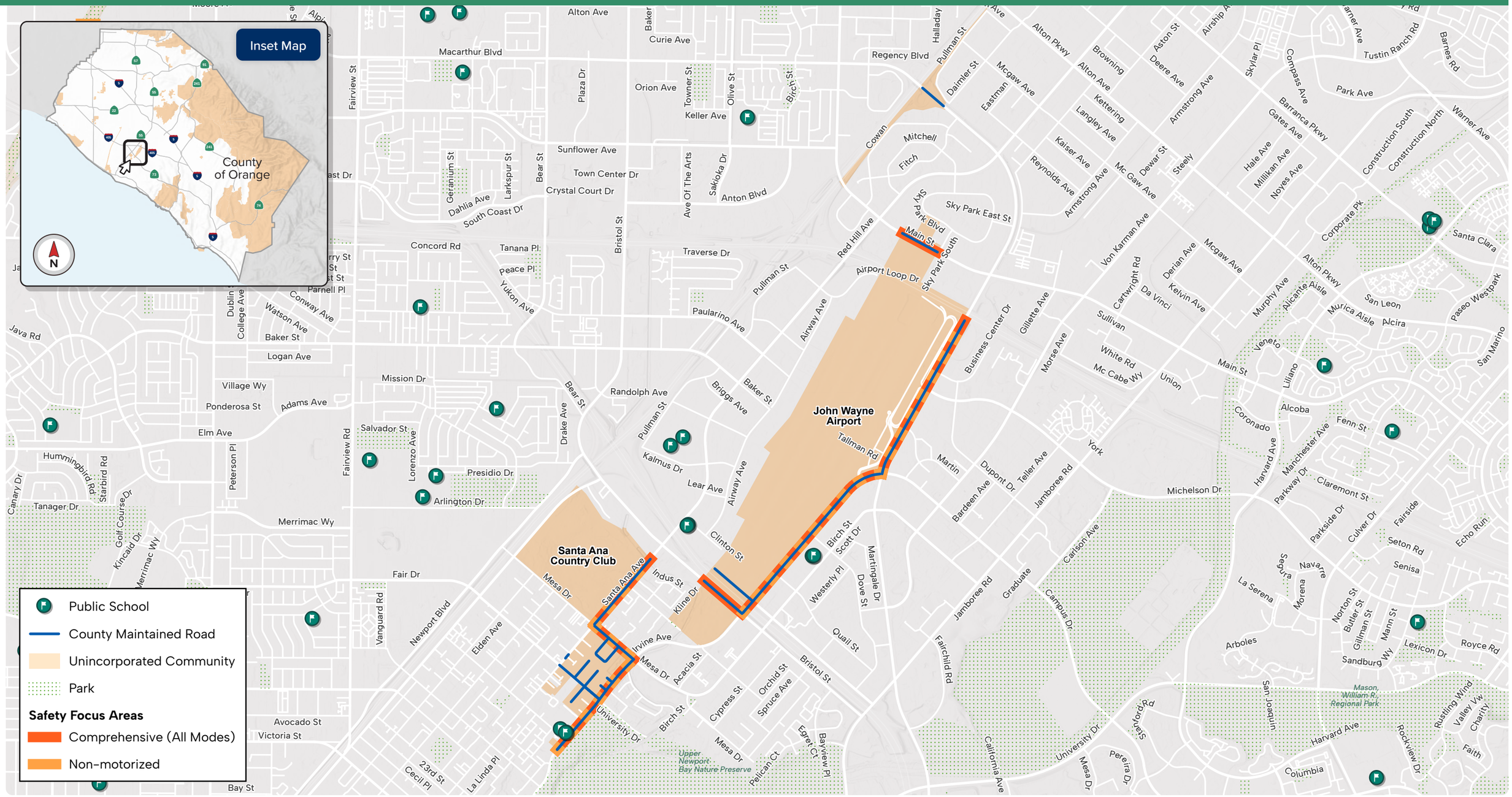
6% of Pedestrian Crashes

4% of Bike Crashes

5% of Motorcycle Crashes

Note: Crashes summarized in this Community Group include incidents occurring on SR-39.

8 Santa Ana Country Club & Costa Mesa Island



9 Canyon Communities

Modjeska Canyon, Santiago Canyon Road, Silverado Canyon, and Trabuco Canyon

Key Takeaway: Within Unincorporated Orange County, over half of all crashes in the Canyon Communities involve **hitting an object**, the highest rate in the area. Additionally, the Canyon Communities account for more than half of all **motorcycle crashes**.

Injury Crash Summary (2019 - 2023)

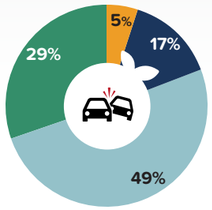
278 Total Injury Crashes

2 Pedestrian Crashes **(0% KSI)**

8 Bike Crashes **(50% KSI)**

79 Motorcycle Crashes **(37% KSI)**

Crash Severity



- **14** Fatal
- **48** Severe Injury
- **135** Other Visible Injury
- **81** Complaint of Pain

Impacted Populations

22 Crashes with Senior Victims (Age 65+)

23 Crashes with Youth Victims (Under age 18)

Top Violations

The most common primary causes of crashes in this community.

108 **39%** of all injury crashes caused by improper turning

25 **40%** of KSI crashes caused by unsafe speed

Top Crash Types

The most common injury-causing crash events in this community.

141 **51%** of all injury crashes were hit object

25 **40%** of KSI crashes were hit object

Behavior

7 **3%** of all injury crashes involved at-fault drivers making left turns

9 **3%** of all injury crashes were hit and runs

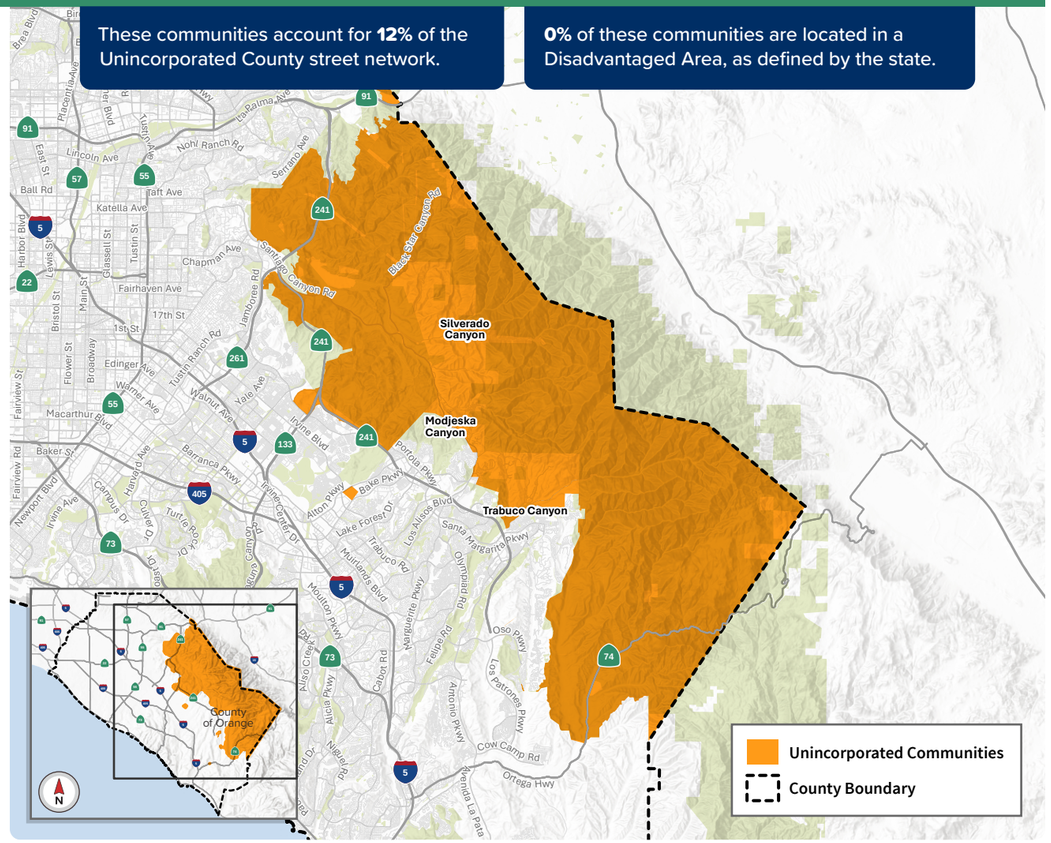
34 **12%** of all injury crashes were primarily caused by someone driving or bicycling under the influence of drugs or alcohol

Crash Lighting Condition

166 crashes occurred during daylight

40% 60%

111 crashes occurred at night/dusk-dawn



Of all crashes within Unincorporated Orange County, this community accounts for...

18% of Total Injury Crashes

32% of KSI Crashes

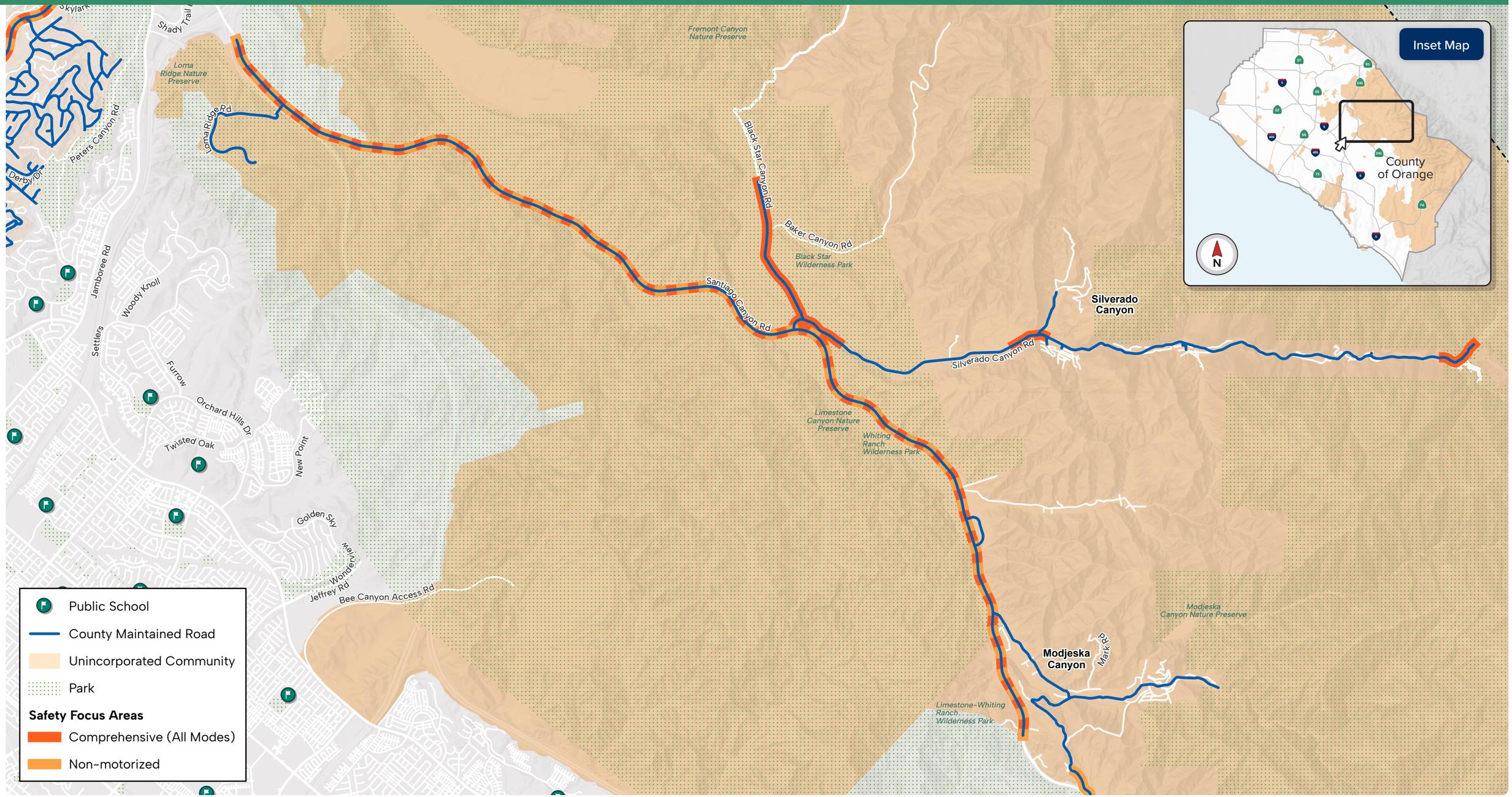
2% of Pedestrian Crashes

7% of Bike Crashes

51% of Motorcycle Crashes

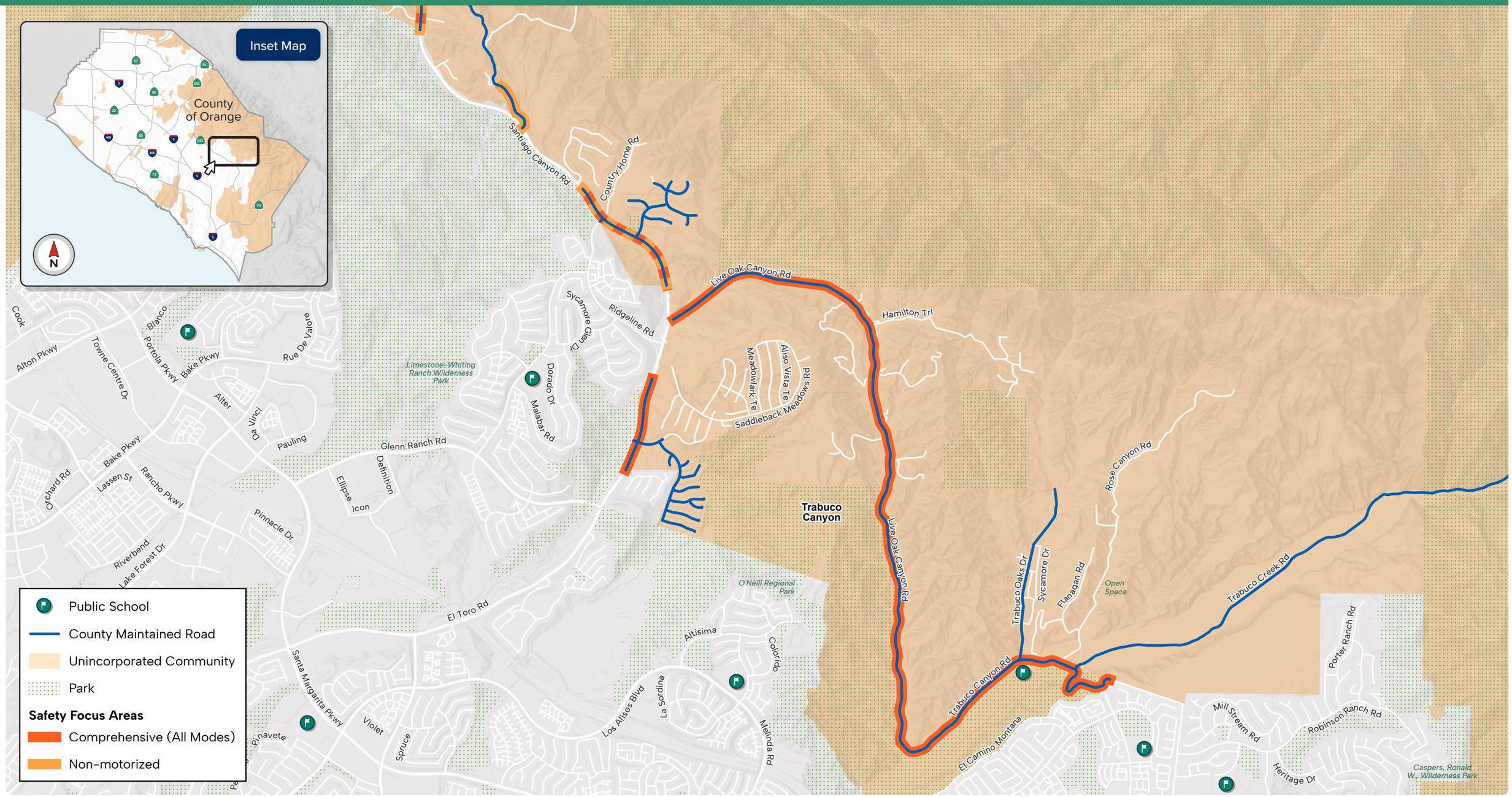
9 Canyon Communities

Modjeska Canyon, Santiago Canyon Road, Silverado Canyon, and Trabuco Canyon



9 Canyon Communities

Modjeska Canyon, Santiago Canyon Road, Silverado Canyon, and Trabuco Canyon



10 South County Communities

Dana Point Harbor, Ladera Ranch, Las Flores, Rancho Mission Viejo, Wagon Wheel

Key Takeaway: South County Communities accounted for 43% of all **bike-involved crashes** in Unincorporated Orange County, the highest share of any community.

Injury Crash Summary (2019 - 2023)

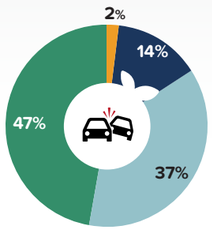
354 Total Injury Crashes

12 Pedestrian Crashes **(42% KSI)**

50 Bike Crashes **(32% KSI)**

32 Motorcycle Crashes **(56% KSI)**

Crash Severity



- **8** Fatal
- **48** Severe Injury
- **132** Other Visible Injury
- **166** Complaint of Pain

Impacted Populations

46 Crashes with Senior Victims (Age 65+)

70 Crashes with Youth Victims (Under age 18)

Top Violations

The most common primary causes of crashes in this community.

119 **34%** of all injury crashes caused by unsafe speed

18 **32%** of KSI crashes caused by unsafe speed

Top Crash Types

The most common injury-causing crash events in this community.

110 **31%** of all injury crashes were rear end

17 **30%** of KSI crashes were hit object

Behavior

27 **8%** of all injury crashes involved at-fault drivers making left turns

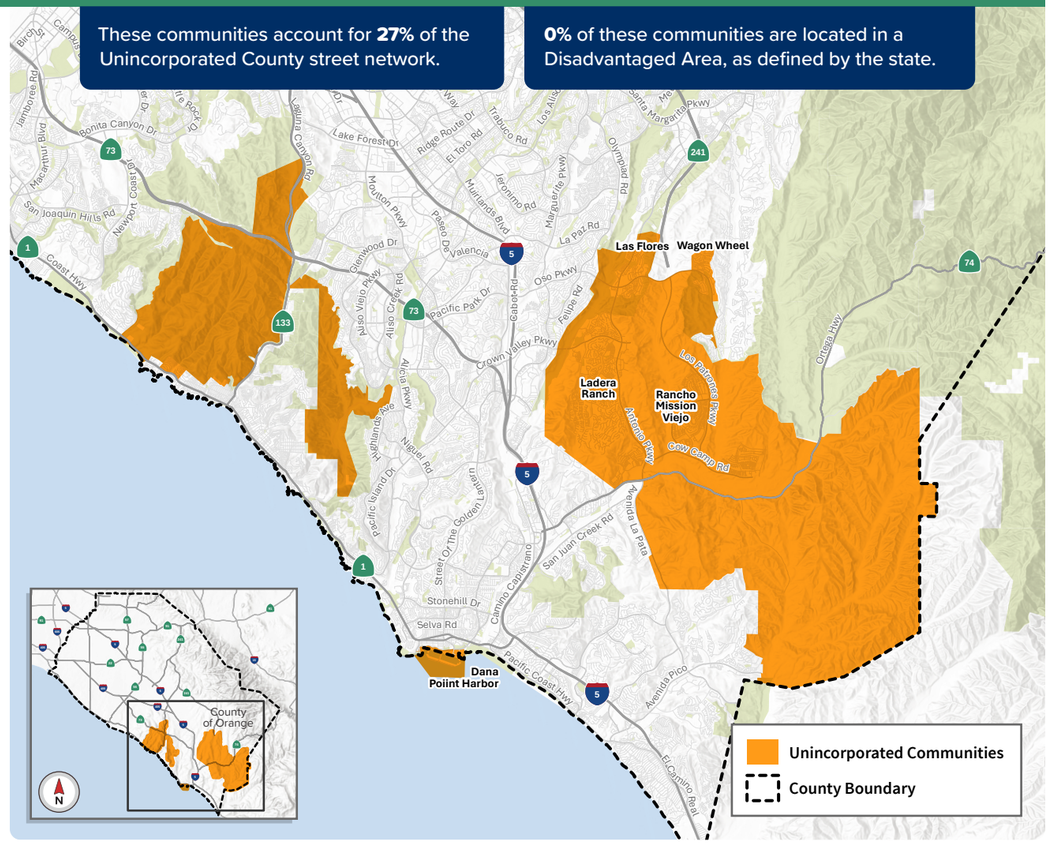
18 **5%** of all injury crashes were hit and runs

33 **9%** of all injury crashes were primarily caused by someone driving or bicycling under the influence of drugs or alcohol

Crash Lighting Condition

242 crashes occurred during daylight

112 at night/dusk-dawn



Of all crashes within Unincorporated Orange County, this community accounts for...

24% of Total Injury Crashes

29% of KSI Crashes

14% of Pedestrian Crashes

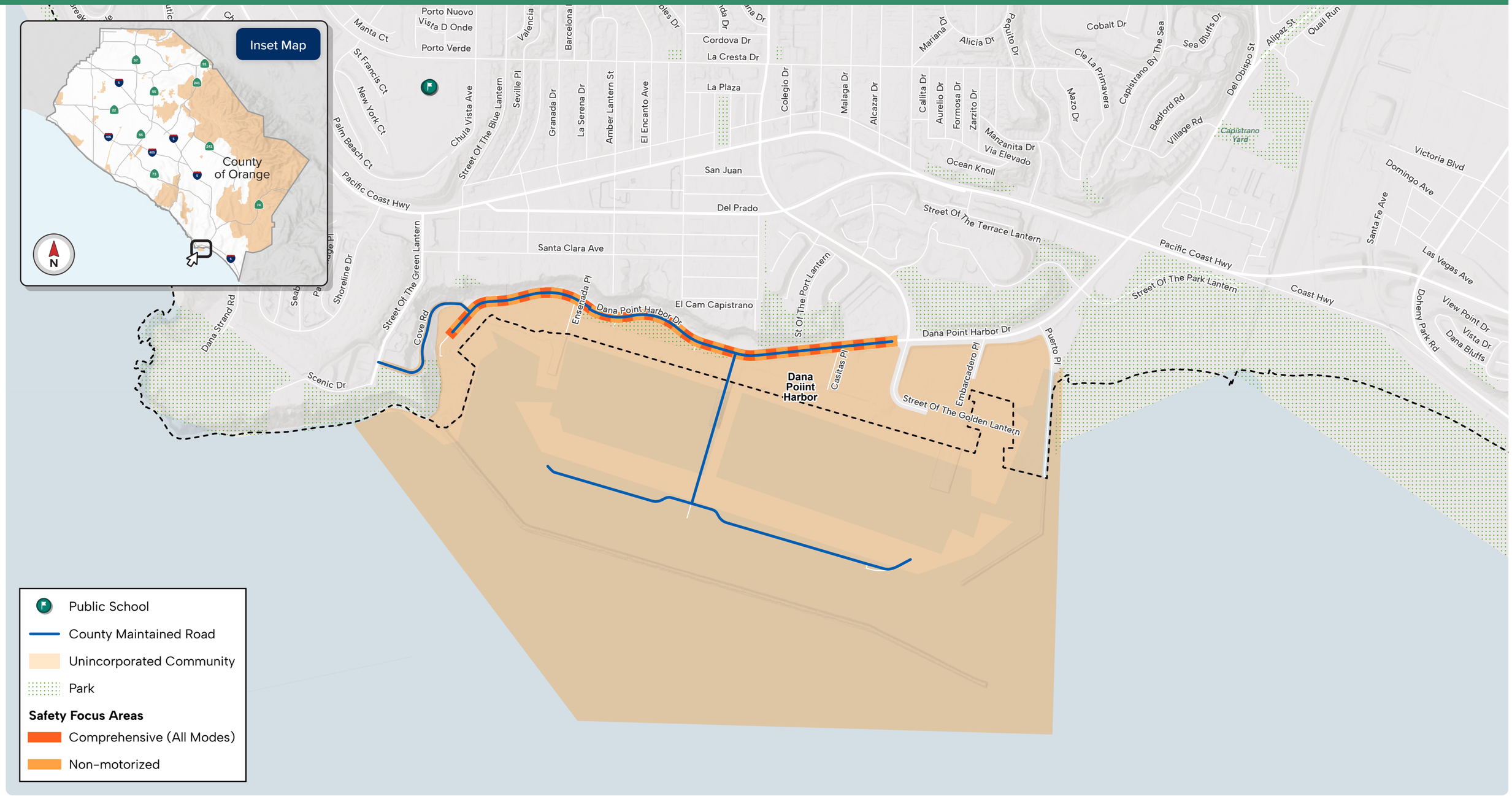
43% of Bike Crashes

21% of Motorcycle Crashes

Note: Crashes summarized in this Community Group include incidents occurring on SR-74.

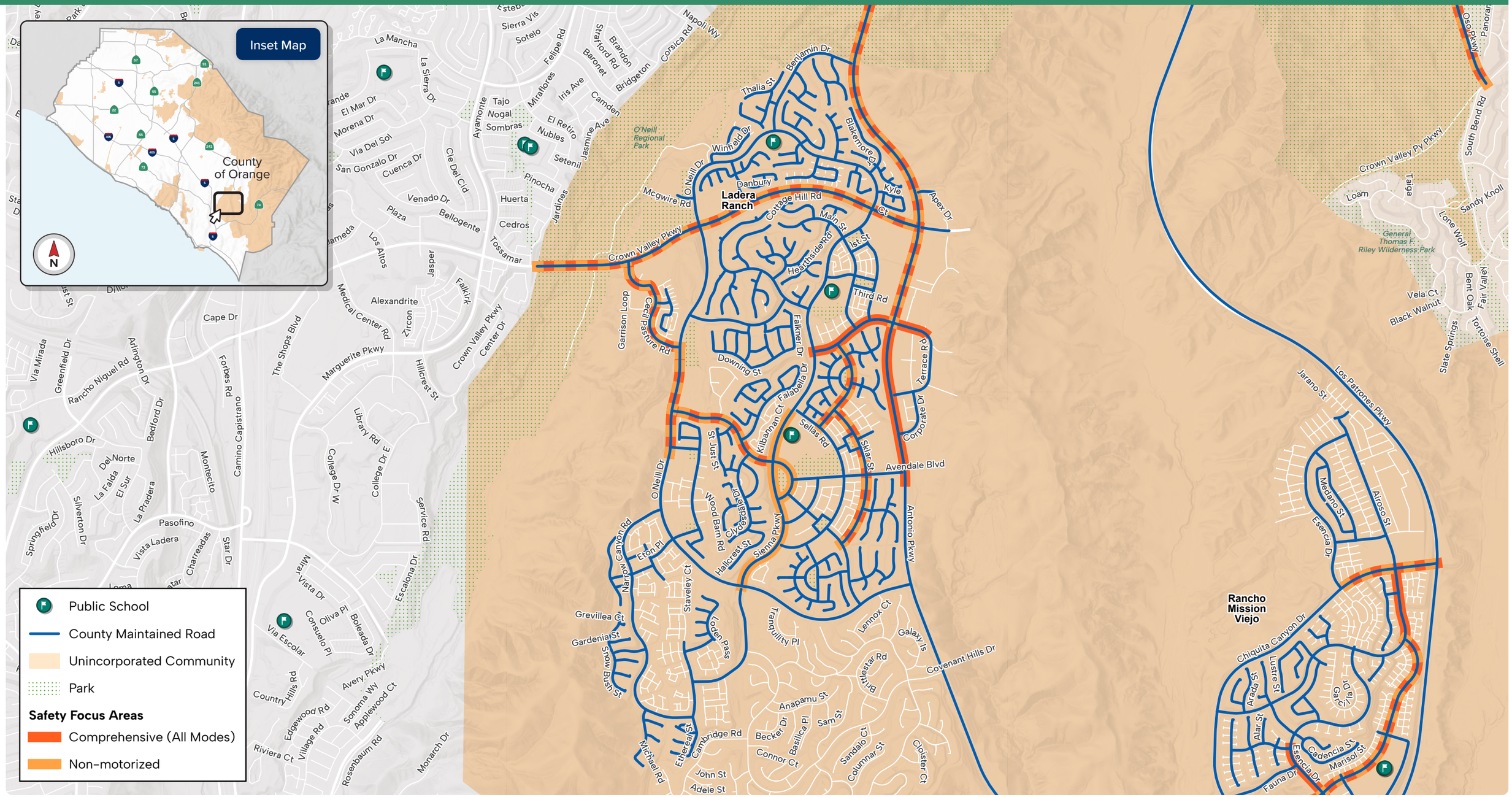
10 South County Communities

Dana Point Harbor



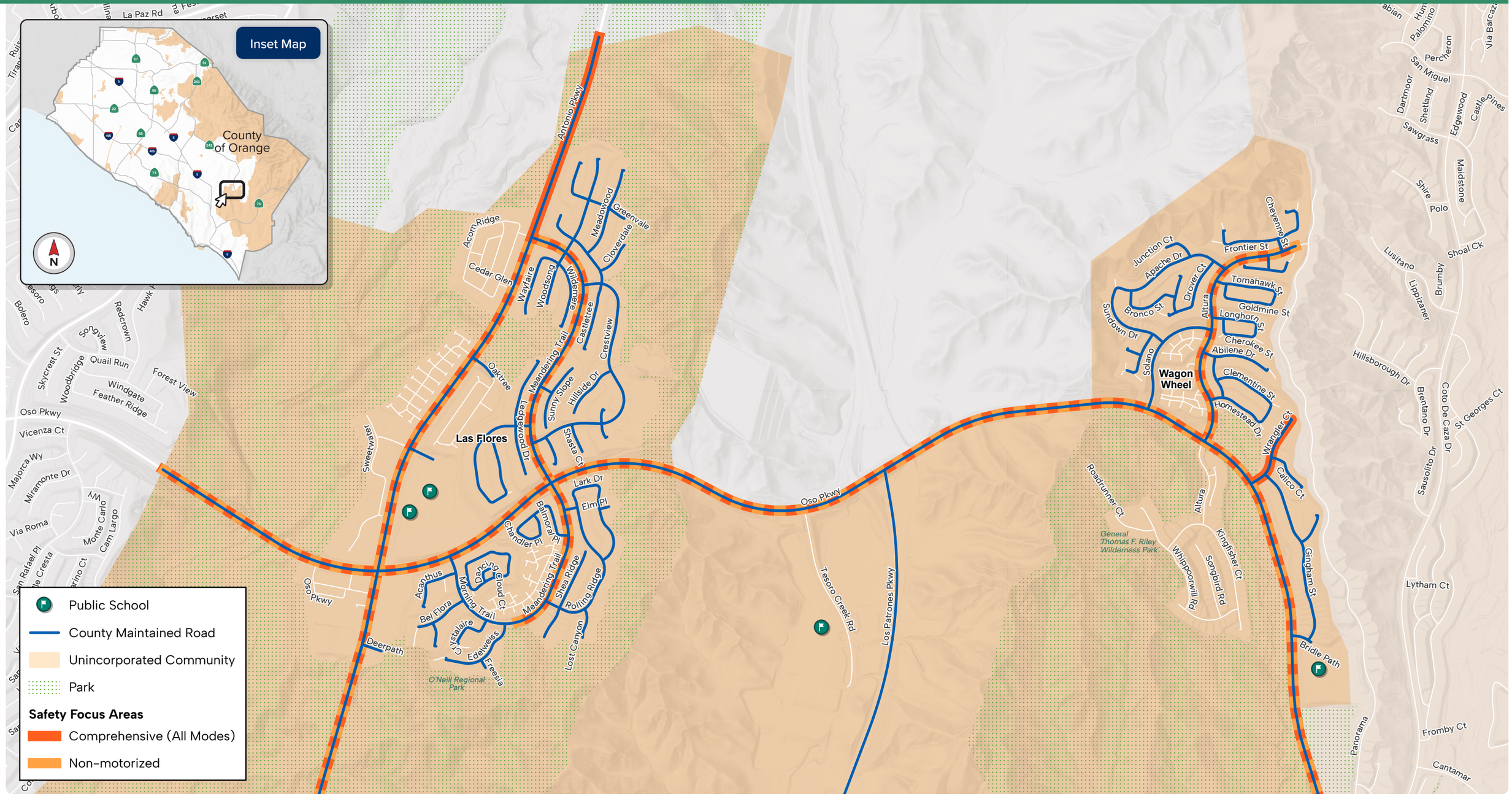
10 South County Communities

Ladera Ranch



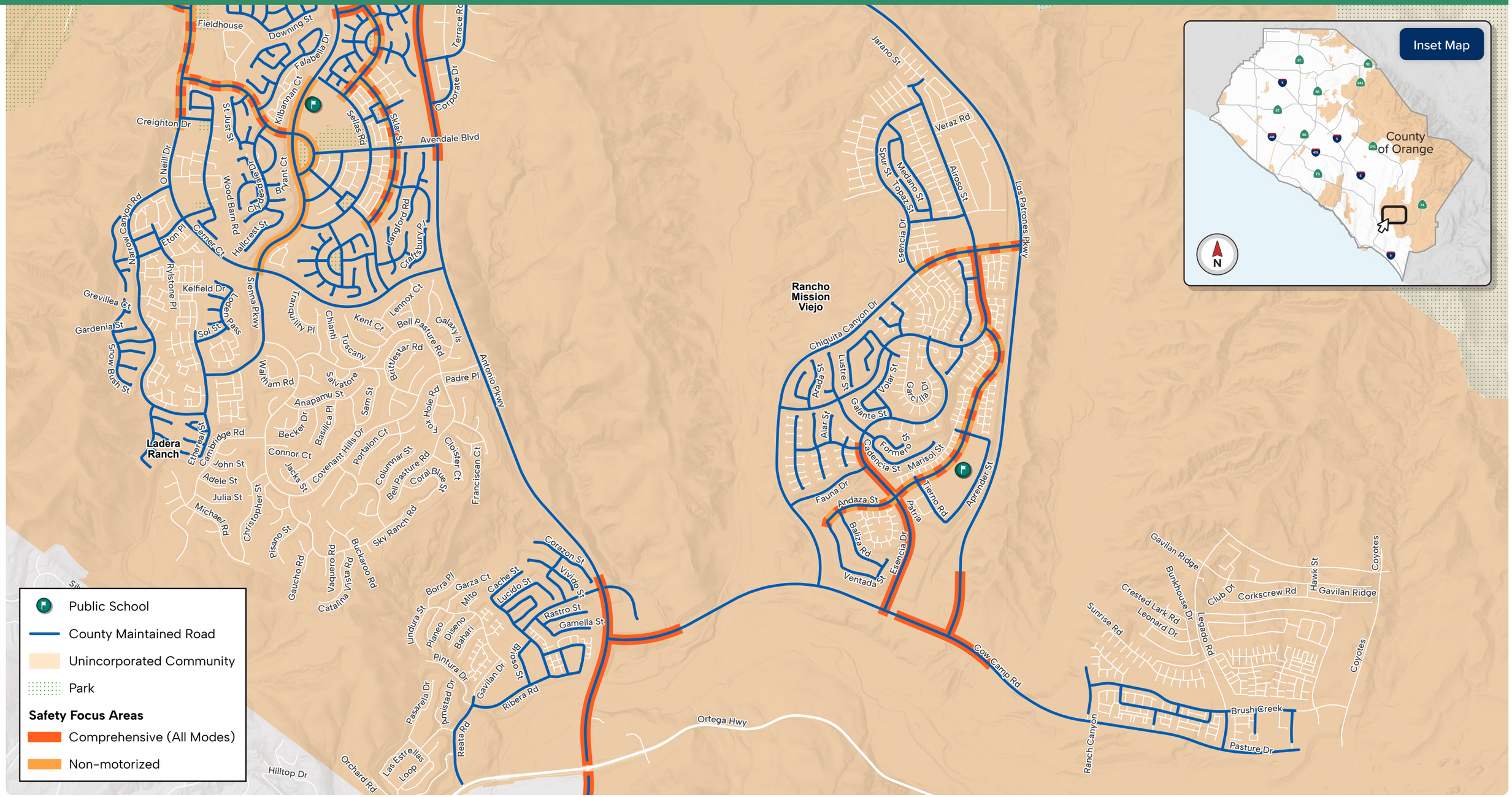
10 South County Communities

Las Flores, Wagon Wheel



10 South County Communities

Rancho Mission Viejo



Chapter 3:
Community Engagement & Safety Task Force

> *Our priorities, plans, and policies are based on the goal we aim for, and we should not be aiming for some of our loved ones to be safe as they move about our communities — we should be working for safety for all. Goals drive our actions and our urgency. And we need to shake off the complacency we've had for too long of preventable deaths and injuries. Just as a civilized society works to provide safe drinking water and clean air, we must work to ensure safe mobility."*

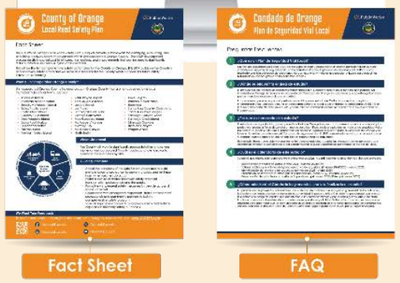
Leah Shahum
Director of Vision Zero Network

Developing a safer transportation system requires the perspectives and experiences of the people who use it every day. Public engagement and collaboration is central to the development of the LRSP, ensuring that the strategies reflect community needs, address real-world concerns, and build broad support for implementation. Through outreach activities, residents, community organizations, and advocacy groups contributed valuable input on roadway safety challenges, travel behaviors, and opportunities for improvement.

Public Engagement

Outreach Tools

Project Website



Fact Sheet FAQ

Notification Materials

Communications Toolkit Social Media

Postcards

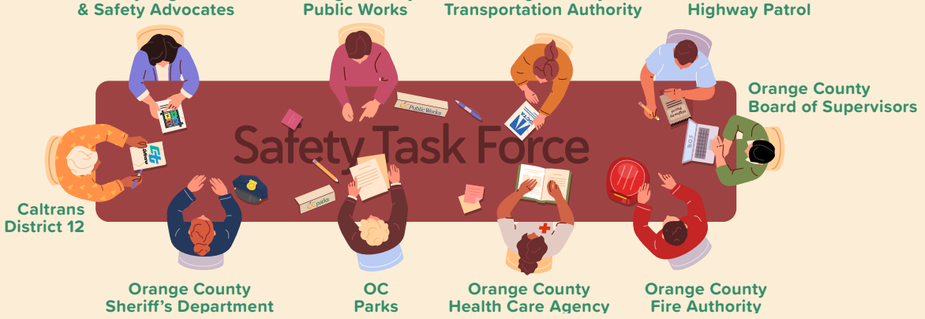
Event Engagement Tools

Comment Card Survey (Digital & Paper)

Project Branded Swag

Safety Task Force

In parallel with these outreach efforts, the County established a multidisciplinary Safety Task Force to guide the LRSP's development. This group brought together representatives from the from the County of Orange, partner agencies, law enforcement, public health, and Community-Based Organizations. The task force provided insights on roadway safety issues, priority locations, crash trends, and partnership opportunities. Just as importantly, the task force will remain engaged beyond plan development by supporting implementation and monitoring progress over time.



Together, public engagement and stakeholder collaboration form the foundation of the LRSP. This chapter describes the methods used to connect with the public, highlights the input received through engagement activities, and explains how the Safety Task Force has shaped, and will continue to guide, the County's efforts to improve roadway safety for all users.

Public Engagement

The outreach period for the LRSP spanned from March through September 2025. providing multiple opportunities for community members to share their experiences and ideas about roadway safety. During this time, the Project Team participated in a range of local community events and public meetings to raise awareness and gather meaningful input.

Community Events

These events were hosted as pop-ups featuring project materials, branded giveaways, and interactive opportunities for participants to provide feedback. These informal, approachable settings helped residents engage directly with project staff and share their day-to-day experiences with local transportation challenges.

Silverado Flea Market

Public Meetings

These meetings offered a more structured format, including a presentation and project display boards, followed by an interactive mapping workshop where participants identified safety issues and opportunities for improvement within their neighborhoods.


North Tustin Community Meeting

Feedback was collected through multiple channels, including comment forms, interactive input maps (both physical and digital), and online and in-person surveys. This variety of engagement tools helped ensure broad participation and inclusive representation of community voices across the County.

Speeding Tops Local Safety Concerns

Speeding emerged as the top driver behavior concern, cited by 70% of survey respondents, followed by aggressive driving (49%) and drivers ignoring traffic laws (44%).

Enforcement Seen as Key to Safer Roads

Enforcement and education were identified as critical strategies for improving roadway safety. Increased enforcement of unsafe driving behaviors was the most frequently cited approach, mentioned by 66% of respondents, followed by improved pedestrian and bicycle infrastructure and educational programs such as e-bike safety classes

Community Calls for Safer Street Design

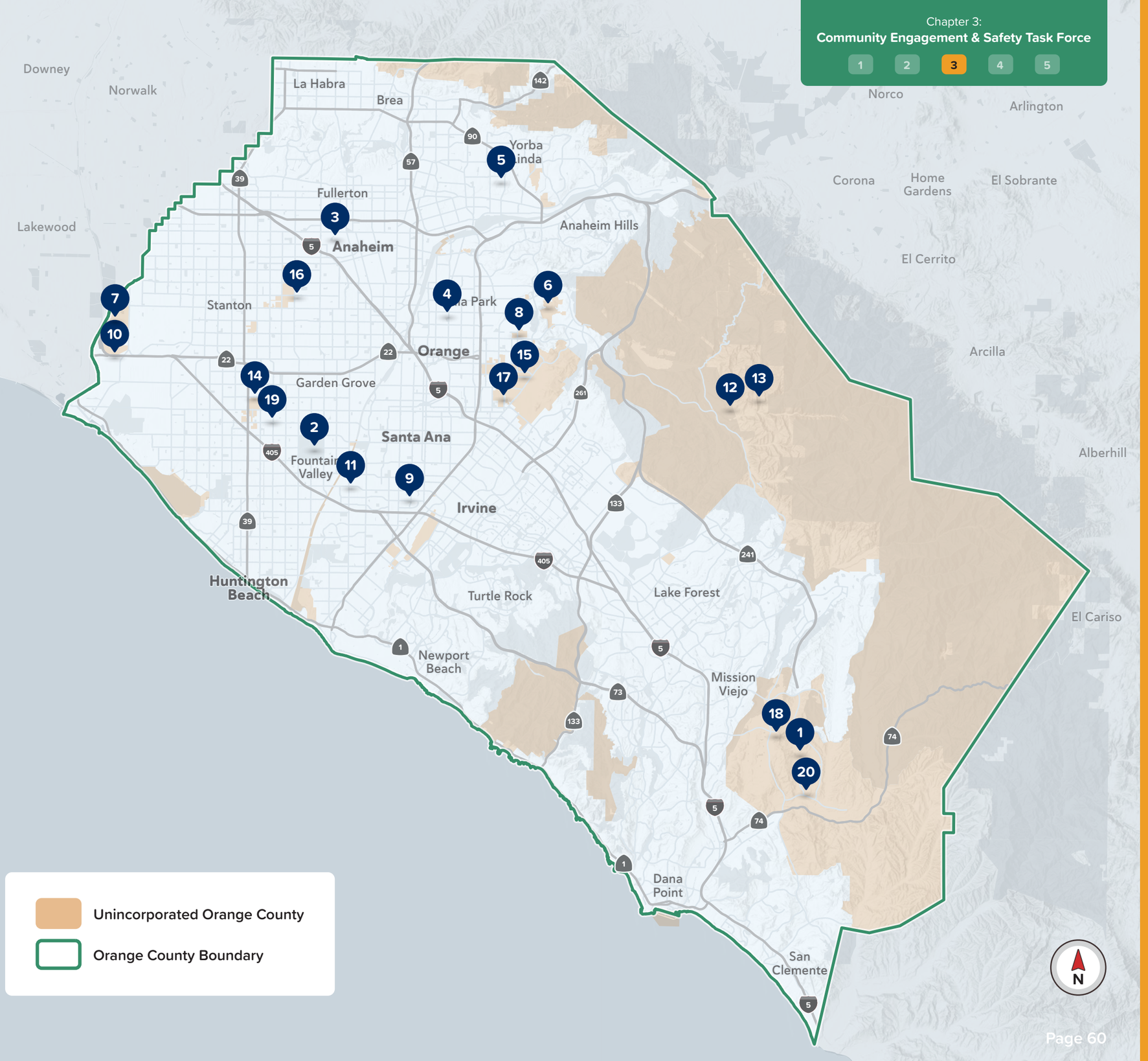
Traffic calming measures - such as rumble strips and roundabouts - were the most supported improvement, followed by roadway redesigns that prioritize safety over speed, and the addition of ``protected bike lanes.

Strong Support for People-First Streets

The vast majority of survey respondents emphasized the importance of safety-focused design. 88% agreed that safety should be the top priority in roadway planning and design decisions, and 84% supported designing streets near schools, parks, senior centers, and other places frequented by children and older adults to encourage slower speeds.

Public Engagement Events

1. Ladera Ranch Farmers Market
2. Mile Square Park Farmers Market
3. Downtown Anaheim Farmers Market
4. Orange Home Grown Farmers Market
5. Yorba Linda Farmers Market
6. Orange Park Acres Meeting
7. Rossmoor Homeowners Association
8. El Modena Center
9. Hana Field, Dog Days at the Farm
10. Rossmoor Family Festival at Rush Park
11. SOCO Costa Mesa Farmers Market
12. Silverado Canyon Flea Market
13. Inter-Canyon League Monthly Meeting
14. Westminster National Night Out
15. Foothill Communities Association
18. Layali Little Arabia
17. North Tustin Community Meeting
18. Ladera Ranch Civic Council Meeting
19. Midway Community Center
20. Rancho Mission Viejo Fire & Emergency Preparedness Town Hall



Community Feedback

The community feedback collected from residents and visitors of unincorporated Orange County highlights a clear desire for safer, more connected, and more accessible transportation options. Respondents expressed concerns about speeding, gaps in pedestrian and bicycle facilities, limited lighting in certain areas, and the growing need for clearer e-bike regulations. Many also noted that a stronger law enforcement presence during peak periods and weekends could help address unsafe driving behaviors.

The recommended action items in the LRSP respond directly to these priorities. They include infrastructure improvements such as traffic calming and lighting enhancements; safety programs focused on enforcement and public education; and coordinated planning efforts to support safer travel for all modes across unincorporated communities. Together, these strategies aim to create safer streets, strengthen community connections, and support a transportation system that better serves residents in unincorporated areas of Orange County.

Midway City Community Center

Most Frequently Mentioned Issues

Speeding & Traffic Calming

Excessive speeding in residential and rural areas, and unsafe driving behaviors.

Bike Lane Safety & Infrastructure

Need for protected bike lanes, improved signage, and safer cycling routes.

Pedestrian Infrastructure & Crosswalks

Lack of sidewalks, unsafe crossings, and poor ADA accessibility.

Lighting & Visibility

Poor nighttime visibility, blind curves, and inadequate street lighting.

E-Bike Regulation & Education

Safety concerns around e-bike usage, especially near schools and pedestrian zones.

Requests for Enforcement

Desire for increased patrols during peak hours and weekends, installed cameras and license plate readers, increased monitoring forest access points, and enforced traffic laws.

Other notable concerns include traffic signal timing, road conditions, wildlife safety, planning and development, and parking accessibility.

Hana Field Dog Days

Safety Task Force

The County established a multidisciplinary Safety Task Force to guide the LRSP's development. This group brought together representatives from the from the County of Orange, partner agencies, law enforcement, public health, and community-based organizations. The task force provided insights on roadway safety issues, priority locations, crash trends, and partnership opportunities. Just as importantly, the task force will remain engaged beyond plan development by supporting implementation and monitoring progress over time.

Community Organizations & Safety Advocates

Community organizations and advocates support for the LRSP reflects real-world experiences of people who walk, bike, drive, and take transit. Groups like the OC Bicycle Coalition and CMABS help prioritize equity, accountability, and shared ownership of safer streets.

Orange County Public Works

As project sponsor, Orange County Public Works led the LRSP development and manages the County's roadway network through planning, design, and maintenance. The department coordinated with partner agencies and will continue to guide implementation and track progress toward County safety goals.

Orange County Transportation Authority

OCTA oversees transit and regional transportation planning. Their role ensures transit riders, pedestrians, and bicyclists are considered in safety efforts while helping fund and coordinate LRSP implementation and multimodal projects.

California Highway Patrol

The California Highway Patrol (CHP) provides key insights on enforcement, crash trends, and driver behavior. As first responders, CHP supports emergency response and ensures that enforcement and education complement engineering strategies for safer roads.

Caltrans District 12

Caltrans District 12 manages Orange County's state highways, including SR-1, SR-39, and SR-74. Collaboration with Caltrans supports safety at intersections with state routes and aligns the LRSP with statewide priorities and the Safe System approach.

Orange County Board of Supervisors

The Board of Supervisors connects residents to the County's safety programs and priorities. Their leadership and policy direction support LRSP goals, with representatives from all five districts contributing to the Safety Task Force for countywide input.

Orange County Sheriff's Department

The Sheriff's Department provides law enforcement in unincorporated areas and contributes on-the-ground insights on safety issues. Their collaboration supports targeted enforcement, education, and outreach in high-need communities.

OC Parks

OC Parks manages regional parks, trails, and open spaces across the County. Their participation ensures safe access for people walking and biking to recreation areas, supporting multimodal safety and improving connections to public spaces.

Orange County Health Care Agency

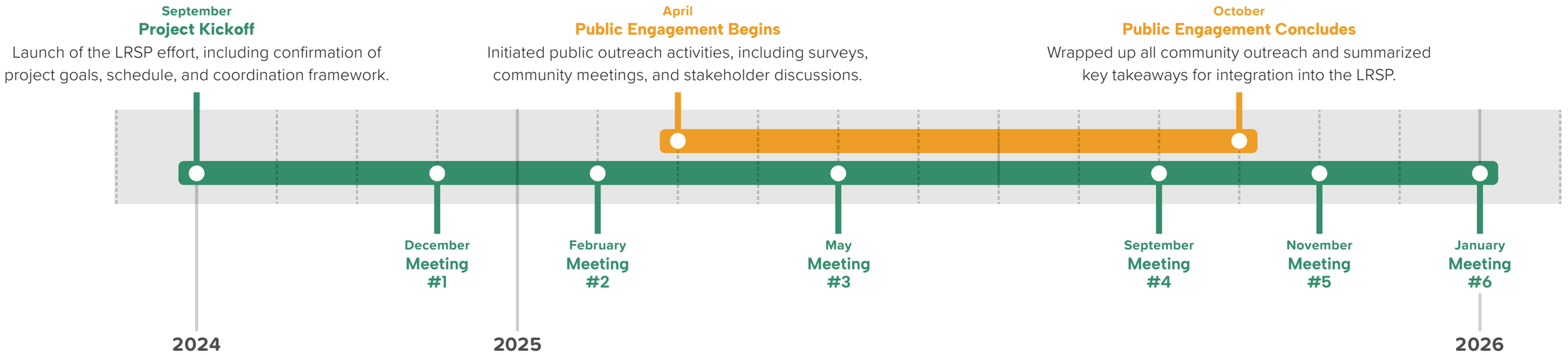
The Health Care Agency adds a public health lens to roadway safety, emphasizing equity and injury prevention. Their involvement ensures safety strategies support vulnerable groups and align with broader community health initiatives.

Orange County Fire Authority

The Orange County Fire Authority provides fire protection and emergency medical services. Their work supports the LRSP's Post-Crash Care focus, improving coordination and response times to reduce injury severity and save lives after collisions.

Task Force Timeline

The Safety Task Force met six times throughout the LRSP development process to guide the County's vision for roadway safety. Meeting topics included interactive discussions on plan priorities, detailed reviews of crash trends, identification of emphasis areas, and stakeholder feedback on proposed strategies and safety enhancements. Feedback from task force members and community representatives was incorporated directly into the development of this plan, as well as the selection of priority projects within each crash profile.



Meeting #1

Developed the project's Vision Statement and Guiding Principles, establishing the overall direction for roadway safety efforts.

Meeting #2

Prepared for public engagement by outlining outreach methods, target audiences, and priority messages.

Meeting #3

Reviewed crash data to identify key safety focus areas.

Meeting #4

Examined crash trends and underlying risk factors, leading into an exploration of behavioral countermeasures.

Meeting #5

Evaluated engineering countermeasures and reviewed candidate strategies for priority locations.

Meeting #6

Shared the draft LRSP for stakeholder review, refinement, and final input before preparation of the final plan.

Chapter 4:
Crash Profiles & Countermeasures

> *No other preventable cause of death is so overlooked and implicitly condoned as the tens of thousands of preventable traffic fatalities each year in this country. This must — and can — change. We are encouraged that this new Resolution to set and advance the goal of eliminating traffic deaths by 2050 is a sign of stepped-up federal leadership. Now we need to put proven strategies to work, including designing roadways for safety instead of speed and investing funding in safety improvements, especially for those walking and biking and those in traditionally underserved communities."*

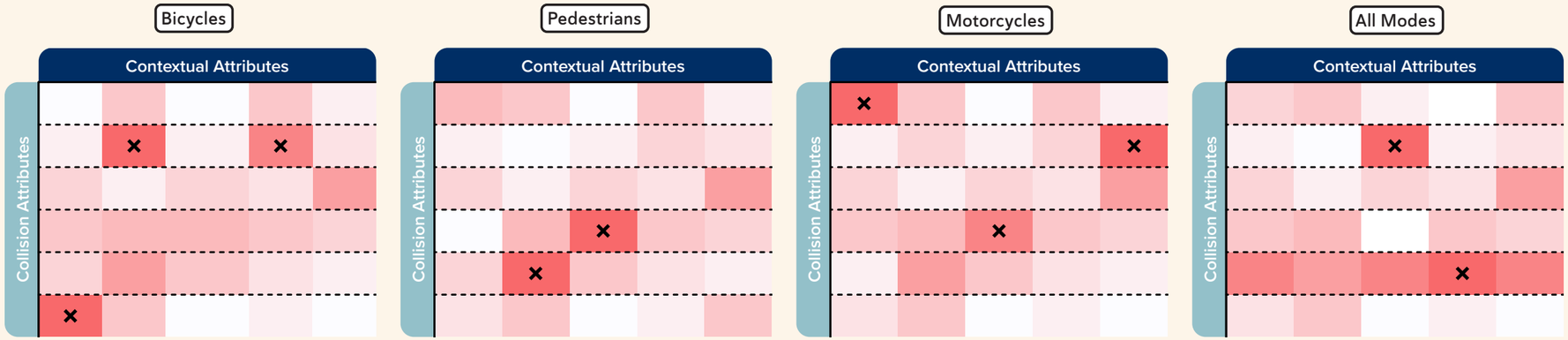
Leah Shahum
Director of Vision Zero Network

Building on the findings from the safety analysis and stakeholder engagement process, this chapter outlines a set of targeted strategies and countermeasures designed to address key crash trends and priority emphasis areas within Unincorporated Orange County. The solutions presented here are grounded in data-driven insights, community input, and best practices in roadway safety engineering and program management. Together, these strategies form a comprehensive framework aimed at reducing fatalities and serious injuries on the County's transportation network.

Systemic Analysis and Project Prioritization

Systemic analysis served as the foundation for identifying and prioritizing safety improvements in Unincorporated Orange County. This proactive, data-driven approach evaluates the entire roadway network using consistent risk-based criteria to uncover roadway features and conditions most strongly associated with crash risk. By integrating roadway and intersection characteristics with detailed crash data, systemic analysis reveals patterns and relationships between contextual factors - such as roadway type, geometry, and surrounding land use - and the likelihood of severe or frequent crashes.

Crash and contextual data was organized into a series of cross-tabulation (crosstab) matrices, with crash attributes in rows and contextual attributes in columns. Separate matrices were developed for each travel mode - pedestrian, bicycle, motorcycle, and all-modes combined - to capture mode-specific patterns and risk factors. The **Weighted Crash Score (WCS)** was calculated for each cell within these matrices to identify the combinations of crash and contextual factors associated with the highest frequency and severity of crashes. The results of this analysis led to the identification of ten distinct crash profiles, representing the most prevalent and severe crash patterns across the unincorporated roadway network.



The graphics above are visual representations of the underlying crash matrices, with **Collision Attributes** shown vertically and **Contextual Attributes** shown horizontally for each travel mode. Darker cells indicate higher weighted crash risk, and marked cells (✖) identify the highest frequency and severity of crashes which led to the identification of ten distinct crash profiles shown on the next page.

Systemic Safety Analysis: A data-driven approach that proactively identifies roadway features correlated with higher crash risk across a transportation network, rather than reacting only to individual high-crash sites.

Weighted Crash Score (WCS): A relative measure that converts crashes of different severities into a single comparable metric based on property-damage-only equivalents. Used to assess and prioritize safety issues consistently across locations.

Why Systemic Analysis Matters: Systemic analysis helps agencies move from a reactive to a proactive safety strategy—identifying potential risks before they result in serious crashes.

Crash Profiles

The following **ten crash profiles** (A-J) represent the most prevalent and severe crash patterns across Unincorporated Orange County. Each profile reflects a unique combination of roadway, user, and environmental characteristics associated with elevated crash risk. Together, these profiles provide a data-informed foundation for developing targeted countermeasures and prioritizing safety investments throughout the County.

Each crash profile is presented as a cut sheet that includes summary statistics showing the proportion of total and KSI (killed or severely injured) crashes represented by the profile. The cut sheets also identify top locations where these crash types occur and provide a list of recommended countermeasures to address the contributing factors. These profiles translate the results of the systemic analysis into actionable strategies, supporting a proactive approach to reducing severe crashes across the County's roadway network.

Profile	Description	Mode
A	Unsafe Speed Violations · Road Width ≥ 32' · 2-Lane Road Crashes involving Bicycles Linked to Unsafe Speeds on Wide Two/Three-Lane Roads	Bicycles
B	Daylight · Class II Bike Facility Daytime Crashes involving Bicycles on Roads with Class II Facilities	Bicycles
C	Crossing Not in a Crosswalk · 25 MPH Posted Speed Crashes involving Pedestrians at Unmarked Crossings Near Low-Speed Roads (25 mph)	Pedestrians
D	Dusk/Dawn/Dark · Intersection Nighttime Crashes involving Pedestrians Near Intersections	Pedestrians
E	Driver Proceeding Straight · Near Schools Crashes involving Pedestrians and Vehicles Proceeding Straight Near Schools	Pedestrians

Profile	Description	Mode
F	Overturned · Midblock Overturned Crashes involving Motorcycles at Midblock Locations	Motorcycles
G	Weekend (Fri - Sun) · South Orange County Crashes involving Motorcycles on Weekends in South Orange County	Motorcycles
H	Hit Object · Arterial Roads Hit Object Crashes along Arterial Roads	All Modes
I	Broadside · 40+ MPH Observed Speed Broadside Collisions Where Observed Speed 40+ MPH	All Modes
J	Alcohol Involved · Weekend (Fri - Sun) Crashes on Weekends involving Alcohol	All Modes

Countermeasure Toolbox

A comprehensive Countermeasure Toolbox is provided in **Appendix C**. It includes detailed descriptions of the safety strategies referenced in each crash profile, organized by focus area—including bicycle facilities, pedestrian facilities, intersection design, roadway design, signal timing and phasing, signing and striping, speed management, and non-engineering countermeasures. The toolbox serves as a resource for identifying context-appropriate improvements and supporting project implementation and funding efforts.

Crash Reduction Factors (CRFs), representing the expected percentage reduction in collisions after a countermeasure is implemented, are provided in the Countermeasure Toolbox where available. CRFs are sourced from the 2024 Caltrans Local Roadway Safety Manual (LRSM) and supplemented by the FHWA Crash Modification Factors (CMF) Clearinghouse.

Crash Profile: **A** B C D E F G H I J

Bicycles | Unsafe Speed Violations | Road Width ≥ 32' | 2-Lane Road

Crashes Involving Bicycles Linked to Unsafe Speeds on Wide Two/Three-Lane Roads

Total Bicycle Crashes within Crash Profile A

16 **Total** Bicycle Crashes

14% of **all** Bicycle Crashes

9 **KSI** Bicycle Crashes

36% of all **KSI** Bicycle Crashes

Countermeasures with Crash Reduction Factor (CRF)

Construct/Upgrade Bicycle Facilities

Bike or Buffered Bike Lanes
CRF: 35%

Separated Bike Lanes
CRF: 45%

Conflict Zone Striping

Bicycle Ramp

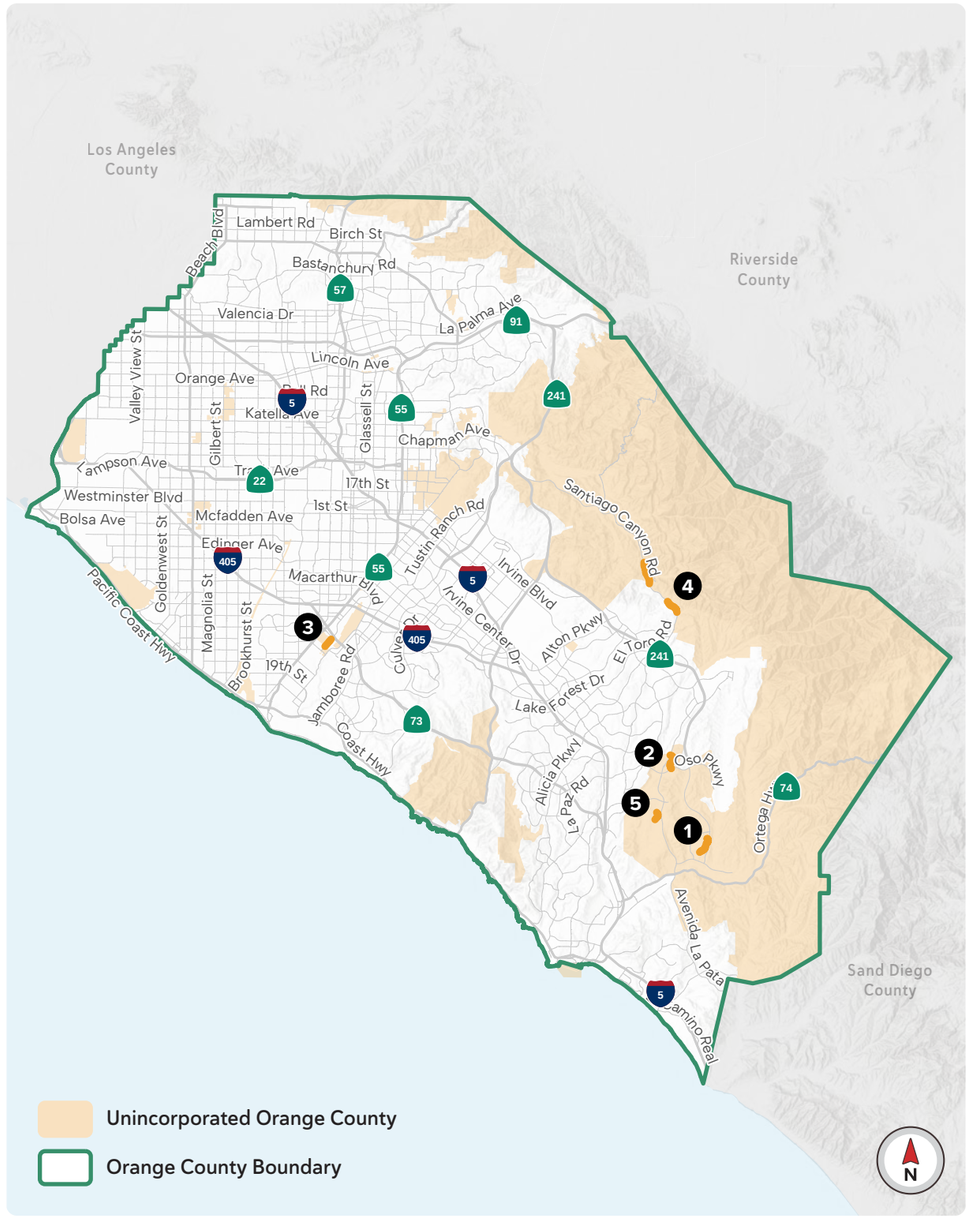
Automobile Speed Management

Pavement Speed Legends

Speed Feedback Sign

Speed Limit Reduction

Lane Narrowing



Top Crash Locations

1. Andaza Street between Airoso Street and Esencia Drive
2. Meandering Trail between Antonio Parkway and Oso Parkway
3. Santa Ana Avenue between Mesa Drive and Bristol Street
4. Santiago Canyon Road between Silverado Canyon Road and Live Oak Canyon Road
5. Snapdragon Street between Sellas Road and Windmill Avenue

Crash Profile: A **B** C D E F G H I J

Bicycles | Daylight | Class II Bike Facility

Daytime Crashes Involving Bicycles On Roads With Class II Facilities

Total Bicycle Crashes within Crash Profile B

56 **Total** Bicycle Crashes

48% of **all** Bicycle Crashes

14 **KSI** Bicycle Crashes

56% of all **KSI** Bicycle Crashes

Countermeasures with Crash Reduction Factor (CRF)

Upgrade Bicycle Facilities

Buffered Bike Lanes
CRF: 35%

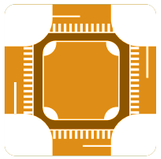
Separated Bike Lanes
CRF: 45%

Shared-Use Path
CRF: 80%

Conflict Zone Striping

Intersection Design For Bicycles

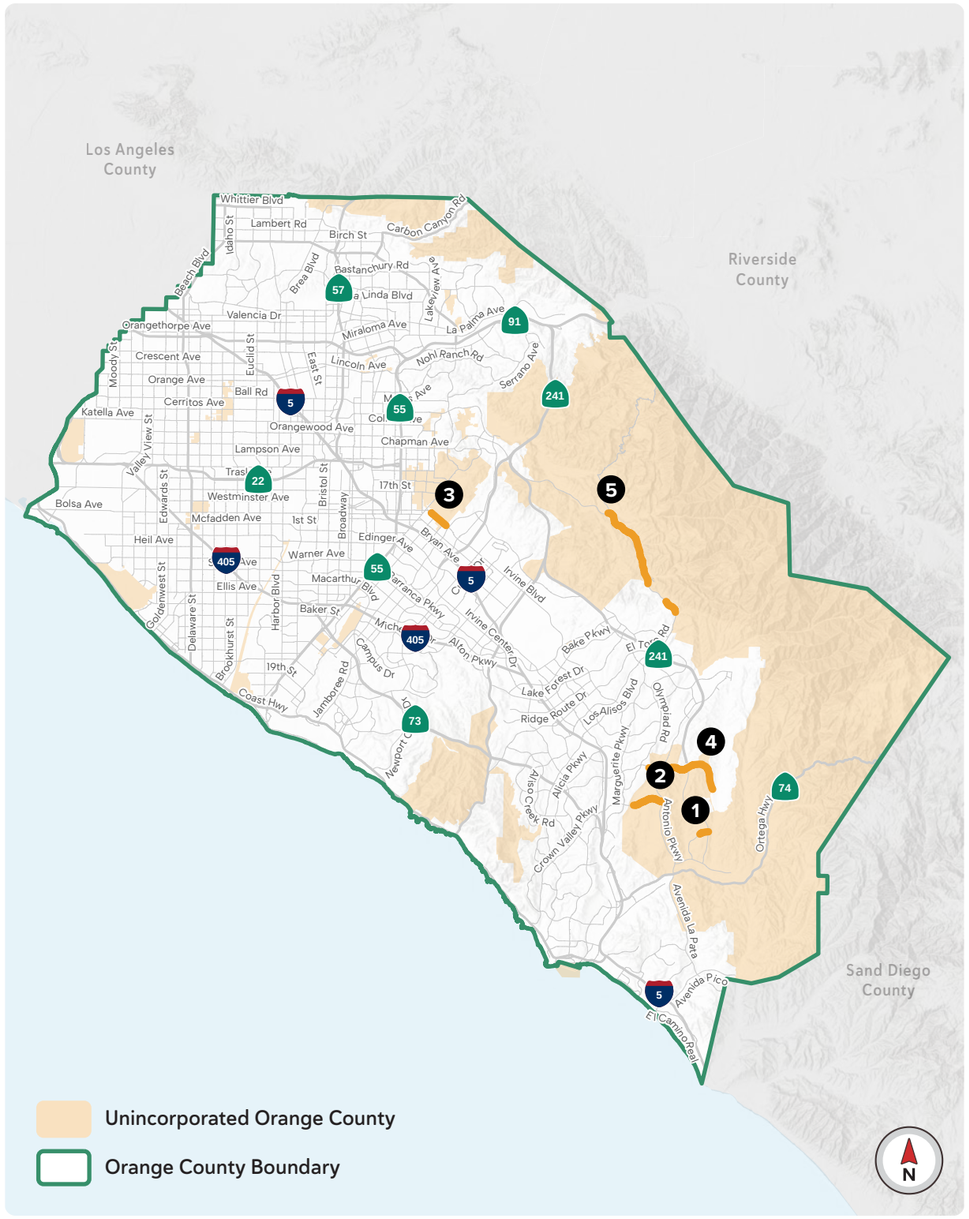
Prohibit Right-Turn-on-Red



Protected Intersections

Extend Green Time for Bicycles
CRF: 15%

Bicycle Signal/ Exclusive Bike Phase
CRF: 15%



Top Crash Locations

1. Chiquita Canyon Drive between Esencia Drive and Los Patrones Parkway
2. Crown Valley Parkway between Trabuco Creek and Antonio Parkway
3. Irvine Boulevard between Charloma Drive and Ranchwood Road
4. Oso Parkway between Trabuco Creek and Coto de Caza Drive
5. Santiago Canyon Road between Silverado Canyon Road and Live Oak Canyon Road

Crash Profile: A B **C** D E F G H I J

Pedestrians | Crossing Not in a Crosswalk | 25 MPH Posted Speed

Crashes Involving Pedestrians at Unmarked Crossings Near Low-Speed Roads (25 mph)

Total Pedestrian Crashes within Crash Profile C

23 **Total** Pedestrian Crashes

26% of **all** Pedestrian Crashes

8 **KSI** Pedestrian Crashes

25% of all **KSI** Pedestrian Crashes

Countermeasures with Crash Reduction Factor (CRF)

Along Arterial Roads

Rectangular Rapid Flashing Beacon
CRF: 35%

Pedestrian Hybrid Beacon
CRF: 55%

Pedestrian Signal
CRF: 55%

Pedestrian Barrier/ Buffer
CRF: 35%

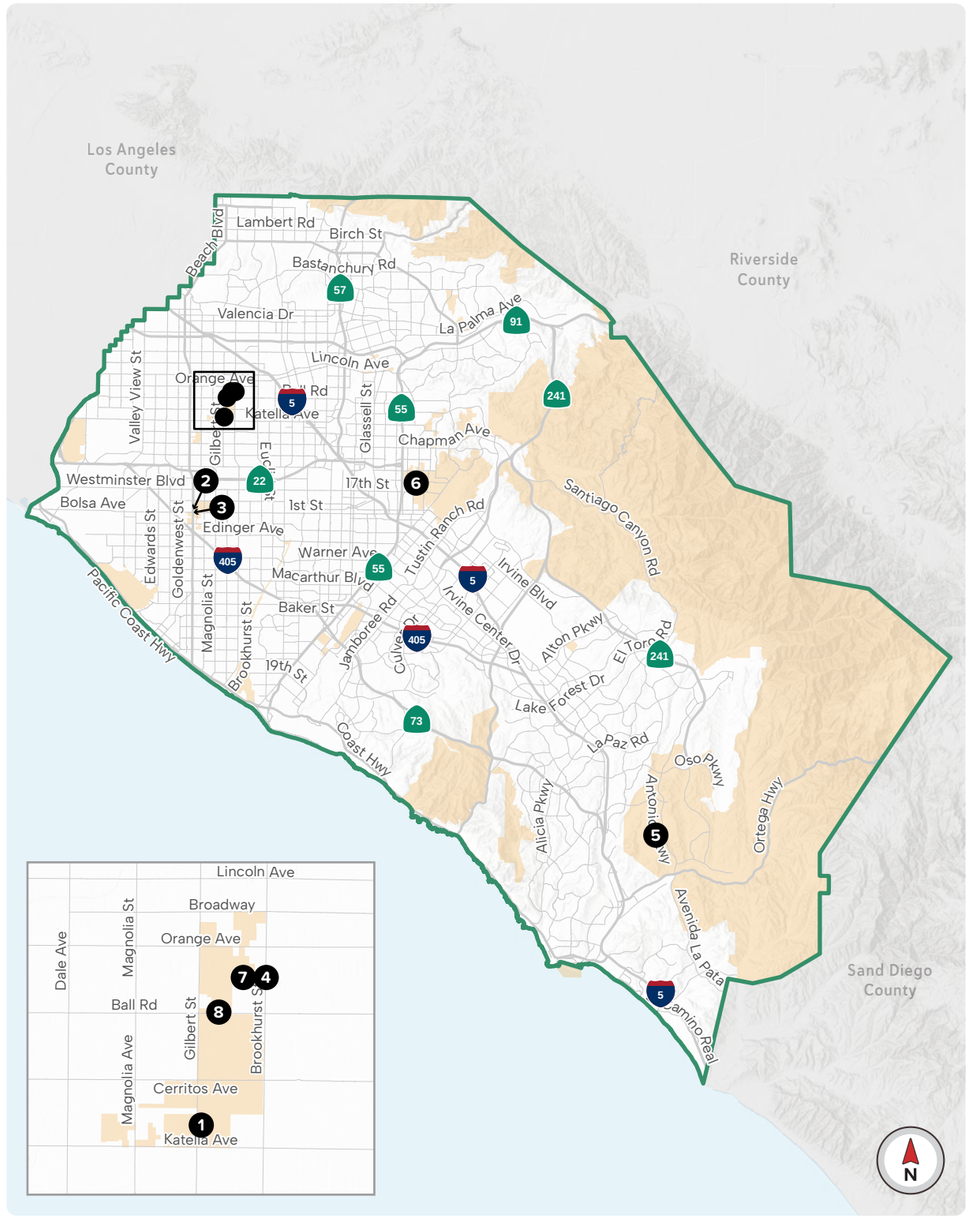
Along Collector and Local Roads

Install Stop or Yield Signs
CRF: 15%

Install Crosswalk
CRF: 25%

Curb Extensions
CRF: 35%

Pedestrian Refuge Island
CRF: 45%



Top Crash Locations

1. Banta Avenue & Endry Street (Uncontrolled)
2. Beach Boulevard (SR-39) & Washington Avenue (Side-Street Stop)
3. Bolsa Avenue & Adams Street (Side-Street Stop)
4. Brookhurst Street & Stonybrook Drive (Side-Street Stop)
5. Duskywing Court & Bluewing Lane (Uncontrolled)
6. Prospect Avenue & Leafwood Lane (Side-Street Stop)
7. Stonybrook Drive & Campus Drive (Side-Street Stop)
8. Yardley Street & Harvest Lane (Uncontrolled)

Crash Profile: A B C **D** E F G H I J

Pedestrians | Dusk/Dawn/Dark | Intersection

Nighttime Crashes Involving Pedestrians Near Intersections

Total Pedestrian Crashes within Crash Profile D

34 **Total** Pedestrian Crashes

38% of **all** Pedestrian Crashes

17 **KSI** Pedestrian Crashes

53% of all **KSI** Pedestrian Crashes

Countermeasures with Crash Reduction Factor (CRF)

At Signalized Intersections

Intersection Lighting
CRF: 40%

Pedestrian Countdown Signal Head
CRF: 25%

Leading Pedestrian Interval
CRF: 60%

High Visibility Crosswalk

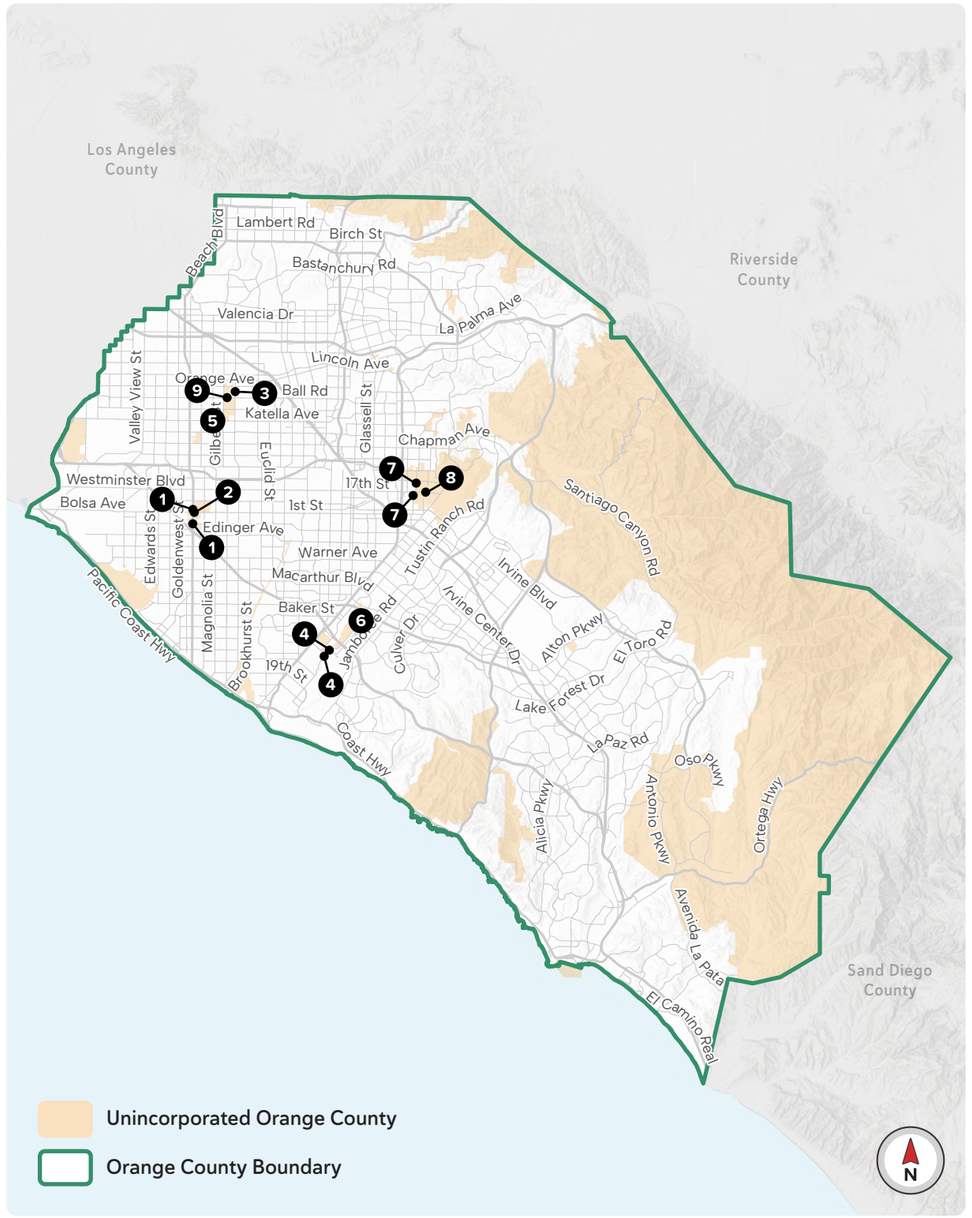
At Unsignalized Intersections

Roadway Lighting
CRF: 35%

Install/Upgrade Crosswalk
CRF: 25% - 55%

Curb Extensions
CRF: 35%

Co-Locate Bus Stops and Pedestrian Crossings



Top Crash Locations

1. Beach Boulevard (SR-39) & McFadden Avenue (Signal) and Washington Avenue (Side-Street Stop)
2. Bolsa Avenue & Adams Street (Side-Street Stop)
3. Brookhurst Street & Stonybrook Drive (Side-Street Stop)
4. Irvine Avenue & Mesa Drive (Signal) and Granada Way (Uncontrolled)
5. Katella Avenue & Magnolia Street (Signal)
6. MacArthur Boulevard & Michelson Drive (Signal)
7. Prospect Avenue & Arbolada Way (Side-Street Stop) and Leafwood Lane (Side-Street Stop)
8. Seventeenth Street & Greshon Place (Side-Street Stop)
9. Yardley Street & Harvest Lane (Uncontrolled)

Crash Profile: A B C D **E** F G H I J

Pedestrians | Driver Proceeding Straight | Near Schools

Crashes Involving Pedestrians and Vehicles Proceeding Straight Near Schools

Total Pedestrian Crashes within Crash Profile E

17 **Total** Pedestrian Crashes

19% of **all** Pedestrian Crashes

10 **KSI** Pedestrian Crashes

31% of all **KSI** Pedestrian Crashes

Countermeasures with Crash Reduction Factor (CRF)

Construct/Upgrade Ped Facilities

Add or Improve Sidewalk
CRF: 80%

Leading Pedestrian Interval
CRF: 60%

Install/Upgrade Crosswalk
CRF: 25% - 55%

Curb Extensions
CRF: 35%

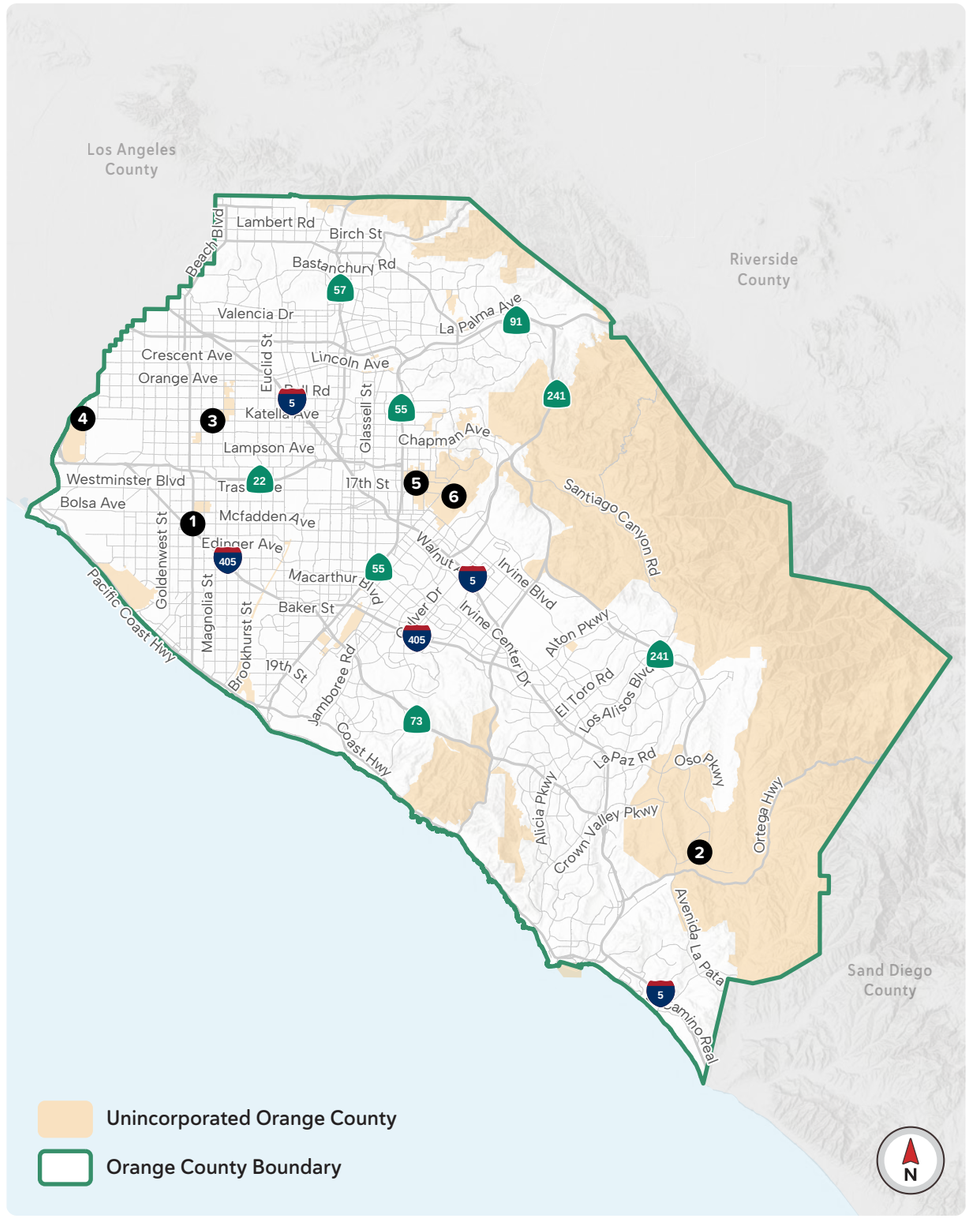
Traffic Calming

Raised Crosswalk/ Speed Table
CRF: 35%

Speed Cushion or Speed Hump

Speed Reduction Markings

Speed Limit Reduction



Top Crash Locations

1. Beach Boulevard (SR-39) & McFadden Avenue (Signal)
2. Esencia Drive & Andaza Street (Roundabout)
3. Katella Avenue & Magnolia Street (Signal)
4. Katella Avenue & Wallingsford Road (Signal)
5. Prospect Avenue & Leafwood Lane (Side-Street Stop)
6. Red Hill Avenue & Wyndham Court Road (Uncontrolled)

Crash Profile: A B C D E **F** G H I J

Motorcycles | Overturned | Midblock

Overturned Crashes involving Motorcycles at Midblock Locations

Total Motorcycle Crashes within Crash Profile F

38 **Total** Motorcycle Crashes

25% of **all** Motorcycle Crashes

15 **KSI** Motorcycle Crashes

26% of all **KSI** Motorcycle Crashes

Countermeasures with Crash Reduction Factor (CRF)

Curved Roadway Design

High Friction Surface Treatment

CRF: 55%

Chevron Signs

CRF: 40%

Curve Ahead Warning Sign

CRF: 25% - 30%

Motorcycle Protection Guardrail

CRF: 25%

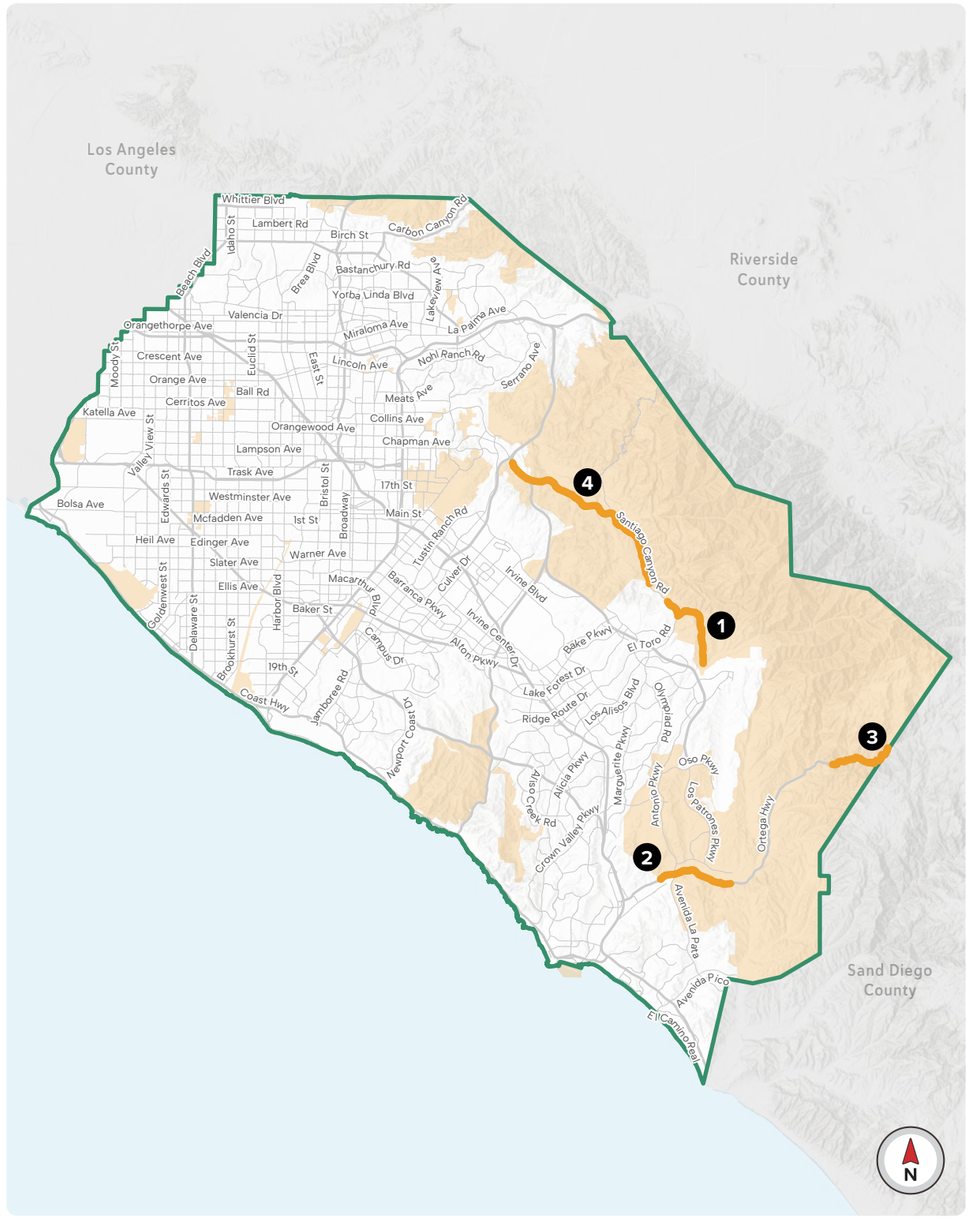
Motorcycle Speed Management

Pavement Speed Legends

Speed Feedback Sign

Speed Limit Reduction

High Visibility Enforcement



Top Crash Locations

1. Live Oak Canyon Road
2. Ortega Highway (SR-74) between San Juan Capistrano and Gibby Road
3. Ortega Highway (SR-74) East of San Juan Canyon Bridge
4. Santiago Canyon Road

Crash Profile: A B C D E F **G** H I J

Motorcycles | Weekend (Fri - Sun) | South Orange County

Crashes Involving Motorcycles on Weekends in South Orange County

Total Motorcycle Crashes within Crash Profile G

73 **Total** Motorcycle Crashes

47% of **all** Motorcycle Crashes

36 **KSI** Motorcycle Crashes

62% of all **KSI** Motorcycle Crashes

Countermeasures with Crash Reduction Factor (CRF)

Engineering Countermeasures

Enhanced Curved Roadway Design
CRF: 25% -55%

Improved Delineation (e.g., Reflective Markers, Contrast Striping, etc.)
CRF: 25%

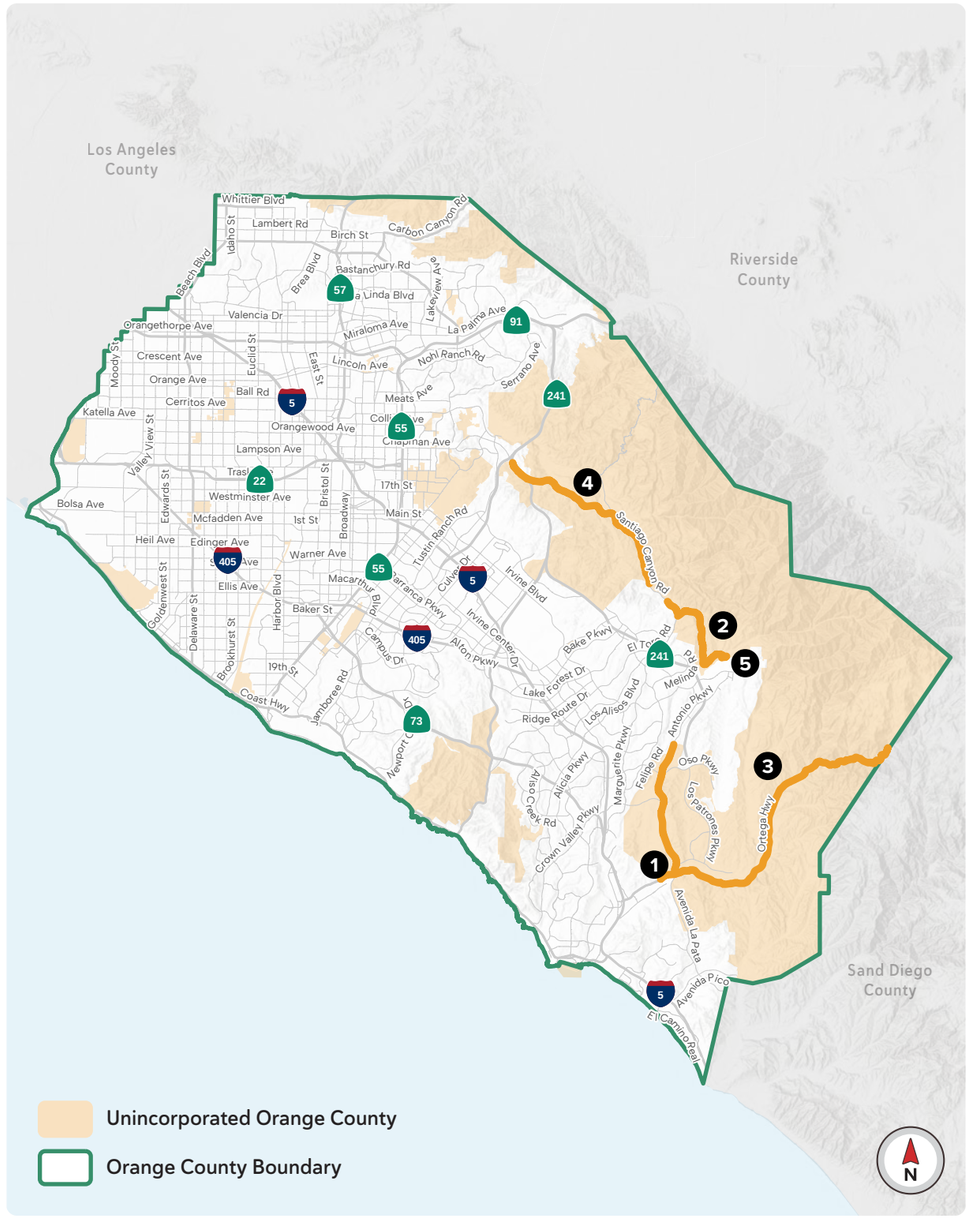
Centerline/Edgeline Rumble Strips
CRF: 15% - 20%

Non-Engineering Countermeasures

Targeted Weekend Enforcement

Public Awareness Campaigns

Rider Training Partnerships



Top Crash Locations

1. Antonio Parkway
2. Live Oak Canyon Road
3. Ortega Highway (SR-74)
4. Santiago Canyon Road
5. Trabuco Canyon Road

Crash Profile: A B C D E F G **H** I J

All Modes | Hit Object | Arterial Roads

Hit Object Crashes Along Arterial Roads

Total All Modes Crashes within Crash Profile H

206 **Total** All Modes Crashes
14% of **all** All Modes Crashes

42 **KSI** All Modes Crashes
22% of all **KSI** All Modes Crashes

Countermeasures with Crash Reduction Factor (CRF)

Roadway Design

Enhanced Singage (e.g., Larger, Reflective, LED-Enhanced, etc.)
CRF: 15%

Improved Delineation (e.g., Reflective Markers, Contrast Striping, etc.)
CRF: 25%

Centerline/Edgeline Rumble Strips
CRF: 15% - 20%

Widen Shoulder
CRF: 30%

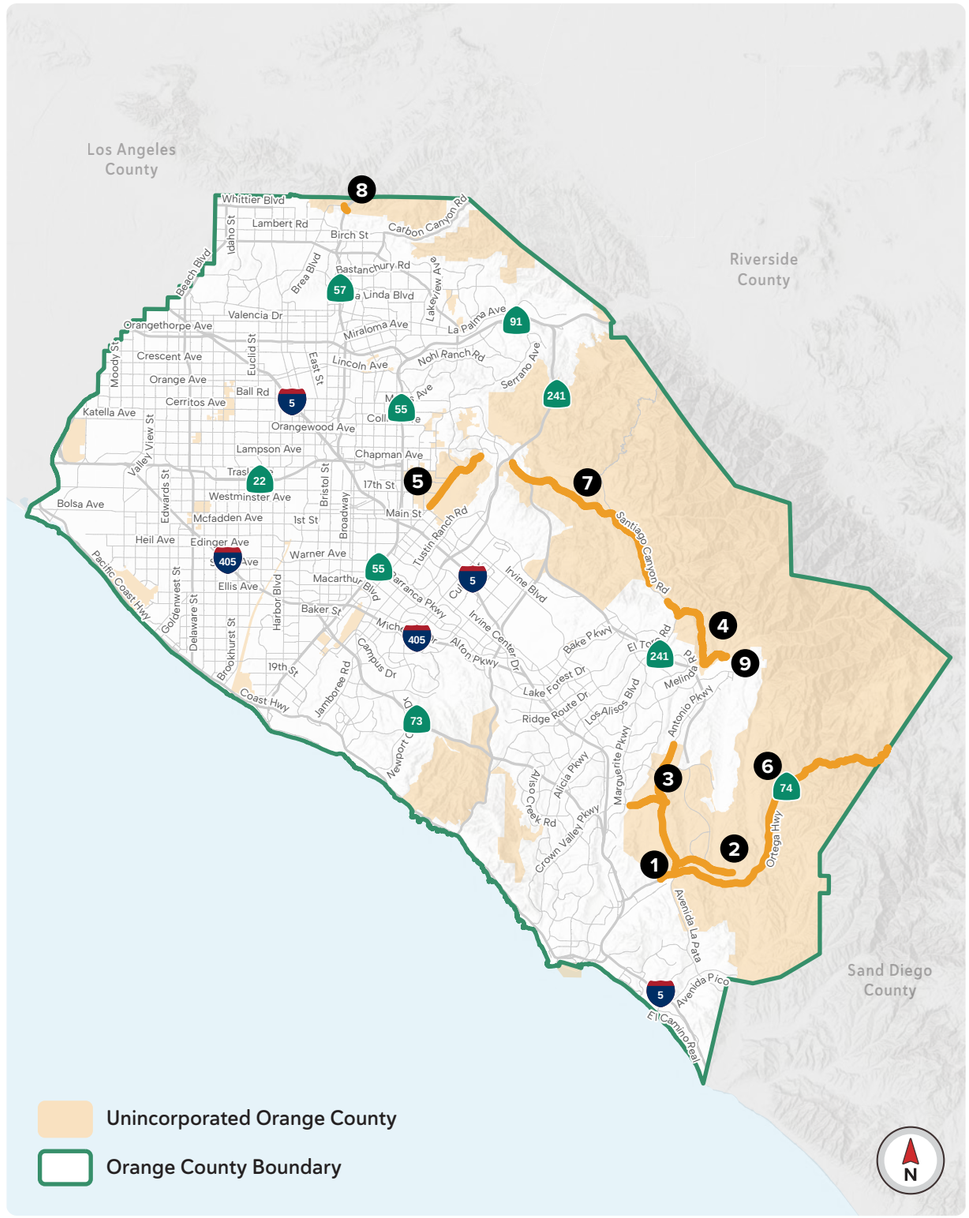
Roadside Design

Intersection/Roadway Lighting
CRF: 35% - 40%

Reflectors and Object Markers
CRF: 35%

Guardrails, Barriers, and Impact Attenuators
CRF: 25%

Replace with Impact Attenuators
CRF: 25%



Top Crash Locations

1. Antonio Parkway
2. Cow Camp Road
3. Crown Valley Parkway
4. Live Oak Canyon Road
5. Newport Avenue/Boulevard
6. Ortega Highway (SR-74)
7. Santiago Canyon Road
8. Tonner Canyon Road
9. Trabuco Canyon Road

Crash Profile: A B C D E F G H **I** J

All Modes | Broadside | 40+ MPH Observed Speed

Broadside Crashes Along High-Speed Roadways (≥40 mph)

Total All Modes Crashes within Crash Profile I

284 **Total** All Modes Crashes
19% of **all** All Modes Crashes

28 **KSI** All Modes Crashes
14% of all **KSI** All Modes Crashes

Countermeasures with Crash Reduction Factor (CRF)

At Signalized Intersections

Extend Yellow and All Red Time
CRF: 15%

Supplemental/Upgrade Signal Heads
CRF: 15%

Flashing Yellow Turn Phase

Protected Left Turns
CRF: 30% - 55%

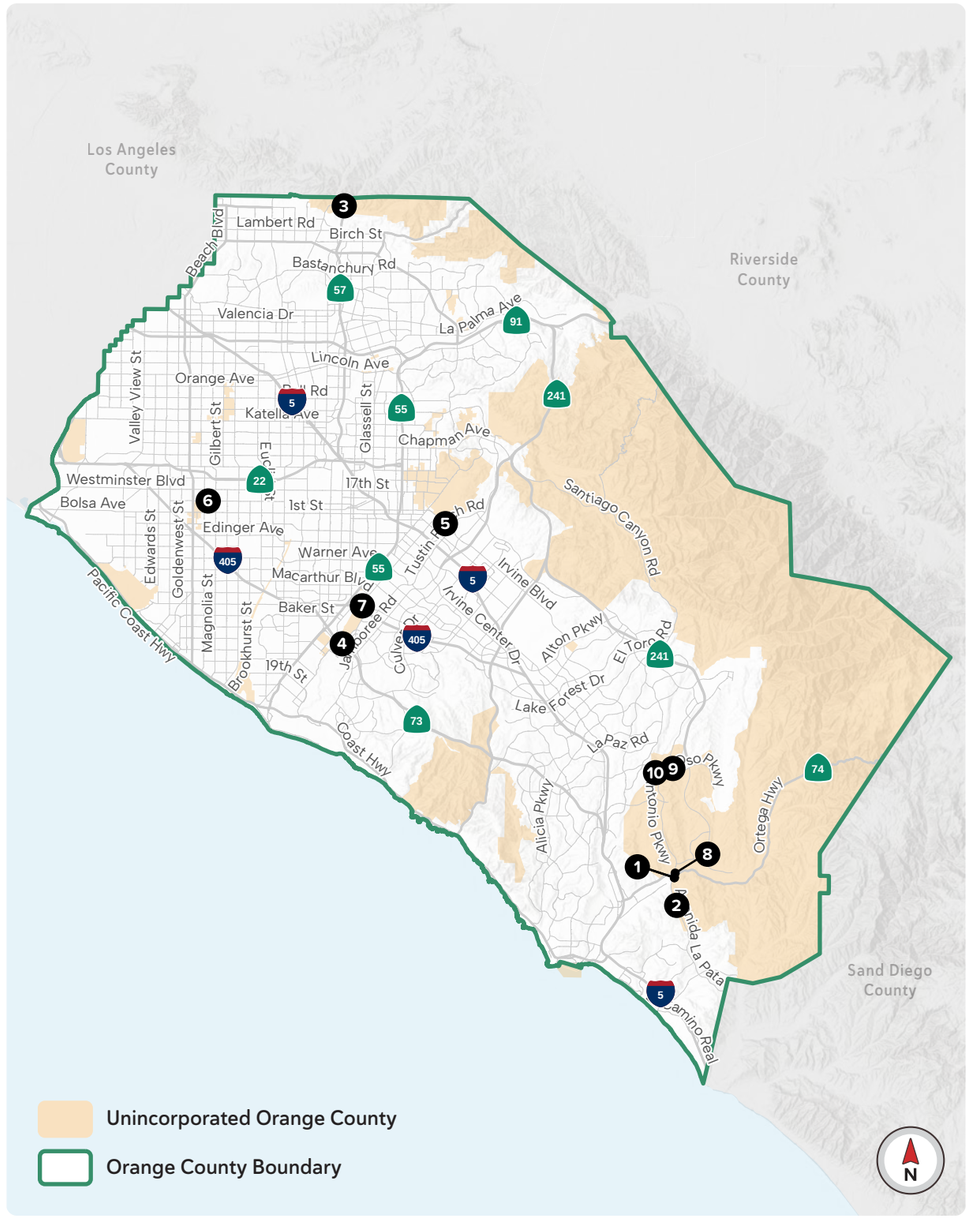
At Unsignalized Intersections

Install Left Turn or Two-Way Left-Turn Lane
CRF: 30% - 55%

Create Directional Median Openings
CRF: 50%

Close Slip Lane

Convert to Roundabout
CRF: Varies



Top Crash Locations

1. Avenida La Pata & Gateway Place (Side-Street Stop)
2. Avenida La Pata & Stallion Ridge (Signal)
3. Brea Boulevard/Brea Canyon Road & Tonner Canyon Road (Side-Street Stop)
4. Bristol Street & Campus Drive/Irvine Avenue (Signal)
5. Browning Avenue & Irvine Boulevard (Signal)
6. Hazard Avenue & Purdy Street (Side-Street Stop)
7. Main Street & Executive Park (East) (Signal)
8. Ortega Highway (SR-74) & Antionio Parkway (Signal)
9. Oso Parkway & Meandering Trail (Signal)
10. Oso Parkway & Plaza Entrance (Signal)

Crash Profile: A B C D E F G H I J

All Modes | Alcohol Involved | Weekend (Fri - Sun)

Crashes on Weekends Involving Alcohol

Total All Modes Crashes within Crash Profile J

131 **Total** All Modes Crashes

9% of **all** All Modes Crashes

27 **KSI** All Modes Crashes

14% of all **KSI** All Modes Crashes

Countermeasures with Crash Reduction Factor (CRF)

Engineering Countermeasures

Intersection/Roadway Lighting

CRF: 35% - 40%

Enhanced Singage (e.g., Larger, Reflective, LED-Enhanced, etc.)

CRF: 15%

Centerline/Edgeline Rumble Strips

CRF: 15% -20%

Guardrails, Barriers, and Impact Attenuators

CRF: 25%

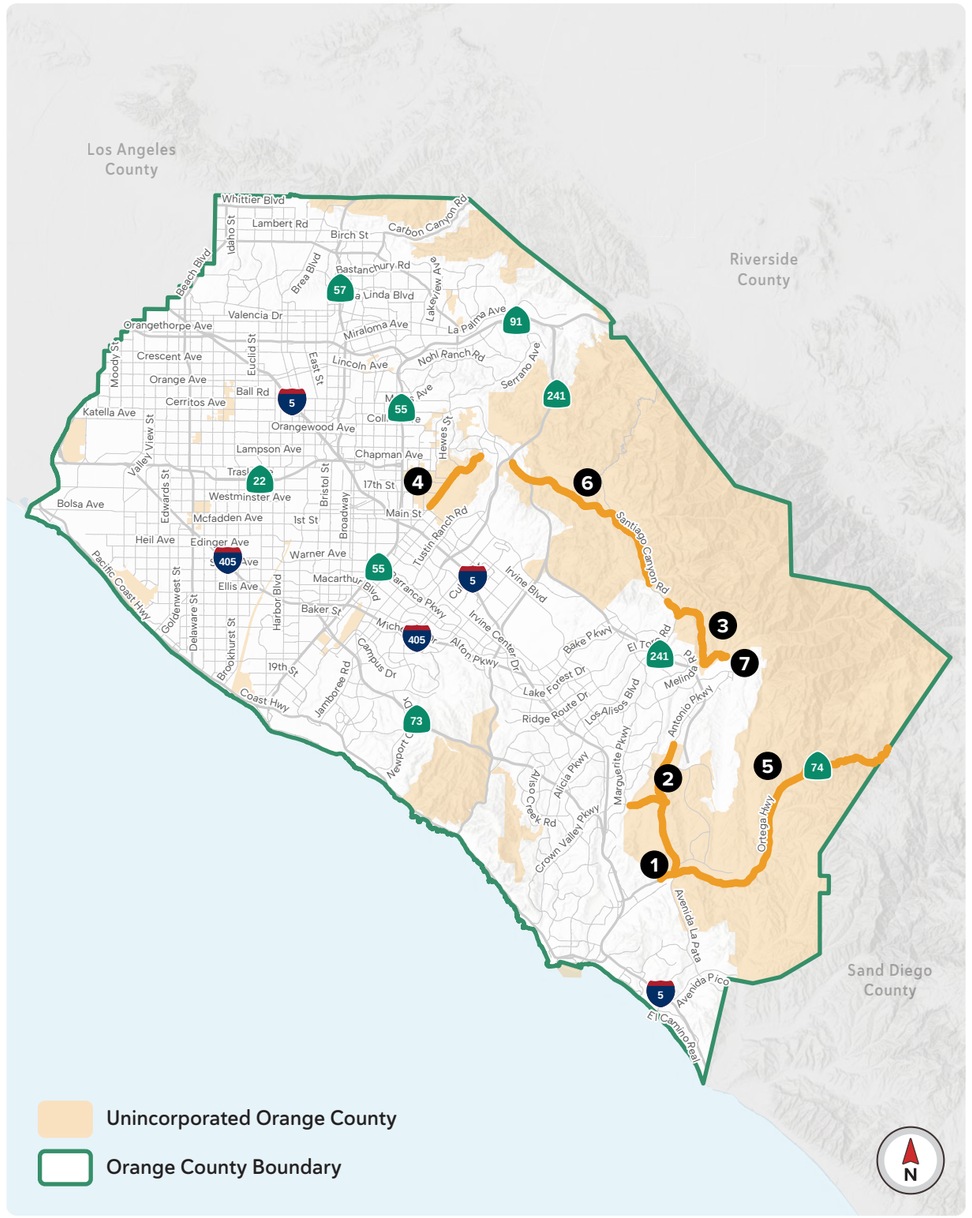
Non-Engineering Countermeasures

Targeted DUI Enforcement

High Visibility Enforcement

Public Awareness Campaigns

Alcohol Server Training & Partnerships



Top Crash Locations

1. Antonio Parkway
2. Crown Valley Parkway
3. Live Oak Canyon Road
4. Newport Avenue/Boulevard
5. Ortega Highway (SR-74)
6. Santiago Canyon Road
7. Trabuco Canyon Road

Priority Corridor: 1 2 3 4 5

Foster Road/Hedwig Road

Between Silverwood Drive and Los Alamitos Boulevard

Crash Summary (2019 - 2023)

8 Total Injury Crashes

0 KSI Crashes

Roadway Characteristics

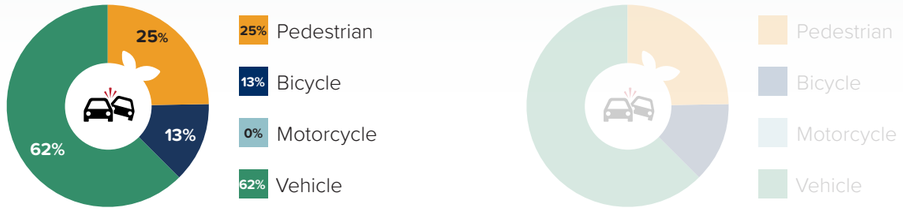
0.8mi Corridor length (Collector)

2 Number of lanes

25mph Posted speed limit

4,000-6,000 Average daily traffic

Crashes By Mode



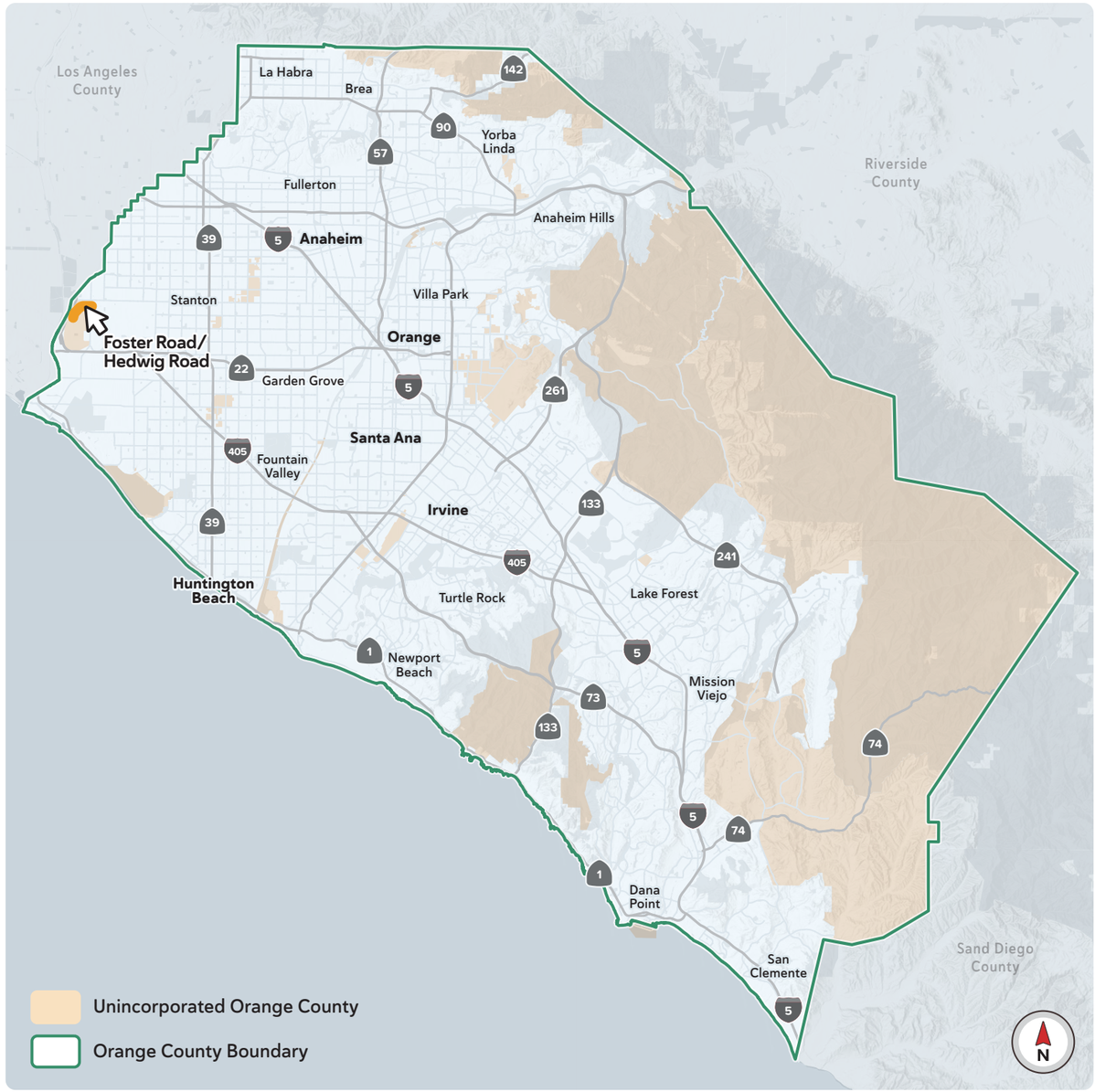
Top Violations

	All	KSI
Vehicle Right-of-way	38%	
Vehicle-Pedestrian	25%	
Unsafe Speed	13%	

Top Crash Types

	All	KSI
Broadside	38%	
Vehicle-Pedestrian	25%	
Sideswipe	25%	

Crash Lighting Condition

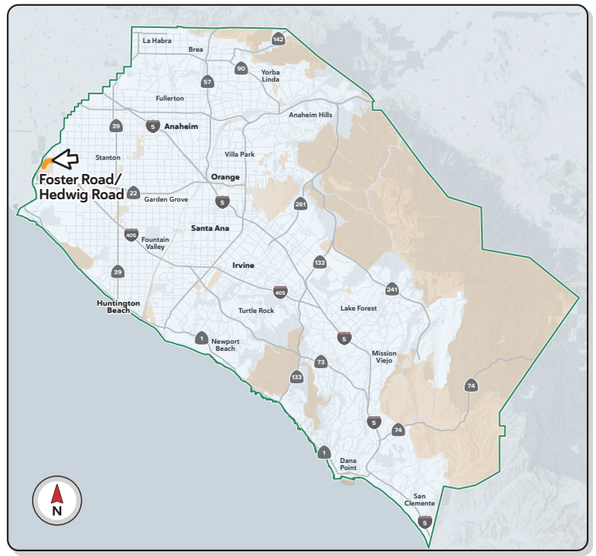


Priority Corridor: 1 2 3 4 5

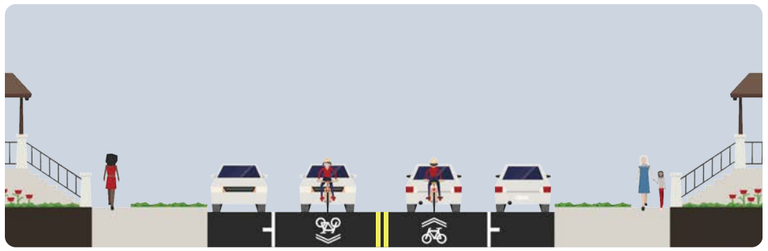
Foster Road/Hedwig Road

Between Silverwood Drive and Los Alamitos Boulevard

Location Map



Existing Cross-Section



Corridor-wide Safety Countermeasures

- Install curb extensions at pedestrian crossings
- Paint curbs red in accordance with AB 413 where curb extensions are not constructed

Location-Specific Safety Countermeasures

- Provide crossing guard
- Install 'All-Way' R1-3P signage
- Install speed limit sign (R2-1)

Priority Corridor: 1 2 3 4 5

Yorba Street

Between Fairhaven Avenue and Leafwood Lane

Crash Summary (2019 - 2023)

10 Total Injury Crashes

2 KSI Crashes

Roadway Characteristics

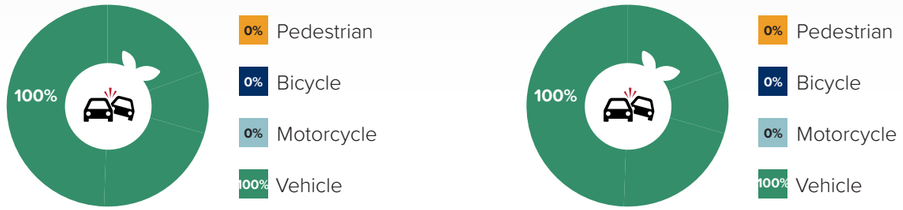
0.5mi Corridor length (Secondary arterial)

2 Number of lanes

35mph Posted speed limit

5,000-6,000 Average daily traffic

Crashes By Mode



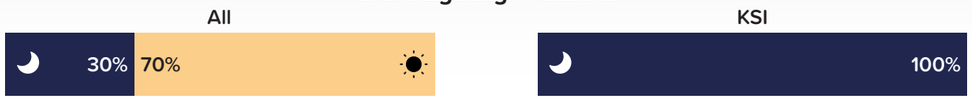
Top Violations

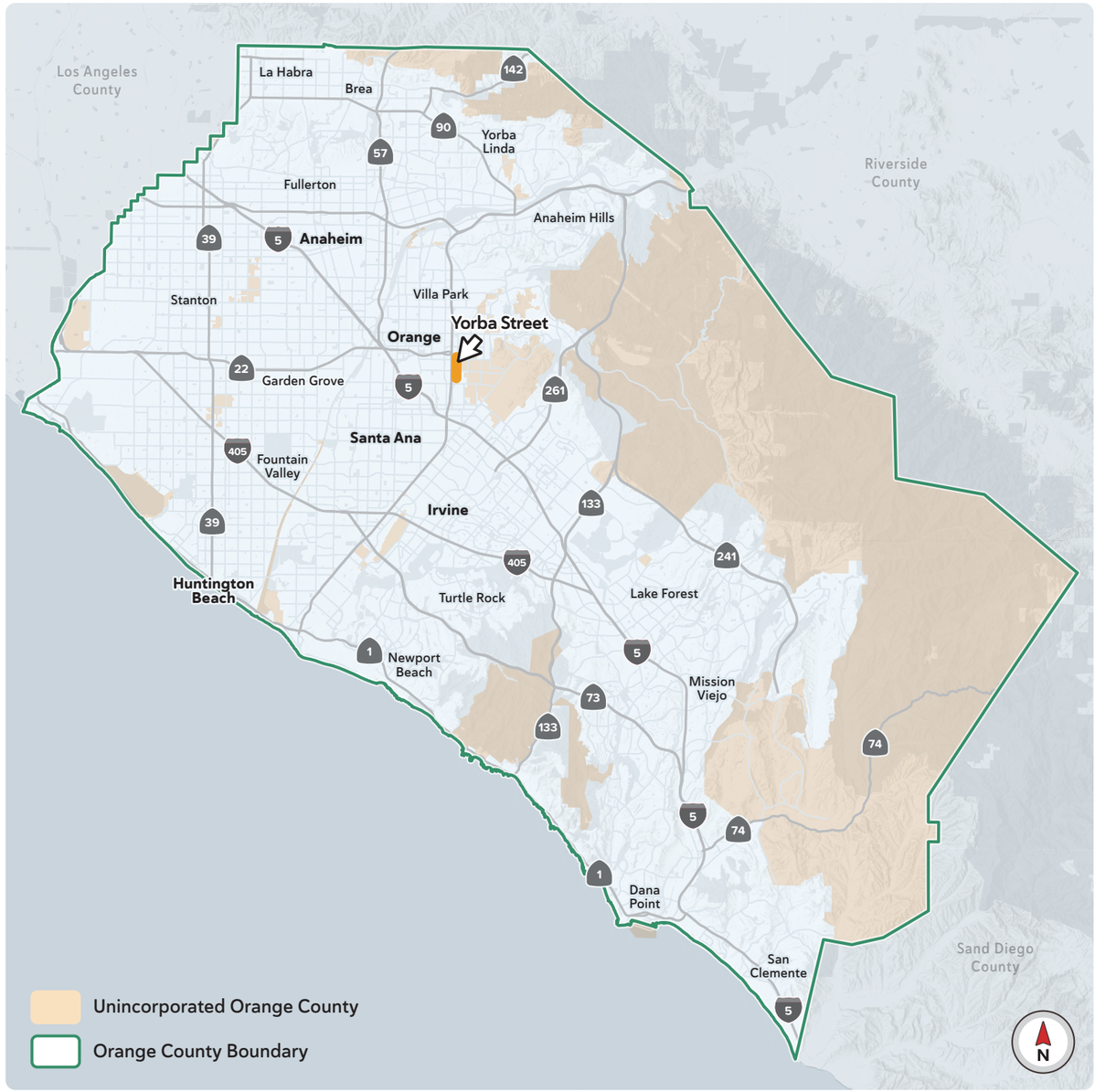
	All	KSI
Unsafe Speed	30%	0%
Traffic Signals/Signs	30%	0%
DUI	20%	100%

Top Crash Types

	All	KSI
Broadside	60%	0%
Head-On	10%	50%
Overturned	10%	50%

Crash Lighting Condition



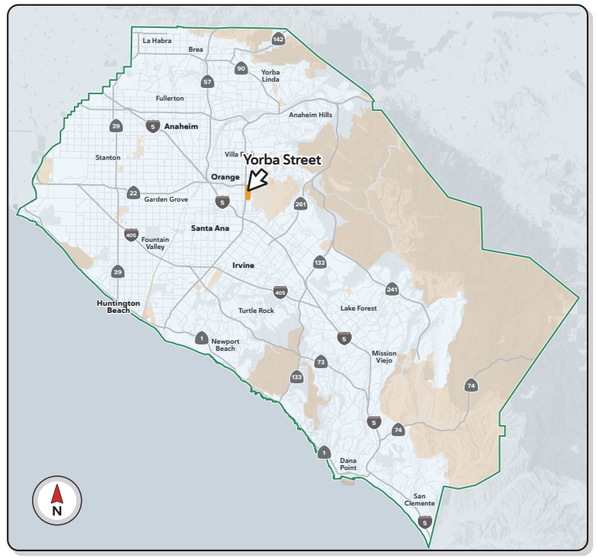


Priority Corridor: 1 2 3 4 5

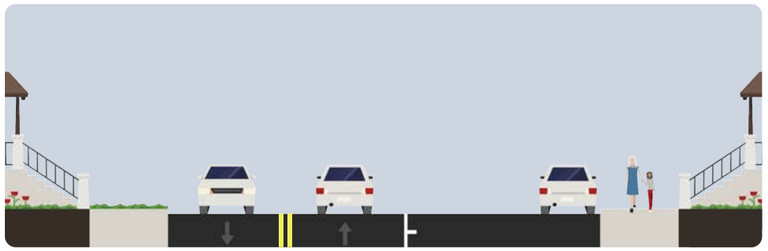
Yorba Street

Between Fairhaven Avenue and Leafwood Lane

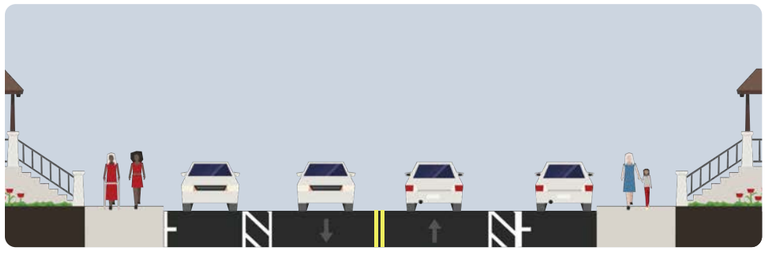
Location Map



Existing Cross-Section



Proposed Cross-Section

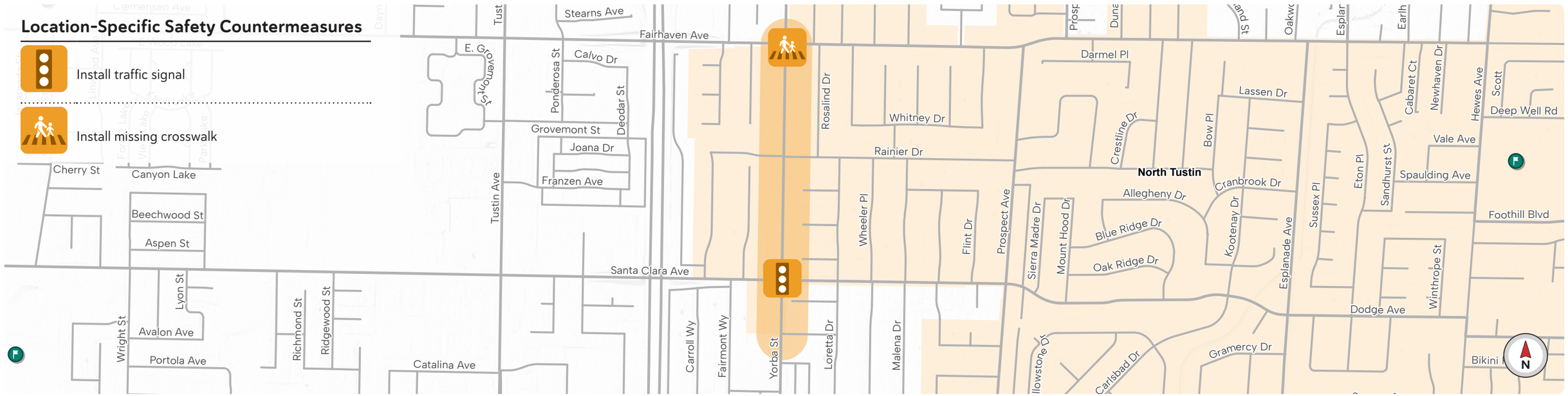


Corridor-wide Safety Countermeasures

- Install roadway lighting
- Install edgelines and reflective pavement markers along the centerline and edgelines where not currently present.
- Close the sidewalk gaps on Yorba Street
- Lower the posted speed limit

Location-Specific Safety Countermeasures

- Install traffic signal
- Install missing crosswalk



Priority Corridor: 1 2 **3** 4 5

Santiago Canyon Road

Between SR-241 and El Toro Road

Crash Summary (2019 - 2023)

57 Total Injury Crashes

21 KSI Crashes

Roadway Characteristics

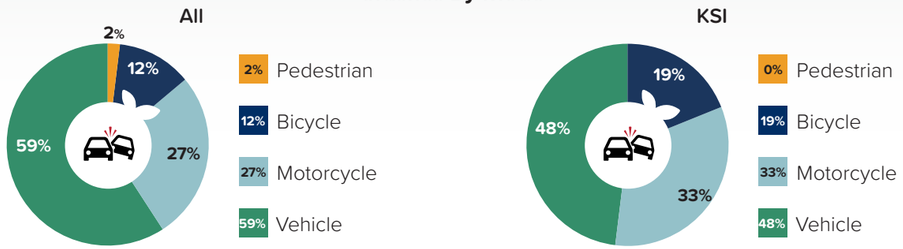
9.7mi Corridor length (Divided collector)

2 Number of lanes

55mph Posted speed limit

7,000-9,000 Average daily traffic

Crashes By Mode



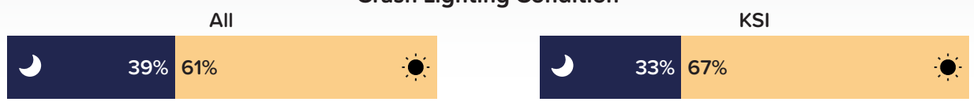
Top Violations

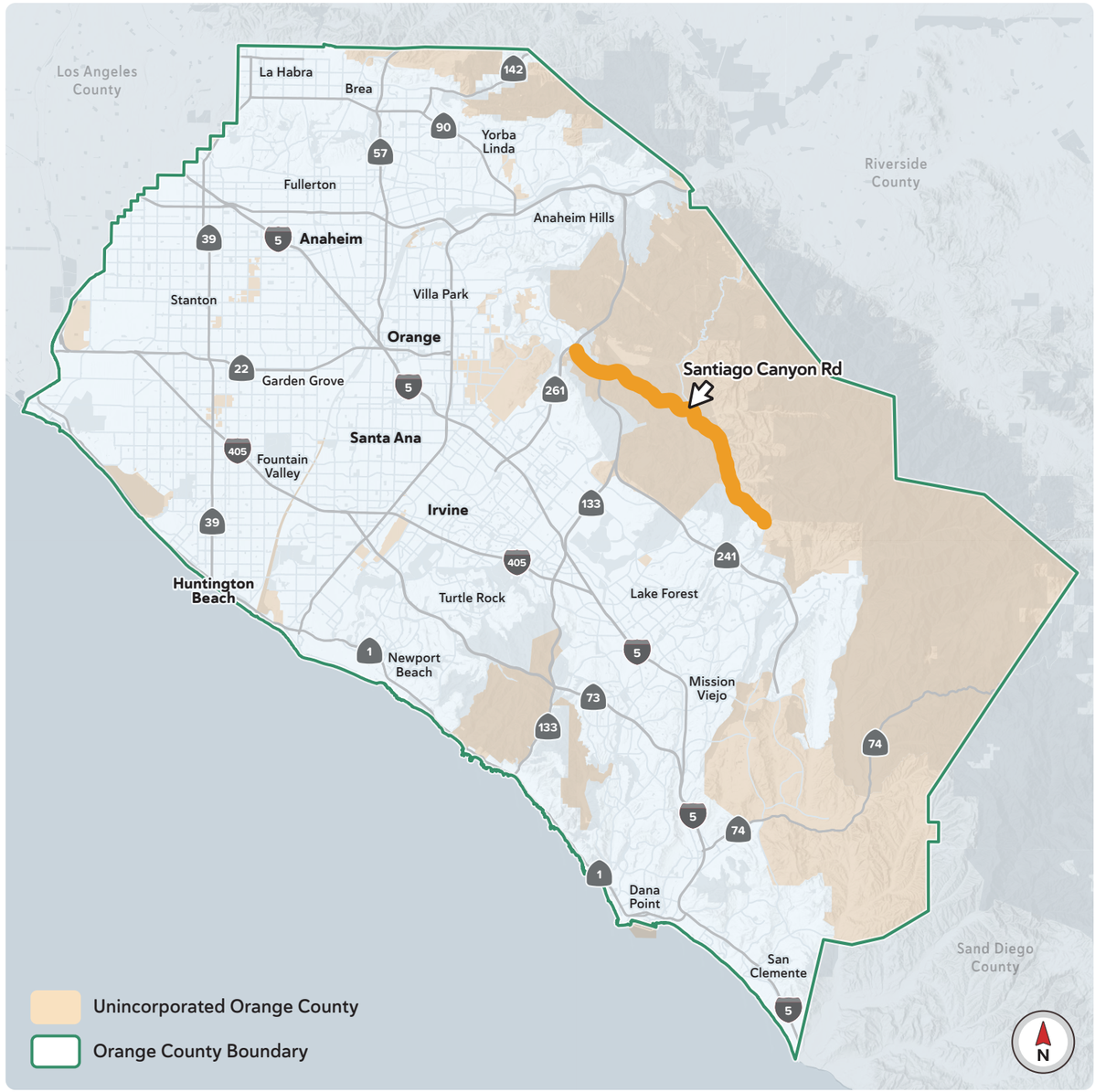
	All	KSI
Improper Turning	39%	24%
Unsafe Speed	30%	38%
DUI	16%	19%

Top Crash Types

	All	KSI
Hit Object	44%	43%
Overturned	19%	14%
Sideswipe	11%	10%

Crash Lighting Condition



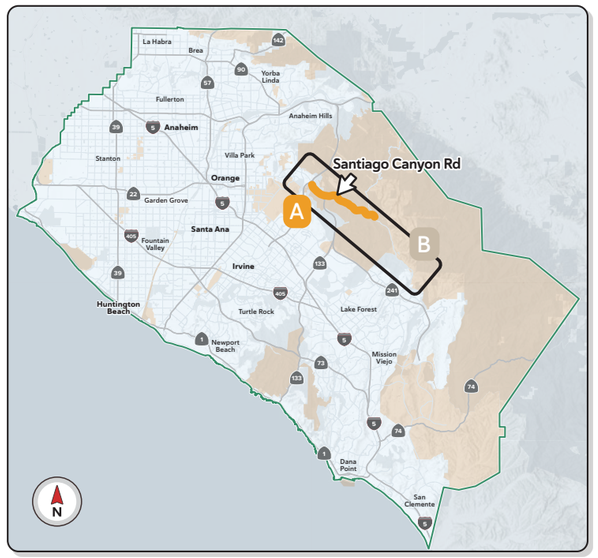


Priority Corridor: 1 2 **3** 4 5

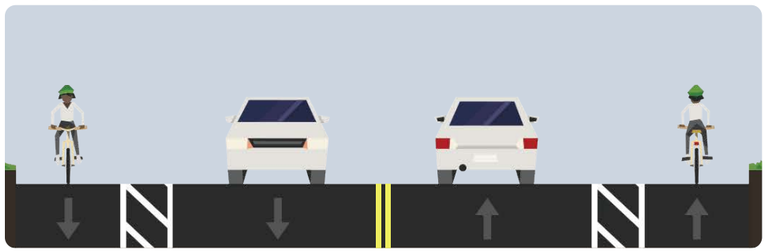
Santiago Canyon Road

Between SR-241 and El Toro Road

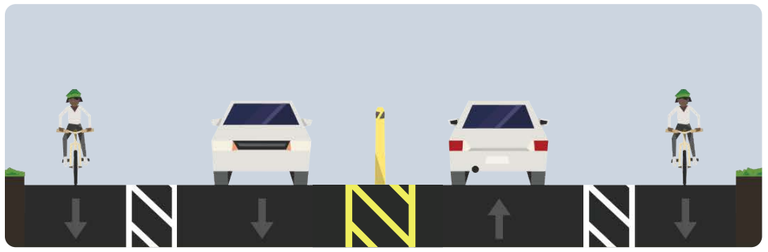
Location Map



Existing Cross-Section



Proposed Cross-Section



Corridor-wide Safety Countermeasures

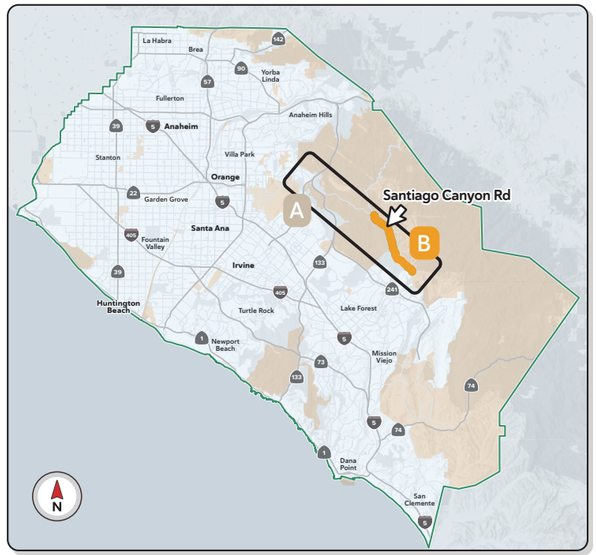
- Buffered bike lanes with 4' buffer and 6' bike lanes
- Bicycle conflict zone striping
- Centerline and edgeline rumble strips
- High friction surface treatments.
- Install a continuous 4' center median with flexible delineators to restrict illegal passing.
- Upgrade guardrails to protect motorcycles.

Priority Corridor: 1 2 **3** 4 5

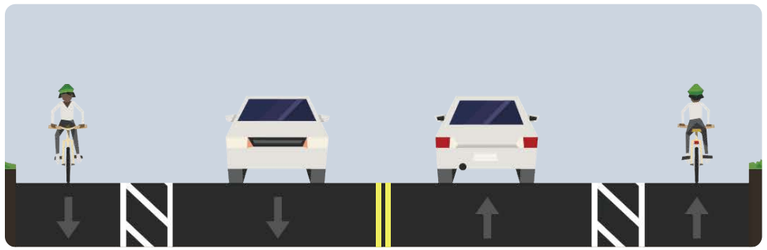
Santiago Canyon Road

Between SR-241 and El Toro Road

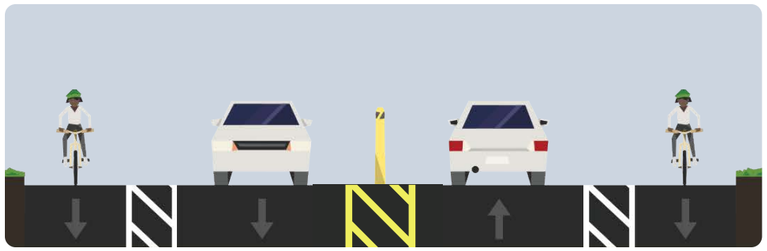
Location Map



Existing Cross-Section



Proposed Cross-Section



Corridor-wide Safety Countermeasures

- Buffered bike lanes with 4' buffer and 6' bike lanes
- Bicycle conflict zone striping
- Centerline and edgeline rumble strips
- High friction surface treatments.
- Install a continuous 4' center median with flexible delineators to restrict illegal passing.
- Upgrade guardrails to protect motorcycles.

Location-Specific Safety Countermeasures

- Install chevron signs on horizontal curves
- Install pavement speed legends
- Install speed feedback sign

Priority Corridor: 1 2 3 4 5

Ball Road

Between Gilbert Street and Anaheim City Limits

Crash Summary (2019 - 2023)

24 Total Injury Crashes

3 KSI Crashes

Roadway Characteristics

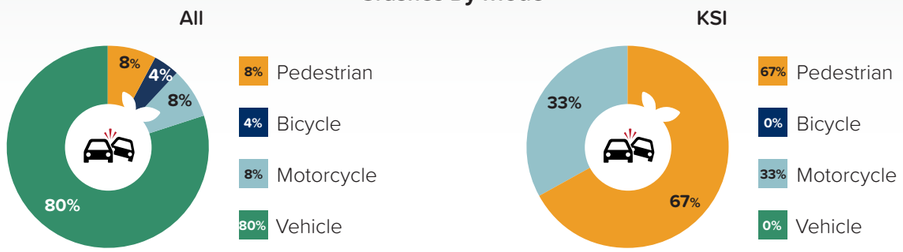
0.4mi Corridor length (Principal arterial)

4 Number of lanes

40mph Posted speed limit

23,000-26,000 Average daily traffic

Crashes By Mode



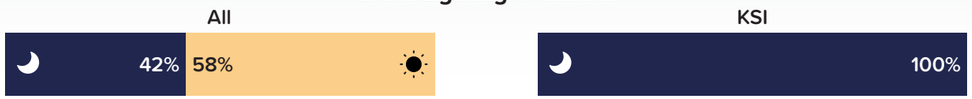
Top Violations

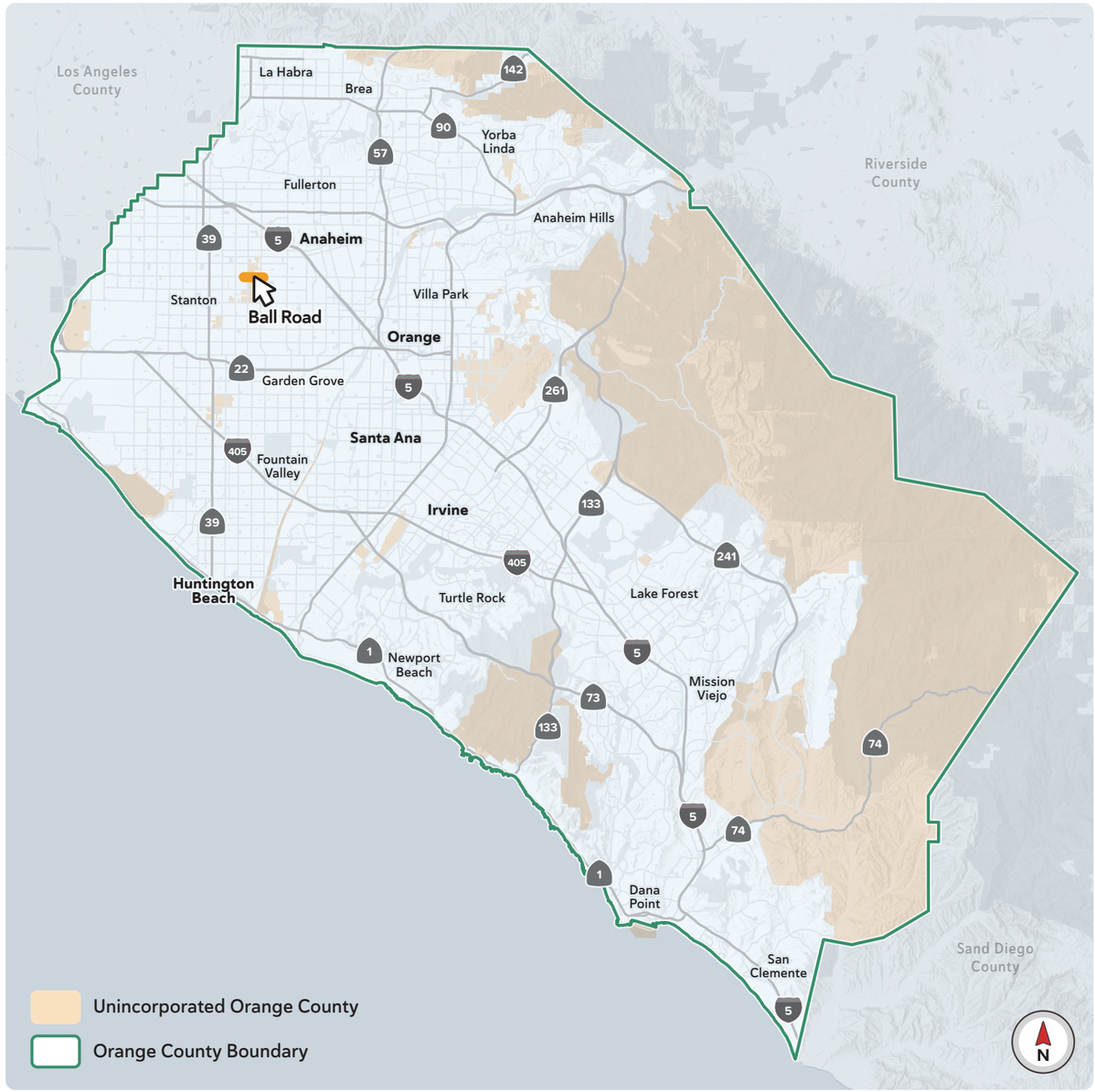
	All	KSI
Unsafe Speed	25%	0%
Vehicle Right-of-way	21%	0%
Pedestrian Violation	8%	67%

Top Crash Types

	All	KSI
Rear End	46%	0%
Broadside	29%	0%
Vehicle/Pedestrian	8%	67%

Crash Lighting Condition



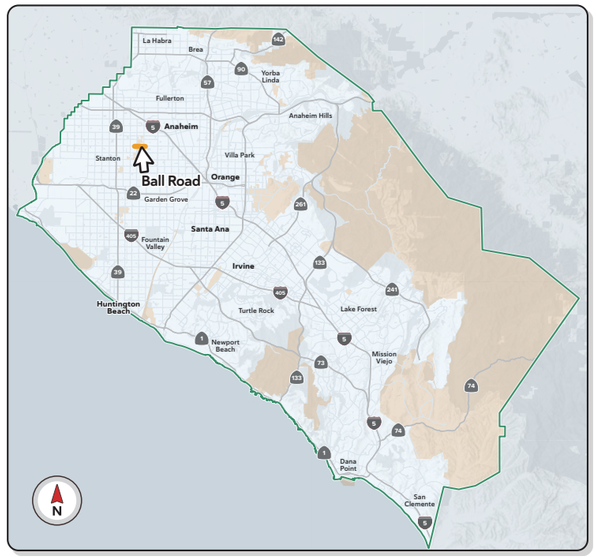


Priority Corridor: 1 2 3 4 5

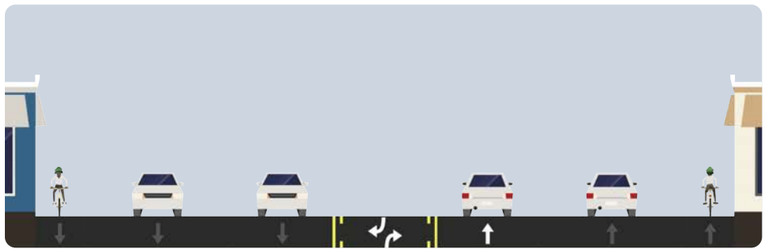
Ball Road

Between Gilbert Street and Anaheim City Limits

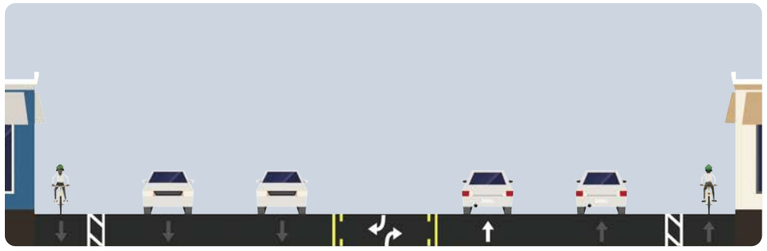
Location Map



Existing Cross-Section



Proposed Cross-Section

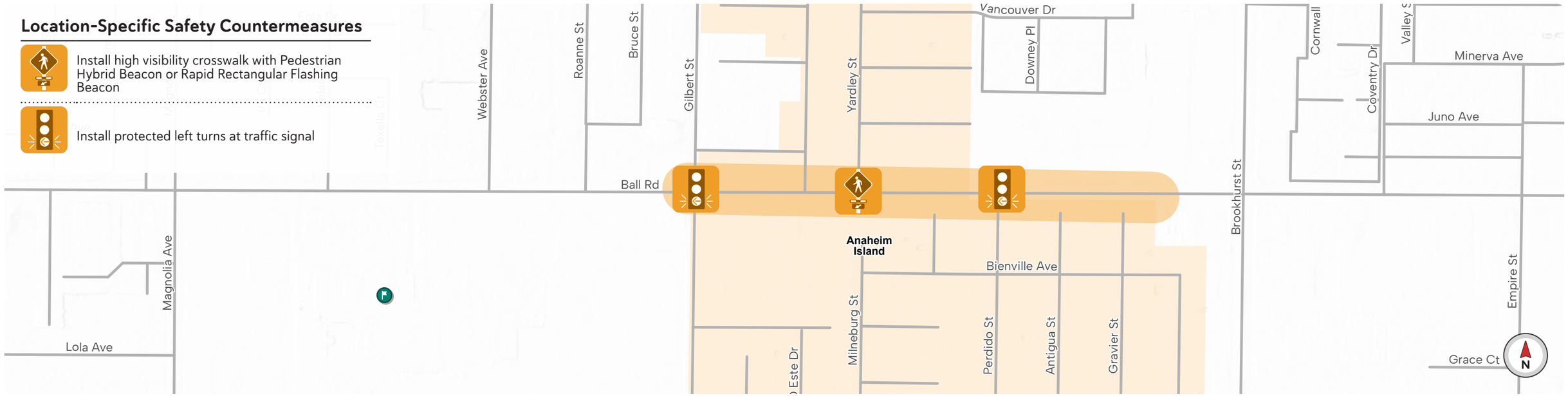


Corridor-wide Safety Countermeasures

- Install buffered bike lanes
- Enhance roadway lighting

Location-Specific Safety Countermeasures

- Install high visibility crosswalk with Pedestrian Hybrid Beacon or Rapid Rectangular Flashing Beacon
- Install protected left turns at traffic signal



Priority Corridor: 1 2 3 4 5

Crown Valley Parkway

Between Mission Viejo City Limit to east of Antonio Parkway

Crash Summary (2019 - 2023)

39 Total Injury Crashes

6 KSI Crashes

Roadway Characteristics

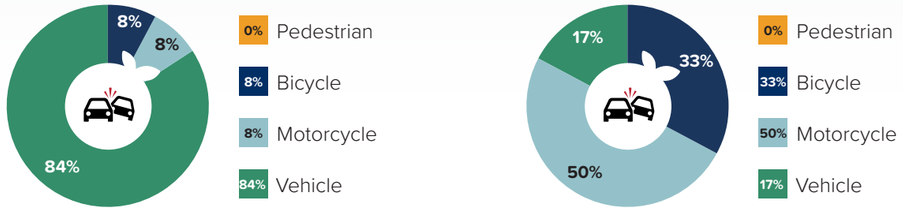
1.8mi Corridor length (Major arterial)

6-8 Number of lanes

55mph Posted speed limit

37,000-42,000 Average daily traffic

Crashes By Mode



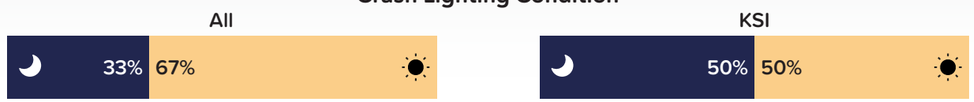
Top Violations

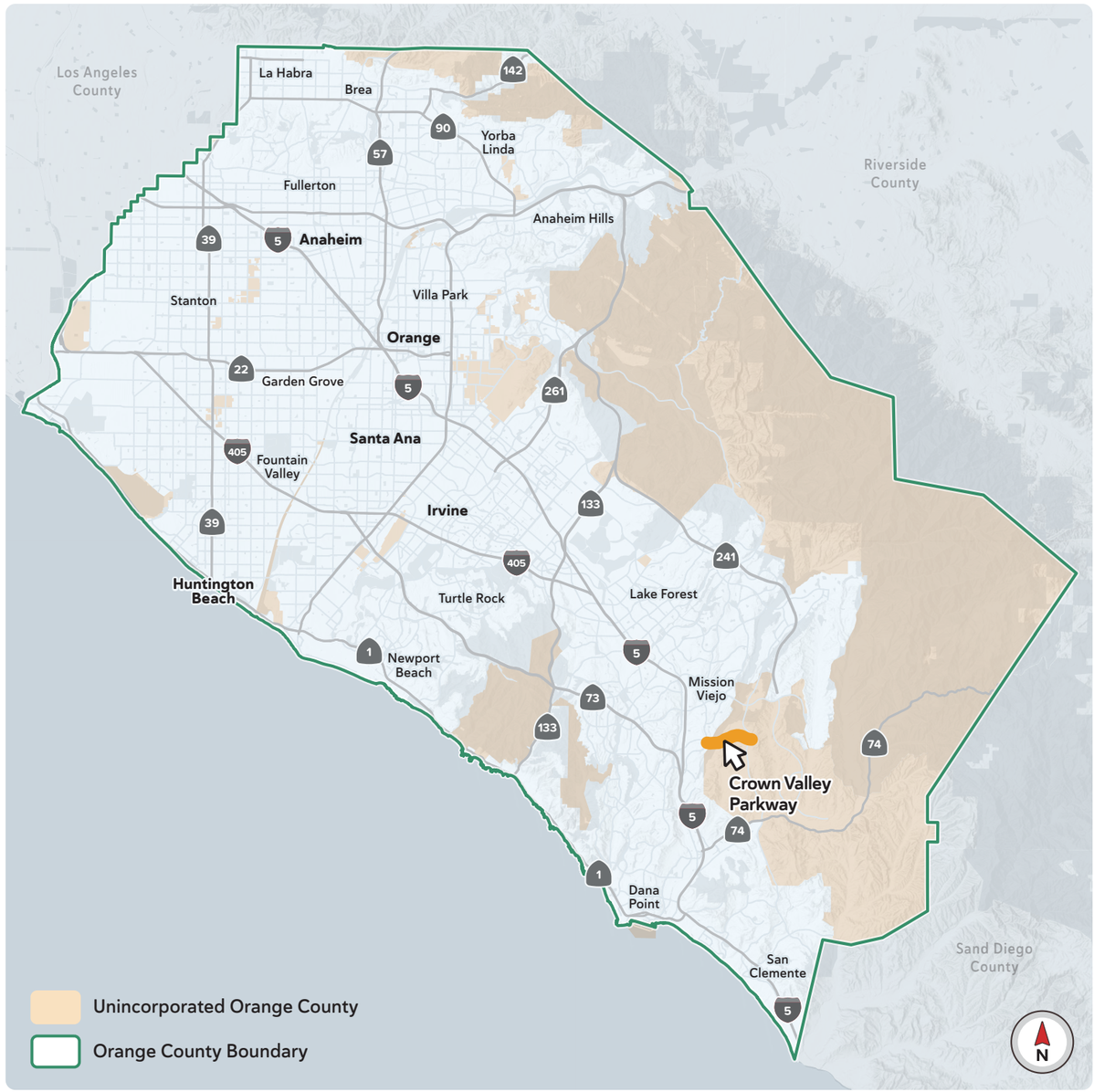
	All	KSI
Unsafe Speed	36%	33%
Improper Turning	18%	17%
DUI	15%	33%

Top Crash Types

	All	KSI
Rear End	38%	33%
Hit Object	23%	33%
Broadside	23%	0%

Crash Lighting Condition



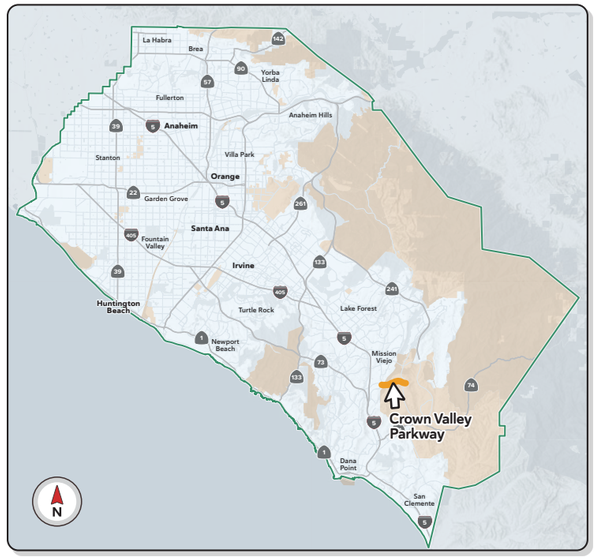


Priority Corridor: 1 2 3 4 **5**

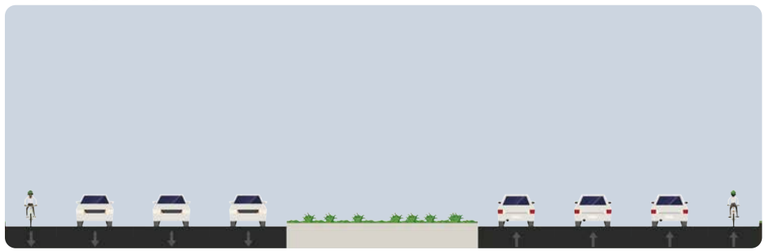
Crown Valley Parkway

Between Mission Viejo City Limit to east of Antonio Parkway

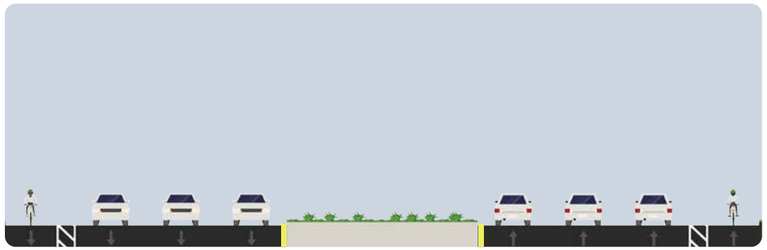
Location Map



Existing Cross-Section



Proposed Cross-Section

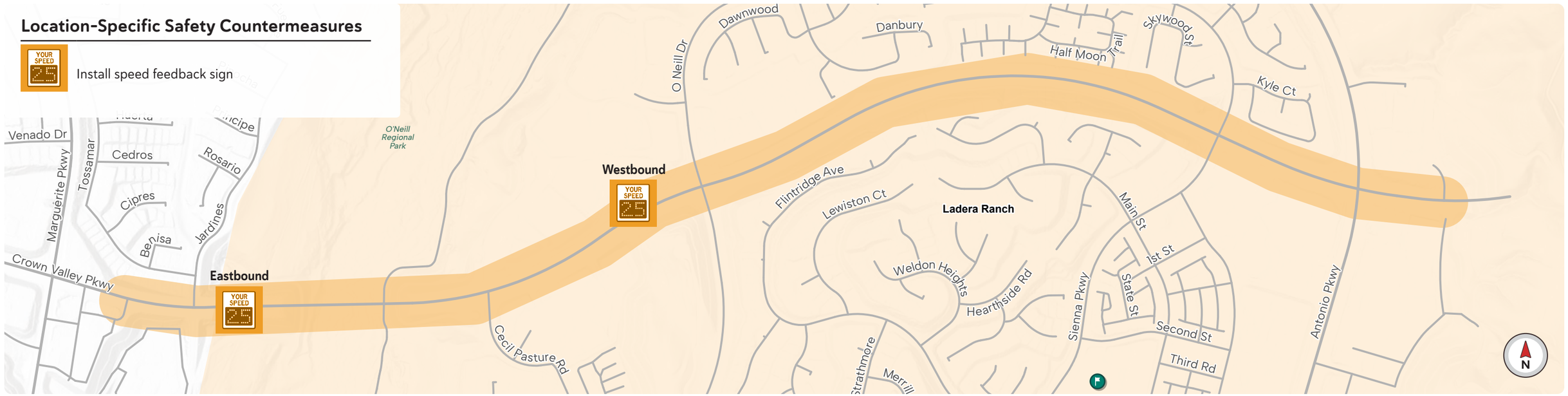


Corridor-wide Safety Countermeasures

- Install buffered bike lanes; evalaute feasibility of upgrading to protected bike lanes
- Add a yellow centerline with reflective deliniators for improved visibility
- Install object markers on streetlight poles located adjacent to roadway

Location-Specific Safety Countermeasures

- Install speed feedback sign



Chapter 5:
Implementation & Evaluation

> *We need a national change in mentality. It is time for a transformation in how people think about road safety. Together, we can act to change the culture and expectations. We are so accustomed to hazards on our roads that we sometimes behave as if the risks of today's roadways are inevitable. But they're not. People should leave the house and know they're going to get to their destination safely. Once we believe that, and believe in our ability to collectively make progress, once we demand better, we will see more positive changes cascading across governments and industry.*

Pete Buttigieg
Former US Secretary of Transportation

The implementation phase of the LRSP turns the plan's strategies and actions into on-the-ground results. These efforts may include updates to County policies and procedures, development of new programs, infrastructure investments, and operational enhancements. Achieving meaningful safety outcomes will depend on strong coordination among County departments, sustained stakeholder collaboration, and consistent support from leadership and funding partners.

Benchmarking Assessment

The County of Orange has already taken notable steps to improve roadway safety, including the adoption of policies and planning documents that define the County's transportation safety priorities. These documents, particularly those with safety-focused goals, policies, and recommendations, were reviewed to help strengthen the foundation for the LRSP.

The resulting benchmarking assessment documents existing safety initiatives and identifies opportunities to better align County practices with the Safe System Approach. It also makes clear that meaning progress will require more than just responding to issues with individual infrastructure projects; it will depend on addressing systemic barriers and ensuring that safety is prioritized across all programs and operational decisions.

The following plans and documents were reviewed as part of the benchmarking effort:

Orange County Traffic Manual	OCPW, 2007
Systemic Safety Analysis Report	OCPW, 2019
Systemic Safety Plan	OCTA, 2019
Transportation Implementation Manual	OCPW, 2021
"OC on the Move" Active Transportation Plan (ATP)	OCPW, 2023
Americans with Disabilities Act (ADA) Transition Plan	OCPW, 2024
County of Orange General Plan, Chapter IV: Transportation Element	OCPW, 2025
Orange County Municipal Code	November 2025

Key Takeaways

Key takeaways from the benchmark assessment are highlighted below and directly resulted in the development of the recommended Implementation Strategies. The full benchmarking assessment is provided in **Appendix D**.

- **Planning and Policy** Maintain active membership in regional safety planning efforts, while also building internal staff capacity, commitment, and coordination.
- **Leadership & Commitment**: Continued leadership engagement and education is needed; especially as newly elected officials take office and to help maintain safety as a top priority for the County Board of Supervisors.
- **Safe System Framework**: Establish regular review, evaluation, and management of crash data to track progress and understand trends over time.
- **Project Delivery**: Funding remains a critical challenge for safety project implementation. The LRSP should identify grant funding opportunities or strategies for implementing low-cost improvements.
- **Safety Culture**: Leverage existing communication platforms and County events to continue spreading messaging about County's transportation safety goals.

Implementation Strategies

For each implementation strategy, the responsible agencies supporting the action are identified, along with an implementation timeline.

Implementation strategies are categorized as follows:

Near-Term	Mid-Term	Long-Term
1 - 2 Years	3 - 5 Years	5 - 10 Years

Safety Planning & Culture

ID	Implementation Strategy	Responsible Agencies	Timeline
1.1	Strengthen countywide commitment to roadway safety by formally adopting the LRSP and publish the plan on the County's website for public access. To remain eligible for Highway Safety Improvement Program (HSIP) grant funding, the LRSP must be updated every five years.	Public Works, County BOS	Near-Term
1.2	Adopt and track the Safety Performance Indicators identified in the LRSP, and implement a regular monitoring and reporting process to proactively assess progress and guide future safety investments.	Public Works	Near-Term
1.3	Leverage crowdsourcing tools, third-party mobility data, and video-based detection or conflict analysis to identify near-miss events and safety concerns that may not be captured in police-reported crash data. These approaches can help agencies better understand risk patterns affecting vulnerable road users and communities that are historically underrepresented in crash reporting, thereby improving the identification of emphasis areas and informing more proactive and equitable safety investments.	Public Works	Near-Term

Safe Road Users

ID	Implementation Strategy	Responsible Agencies	Timeline
2.1	Expand safety education through partnerships with local agencies, schools, and community organizations, and introduce e-bike safety and training programs to reach broader audiences and address emerging safety challenges.	Public Works, OCTA, Community Organizations	Near-Term
2.2	Continue and formalize coordination with the California Highway Patrol and the Orange County Sheriff's Department through existing Traffic Committees and related interagency forums to align enforcement priorities, share data, and reinforce a consistent focus on behaviors and locations most associated with fatal and serious injury crashes. While recognizing that enforcement deployment decisions, staffing levels, and budget constraints fall largely outside the purview of Orange County Public Works, these coordination efforts can help maximize the effectiveness of available resources and support targeted, data-driven enforcement where feasible.	Public Works, CHP, Sheriff's' Department	Near-Term

Safe Roadways			
ID	**Implementation Strategy**	**Responsible Agencies**	**Timeline**
3.1	Systematically implement proven safety countermeasures that separate users in space and time and improve attentiveness and awareness across County roadways, prioritizing locations with elevated risk and advancing consistent application of Safe System principles beyond individual projects.	Public Works, County BOS	Mid-Term
3.2	Prioritize completion of pedestrian and bicycle networks by targeting locations with high crash risk and activity, and incorporate context-based separation treatments informed by roadway characteristics, land use, and crash data.	Public Works	Long-Term
3.3	Establish functional roadway classifications and clearly defined modal priorities to support selection of context-appropriate safety countermeasures and improve transparency and consistency in tradeoff decisions, with particular focus on corridors experiencing higher rates of fatal and serious injury crashes.	Public Works, County BOS	Mid-Term
3.4	Enhance the development review process to prioritize safety-focused performance measures and best practices for active transportation and transportation demand management, reducing reliance on vehicle Level of Service and incorporating metrics such as conflict points, queuing, and multimodal safety to ensure circulation within and around new development supports safe access for all users.	Public Works, County BOS	Mid-Term
3.5	Strengthen construction and maintenance policies and procedures to move beyond the current case-by-case assessment of work zone safety and accessibility and more consistently prioritize multimodal safety and access for all users, such as pedestrians, bicyclists, and people with disabilities, through standardized requirements.	Public Works, County BOS	Mid-Term

Safe Speeds			
ID	**Implementation Strategy**	**Responsible Agencies**	**Timeline**
4.1	Adopt roadway design standards that prioritize speed management by incorporating target speed–based design and context-appropriate roadway geometries, enabling more consistent and systemic application of traffic calming and speed management treatments across County roadways rather than relying on project-by-project discretion.	Public Works, County BOS, Fire Authority	Near-Term
4.2	Monitor the outcomes of California's automated speed enforcement pilot programs and remain prepared to pursue authorization and implementation if state law is expanded, including evaluating potential corridors, equity considerations, and administrative requirements to support effective deployment when permitted.	Public Works	Long-Term
4.3	Provide staff training on AB 43 methodologies, update speed-setting procedures to prioritize vulnerable users, and establish a routine review process to align speed limits with LRSP corridor designations and evolving safety data.	Public Works	Near-Term

Post Crash Care			
ID	**Implementation Strategy**	**Responsible Agencies**	**Timeline**
5.1	Support and participate in collaborative, interagency efforts to advance integrated and automated sharing of crash, roadway, enforcement, and injury outcome data among state, county, and local agencies, law enforcement, and hospitals. Emphasizing standardized data practices, appropriate privacy protections, and coordinated governance can help improve data accuracy, timeliness, and completeness, while reducing reliance on manual processes and supporting a more comprehensive understanding of roadway safety outcomes.	Public Works, Caltrans, CHP, Health Care Agency, Sheriff's Department, OCTA	Long-Term

Funding Opportunities

Improving roadway safety will require sustained investment across planning, design construction, and operations. A wide range of federal, state, regional, and local funding programs can further support the County's safety initiatives. By aligning projects with the goals, requirements, and evaluation criteria of these programs, the County can strengthen its competitiveness and secure funding that accelerates high-impact safety improvements across the transportation network.

State Sources

Affordable Housing and Sustainable Communities (AHSC) - California Strategic Growth Council

AHSC funds affordable housing and transportation projects that reduce greenhouse-gas emissions and increase walking, biking, and transit access near daily destinations.

Next Funding Opportunity: Round 10 NOFO anticipated Winter/Spring 2026

Active Transportation Program (ATP) - Caltrans

ATP funds projects that increase walking and biking, improve safety, and expand active-transportation access. The program consolidates TAP, BTA, and SRTS into a single competitive statewide grant program.

Next Funding Opportunity: Cycle 8 NOFO anticipated Spring 2026

California Office of Traffic Safety (OTS) Grants

OTS funds local programs addressing impaired driving, distracted driving, motorcycle safety, occupant protection, pedestrian and bicycle safety, EMS response, traffic enforcement, and traffic records system improvements.

Next Funding Opportunity: Applications due January 31 each year

HSIP - Highway Safety Improvement Program (Caltrans)

HSIP funds infrastructure projects that reduce fatalities and serious injuries on public roads, emphasizing treatments with proven crash-reduction benefits. It is a primary resource for LRSP-identified safety projects.

Next Funding Opportunity: Cycle 13 NOFO anticipated Spring 2026

SB 1 Local Streets and Roads (LSR) Program

SB 1 provides $1.5 billion annually for maintenance, rehabilitation, and safety projects on local streets and roads. Jurisdictions must submit an annual project list to the CTC to receive funding.

Next Funding Opportunity: Project list due July 1 each year

Sustainable Communities Grants (Caltrans)

Supports local and regional planning that advances State climate, equity, and multimodal transportation goals, consistent with Regional Transportation Plan/Sustainable Communities Strategy guidelines.

Next Funding Opportunity: FY 2027–28 NOFO anticipated Fall 2026

Regional and Local Sources

OCTA OC Go (Measure M) Funding

OC Go provides ongoing sales-tax funding to support transportation improvements. The County has received OC Go funding every year since FY 2010–11.

Next Funding Opportunity: FY 2026–27

OCTA Surface Transportation Block Grant (STBG) Program

Flexible federal funds administered regionally, supporting roadway improvements, maintenance, safety, ADA upgrades, and active-transportation facilities. OCTA prioritizes projects within Orange County.

Next Funding Opportunity: FY 2026–27

SCAG Go Human Grants

Supports active-transportation safety through mini-grants, temporary demonstration projects, and regional safety campaigns.

Next Funding Opportunity: 2026

SCAG Sustainable Communities Program (SCP)

Provides technical assistance and planning support to help jurisdictions implement the regional Sustainable Communities Strategy (SCS).

Next Funding Opportunity: N/A

Federal Sources

BUILD Grant

Administered by the U.S. Department of Transportation (USDOT), the BUILD program funds capital investments in surface transportation infrastructure that demonstrate significant local or regional impact, including roads, transit, rail, ports, and multimodal facilities. It supports multi-jurisdictional and multimodal projects that may be difficult to fund via formula or other programs.

Next Funding Opportunity: Fiscal Year (FY) 2026–27 Notice of Funding Opportunity (NOFO) anticipated Winter 2025/26

Safe Streets and Roads for All (SS4A) Grants

Established by the Infrastructure Investment and Jobs Act (IIJA), SS4A provides up to $5 billion over FY 2022–26 for grants that support local, regional, and Tribal initiatives to prevent roadway fatalities and serious injuries. This LRSP was funded through a SS4A planning grant and now qualifies as a Comprehensive Safety Action Plan (CSAP), making the County eligible to apply for SS4A implementation grants.

Next Funding Opportunity: FY 2026–27 NOFO anticipated Spring 2026

Evaluating Safety Performance After LRSP Adoption

Ongoing evaluation is essential to understanding the effectiveness of the County's roadway safety efforts and ensuring continued progress toward significantly reducing fatalities and serious injuries on unincorporated roadways. The following Safety Performance Indicators will be used to evaluate progress over time. By regularly assessing trends, identifying emerging issues, and monitoring implementation progress, the County can adjust strategies as needed and maintain accountability to its safety goals.

Implementation Strategy	Safety Performance Indicators (SPIs)	Metric
Crash Outcomes	KSI (Killed or Severely Injured) Crashes	• KSI crashes • Percent of crashes resulting in KSI
	Crashes involving Vulnerable Road Users	• Pedestrian and bicycle crashes • Pedestrian and bicycle KSI crashes • Percent of pedestrian and bicycle crashes resulting in KSI
	Crashes involving Vulnerable Populations	• Percent of victims aged under 15 • Percent of victims aged over 65
Behavioral Factors	Speeds and Speed Limit Compliance	• Measured speed where posted speed has been lowered, based on AB 43 policy • Percent of KSI crashes involving Unsafe Speed
	Impaired Driving	• Percent of KSI crashes involving DUI
Project Delivery	Funding	• Dollars awarded for LRSP-identified projects
	Countermeasure Implementation	• Miles of Safety Focus Areas treated • Number of countermeasures implemented • Number of educational, engagement and enforcement campaigns or programs

Glossary

AB	Assembly Bill
ACS	American Community Survey
ADA	American with Disabilities Act
AHSC	Affordable Housing and Sustainable Communities
ATP	Active Transportation Plan
BOS	Board of Supervisors
BTA	Bicycle Transportation Account
BUILD	Better Utilizing Investments to Leverage Development
Caltrans	California Department of Transportation
CHP	California Highway Patrol
CMABS	Costa Mesa Alliance for Better Streets
CMF	Crash Modification Factor
CSAP	Comprehensive Safety Action Plan
CRF	Crash Reduction Factor
CTC	California Transportation Commission
DUI	Driving Under the Influence
E-Bike	Electric Bike
EMS	Emergency Medical Services
FHWA	Federal Highway Administration
FY	Fiscal Year
HSIP	HSIP Highway Safety Improvement Program
IIJA	Infrastructure Investment and Jobs Act
KSI	Killed or Seriously Injured
LOS	Level of Service
LSR	Local Streets and Roads
LRSM	Local Roadway Safety Manual
LRSP	Local Roadway Safety Plan
N/A	Not Avaliable
NOFO	Notice of Funding Opportunity
OC	Orange County
OCBC	Orange County Bicycle Coalition
OCCOG	Orange County Council of Governments
OCPW	Orange County Public Works
OCTA	Orange County Transportation Authority
OTS	Office of Traffic Safety
PDO	Property Damage Only
SB	Senate Bill
SCAG	Southern California Associate of Governments
SCP	Sustainable Communities Program
SCS	Sustainable Communities Strategies
SOCO	South Coast
SPI	Safety Performance Indicators
SR	State Route
SRTS	Safe Routes to School
SS4A	Safe Streets and Roads for All
STBG	Surface Transportation Block Grants
TAP	Transportation Alternatives Program
TIMS	Transportation Injury Mapping System
US	United States
USDOT	United States Department of Transportation
WCS	Weighted Crash Score