



BPAC AGENDA

Bicycle/Pedestrian Advisory Committee

NOTE: THIS IS AN IN-PERSON MEETING

IT Training Room, 5th Floor Collier

County Government Center Administration Building (F)

3299 Tamiami Trail East, Naples, FL, 34112

October 15, 2024

9:00 a.m.

1. Call to Order
2. Roll Call
3. Approval of Agenda
4. Approval of the September 17, 2024 Meeting Minutes
5. Open to the Public for Comment on Items not on the Agenda
6. Agency Updates
 - A. FDOT
 - B. MPO
7. Committee Action
 - A. Propose Time and Location for Spring 2025 Joint Bicycle and Pedestrian Committee Workshop with Lee MPO
8. Reports & Presentations (May Require Committee Action)
 - A. SS4A Safety Action Plan – Presentation on plan development and Draft Existing Conditions and Safety Analysis Memorandum
9. Member Comments
10. Distribution Items
11. Topics for Future Meetings
12. Next Meeting Date

November 19, 2024 – 9:00 a.m.
Location: Collier County Government Center Admin. Bldg. F. IT Training Rm 5th Floor, 3299 Tamiami Trail East
13. Adjournment

PLEASE NOTE:

The meetings of the advisory committees of the Collier Metropolitan Planning Organization (MPO) are open to the public and citizen input is encouraged. Any person wishing to speak on any scheduled item may do so upon recognition of the Chairperson. Any person desiring to have an item placed on the agenda should contact the MPO Director at least 14 days prior to the meeting date. Any person who decides to appeal a decision of the advisory committee will need a record of the proceedings pertaining thereto, and therefore may need to ensure that a verbatim record of the proceeding is made, which record includes the testimony and evidence upon which the appeal is to be based. In accordance with the Americans with Disabilities Act, any person requiring special accommodations to participate in this meeting should contact the Collier Metropolitan Planning Organization 72 hours prior to the meeting by calling (239) 252-5814. The MPO's planning process is conducted in accordance with Title VI of the Civil Rights Act of 1964 and Related Statutes. Any person or beneficiary who believes that within the MPO's planning process they have been discriminated against because of race, color, religion, sex, age, national origin, disability, or familial status may file a complaint with the Collier MPO Title VI Coordinator, Ms. Suzanne Miceli, (239) 252-5814 or by email at: Suzanne.Miceli@colliercountyfl.gov, or in writing to the Collier MPO, attention: Ms. Miceli, at 2885 South Horseshoe Dr., Naples, FL 34104.

**BICYCLE & PEDESTRIAN ADVISORY COMMITTEE of the
COLLIER METROPOLITAN PLANNING ORGANIZATION
Collier County Government Center, Administration Building (F)
IT Training Room, Fifth Floor
3299 Tamiami Trail East, Naples, FL, 34112
September 17, 2024 - 9:00 A.M.
Meeting Minutes**

1. Call to Order

Mr. Matonti called the meeting to order at 9:06 a.m.

2. Roll Call

Ms. Miceli called roll and confirmed a quorum was present.

Members Present

Anthony Matonti (Chair)
Alan Musico
Andrea Halman
Joe Bonness
Robert Phelan
Kim Jacob

Members Absent

Patty Huff
Michelle Sproviero (Vice-Chair)
Dayna Fendrick
Robert Vigorito
Kevin Dohm
Mark Komanecky

MPO Staff Present

Anne McLaughlin, Executive Director
Sean Kingston, Principal Planner
Suzanne Miceli, Administrative Support Specialist II

Others Present

Michelle Avola-Brown, Naples Pathways Coalition
Kathy Eastley, Collier County Transportation Planning
Tanya Merkle, Florida Department of Transportation
Erica McCaughey, Florida Department of Transportation
Anthony Arfuso, Capital Engineering Solutions
Victor Nguyen, Capital Engineering Solutions
David Sutton, Public

3. **Approval of the Agenda**

Mr. Musico moved to approve the agenda. Seconded by Mr. Phelan. Carried unanimously.

4. **Approval of the Minutes**

4.A. **Approval of the August 20, 2024 Meeting Minutes**

Mr. Musico moved to approve a revised version of the August 20, 2024 minutes. Seconded by Mr. Phelan. Carried unanimously.

5. **Open to the Public for Comment on Items Not on the Agenda**

None.

6. **Agency Updates**

A. **FDOT:**

Tanya Merkle and **Erica McCaughey** of Florida Department of Transportation (FDOT) reported that the 2055 Florida Transportation Plan is being prepared and FDOT is eliciting public input.

B. **MPO:**

Ms. McLaughlin reported that The Collier Alternate Bike Lane and County Barn Road bicycle and pedestrian projects were approved at the September 13, 2024, MPO Board meeting for the use of additional SU funds to cover cost over-runs. Discussions are continuing with agency partners about the prioritization of programmed projects due to budget limitations, construction cost increases and using SU funds to get projects to construction. More will be known when FDOT finishes developing the draft FY 2026-2030 Work Program.

7. **Committee Action**

A. **Bicycle and Pedestrian Master Plan (BPMP) – Review Draft Evaluation Criteria and Scoring Matrices**

Mr. Kingston introduced the item, explaining how Capital Consulting Solutions has prepared drafts for BPMP project prioritization through defining criteria to be considered, weighing criteria by percentage, utilizing a scoring system, and providing a ranking and ordering methodology. There are two types of projects to be prioritized, including a Regional Projects Scoring Matrix for projects on the SUN (Shared Use Non-motorized) Trail Network: The Collier to Polk and Gulf Coast Trails and the Local Projects Scoring Matrix which applies to all other projects.

Mr. Arfuso explained how the criteria drafts were designed. A group discussion followed.

The below comments were contributed for plan development.

Regional projects

- Add a criteria for ebikes and other forms of non-manually propelled micromobility

- Find a way to make it more likely that project prioritization can be focused towards connecting the major population centers.
- strong preference for quantifiable scores (like current BPMP)

Local projects – Criteria and Weights

- Look at local projects creating a regional system.
- For agency distribution, focus on population centers, especially those that use bicycle and pedestrian transportation.
- The existing distribution of project selection for member entities is useful to keep (1 for each district, 1 for Marco Island, 2 for Naples, 1 by MPO staff, 1 for Everglades City) and expand upon. Consider adding population centers, especially Immokalee but also Golden Gate City.
- Use an empirical, objectively quantifiable analysis for scoring.
- Emphasize the ability to piggyback on a project being built at the same location. For example, this can include a bike lane and a utility project.

This item was presented for review and comment.

8. Reports & Presentations (May Require Committee Action)

None.

9. Member Comments

None.

10. Distribution Items

None.

12. Next Meeting Date

October 15, 2024 – 9:00 a.m. Location: Collier County Government Center, Admin. Bldg. F, IT Training Room, 5th Floor, 3299 Tamiami Trail East, Naples, 34112

13. Adjournment

Mr. Matonti adjourned the meeting at 10:44 a.m.

EXECUTIVE SUMMARY
COMMITTEE ACTION
ITEM 7A

Propose Time and Location for Spring 2025 Joint Bicycle and Pedestrian Committee Workshop with Lee MPO

OBJECTIVE: For the Committee to discuss and make a proposal for the time and location for the next joint meeting with Lee County Bicycle Pedestrian Coordinating Committee (Lee BPCC).

CONSIDERATIONS: Collier and Lee MPO staff have agreed on the need for the next joint committee workshop in Spring of 2025 and negotiated possible locations and times to hold the meeting. March or April are the best times for Collier MPO to hold the meeting, considering scheduled deliverables to BPAC on the Bicycle and Pedestrian Master Plan (BPMP) are in January and May. Collier MPO is currently updating its plans, the BPMP, Transit Development Plan (TDP), Comprehensive Safety Action Plan (CSAP), and Long Range Transportation Plan (LRTP) on a 5 year cycle with scheduled adoption in mid to late 2025. March and April are months ripe for dissemination of plan development. Collier MPO staff has contacted the managing agencies of the below locations and is arranging reservations, pending confirmation.

These are the pending locations for the options held on either March 25th or April 22nd at 10:00am:

- Florida Department of Transportation Southwest Area Office
 - 10041 Daniels Parkway
Ft. Myers, Florida 33913
- Collier County Government Services Center at Heritage Bay Meeting Room
 - 15450 Collier Boulevard
Naples, Florida 34120

The current Unified Planning Work Program for FY 24/25 – 25/26, Task 7, provides for regional coordination between Collier MPO and Lee MPO and for joint meetings between Collier BPAC and Lee BPCC, as needed. The Interlocal Agreement for Joint Regional Transportation Planning and Coordination Between the Collier and Lee County MPOs provides for joint meetings between the advisory committees of Collier MPO and Lee MPO. The purpose of the Agreement is to promote and establish a forum for communication and coordination between the MPOs and to foster joint regional cooperation and conduct regarding transportation planning.

STAFF RECOMMENDATION: For the Committee to make a motion to propose the time and location for the Spring 2025 joint bicycle and pedestrian workshop. The time decided upon will replace the BPAC's normally scheduled meeting in the same month. Staff will then coordinate with Lee MPO staff for scheduling.

Prepared By: Sean Kingston, AICP, PMP, Principal Planner

ATTACHMENT(S):

None

EXECUTIVE SUMMARY
COMMITTEE ACTION
ITEM 8A

SS4A Safety Action Plan – Presentation on Plan Development and Draft Existing Conditions and Safety Analysis Memorandum

OBJECTIVE: For the committee to receive a presentation on the Comprehensive Safety Action Plan (CSAP) development from the project consultant and to provide comments for plan development.

CONSIDERATIONS: TY Lin International will make a presentation introducing the project, overviewing the existing conditions, covering next steps, and opening the floor for a question-and-answer session.

STAFF RECOMMENDATION: Committee can provide comment in plan development.

Prepared By: Sean Kingston, AICP, PMP, CFM, Principal Planner

ATTACHMENTS:

- 1) Agenda
- 2) Presentation on project, existing conditions, next steps, and Q&A
- 3) Existing Conditions & Safety Analysis Memorandum



Collier MPO Safe Streets and Roads for All (SS4A) Comprehensive Safety Action Plan

Purchase Order No. 4500230335

BPAC Meeting

Location: VIRTUAL MEETING

Date: 10/15/2024, 9AM-11AM

Time: Presentation: 15 minutes; 10 minutes Q & A

AGENDA

1. Project Introduction (*2 minutes*)
 - a. Comprehensive Safety Action Plan and SS4A Overview
 - b. Project Objectives and Timeline
2. Existing Conditions Overview (*8 minutes*)
3. What We've Heard (*2 minutes*)
4. Next steps (*3 minutes*)
 - a. How to add virtual feedback
 - b. Overview of next phase, revisit timeline and schedule
5. Question & Answer Session (*10 minutes*)



BPAC Meeting

8A Attachment 2
BPAC 10/15/24

Collier Metropolitan Planning Organization (MPO) Safe Streets and Roads for All (SS4A) Comprehensive Safety Action Plan (SAP)

October 15, 2024

Contract No. 18-7432 MP



Agenda

1. Project Introduction
2. Existing Conditions Overview
3. Next Steps
4. Question & Answer Session



Comprehensive Safety Action Plan (CSAP)

- Aimed at reducing and eliminating **serious-injury and fatal** crashes affecting **all roadway users** on **all public roads**.
- Adopts a Safe Systems Approach
- Aligns with the Florida Strategic Highway Safety Plan
- Focuses on safety needs and issues of the city, county, or region.



Purpose & Benefits of CSAP

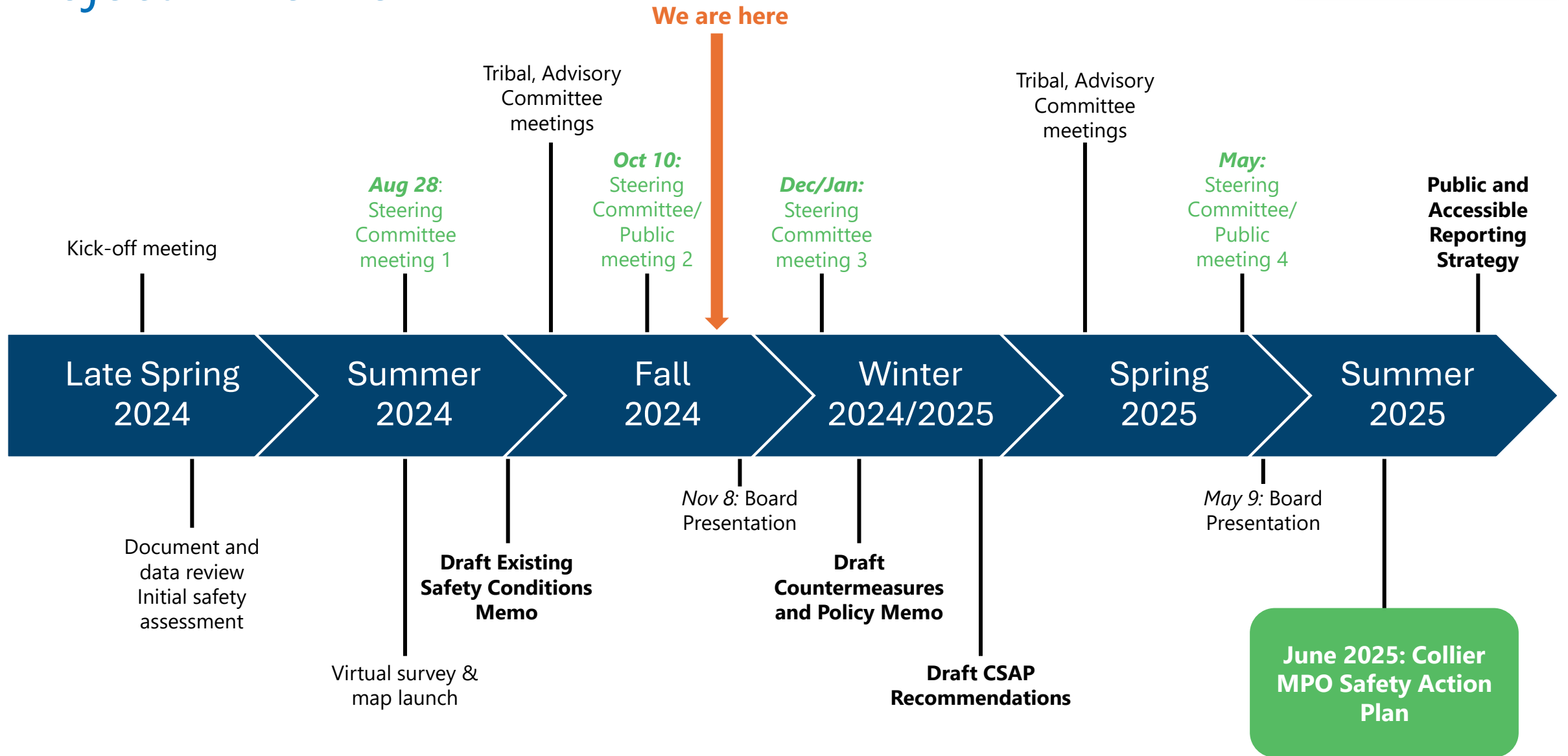
Purpose

- Establish a framework for implementing strategies to eliminate serious and fatal injuries for all roadway users.
- Supports revision and adoption of policies and procedures
- Guides decision making and funding allocation.

Benefits

- Allows agencies and organizations to take a **proactive approach** to understanding and addressing safety concerns.
- **Improve relationships** with the public and other key stakeholders.
- **Increase multi-disciplinary collaboration** to reduce traffic-related fatalities and injuries.
- Identifies safety needs and includes strategies and a list of prioritized projects to pursue to better leverage existing and future **funding**.

Project Timeline



Safe System/Vision Zero Principles

Death and Serious Injuries are Unacceptable

We can and must design a system where tragedies don't happen. Our primary focus should be on severe crashes.

Humans Make Mistakes

We can't expect perfect behavior. Our system should anticipate mistakes and mitigate the chance of death when they occur.

Humans Are Vulnerable

Our bodies have physical limits for tolerating crash forces, the design of our system should account for these human vulnerabilities.

Responsibility is Shared

We all (govt, industry, researchers, the public) have a responsibility to prevent fatalities and serious injuries on our roadways.

Safety is Proactive

We should use tools that identify and address issues in our system, rather than waiting for severe crashes to occur and react after.

Redundancy is Crucial

We need all parts of the system to be strengthened so that if one part fails, others still protect people.

Want to learn more? <https://www.transportation.gov/NRSS/SafeSystem>

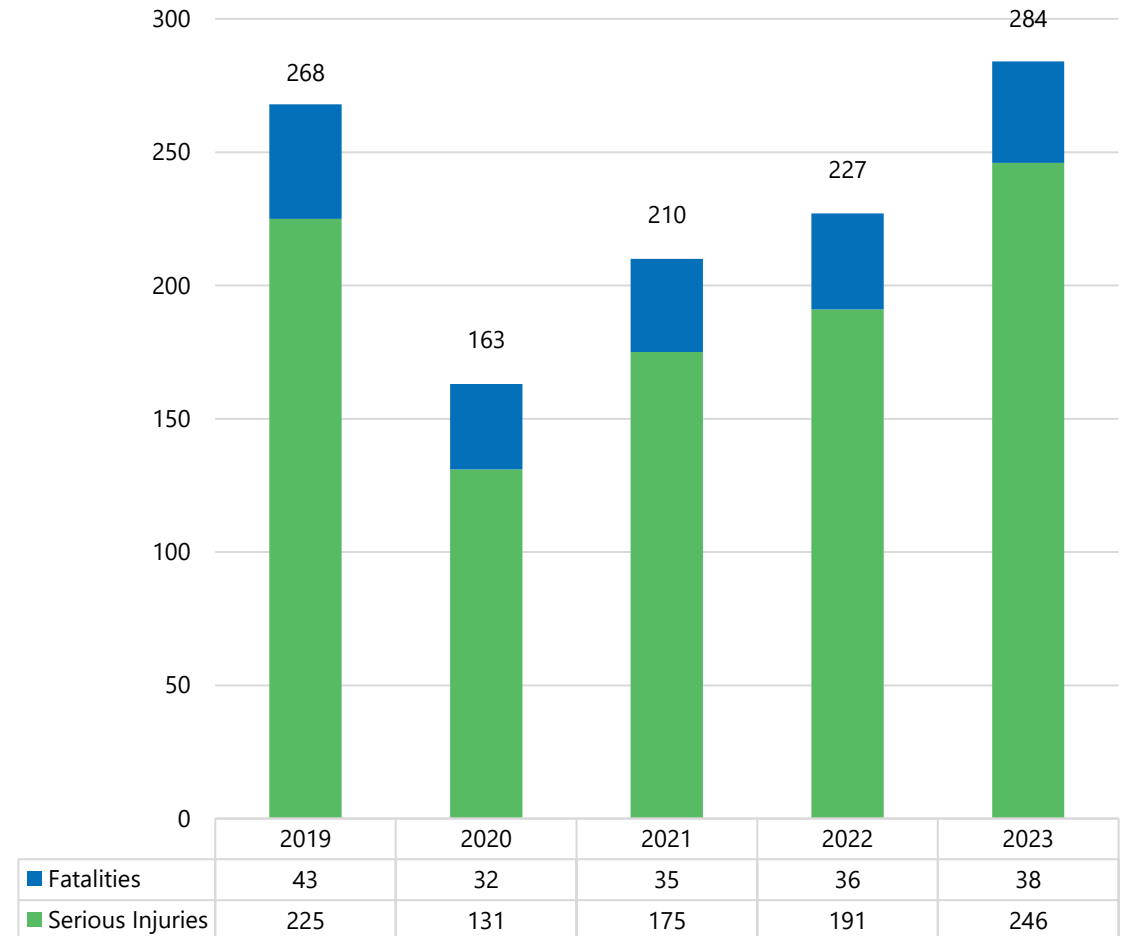
Existing Safety Conditions

Crash Trends: Overall

- Fatal and Serious Injury (KSI) crashes have been rising since 2020
- 20- to 30-year-olds are involved in the most KSI crashes (24%), even though they make up just 9% of the population

Year	Total Crashes	Fatal and Serious Injury Crashes
2019	11,410	216
2020	9,395	137
2021	11,494	172
2022	12,236	186
2023	12,470	218
2019-2023	57,005	929

People Seriously Injured or Killed in Collier County (2019-2023)



Existing Safety Conditions

Crash Trends: Overall

Collier County experiences an average of

36 fatalities per year

or

1 fatality every **10 days**

and

193 serious injuries per year

or

1 serious injury every **2 days**

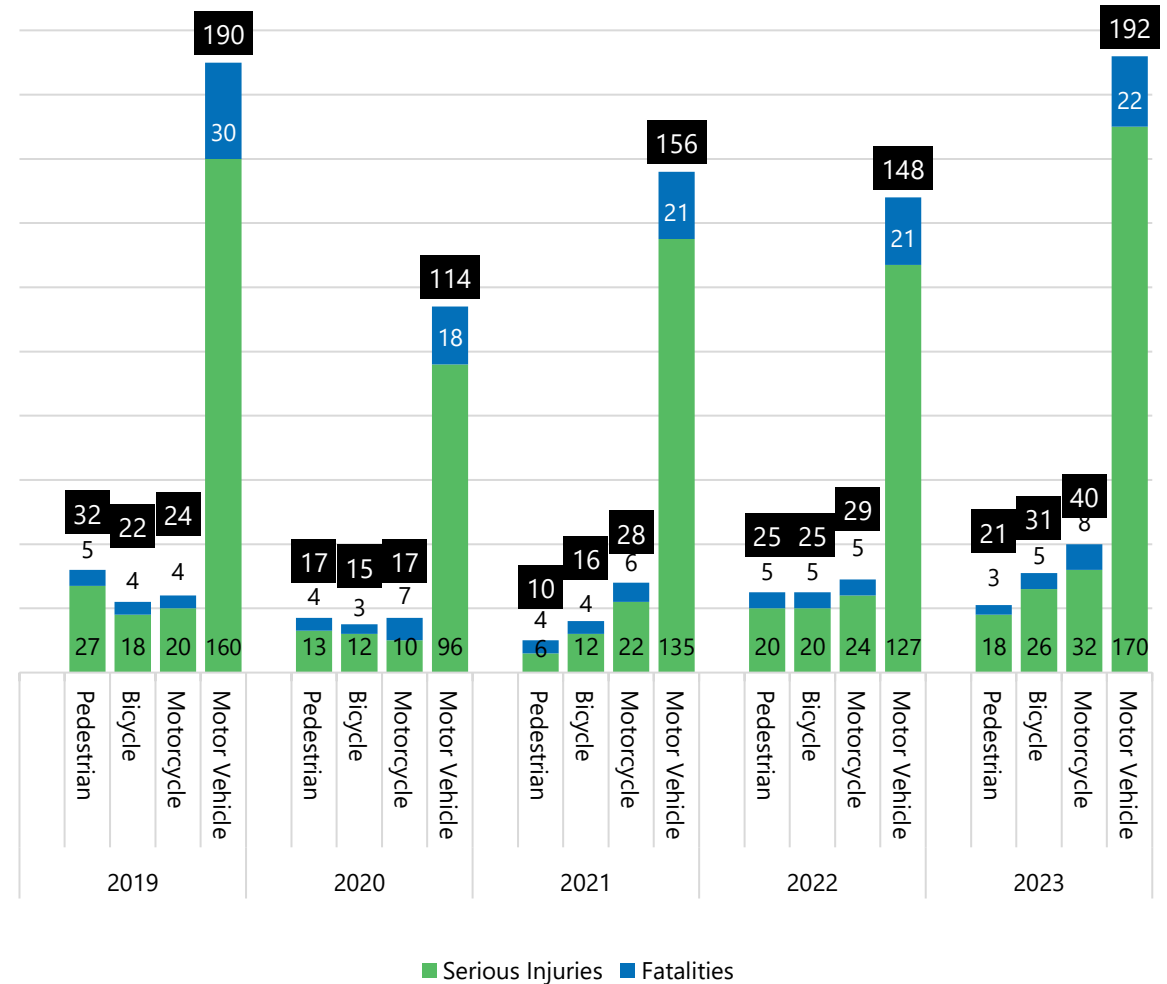
Existing Safety Conditions

Crash Trends: By Mode

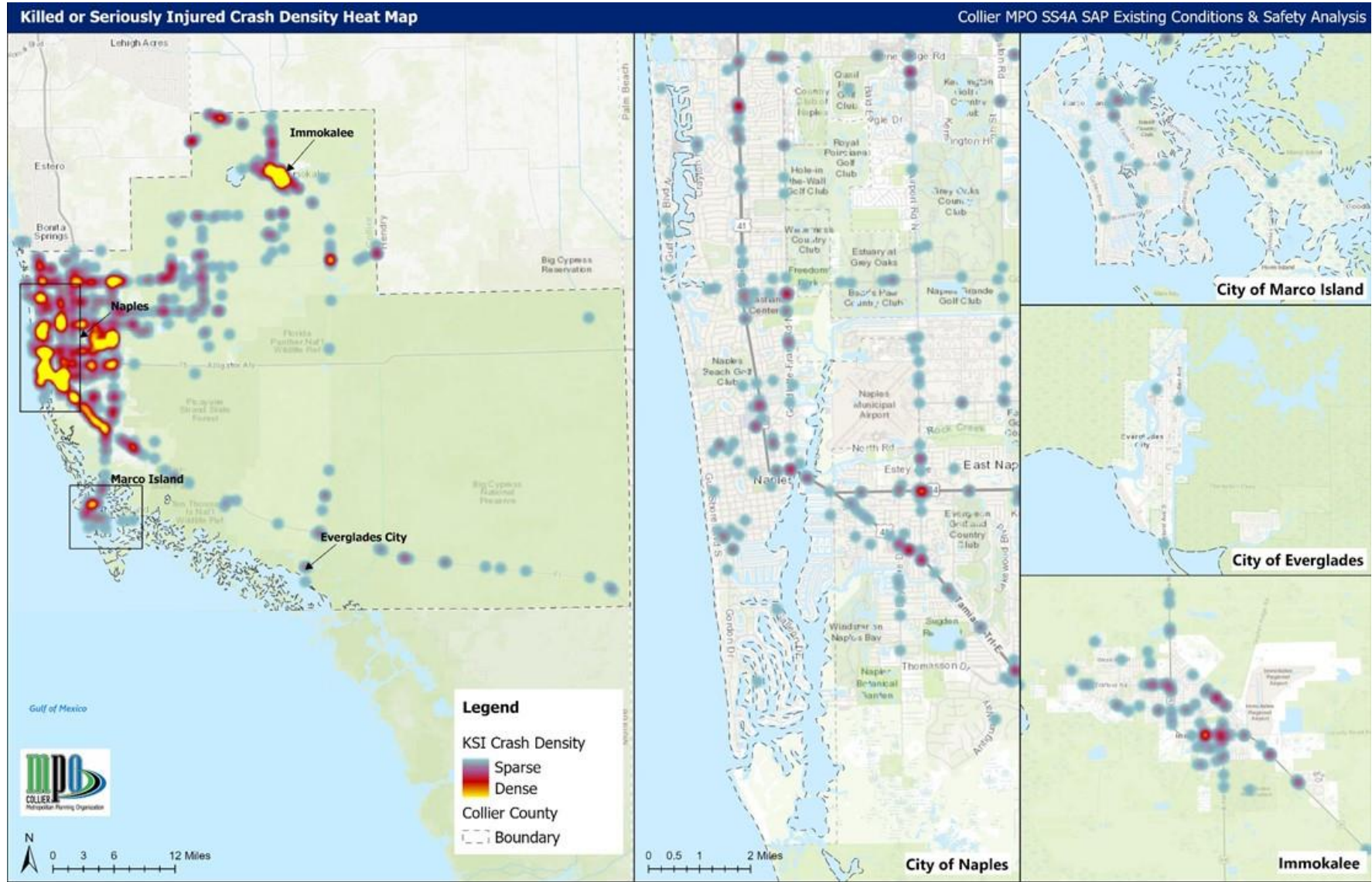
- Fatalities and Serious Injuries are over-represented among Motorcyclist, Bicycle, and Pedestrian crashes
- Motorist crashes are most common (96%), but are less severe than all other crashes
- Children and teens (0-19) are the most common victims in pedestrian and bicyclist KSI crashes, disproportionate to their share of the population

User Type	% Crashes	% of KSI Crashes	Relative Severity
Pedestrian	2%	11%	6.1
Bicycle	2%	12%	7.1
Motorcycle	1%	14%	14.8
Motor Vehicle	96%	63%	0.7

People Killed or Seriously Injured in Collier County, by Mode



Existing Safety Conditions

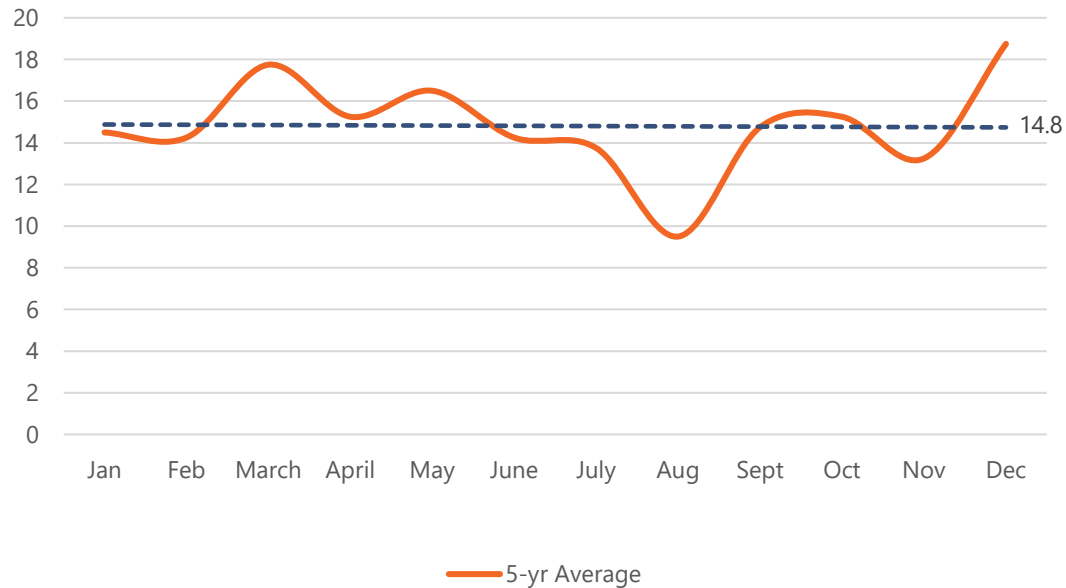


Existing Safety Conditions

Crash Trends: By Season

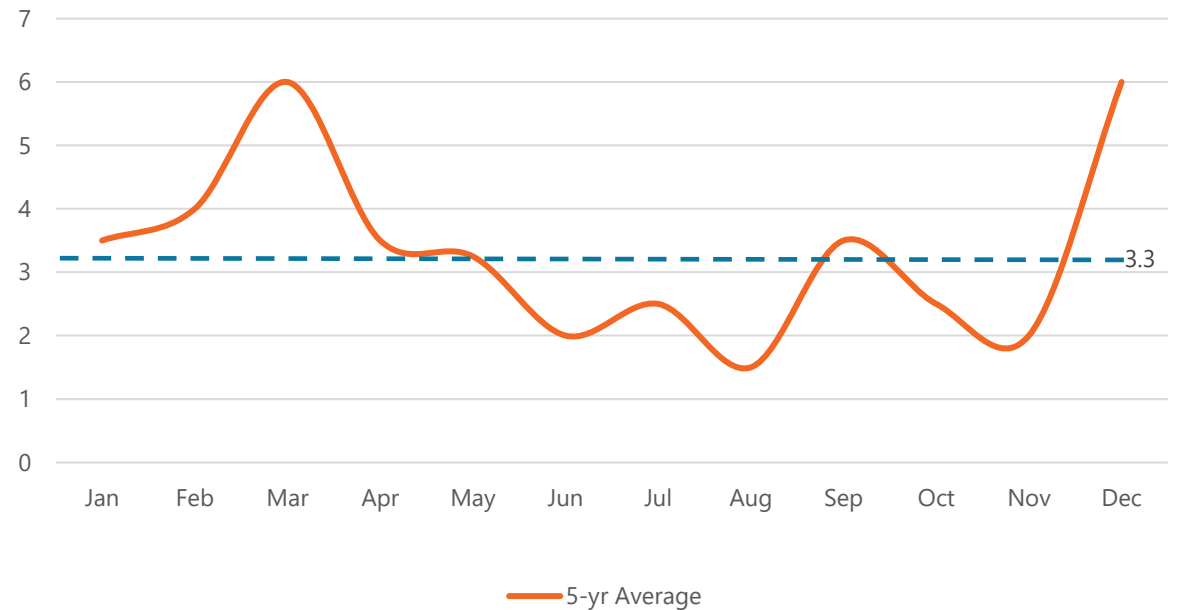
All Modes

Crashes are highest in Winter and Spring



Bicyclists and Pedestrians

More likely to have been in a crash in the winter and spring, with these periods representing 66% of all KSI crashes.



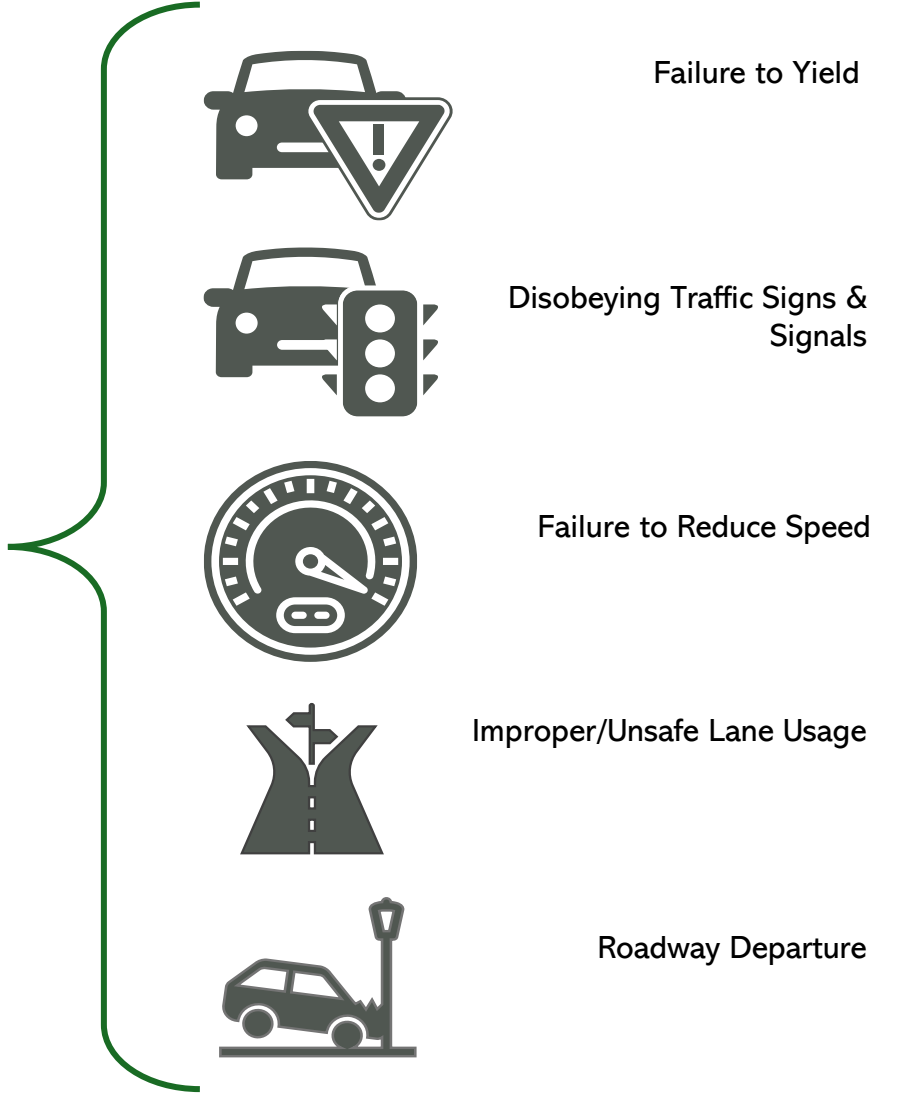
Existing Safety Conditions

Crash Trends: Driver Contributing Action

- Over half (65%) of all fatal and severe injury crashes result from five primary causes: failure to yield, roadway departure, reckless driving, disregarding traffic signals, and speeding.

	% Share of Fatal or Severe Injury Crashes
Reckless Driving	24%
Failure to Yield	18%
Roadway Departure	12%
Disregarding Traffic Signals	8%
Speeding	4%

65%
of all fatal and serious injury crashes between 2019 and 2023



Existing Conditions

Crash Type	% Share of Crashes	% Share of KSI Crashes	Relative Severity
Left Turn	7%	17%	2.5
Angle	6%	8%	1.3
Rear End	34%	15%	0.4
Right turn	2%	2%	0.9
Ran off Roadway/Fixed Object	9%	19%	2.3
Head On	1%	6%	5.8
Rollover	0%	5%	10.9
Sideswipe	12%	4%	0.4
Other/ Non-Collision	27%	2%	0.1
Animal	1%	0%	0.3

Crash Type and High-Risk Features

- Rear end crashes are common but tend to be less severe when they occur.
- Left turn and angle crashes, while only moderately common, tend to be more severe when they occur.
- Right turn crashes are less common and less severe.
- The relative risk tends to be higher at high-volume intersections with a greater number of lanes
- The greatest risk occurs at 6+ lane, high-volume, non-signalized intersections.
- The greatest risk for bicycle crashes and bicycle KSI crashes occur on 6+ lane roadway segments.

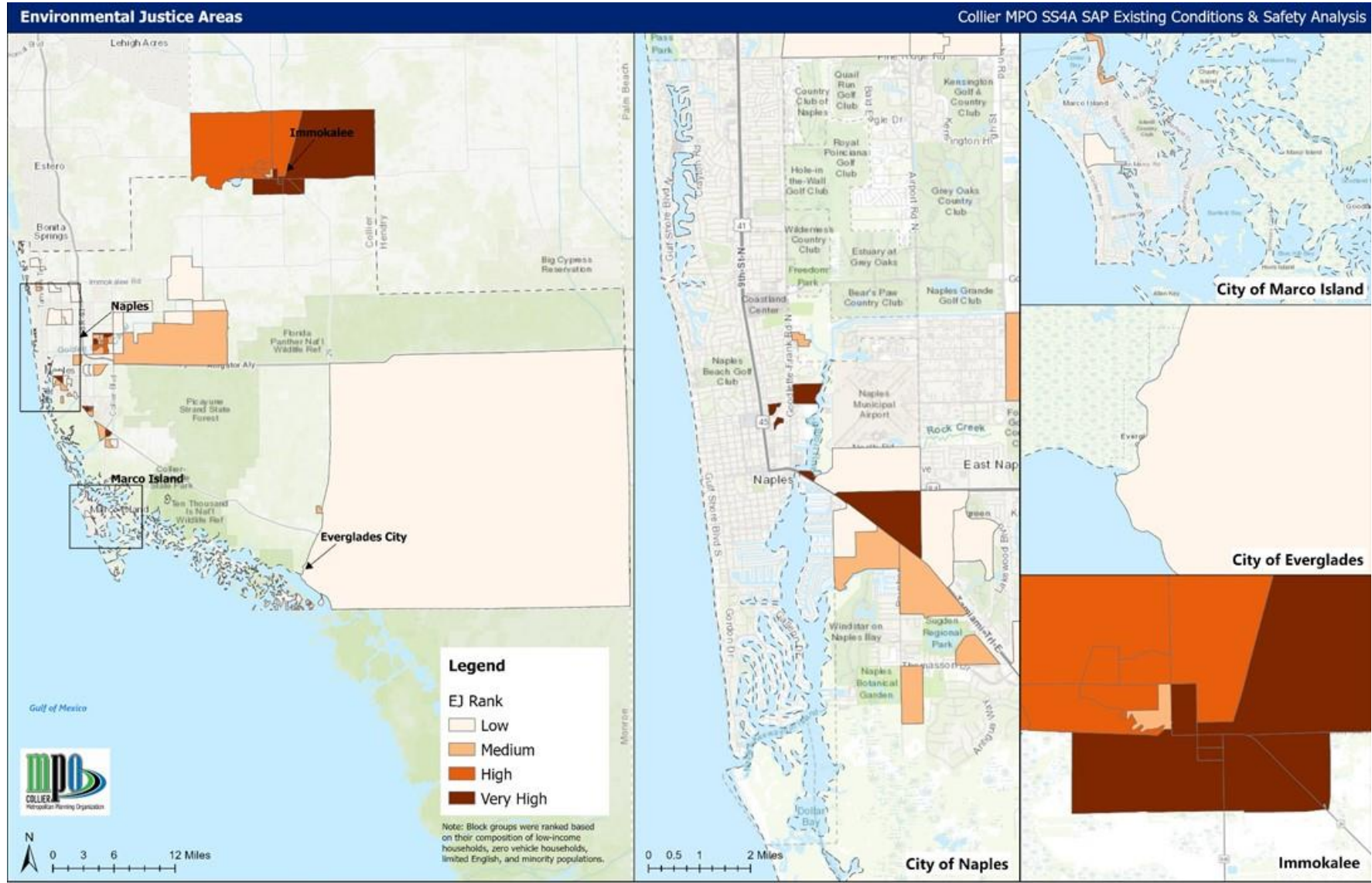
Existing Conditions

Crash Trends: Equity Considerations

- Non-whites make up a smaller portion of the overall population and crashes, but bear a disproportionate number of traffic fatalities.
- Areas with a high equity need are overrepresented in the County's crashes and KSI crashes: 3% of the county's roadway miles but 9% of KSI crashes

	White (Non-Hispanic)	Hispanic or Latino	Black or African American (Non-Hispanic)	Asian (Non-Hispanic)
Population in Collier County	233,909	108,822	24,232	5,338
Share of Collier County (%)	61.5%	28.6%	6.4%	1.4%
Persons Killed in Fatal Crashes	104	71	20	5
Share of Fatalities, 2017-2021 (%)	51%	35%	10%	2%
Fatalities per 100,000 Residents	44.46	65.24	82.54	93.67

Existing Safety Conditions

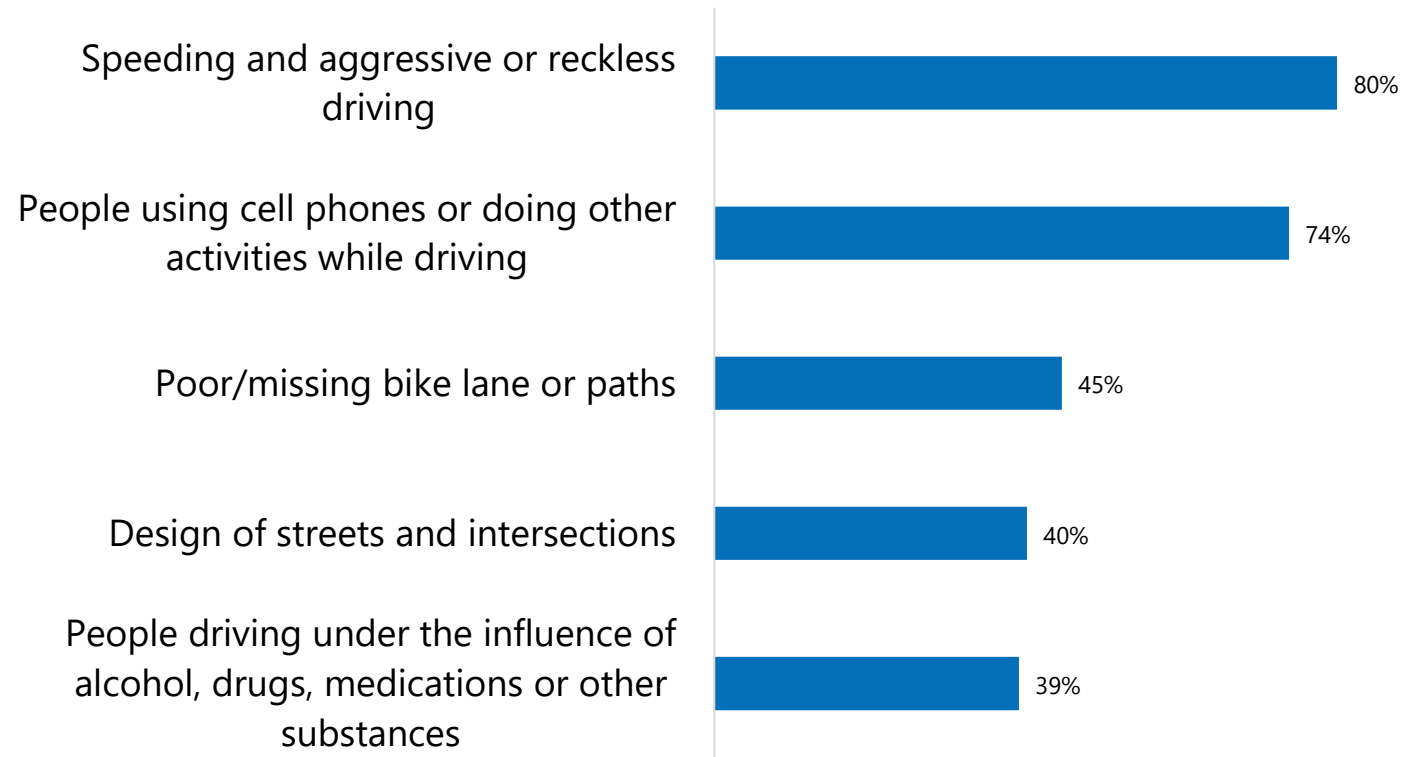


What We've Heard So Far

Online Survey Highlights

- 290+ survey replies
- Many (80%) have changed plans due to traffic safety concerns

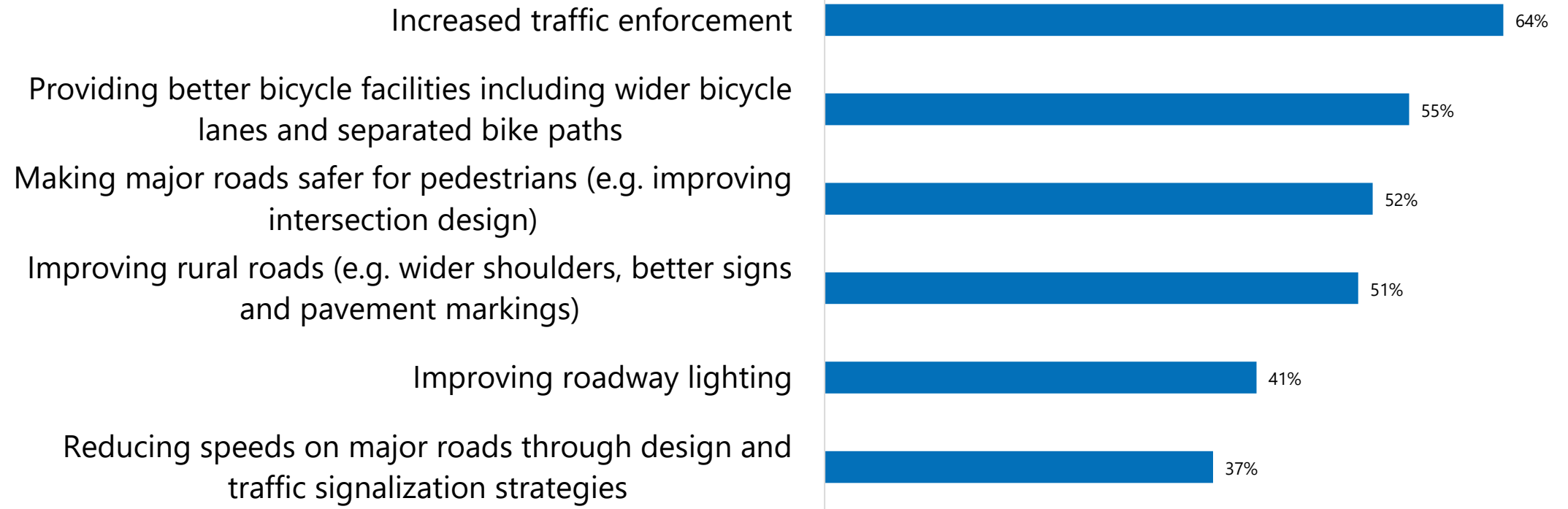
"Contributes A Lot" to Safety Concerns



What We've Heard So Far

Online Survey Highlights

"Very Supportive" of Intervention for Increasing Safety



Next Steps

- Please visit and share:
 - Survey: <https://arcg.is/bS4TG>
 - Map: <https://map.proxi.co/r/CollierMPO-SafetyActionPlan> add jipOs
- Additional meetings:
 - Tribal Meetings: 10/17, 10/18
 - TAC & CAC Committee Meetings: 10/28
 - Board Presentation: 11/8



Question & Answers



Any questions?

Contact:

Sean Kingston, Collier MPO (sean.kingston@colliercountyfl.gov)

Stacey Meekins, TYLin (Stacey.meekins@tylin.com)



**Collier County Safe Streets and Roads for All (SS4A) Comprehensive
Safety Action Plan (SAP)**

**DRAFT Existing Conditions & Safety Analysis
Memorandum**

September 20, 2024 — Contract # 18-7432 MP
Collier Metropolitan Planning Organization (MPO)



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EXECUTIVE SUMMARY

Collier MPO has included safety goals in many preceding plans which reflect considerable thought, effort, and engagement. The previous plans are fundamental in shaping the Safety Action Plan, providing a foundation and areas for alignment.

Between 2019 and 2023, Collier County reported 929 crashes in which one or more people were killed or serious injured (KSI crashes), an average of about 186 per year over the five-year period. As a result of these crashes, there have been 184 fatalities, or an average of 36 traffic deaths per year.

The number of KSI crashes dipped slightly in 2020, in contrast to nationwide trends, but have since surpassed 2019 levels, highlighting a troubling increase in traffic incidents and the urgent need for improved safety measures.

Crash data reveals several patterns that provide a better understanding of traffic safety issues in Collier County:

- **Seasonality:** More crashes occur in winter and spring, accounting for nearly 60% of all KSI crashes. Concurrently, over half of pedestrian and bicycle KSI crashes, 66%, occur in winter or spring. This contrasts national trends but aligns with the annual population fluctuations to the region during these periods.
- **Age of Victim:** In Collier County, 20- to 30-year-olds are involved in the most KSI crashes (24%), even though they make up just 9% of the population. Children and teens (0-19) are the most common victims in pedestrian and bicyclist KSI crashes, disproportionate to their share of the population, highlighting their vulnerability.
- **Contributing Factors:** While only as complete as the reported data, crash data indicates that over half (65%) of all fatal and severe injury crashes result from five primary causes: failure to yield, roadway departure, reckless driving, disregarding traffic signals, and speeding.
- **Location:** A large portion of crashes (25%) occur in parking lots. Parking lot locations accounted for 10% of all fatal and serious injury crashes for pedestrians and cyclists, which is disproportionately higher than for all road users (6%).

A systemic analysis reveals the relative severity of different types of crashes and types of crash locations:

- **Crashes by Mode:** Motor vehicle crashes comprise most crashes, as well as most serious injury and fatality crashes. However, when non-motor vehicle crashes occur, they tend to be more severe. Pedestrians and bicyclists represent just 4% of all crashes but 23% of all KSI crashes; motorcyclists are involved in just 1% of all crashes but account for 14% of KSI crashes.

For pedestrian crashes, 1 in every 10 crashes leads to a fatality or serious injury. For bicyclists, this number is just 1 in every 9 crashes and for motorcyclists 1 in every 4 crashes. Motor vehicle crashes, by contrast, result in a fatal or serious injury every 95 crashes.

- **Motor Vehicle Crash Types:** While rear end, sideswipe, and other / non-collision crashes are the most common motor vehicle crash types, the most severe crash types are roll-over, head-on, left-turn, and ran-off roadway / fixed object crashes (where a motor vehicle strikes a parked car, tree, or other non-moving object).
- **Intersection Crashes:** Risk was assessed for both urban and rural intersections. At urban intersections, the relative risk for crashes and KSI crashes tends to be higher at high-volume intersections with a greater number of lanes. However, the highest risk for pedestrian KSI crashes is at

signalized 1 or 2 lane intersections with low average daily traffic (under 25k vehicles). All crash types examined are more frequent at intersections with 6+ lanes, the greatest risk occurring at 6+ lane, high-volume, non-signalized intersections.

At rural intersections, non-signalized rural intersections have a greater frequency of KSI crashes and pedestrian and bicyclist crashes are uncommon at rural intersections. The highest risk was identified to be speed-related on 6+ lane signalized intersections.

- **Segment Crashes:** Risk was assessed for both urban and rural roadway segments. On urban roadway segments, the relative risk for roadways with 1 or 2 lanes is consistently low, regardless of average daily vehicle traffic. In general, risk increases with the number of lanes and daily traffic: the risk of KSI crashes is greatest on 6+ lane segments with moderate Average Annual Daily Traffic (AADT) and of the crash types examined, all occur more frequently than average on 3 to 6+ lane roadway segments with moderate AADT.

On rural roadway segments, roadways have low AADT and risk increases with the number of lanes.

- **Equity Assessment:** Based on an equity score comprised of demographic and socio-economic factors, areas with a high equity need are overrepresented in the County's crashes and KSI crashes. Although containing only 3% of the county's roadway miles, 9% of KSI crashes occurred in the most disadvantaged communities.

A high injury network (HIN) was developed to support Collier MPO in prioritizing safety projects throughout the county. The HIN includes both intersection and segment locations, and was developed based on three equally weighted criteria: Severe Crash Risk Score, Facility Risk Score, and Relative Risk Score.

PREVIOUS PLANS

This existing conditions assessment began with a review of relevant past studies and plans which set safety goals that may affect the region and any future projects. The existing MPO plans and their goals reflect considerable thought, effort, and engagement, and are fundamental in shaping the Safety Action Plan, providing a foundation and areas for alignment. Relevant excerpts from these resources are documented below.

Several major themes emerged across the plans reviewed:

- Increased safety of the transportation system for motorized and non-motorized users.
- Safe, connected, efficient, and convenient mobility options including transit.
- Accessibility for people walking and biking through investments in the built environment.
- Equitable community input and inclusive transportation network outcomes.

Overall, Collier MPO's existing plans reflect an intention for a Complete Streets approach where the design, management, operations, and maintenance of the County's streets and transportation systems reflect the needs of all users. These plans are guided by and optimized for broader social, economic, and environmental outcomes, rather than solely focusing on motor vehicle traffic.

Plan Findings

Excerpts from plans are presented below. Not all plans reviewed contained goals, priorities, or recommendations applicable to a Comprehensive Safety Action Plan. These plans have been omitted.

Local Roads Safety Plan (LRSP), May 2021

"The purpose is to prioritize opportunities **to improve roadway safety** on locally owned and maintained roadways **in support of FDOT's Vision Zero goal of achieving zero fatalities and serious injuries Statewide.**"

2045 Long Range Transportation Plan (LRTP)

- **Goal #6: Increase the Safety of the Transportation System for Users**
- **Goal #7: Promote Multimodal Solutions**

Transportation Improvement Program (TIP)

Projects identified in the TIP are prioritized by the MPO and its partners to implement, support, and **enhance regional mobility, and improve the safety, condition, and efficiency of the region's transportation system.** The TIP includes project for all transportation modes including roadways, bicycle and pedestrian, transit, and aviation. Development of the TIP includes input from all transportation system users, including those **traditionally underserved by existing transportation systems** who may face challenges accessing employment and other services.

The MPO's LRTP and TIP are developed with consideration of the ten planning factors from MAP-21 and the

FAST Act, a selection of which are listed below.

- Increase the safety of the transportation system for motorized and non-motorized users.
- Increase the security of the transportation system for the motorized and non-motorized users.
- Increase the accessibility and mobility of people and for freight.
- Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.
- Enhance travel and tourism.

FY22-24 Unified Planning Work Program (UPWP)

The Florida Transportation Plan and the State's Strategic Highway Safety Plan place top priority on safety, with a **state target of zero traffic fatalities** and serious injuries. In addition to adopting safety targets, the MPOs must show how their Long-Range Transportation Plan (LRTP) and priority projects in their Transportation Improvement Program (TIP) support progress toward those targets. The UPWP should consider enhancements to data analyses and community involvement to better inform the identification and prioritization of safety projects.

Congestion Management Process (CMP), April 2022

The following Objectives were reviewed by the CMC and approved by the MPO Board for providing more specific guidance and direction in evaluating the performance measures and strategies of the CMP.

- Objective 1: Improve the safety of transportation facilities.
- Objective 3: Develop, maintain, expand, and close gaps in pedestrian, bicycle, and shared-use path facility networks for efficient and safe movement of people. Connect these pedestrian and bicycle facilities to existing and future transit stops.
- Objective 4: Reduce vehicle miles traveled (VMT) by encouraging alternative modes of transportation, supporting sustainable land use development, and creating an integrated multimodal transportation system.
- Objective 6: Promote transportation investments that support the LRTP's priorities, goals, and objectives.
 - LRTP Goal #6: Increase the Safety of the Transportation System for Users; CMP-Related Objectives:
 - **Reduce the number of fatalities, injuries, and crashes.**
 - Ensure **adequate bicycle and pedestrian facilities** are incorporated into new highway and transit projects.
 - Implement **safety-related improvements on high crash corridors.**
 - LRTP Goal #7: Promote Multi modal Solutions; CMP-Related Objectives:
 - Improve frequency and reliability of public transit service routes and **improve access** to park-and-ride lots.
 - **Improve pedestrian and bicycle facilities.**

- **Implement Complete Streets policies.**

Bicycle and Pedestrian Master Plan, March 2020

Vision: To **provide a safe and comprehensive bicycle and pedestrian network** that promotes and encourages community use and enjoyment. The purpose of this Plan is to build on prior efforts to develop a first-class bicycle and pedestrian network throughout Collier County. This Plan is not intended to duplicate or conflict with existing local plans and ongoing bicycle and pedestrian projects, but rather, to unify planning efforts and influence facility improvement priorities at the county level.

Strategies and objectives of the plan includes:

- **Safety: Increase safety for people who walk and bicycle in Collier County.**
 - Objectives:
 - Reduce the number and **severity of bicycle crashes.**
 - Reduce the number and **severity of pedestrian crashes.**
 - Strategies:
 - **Identify high-crash locations** for RSAs. Projects identified in RSAs will be a high priority for funding.
 - Collaborate with law enforcement to develop and deploy **enforcement/education campaigns.**
 - Work with FDOT and law enforcement agencies to seek funding for **High Visibility Enforcement (HVE)** for pedestrian and bicycle safety.
 - **Adopt a Complete Streets Policy and work with local governments and the County to develop and adopt their own Complete Streets policies.**
 - Work with FDOT, MPO member entities, and other transportation agencies to reduce the number of crashes, particularly those with severe or fatal injuries
- **Safety Performance Targets of Vision Zero Florida and the Bicycle and Pedestrian Master Plan:**
 - Number of fatalities: 0
 - Rate of fatalities per 100 million vehicle miles traveled (VMT): 0
 - Number of serious injuries: 0
 - Rate of serious injuries per 100 million VMT: 0
 - Number of non-motorized fatalities and serious injuries: 0

One of the primary goals of the Bicycle and Pedestrian Master Plan is to reduce the number of bicycle and pedestrian serious injuries and fatalities by funding projects that will support this goal, including an interim performance measure of 3,447 non-motorized fatalities and serious injuries statewide in 2018.

CRASH TRENDS

Unless otherwise noted, all crash analyses were done using crash data from the Florida Department of Highway Safety and Motor Vehicles (FLHSMV), queried via Signal Four Analytics for the years 2019-2023. All crashes marked as Interstate were removed for analysis, so crashes along I-75 will not be included. Crash data only includes reported crashes that meet the state's definition of a crash. Throughout the analysis, the term KSI crash is used to describe crashes resulting in fatalities or serious injuries.

Overall Crash Numbers – Including Interstate Crashes

For the period of 2019 through 2023, Collier County saw over **60,000 traffic crashes and over 1,000 fatal or serious injury crashes** (Table 1). For both total crashes and fatal and serious injury crashes, 2023 represented a peak year at 13,399 and 253, respectively. Likewise, while both fatal and serious injury crashes (also known as killed or serious injury crashes, or KSI) saw a decrease between 2019 and 2020, numbers have been steadily rising thereafter.

These figures are inclusive of Interstate crashes, which are left out of the subsequent sections of this report. Interstates have been excluded from the remainder of the crash analysis due to differences in jurisdiction, traffic volumes, and the scope of countermeasures and strategies.

Year	Total Crashes	KSI Crashes
2019	11,933	238
2020	9,849	151
2021	12,100	198
2022	12,947	214
2023	13,399	253
Total	60,228	1,054

Table 1. Total crashes and total fatal and serious injury crashes in Collier County from 2019-2023, including interstate crashes.

Overall Crash Numbers – Non-Interstate Crashes

Excluding Interstate crashes, **Collier County saw just over 57,000 crashes between 2019 and 2023** (Table 2). Of those, **929 were serious or fatal injury crashes**. This equates to an average of 11,401 crashes, 152 serious injury crashes, and 34 fatal crashes per year. Once again, both crashes and KSI crashes decreased below 2019 levels, but have been steadily increasing since.

Year	Total Crashes	KSI Crashes
2019	11,410	216
2020	9,395	137
2021	11,494	172
2022	12,236	186
2023	12,470	218
Total	57,005	929

Table 2. Total crashes and total fatal and serious injury crashes in Collier County from 2019-2023, excluding interstate crashes.

Examining serious injury and fatal crashes more closely (Table 3), both fatal and serious injury crashes follow similar trends with a decrease in 2020 from the 2019 level and increases since. Serious injury crashes peaked at 184 in 2023, and fatal crashes peaked at 35 in 2022.

Year	Serious Injury Crashes	Fatal Crashes
2019	177	39
2020	108	29
2021	139	33
2022	151	35
2023	184	34
Total	759	170

Table 3. Total fatal and serious injury crashes in Collier County from 2019-2023.

Table 4 and Table 5 summarize non-interstate crashes for three major cities in Collier County, highlighting the total number of crashes and those resulting in fatal or serious injuries. Between 2019 and 2023, the City of Naples accounted for 4,199 crashes, representing 7% of the county's total crashes. However, these crashes were more severe, making up 11% of the county's KSI crashes.

Meanwhile, the City of Marco Island experienced 943 crashes, constituting 2% of the total crashes. Of these, 24 were KSI crashes. The City of Everglades reported 43 crashes, representing less than 1% of the county's total.

City	Total Crashes	KSI Crashes
<i>City of Naples</i>	4,199	104
<i>City of Marco Island</i>	943	24
<i>City of Everglades</i>	43	3

Table 4. Total crashes and total fatal and serious injury crashes within Major Cities from 2019-2023, excluding interstate crashes.

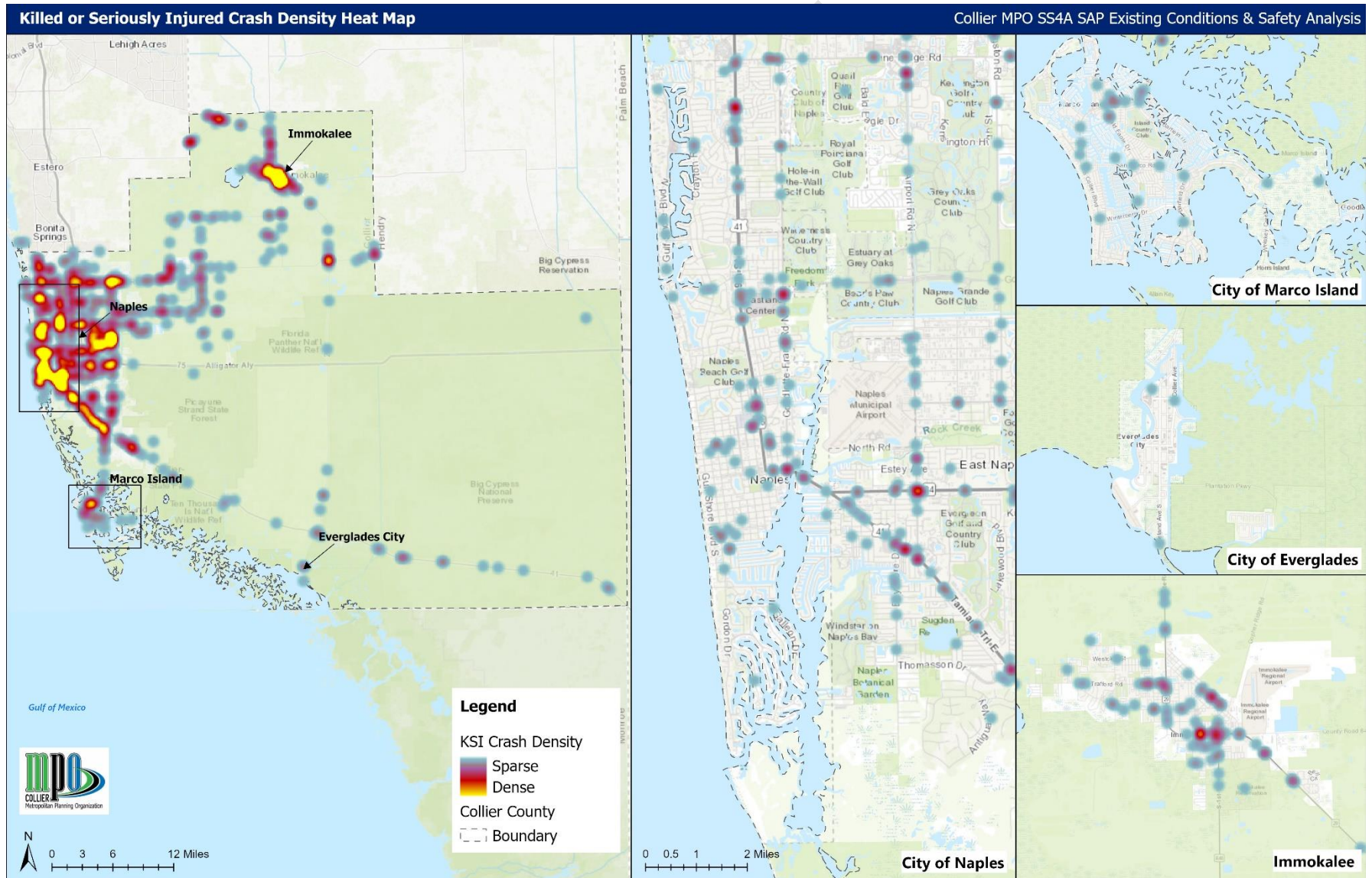
City	Serious Injury Crashes	Fatal Crashes
<i>City of Naples</i>	100	4
<i>City of Marco Island</i>	21	3
<i>City of Everglades</i>	3	0

Table 5. Total fatal and serious injury crashes within Major Cities from 2019-2023.

Figure 1 shows a heatmap of crash locations, which are most dense in the city of Naples, Marco Island, and Immokalee, consistent with population centers.

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Figure 1. Crash Density Heat Map: KSI Crashes



As a result of these crashes, there have been **184 fatalities in Collier County associated with traffic crashes from 2019-2023, or an average of 36 traffic fatalities per year** (Figure 2). Likewise, there were **968 individuals that were seriously injured from a crash, with an average of 193 annually**. Following crash data trends, both fatalities and serious injuries saw a dip from 2019-2020, followed by a steady increase to 2023. Fatalities saw a peak in 2019 at 43 deaths, and serious injuries saw a peak in 2023 at 246.

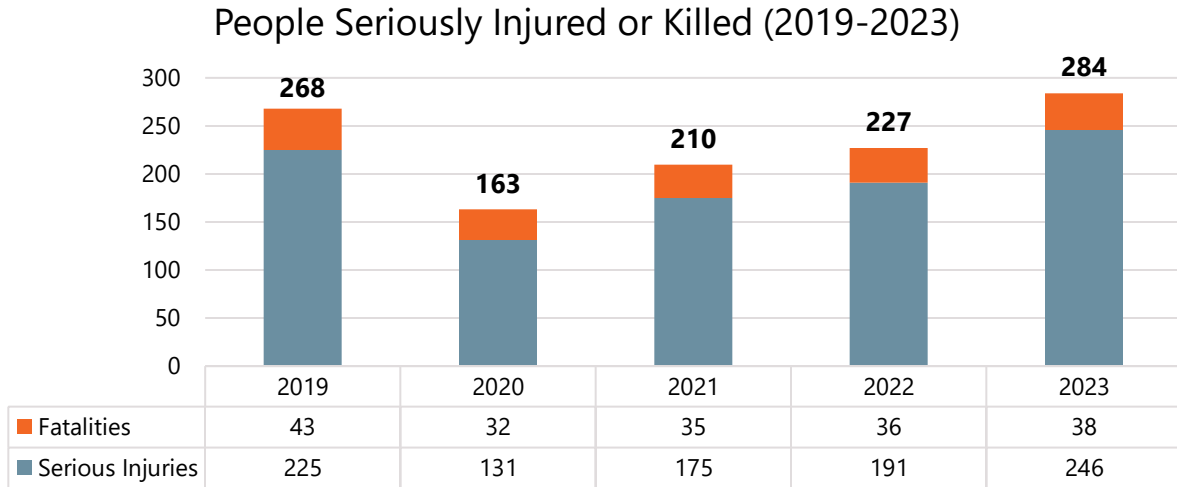


Figure 2. People seriously injured or killed in traffic crashes in Collier County from 2019-2023.

Peer Geography Fatalities Comparison

The following analysis includes a peer geography comparison for fatal crash records from the National Highway Traffic Safety Administration’s (NHTSA) Fatality Analysis Reporting System (FARS). Based on limitations of the FARS data query tool, the data do not filter out the fatal crashes on interstates. The most recent available data is for the period 2019-2022, resulting in this section not perfectly aligning with the timeframe used in the previous and preceding sections.

Compared to overall state levels and several neighboring peer counties, **Collier County has one of the lowest traffic fatality rates at 0.46 fatalities per 1,000 people** (Table 6). This **rate is lower than Florida’s average of 0.63** but only slightly lower than Miami-Dade County’s rate of 0.47.

Collier County’s **traffic fatality rate is similar to neighboring Lee and Broward Counties**, both of which have rates just over 0.5 per 1,000 people. In contrast, Hendry County, to the north, has a much higher rate of 1.5 per 1,000 people.

County	Fatalities (2019 – 2022)	Population (2022)	Fatalities Per 1,000 People
<i>Collier County</i>	178	380,221	0.46
<i>Lee County</i>	456	772,902	0.58
<i>Hendry County</i>	60	39,902	1.50
<i>Broward County</i>	1,049	1,940,907	0.54
<i>Miami-Dade</i>	1,267	2,688,237	0.47
<i>Florida State</i>	13,785	21,634,529	0.63

Table 6. Collier County traffic fatalities per 1,000 people compared to peer counties

Naples, the largest city in Collier County, had a traffic fatality rate of 0.36 per 1,000 people, lower than other large cities like Fort Myers, Fort Lauderdale, and Miami, which all had rates above 0.5 (Table 7).

City	Fatalities (2019 – 2022)	Population (2022)	Fatalities Per 1,000 People
<i>Naples</i>	7	19,315	0.36
<i>Fort Myers</i>	70	88,699	0.78
<i>Fort Lauderdale</i>	177	182,673	0.96
<i>Miami</i>	259	443,665	0.58

Table 7. City of Naples traffic fatalities per 1,000 compared to peer cities

Crashes by Mode

Between 2019-2023, an average of **21 pedestrian, 21.8 cyclist, 27.6 motorcyclist, and 160 motorist fatalities or serious injuries** occur from crashes every year in Collier County. Of the 184 fatalities in the county over this period, most were motorists (112), followed by motorcyclists (30), and pedestrians and cyclists (21 each). On average per year, this breaks down to 22.4 motorist fatalities, 6 motorcyclist fatalities, and 4.2 fatalities each for pedestrians and cyclists.

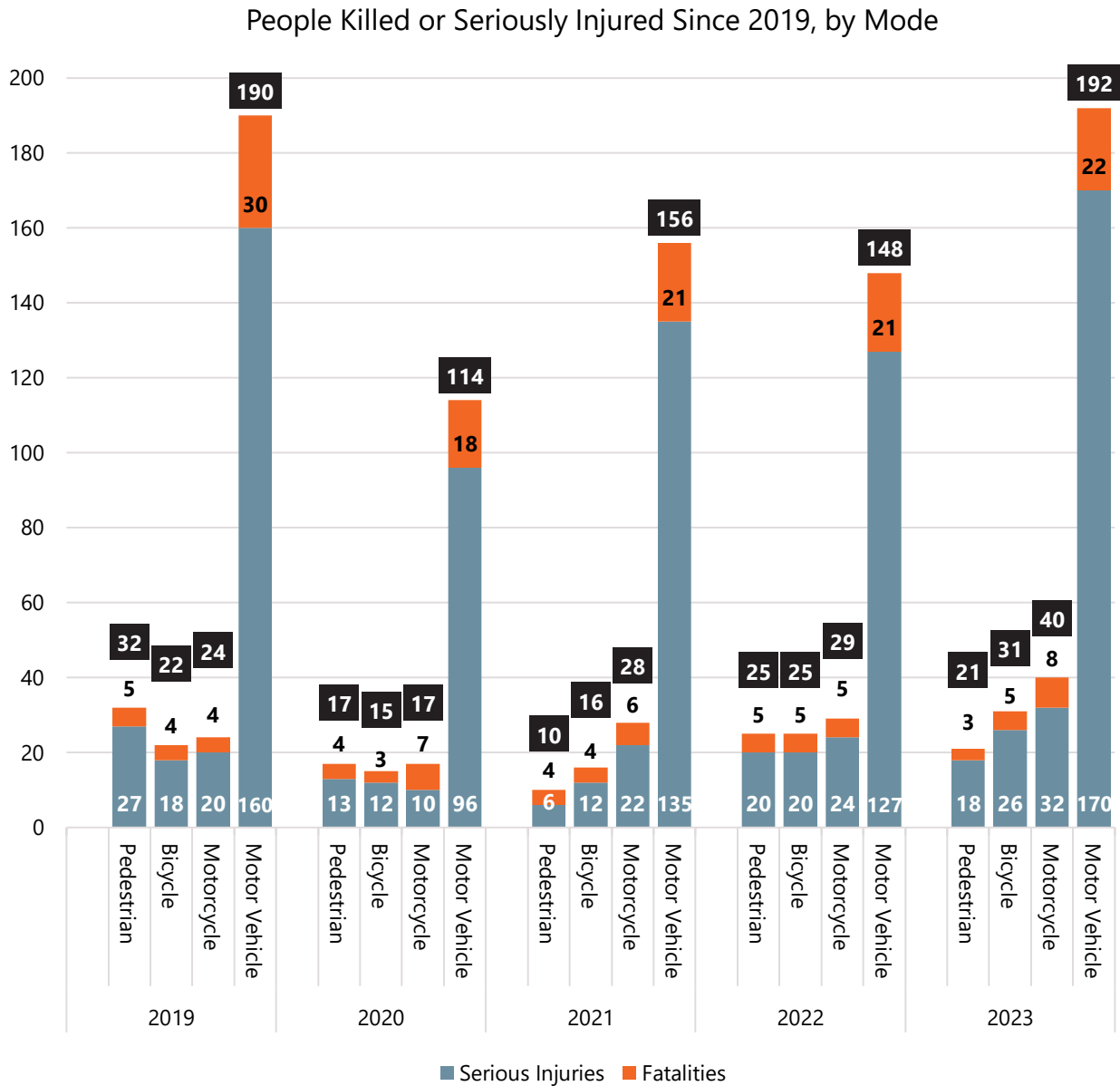


Figure 3. Total fatalities and serious injuries in Collier County from 2019-2023, by mode (pedestrian, bicycle, motorcycle, and motor vehicle).

Fatal and serious injuries dropped across most transportation modes from 2019 to 2020, then increased from 2021 to 2023, reaching or surpassing 2019 levels. For example, pedestrian injuries fell from 32 to 10, then rose to 21 by 2023. Motorist injuries dropped from 160 to 96, then increased to 170 by 2023. Injuries among cyclists and motorcyclists exceeded 2019 levels, rising from 22 to 31 and 24 to 40, respectively.

Calculating crash severity shows how severe crashes are for different types of transportation compared to how often they happen. Table 8 Table 8. Total percentage of crashes, total percentage of KSI crashes, and relative severity of crashes in Collier County from 2019-2023, by mode (pedestrian, bicycle, motorcycle, and motor vehicle).shows the percentage of total crashes and KSI crashes for each mode from 2019-2023. The relative severity score indicates how much more frequent severe crashes are for a specific mode. For example,

a pedestrian severity score of 6.1 means severe pedestrian crashes are 6.1 times more common than expected based on the total number of crashes.

From 2019-2023, motorist crashes made up 95% of all crashes and 63% of the most severe (KSI) crashes. The remaining KSI crashes were fairly evenly split among pedestrians, cyclists, and motorcyclists, even though these groups account for only 5% of all crashes. The relative severity is the ratio of the percent of KSI crashes to the percent of crashes; where the relative severity exceeds 1, KSI are overrepresented for that crash type relative to the number of crashes that occur. **The relative severity shows that while crashes involving pedestrians, cyclists, and motorcyclists are less common, they tend to be much more severe.** This is especially true for motorcyclists, who are involved in just 1% of all crashes but account for 14% of KSI crashes. Pedestrians and cyclists each account for 2% of all crashes, but pedestrians make up 11% of severe (KSI) crashes, and cyclists 12%. Together, these two groups represent just 4% of all crashes but **23% of all KSI crashes.**

User Type	% Crashes	% of KSI Crashes	Relative Severity
Pedestrian	2%	11%	6.1
Bicycle	2%	12%	7.1
Motorcycle	1%	14%	14.8
Motor Vehicle	95%	63%	0.7

Table 8. Total percentage of crashes, total percentage of KSI crashes, and relative severity of crashes in Collier County from 2019-2023, by mode (pedestrian, bicycle, motorcycle, and motor vehicle).

Figure 4 shows crashes and corresponding KSI crashes by mode.

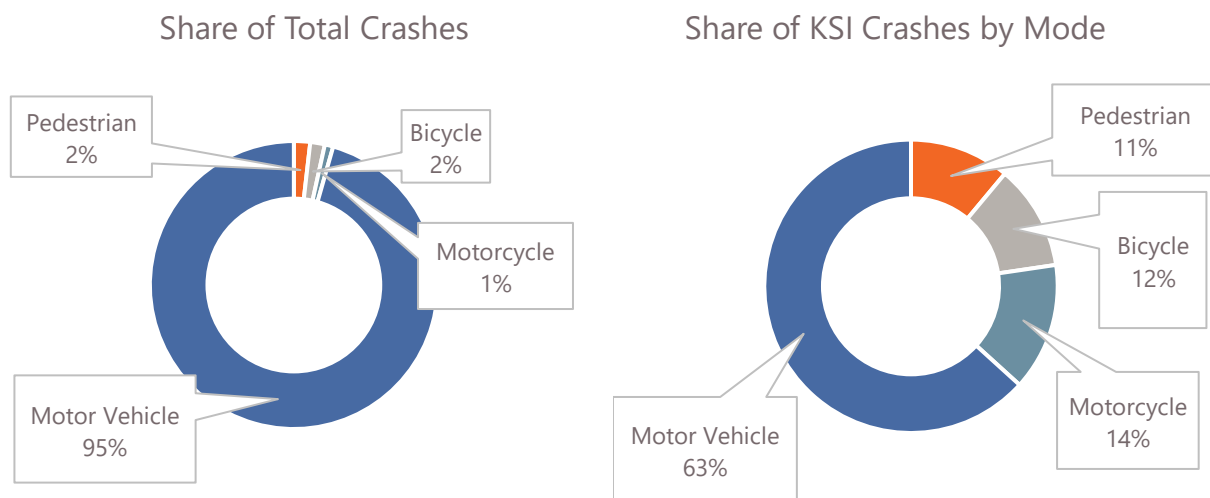


Figure 4. Share of total crashes by mode (left) and corresponding share of KSI crashes by mode (right).

For pedestrian crashes, **1 in every 10 crashes** leads to a fatality or serious injury. For cyclists, this number is just **1 in every 9 crashes** and for motorcyclists **1 in every 4 crashes**. Motor vehicle crashes, by contrast, result in a fatal or serious injury every **95 crashes**.

Figure 5 shows the locations of pedestrian and bicycle, or non-motorized crashes.

One fatality or serious injury occurs every...



95

Motor Vehicle
crashes



10

Pedestrian
crashes



9

Cyclist
crashes

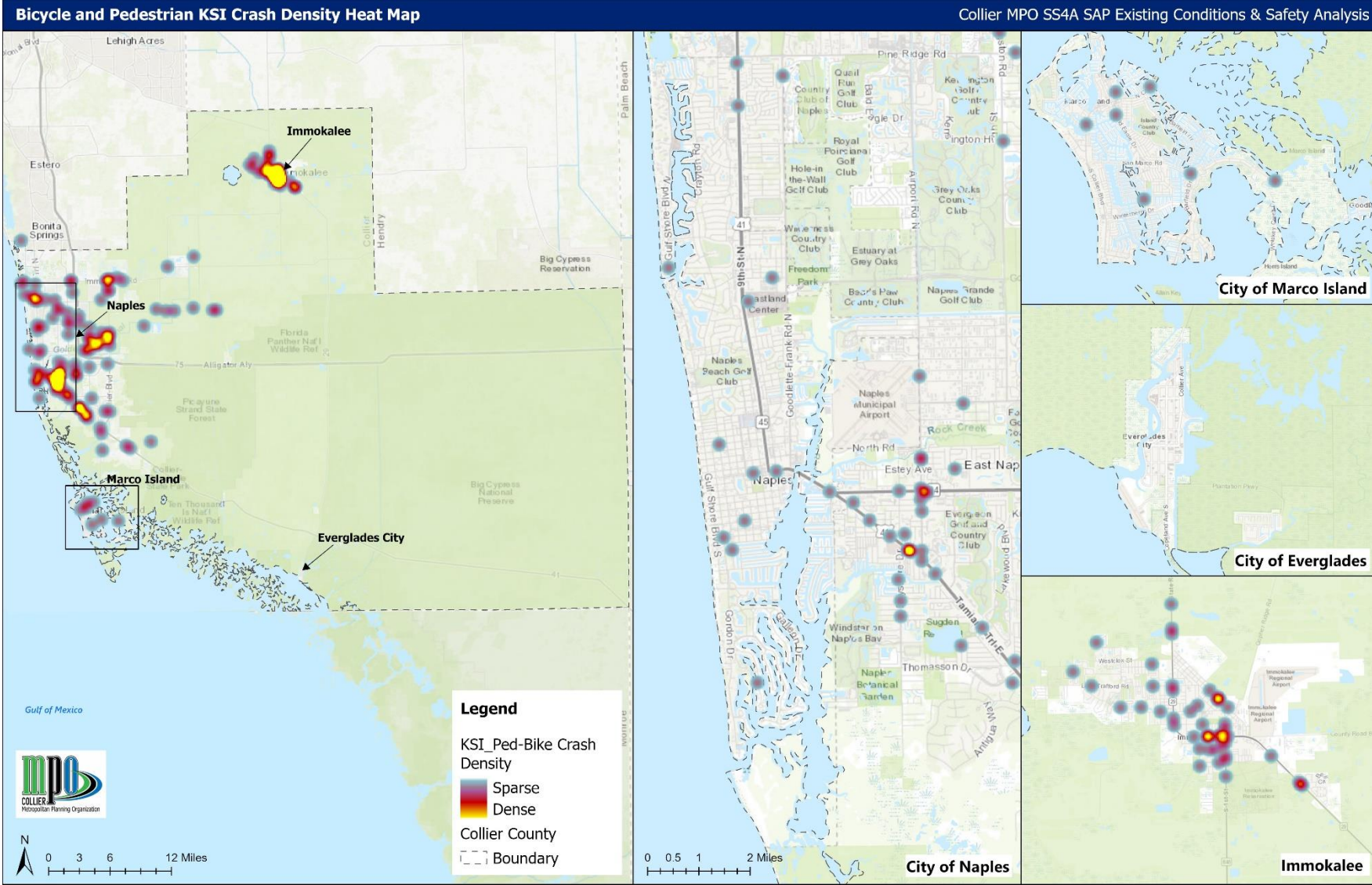


4

Motorcycle
crashes

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Figure 5. Bicycle and Pedestrian KSI crashes



Crashes by Month and Season

Examining the months and seasons when crashes occur helps to understand how environmental factors like weather, temperature, daylight, and road conditions affect crash rates and influence travel behavior in Collier County. This analysis looked at the average KSI (killed or seriously injured) crashes for all months from 2019-2023 and the seasons in which these crashes occurred, as well as all bike and pedestrian KSI crashes:

- **Winter:** December*, January, and February (*includes the December of the previous calendar year)
- **Spring:** March, April, and May
- **Summer:** June, July, and August
- **Fall:** September, October and November

Overall KSI Crashes by Month

The number of fatal or serious injury crashes in Collier County varies by month, with a **monthly average of 14.8 fatal or seriously injury crashes per month from 2019-2023** (Figure 6). There was a notable dip in the average in August to 9.5 KSI crashes and an increase in December to 18.75 KSI crashes. Likewise, March and May saw above average crashes where people were killed or seriously injured, at 17.75 and 16.5, respectively.

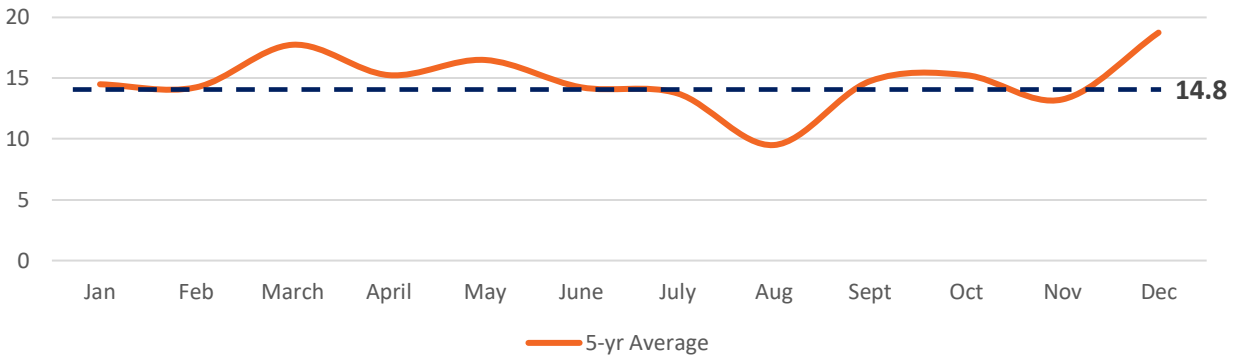


Figure 6. Average fatal or serious injury crashes by month in Collier County from 2019-2023.

On average, 44.4 KSI crashes occur in Collier County each season. Summer and fall have fewer KSI crashes, while winter and spring see significant increases, with spring reaching as high as 51.3 (Table 9). **Together, winter and spring account for nearly 60% of all KSI crashes during this period** (Figure 7). This aligns with the annual population increases to the region during these periods.

Season	Average (2019-2023)
Winter	50
Spring	51.3
Summer	36.8
Fall	39.8
Seasonal Average	44.4

Table 9. Average fatal and serious injury crashes per season in Collier County from 2019-2023.

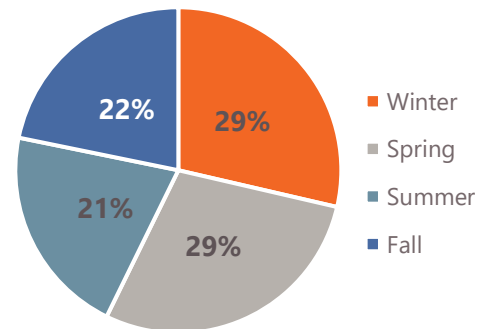


Figure 7. Percent share of fatal and serious injury crashes by season in Collier County from 2019-2023.

Bicycle and Pedestrian KSI Crashes by Month

There is an **average of 3.3 pedestrian and cyclist KSI crashes per month in Collier County** from 2019 to 2023. The winter months, especially December, February, and March, see the highest numbers, with March and December averaging up to six crashes (Figure 8). KSI crashes drop below average during the summer months of June, July, and August.

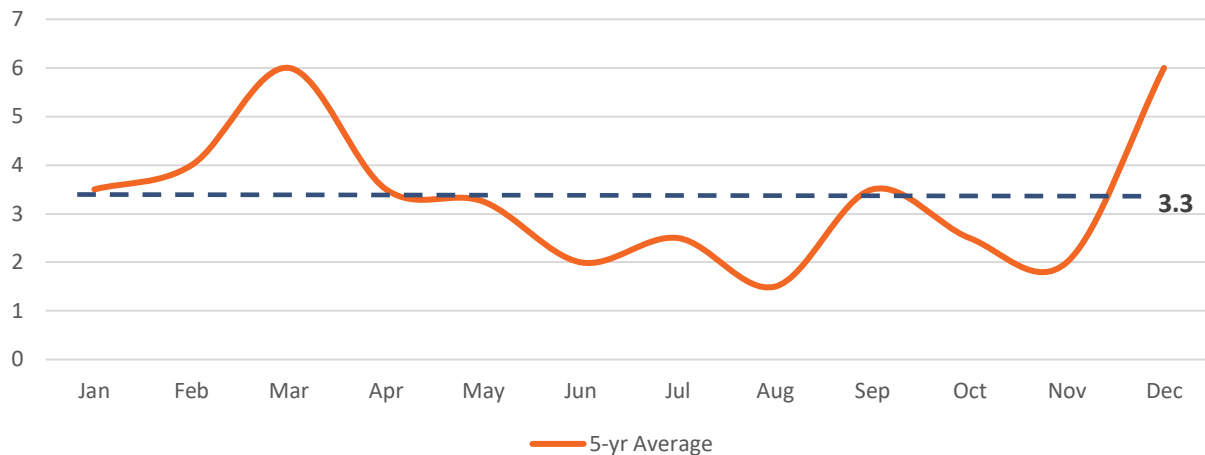


Figure 8. Total bicycle and pedestrian fatal or serious injury crashes by month in Collier County from 2019-2023.

Seasonal data shows more fatal or serious injury bicycle and pedestrian crashes in winter and spring, with both seasons averaging 12.5 crashes, higher than the average of 9.7 (Table 10). **The largest share, 66%, of pedestrian and bicycle KSI crashes occur in winter or spring** (Figure 9).

Again, these crash patterns align with the annual population increases to the region during these periods. They may also align to more moderate temperatures more suitable for walking and biking.

Season	Average (2019-2023)
Winter	12.5
Spring	12.5
Summer	5.75
Fall	8
Seasonal Average	9.7

Table 10. Average pedestrian and cyclist fatal and serious injury crashes per season in Collier County from 2019-2023.

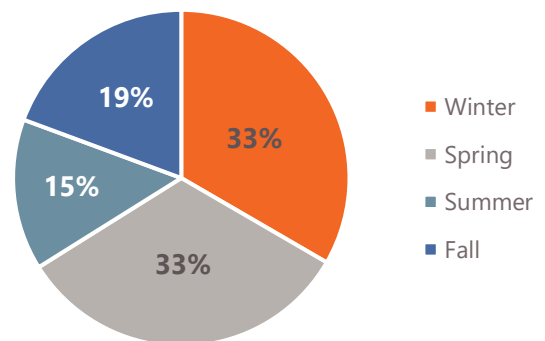


Figure 9. Percent share of pedestrian and cyclist fatal and serious injury crashes by season in Collier County from 2019-2023

Crashes by Day & Time

Temporal crash trends show how the frequency and severity of traffic incidents vary over time. In addition to analyzing patterns by season, examining time of day, and day of the week can identify risk factors and help improve road safety. This section examines temporal trends for all KSI crashes and those involving cyclists and pedestrians.

Overall KSI Crashes by Day & Time

Time of Day: For all KSI crashes, 39% occurred between 2 pm and 7 pm, with 4 pm each seeing the highest share of KSI crashes at 8%.

Day of Week: KSI crashes are spread somewhat evenly across all days of the week, with 70% occurring on weekdays vs. 30% on weekends.

Table 11 shows the total KSI crashes by both time of day and day of week for the time period.

Hour	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total	
12 AM	5	2	2	6	0	3	8	26	3%
1 AM	4	2	4	4	1	6	3	24	3%
2 AM	3	2	3	2	0	6	9	25	3%
3 AM	0	3	0	0	0	3	4	10	1%
4 AM	2	1	2	0	1	1	2	9	1%
5 AM	2	1	3	3	3	3	1	16	2%
6 AM	4	4	3	5	7	3	1	27	3%
7 AM	7	8	4	3	4	0	4	30	3%
8 AM	2	3	3	2	6	5	2	23	2%
9 AM	5	6	5	10	8	10	3	47	5%
10 AM	7	4	4	6	6	2	3	32	3%
11 AM	6	6	8	2	4	4	7	37	4%
12 PM	5	8	8	10	11	8	10	60	6%
1 PM	6	3	5	9	6	7	4	40	4%
2 PM	10	7	6	9	7	11	6	56	6%
3 PM	6	7	12	12	7	10	6	60	6%
4 PM	11	10	7	10	9	11	14	72	8%
5 PM	5	17	5	11	7	5	11	61	7%
6 PM	9	11	15	7	10	8	7	67	7%
7 PM	8	8	5	8	7	6	6	48	5%
8 PM	2	8	6	8	6	9	6	45	5%
9 PM	6	2	4	8	7	9	7	43	5%
10 PM	4	5	0	7	10	7	4	37	4%
11 PM	2	2	2	6	6	9	4	31	3%
Total	121	130	116	148	133	146	132	926	
	13%	14%	13%	16%	14%	16%	14%		

Table 11. Total KSI crashes by time of day and day of week in Collier County from 2019-2023.

Bicycle & Pedestrian KSI Crashes by Day & Time

Time of Day: Bicycle and pedestrian KSI crashes are evenly spread throughout the entire day with 70% occurring from 7 am – 7 pm. However, evening and late night (8pm-3am) still account for 25% of severe bicycle and pedestrian crashes.

Day of Week: For cyclists and pedestrians, 71% of KSI crashes occur on weekdays. Monday and Sunday see peaks in KSI crashes at 18% and 16% respectively, while all other days see 13%.

Table 12 shows the total bicycle and pedestrian KSI crashes by both time of day and day of week for the time period.

Hour	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total	
12 AM	1	0	0	1	0	1	3	6	3%
1 AM	0	1	1	1	0	1	0	4	2%
2 AM	0	0	1	0	0	3	2	6	3%
3 AM	0	1	0	0	0	1	0	2	1%
4 AM	1	0	0	0	0	0	0	1	0%
5 AM	0	0	1	0	3	1	0	5	2%
6 AM	1	2	1	1	1	0	0	6	3%
7 AM	4	3	3	2	1	0	2	15	7%
8 AM	2	1	2	0	1	1	0	7	3%
9 AM	3	1	3	1	1	4	0	13	6%
10 AM	5	1	1	1	3	0	2	13	6%
11 AM	0	2	1	1	2	1	3	10	5%
12 PM	2	3	3	3	1	2	2	16	8%
1 PM	2	0	1	2	1	2	0	8	4%
2 PM	3	1	0	1	2	1	0	8	4%
3 PM	3	1	0	1	0	3	1	9	4%
4 PM	2	1	1	1	1	2	1	9	4%
5 PM	0	3	2	2	1	1	4	13	6%
6 PM	2	3	4	0	2	1	2	14	7%
7 PM	6	2	1	1	2	1	0	13	6%
8 PM	0	1	2	2	3	3	1	12	6%
9 PM	2	0	0	4	0	2	2	10	5%
10 PM	0	0	0	0	1	2	1	4	2%
11 PM	0	1	0	3	2	1	1	8	4%
Total	39	28	28	28	28	34	27	212	
	18%	13%	13%	13%	13%	16%	13%		

Table 12. Total bicycle and pedestrian KSI crashes by time of day and day of week in Collier County from 2019-2023.

Crashes By Age of Victim

In Collier County, the largest share of KSI crashes (24%) involves the age cohort 20 to 30 years old. **This age group consists of the most drivers killed or seriously injured in crashes, despite only making up 9% of Collier County’s population.** Drivers of other age groups represent between 12%-15% of KSI victims. Collectively, 20-40 year old drivers account for 39% of driver victims, while only making up 19% of the population. Figure 10 compares KSI victim driver age (left) to share of the population (right).

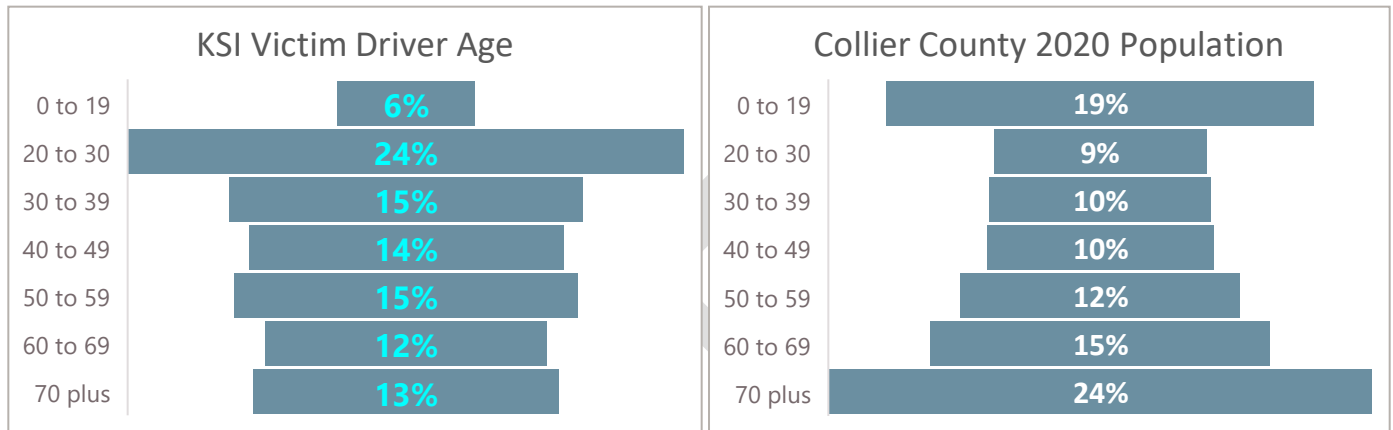


Figure 10. Age distribution of drivers killed or seriously injured in crashes in Collier County from 2019-2023 (left) and age distribution of the total population of Collier County in 2020 from the 2020 American Community Survey (right).

When examining the ages of pedestrians and cyclists killed or seriously injured in crashes, younger age groups are more prominent. **Despite the age cohort of 0-19 years making up only 19% of the population, this age group accounts for 27% of pedestrian and 21% of cyclist KSI victims** (Figure 11).

While children and teens constitute the largest share of KSI victims, younger adults and middle-aged residents tend to follow as a large share of victims. **For both pedestrians and cyclists, the second highest victim age group is 40-49 year olds at 19%, though these individuals only make up 10% of the population in Collier County.** Likewise, the ages of 20-29 and 30-39 make up a significant number of victims, representing 26% for pedestrian and 33% of cyclists.

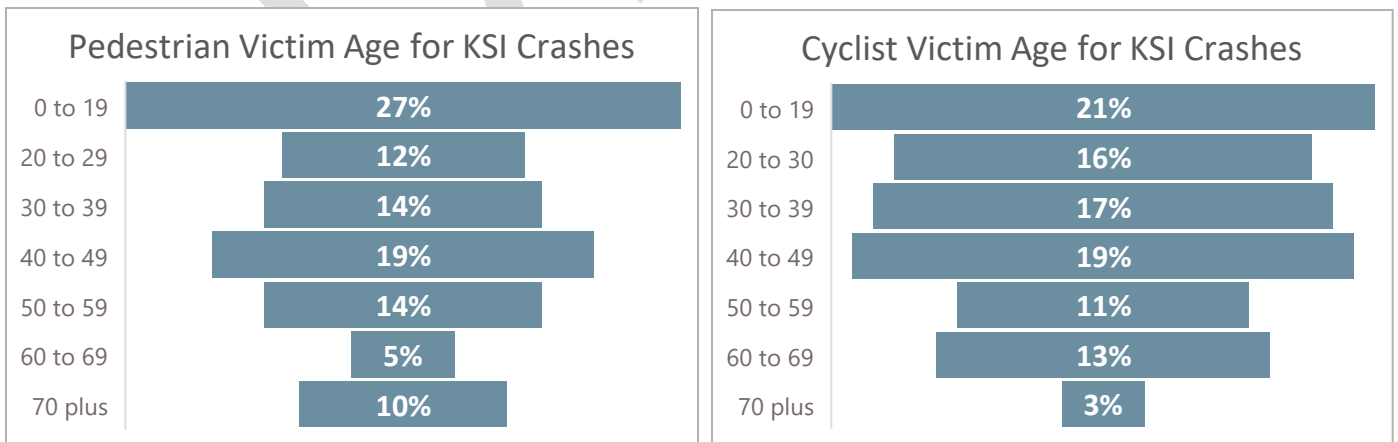


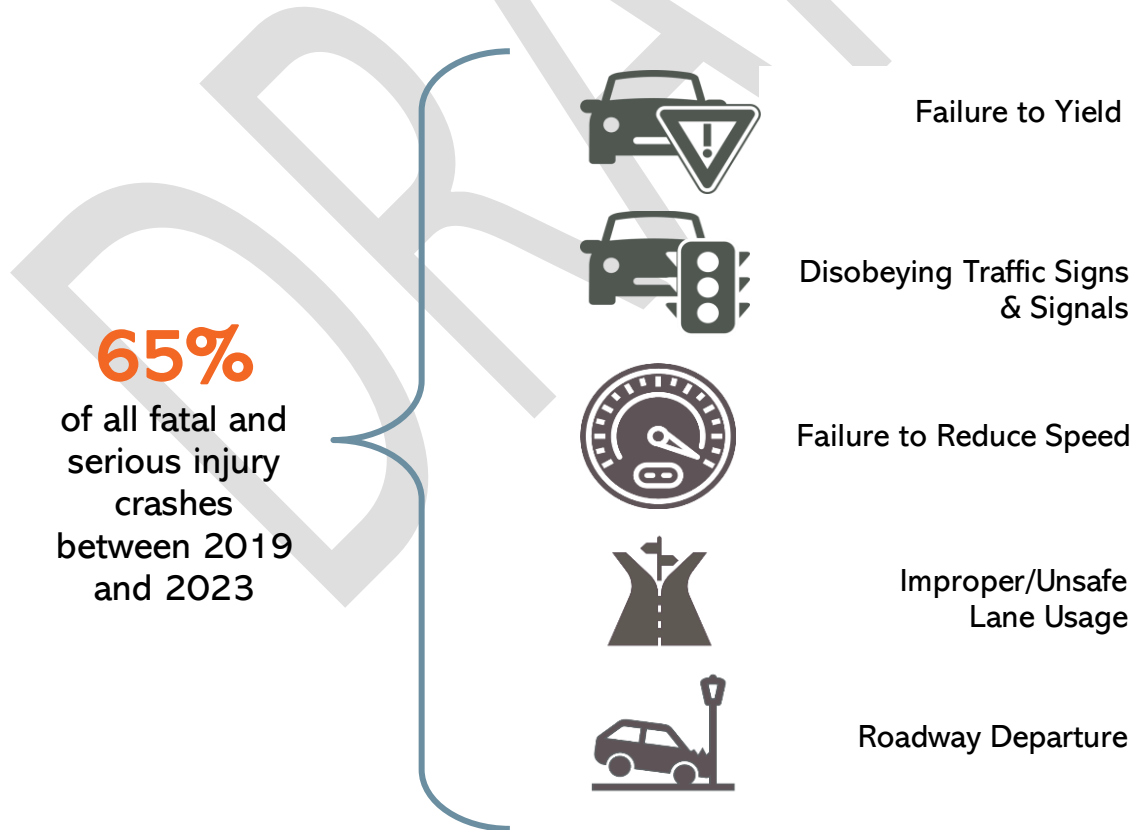
Figure 11. Age distribution of pedestrian (left) and cyclist victims (right) of KSI crashes in Collier County from 2019-2023.

Crashes by Driver Contributing Action

The actions of drivers that contribute to a crash, as reported by law enforcement, are the most significant factors leading to the crash for each driver involved. These causes are determined by the officer at the scene and may include multiple contributing factors per crash. **In Collier County, over half (65%) of all fatal and severe injury crashes result from five primary causes: failure to yield, roadway departure, reckless driving, disregarding traffic signals, and speeding.** Reckless driving (24%), failure to yield (18%), and roadway departure (12%) represent the highest shares of contributing actions (Table 13).

% Share of Fatal or Severe Injury Crashes	
<i>Reckless Driving</i>	24%
<i>Failure to Yield</i>	18%
<i>Roadway Departure</i>	12%
<i>Disregarding Traffic Signals</i>	8%
<i>Speeding</i>	4%

Table 13. Primary contributing action of crashes in Collier County. Note that 65% represents the share of the sum of these factors against total KSI crashes. These five factors will not sum to 65% due to crashes having multiple reported contributing actions.



Parking Lot Crashes

In Collier County **a quarter of all crashes took place in parking lots from 2019-2023**, but comprise a relatively low percentage of KSI crashes at 6%. Table 14 details the share of crashes, serious crashes, fatal crashes, and combined KSI crashes in parking lots for all modes.

Crash Location	All Locations	Parking Lots	% Crashes in Parking Lots
<i>Total Crashes</i>	57,005	14,080	25%
<i>Serious Injury Crashes</i>	759	50	7%
<i>Fatal Crashes</i>	170	4	2%
<i>Fatal and Serious Injury Crashes</i>	929	54	6%

Table 14. Crashes by location for all road users from 2019-2023, including all locations, parking lot locations and percent of crashes in parking lots.

Comparatively, **parking lots make up a third of crash locations for bicycle and pedestrian crashes**. These user types see greater percentages of serious or fatal injury crashes in parking lots, with 11% of serious injury and 7% of fatal crashes occurring in parking lots. **Together, parking lot locations accounted for 10% of all fatal and serious injury crashes for pedestrians and bikers, which is disproportionately higher than for all road users (6%)**. Table 15 details the share of crashes, serious crashes, fatal crashes, and combined KSI crashes in parking lots involving bicycles and pedestrians.

Crash Location	All Locations	Parking Lots	% Crashes in Parking Lots
<i>Total Crashes</i>	2,032	667	33%
<i>Serious Injury Crashes</i>	170	19	11%
<i>Fatal Crashes</i>	42	3	7%
<i>Fatal and Serious Injury Crashes</i>	212	22	10%

Table 15. Crashes by location for bicycle and pedestrians from 2019-2023, including all locations, parking lot locations and percent of crashes in parking lots.

SYSTEMIC ANALYSIS

The systemic analysis assesses the relative severity of different types of crashes and types of crash locations. This is helpful, as location prioritization should not just look at where crashes and KSI crashes have occurred, but the types of places in which crashes and KSI crashes commonly occur. The relative severity is the ratio of the percent of KSI crashes to the percent of crashes; **where the relative severity exceeds 1, KSI are overrepresented for that crash type relative to the number of crashes that occur.**

Crash Type Analysis (Motor Vehicle Crashes)

Understanding which crash types occur most often, as well as which crash types most often result in fatalities and serious injuries is critical for developing effective safety countermeasures. **Between 2019-2023 the most common crash type was rear end, representing 34% of all crashes and 15% of all KSI crashes.** Sideswipe and other / non-collision crashes make up the second largest share at 12% and 27%, respectively. However, for KSI crashes specifically, ran off roadway / fixed object crashes represented the highest share of KSI crashes at 19%. This was followed by left turn, rear end, and pedestrian crashes.

In addition to share of crashes and KSI crashes, Table 16 includes a measure of relative severity, which helps demonstrate the crash types share of severe crashes relative to its share of total crashes.

Category	Crash Type	Share Crashes	Share KSI Crashes	Relative Severity
Intersection/ Access Management	Left Turn	7%	17%	2.5
	Angle	6%	8%	1.3
	Rear End	34%	15%	0.4
	Right turn	2%	2%	0.9
Lane Departure	Ran off Roadway/Fixed Object	9%	19%	2.3
	Head On	1%	6%	5.8
	Rollover	0%	5%	10.9
	Sideswipe	12%	4%	0.4
Other	Other/ Non-Collision	27%	2%	0.1
	Animal	1%	0%	0.3

Table 16. Table of crash types (organized by category) and their share of total crashes, KSI crashes, and relative severity in Collier County from 2019-2023.

Analyzing these findings through the lenses of frequency and severity can pinpoint which types of crashes require the most urgent attention for safety interventions. Several key findings can be understood from Table 16:

- Intersection / Access Management:
 - Rear end crashes are common but tend to be less severe when they occur.
 - **Left turn and angle crashes, while only moderately common, tend to be more severe when they occur.**
 - Right turn crashes are less common and less severe.
- Lane Departure:
 - Sideswipe crashes are more common, but tend to be less severe when they occur.

- **Ran off roadway / fixed object crashes represent 9% off all crashes but 19% of KSI crashes**, tending to be more severe when they occur.
- Both head on and rollover crashes are rare, representing less than 2% of all crashes combined, but these crash types tend to be very severe when they occur.
- Other:
 - While other / non-collision crashes are relatively frequent, they tend to not be very severe.

Different crash types may also tend to be more prevalent in different contexts and environments. For example, the distribution of angle, left turning, and ran off roadway/fixed object KSI crashes in Figure 12, Figure 13, and Figure 14, demonstrates a **relatively higher concentration of angle and left turn crashes in urban areas**. In contrast, ran off roadway/fixed object crashes show more evenly distribution across both urban and rural parts of the county.

Figure 12. Crash Density Heat Map: Angle KSI Crashes

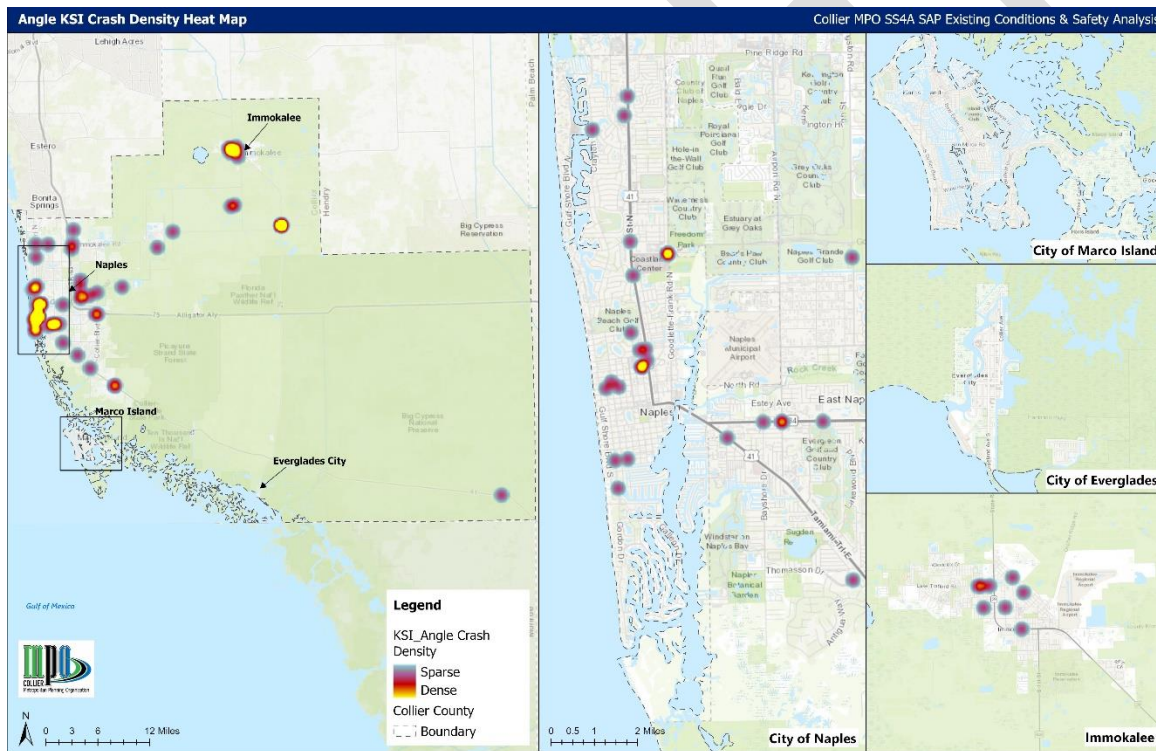


Figure 13. Crash Density Heat Map: Left Turn KSI Crashes

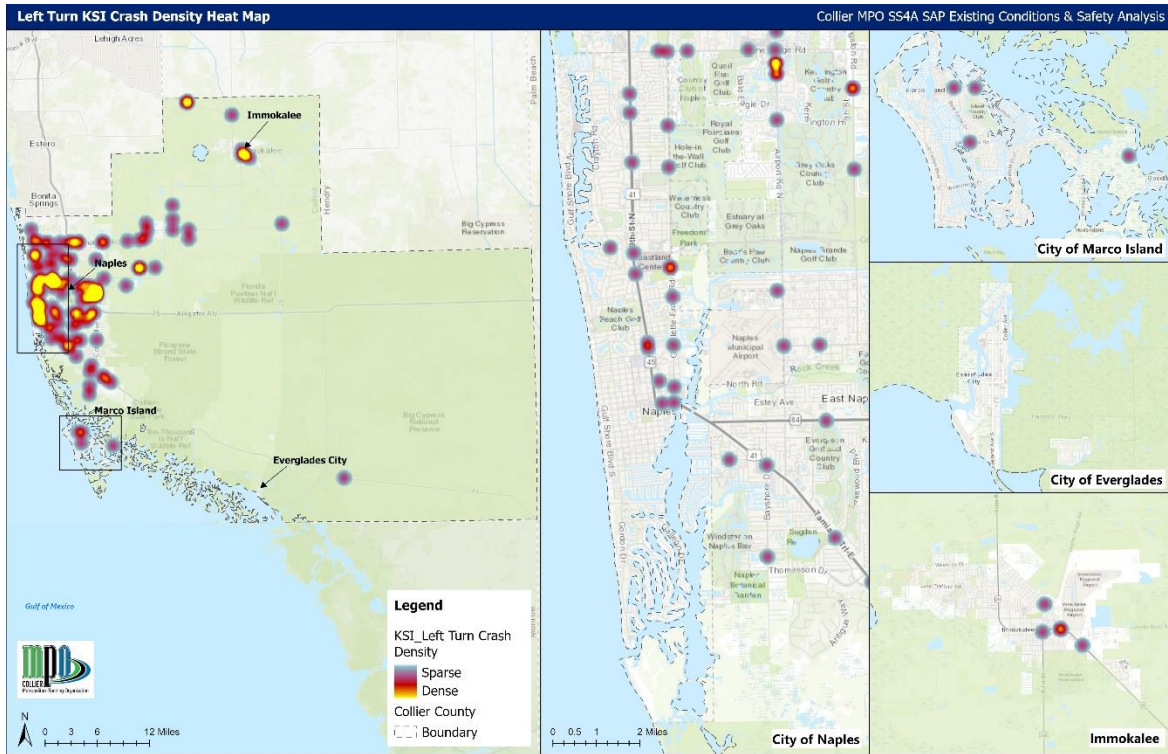
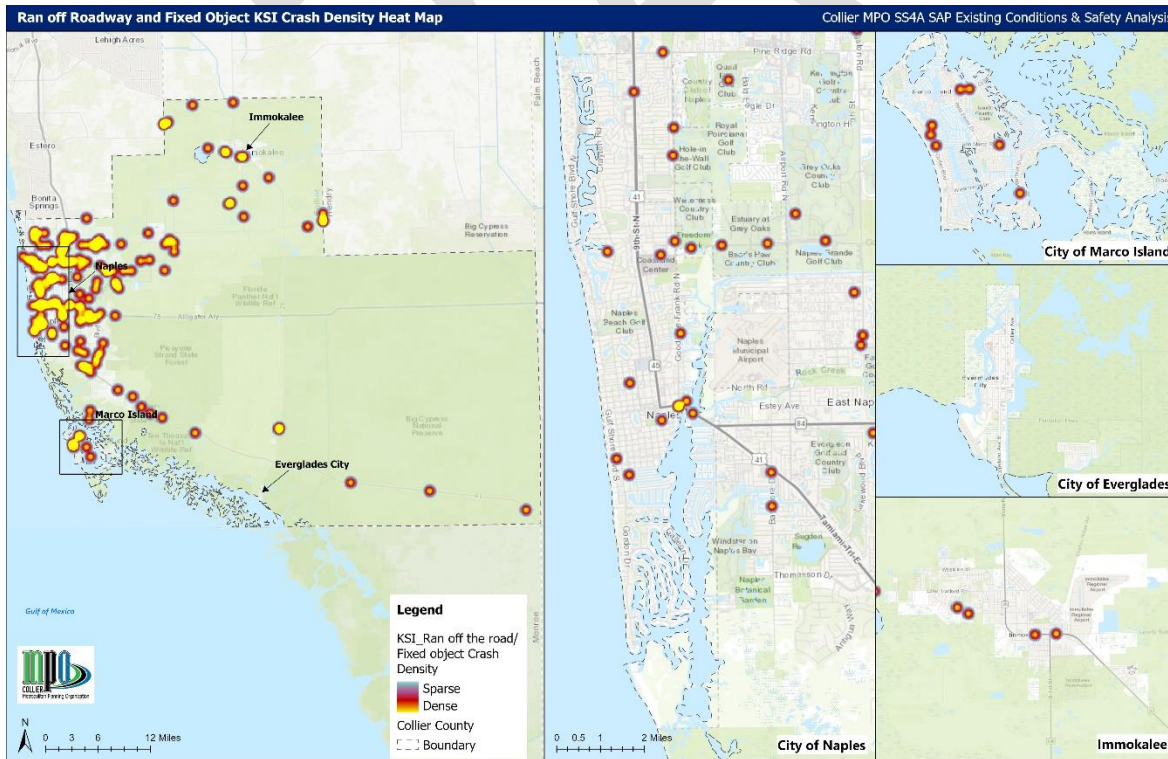


Figure 14. Crash Density Heat Map: Ran off Roadway/Fixed Object KSI Crashes



High-Risk Features Analysis

The following sections summarize the likelihood of different intersection and roadway segment types resulting in a crash, serious injury, or fatality. By conducting this systemic analysis, the county can prioritize what types of locations should be prioritized for future investment. This analysis is conducted using relative risk scores; any value over 1 indicates an above average risk for that feature.

For the segment systemic analysis, all non-Interstate roadways found in the [FDOT GIS Data Portal](#) were included. For the intersection systemic analysis, all intersections where segments met were included, along with all signal locations identified using Open Streets Map. **Local street networks were omitted from this analysis due to data limitations on local street features such as number of lanes and Average Annual Daily Traffic (AADT).**

Intersections

This section provides an overview of crash data at both rural and urban intersections in Collier County, examining intersection characteristics such as signalization, number of lanes among intersection legs, and the AADT type.

The relative risk is calculated for key metrics such as overall crashes, KSI crashes, and various crash types identified as both high-risk and high-frequency in the [Crash Type Analysis](#). **Those with greater frequency, or risk ratios greater than 1, are highlighted in red.** While all intersection types are included in the analysis to ensure a complete dataset, trends from those with less than 4 intersections are excluded from this highlight due to low sample size.

Urban Intersection

Table 17 shows the relative risk of key metrics for urban intersection for the crash category and across intersection typologies.

On urban roadways in the county, the relative risk of different crashes varies across intersection type:

- **The relative risk for crashes and KSI crashes tends to be higher at high-volume intersections with a greater number of lanes.** This is true at both signalized and non-signalized locations, but highest at non-signalized intersections.
- **There is an above-average risk of pedestrian and cyclist crashes at 6+ lane, high-volume intersections (both signalized and non-signalized)**
- However, the **highest risk for pedestrian KSI crashes (5.5) is at signalized 1 or 2 lane intersection with low AADT.** The highest risk for cyclist KSI crashes is 6 or more lane intersections with moderate to high AADT.
- **Of the crash types examined, all are more frequent at intersections with 6+ lanes. The greatest risk occurs at 6+ lane, high-volume, non-signalized intersections.**

Intersection Characteristics	Signalized Intersection	No						Yes									
	Max Lanes	1,2	3,4,5			6+			1,2		3,4,5			6+			Unk
	AADT Type	<25K	25K-50K	50K+	<25K	25K-50K	50K+	<25K	25K-50K	<25K	25K-50K	50K+	<25K	25K-50K	50K+	<25K	Unk
	Intersection Count	13	3	1	6	5	12	1	3	18	25	1	28	129	85	15	2
Crash Category																	
Relative Risk	KSI	1.2	1.9	5.8	0.0	1.2	2.2	0.0	1.9	0.5	1.1	1.9	0.4	0.9	1.2	0.8	1.9
	Crash	0.3	1.1	5.0	0.2	1.2	4.3	1.1	2.0	0.3	1.0	2.3	0.5	0.6	1.5	0.8	1.2
	Pedestrian KSI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.5	4.0	0.0	0.0	0.8	0.6	0.0	0.0
	Pedestrian	0.5	2.0	0.0	2.0	1.2	2.0	0.0	5.9	1.6	1.4	5.9	0.4	0.7	1.2	0.0	0.0
	Bicycle KSI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	8.3	0.0	1.0	24.8	0.9	1.2	1.2	0.0	0.0
	Bicycle	0.3	0.6	0.0	1.3	3.0	1.3	0.0	2.5	0.6	0.7	5.6	1.2	0.7	1.7	0.3	0.0
	Left Turn	0.4	2.1	13.0	0.4	0.3	1.9	0.7	1.9	0.5	1.3	1.0	0.8	0.8	1.2	0.8	2.5
	Angle	1.0	2.2	2.0	0.0	1.4	2.5	0.0	7.1	0.9	1.1	0.0	0.5	0.7	1.2	1.4	1.0
	Ran off Roadway	0.7	0.3	8.4	0.3	1.3	4.2	0.0	0.3	0.2	1.3	4.7	0.7	0.7	1.1	1.1	2.3
	Speed-Related	0.5	0.6	6.1	0.0	1.0	3.4	1.7	1.4	0.2	0.9	4.3	0.5	0.7	1.4	1.3	3.5

Table 17. Relative risk of crashes per intersection on urban roadways.

Rural Intersections

Table 18 shows the relative risk of key metrics for rural intersections for the crash category and across intersection typologies.

In rural roadways in the county, the relative risk of different crashes varies across intersection type:

- **Overall, non-signalized rural intersections have a greater frequency of KSI crashes.** 1 or 2 lane non-signalized intersections are nearly 2 times (1.8) riskier than the average rural intersection.
- **Signalized rural intersections have less frequent KSI crashes, but a greater risk for crashes in general.** The relative risk for a crash is greatest (1.5) for rural signalized roadways involving 6+ lanes.
- Of the crash types examined, the **highest risk of left turn crashes is at 6+ lane signalized intersections**, while ran off roadway risk is found to be higher at unsignalized intersections.
- **Among crashes marked as speed-related, 6+ lane signalized intersections were found to have the highest risk.**
- **Pedestrian and cyclist crashes are uncommon at rural intersections.**

Intersection Characteristics	Signalized	No			Yes		
	Max Lanes	1,2	3,4,5	6+	1,2	3,4,5	6+
	AADT Type	<25K	25K-50K	<25K	<25K		
	Intersection Count	10	1	1	3	4	5
Crash Category							
Relative Risk	KSI	1.8	2.0	0.0	0.0	0.5	0.4
	Crash	0.7	7.0	0.4	0.5	0.1	1.5
	Pedestrian KSI	0.0	0.0	0.0	0.0	0.0	0.0
	Pedestrian	0.0	0.0	0.0	8.0	0.0	0.0
	Bicycle KSI	0.0	0.0	0.0	0.0	0.0	0.0
	Bicycle	0.0	0.0	0.0	0.0	0.0	0.0
	Left Turn	0.9	4.3	1.4	0.8	0.0	1.3
	Angle	0.4	12.5	0.0	1.4	0.3	0.4
	Ran off Roadway	1.1	6.3	0.6	0.2	0.3	0.8
Speed-Related	0.7	3.6	0.0	0.4	0.0	2.4	

Table 18. Relative risk of crashes per intersection on rural roadways.

Segments

Following the methodology and format of the intersections analysis, the tables below present a systemic analysis of urban and rural road segments in Collier County focusing on crash types and severity across different lane types and Average Annual Daily Traffic (AADT) categories.

Relative risk is calculated per lane mile and for key metrics such as overall crashes, KSI crashes, and various crash types identified as both high-risk and high-frequency in the [Crash Type Analysis](#). Those with greater frequency, or risk ratios greater than 1, are highlighted in red.

Urban Segments

Table 19 shows the relative risk of key metrics for urban roadways – for the crash category and across segment typologies. Those with greater frequency, or risk ratios, are highlighted in red.

- On urban segments, **relative risk for roadways with 1-2 lanes are consistently lower, regardless of AADT.**
- There is an increased risk for both crashes and KSI crashes on roadway segments with more than 3 lanes. The risk **of KSI crashes is greatest (1.4) on 6+ lane segments with moderate AADT.**
- **Pedestrian crashes (2.1) and pedestrian KSI crashes (1.9) are of greatest risk on 3 to 5 lane urban roadway segments with lower AADT.**
- The **greatest risk for bicycle crashes and bicycle KSI crashes occurs on 6+ lane roadway segments.**
- **Of the crash types examined, all occur more frequently than average on 3 to 6+ lane roadway segments with moderate AADT.** Of these, speed-related crashes carry the highest risk – nearly 2x the average risk on 6+ lane roadways.

Roadway Characteristics	Lane Type	1,2		3,4,5		6+	
	AADT Type	25K+	<25K	25K+	<25K	25K+	<25K
	Midblock Length (Miles)	9.4	81.7	35.0	26.4	68.1	15.3
Category							
Relative Risk	KSI	0.7	0.5	1.3	0.9	1.4	1.3
	Crash	0.3	0.3	1.4	0.6	1.8	1.4
	Pedestrian KSI	0.6	0.9	0.5	1.9	1.3	0.0
	Pedestrian	0.1	0.8	0.9	2.1	1.2	0.2
	Bicycle KSI	0.0	0.6	1.3	1.4	1.2	1.5
	Bicycle	0.2	0.5	1.3	1.2	1.6	0.7
	Left Turn	0.4	0.5	1.5	0.8	1.5	1.0
	Angle	0.4	0.8	1.6	1.1	1.1	0.9
	Ran off Roadway Crash	0.5	0.4	1.3	0.8	1.6	1.5
	Speed-Related Crash	0.3	0.2	1.4	0.5	1.9	1.4

Table 19. Relative risk of crashes per lane-mile on urban roadways.

Rural Segments

Table 20 shows the relative risk of key metrics for rural roadways for the crash category and across segment typologies.

- In general, **rural roadways have low AADT and risk increases with the number of lanes**. Crashes are 8.5 times more likely on roadways with 6+ lanes, and KSI crashes are nearly 3 times more likely. However, the greatest number of rural roadway miles have 1-2 lanes.
- Risk for all non-motorist crashes appears to be higher on larger rural roadways (3+ lanes); however, there are too few rural non-motorist crashes to definitively identify a trend.
- Of the crash types examined, all have the greatest risk on 6+ lanes rural roadways. Of these, speed-related crashes carry the highest risk – nearly 12x the average risk.

Roadway Characteristics	Lane Type	1,2	3,4,5	6+
	AADT Type	<25K		
	Midblock Length (Miles)	159.6	17.6	5.2
Crash Category				
Relative Risk	KSI	0.9	1.4	2.8
	Crash	0.7	1.4	8.5
	Pedestrian KSI	0.8	3.4	0.0
	Pedestrian	0.6	4.1	3.5
	Bicycle KSI	0.8	0.0	11.7
	Bicycle	0.8	0.0	10.0
	Left Turn	0.7	2.2	4.8
	Angle	0.7	3.3	3.6
	Ran off Roadway Crash	0.8	1.2	5.5
	Speed-Related Crash	0.6	1.0	11.9

Table 20. Relative risk of crashes per lane-mile on rural roadways.

Equity Considerations

The Role of Equity in a Safety Action Plan

Studies show that historically disadvantaged communities – including communities of color, low-income communities, and communities with limited resource availability— face higher injury risks due to lack of infrastructure investment and high rates of walking, bicycling, and transit use. In 2021, Indigenous, Black or African American, and Hispanic or Latino people in the United States faced higher traffic fatality rates than the overall population, with the disparity even more pronounced for certain groups outside of a vehicle. The fatality rate for Black and African American pedestrians and cyclists stood at 4.1 fatalities per 100,000 people while that for American Indian or Alaskan Native stood at 6.6, in comparison to a fatality rate of 2.5 for the total population.¹ Evidence suggests that this disparity is widening: between 2017 and 2021, overall fatal traffic crashes rose 15% while fatalities among Black and Hispanic people increased 31% and 28% respectively.² The USDOT has identified that people living in the 40% of counties with the highest poverty rate had 35% more fatalities than the national average per capita.³

These facts are not only concerning on their own but also contribute to economic insecurity, limited access to opportunities, health disparities, and other inequities, thereby deepening the impact of each fatality on families, neighborhoods, and communities. These same communities often experience less infrastructure and investment compared to more privileged areas or suffer from the negative effects of arterials and highways that divide neighborhoods, hinder mobility, and increase high-speed vehicle traffic. This has resulted in a significant disparity in the quality and design of streets in underserved communities.

In addition to understanding crash factors on the County's roads, it's crucial to determine which populations this Safety Action Plan will serve and how to prioritize projects. The USDOT, FDOT, and Collier MPO aim to create a transportation network that equitably serves all users. Achieving zero traffic fatalities requires a committed effort to understand and address these disparities at their root. Vision Zero's guiding principle of equitable infrastructure investment emphasizes dedicating more resources to areas facing disproportionate burdens to rectify the consequences of past decisions. By investing equitably in safer streets, we can significantly improve safety, break the cycles perpetuated by traffic violence, and create healthier, more just, and more prosperous communities.

Traffic Fatalities & Race in Collier County

The National Highway Traffic Safety Administration (NHTSA) documents racial data for traffic fatalities through the Fatality Analysis Reporting System (FARS). Traffic fatalities in Collier County from 2017 through 2021 were captured and analyzed to identify any racial disparities among traffic fatality victims

¹ United States Department of Transportation. 2024. NHTSA's National Center for Statistics and Analysis, Traffic Safety Facts: Race and Ethnicity. Washington, DC: USDOT. Pg. 2-3, 5.

² Ibid. Pg. 3

³ United States Department of Transportation. 2022. National Roadway Safety Strategy. Washington, DC: USDOT. Pg. 7.

in the County.⁴ Results from this analysis are outlined in Table 21. Consistent with national trends, **non-white populations in Collier County bear a disproportionate number of traffic fatalities.**

	White (Non-Hispanic)	Hispanic or Latino	Black or African American (Non-Hispanic)	Asian (Non-Hispanic)
Population in Collier County	233,909	108,822	24,232	5,338
Share of Collier County (%)	61.5%	28.6%	6.4%	1.4%
Persons Killed in Fatal Crashes	104	71	20	5
Share of Fatalities, 2017-2021 (%)	51%	35%	10%	2%
Fatalities per 100,000 Residents	44.46	65.24	82.54	93.67

Table 21. Race and fatalities analysis. Data Source: American Community Survey, 2018-2022: ACS 5-Year Estimates; Fatality Analysis Reporting System (FARS), 2017-2021.

Traffic Crashes & Disadvantaged Communities in Collier County

The MPO’s previous identification of Environmental Justice (EJ) communities were used to examine the issue of equity in terms of traffic safety countywide. These designations, updated for use in the 2019 Collier MPO Bicycle and Pedestrian Master Plan, identify disadvantaged communities at the census block group level by analyzing five socio-economic factors: minority status, poverty, no access to a vehicle, and limited ability to speak English. The EJ communities were given ranking scores of low (one) to high (four or five) factors meaningfully greater (>10% points) than the countywide percentage, and refined my MPO staff and advisory committees.⁵ Environmental Justice areas are shown in Figure 15.

In Collier County, **EJ areas include 34% of the county population and 27% of the total households but contain disproportionately large portions of the County’s underserved populations**, including non-white, impoverished, disabled, carless, and non-English speaking communities (Table 22).

⁴ Traffic fatalities include all fatal crashes in FARS database that fall within the County boundary. This matches the methodology for all other crash analyses in the memo.

⁵ Full details on EJ methodology can be found in the 2019 Collier MPO Bicycle and Pedestrian Master Plan accessed at <https://www.colliermpo.org/bp-master-plan/>

Category	In Collier County	Share of County (%)	In EJ Areas*	Share in EJ Areas (%)
Total Population	380,221	-	129,626	34%
Total Households	156,768	-	42,985	27%
Minority Population (People) <i>Non-white population</i>	101,782	27%	58,265	57%
Elderly Population (People) <i>Population aged 65+</i>	124,784	33%	22,299	18%
Poverty Population (People) <i>Population below poverty level</i>	39,131	10%	18,578	47%
Population Impacted by Disability (Households) <i>Households with a person with a disability</i>	34,458	22%	9,550	28%
Carless Population (Households) <i>Households with zero vehicles available</i>	7,270	5%	3,483	48%
Non-English Speaking Population (Households) <i>Households with limited English proficiency</i>	10,650	7%	6,199	58%

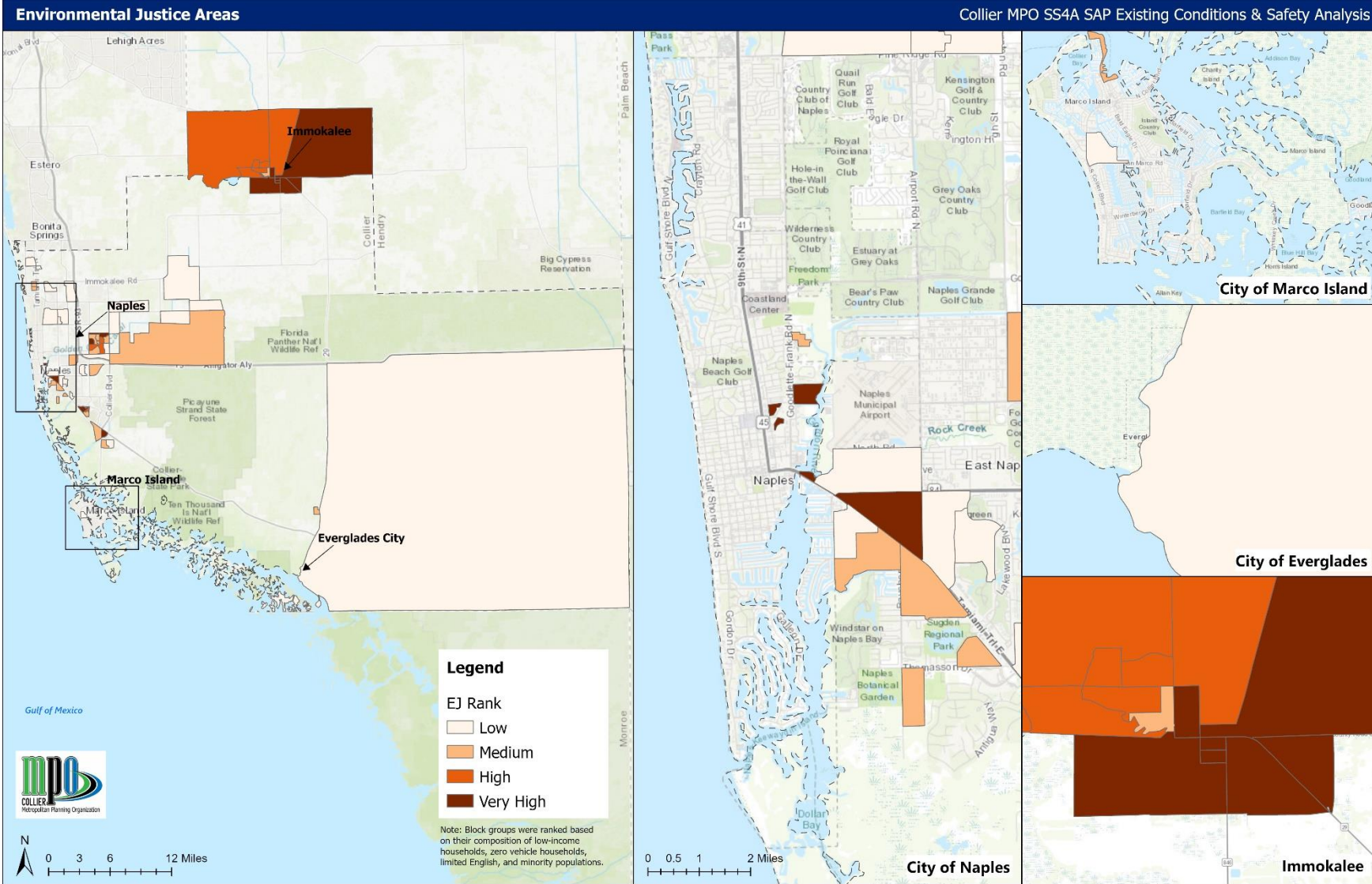
Table 22. Environmental Justice (EJ) areas and disadvantaged communities.
 Data Source: American Community Survey, 2018-2022: ACS 5-Year Estimates.
 *EJ populations are approximate due to slight geographic changes in the block group level in the 2020 Census

Between 2019 and 2022, approximately 35% of all crashes, and 38% fatal and serious injury crashes occurred on the 28% of roadway miles in EJ areas (Table 23). Although containing only 3% of the county’s roadway miles, 9% of KSI crashes occurred in the most disadvantaged communities most (EJ areas with the highest rank). **This indicates a disproportionate amount of traffic safety risk to these communities.**

Category	Roadways		Crashes (2019-2023)*		
	Roadway Centerline Miles	Roadway Centerline Miles (%)	Total Crashes	KSI Crashes	KSI Crashes (%)
Entire County	3,161	-	57,005	929	-
All EJ Areas	885	28%	20,129	355	38%
<i>Low</i>	441	14%	8,754	124	13%
<i>Medium</i>	236	7%	4,691	74	8%
<i>High</i>	108	3%	2,983	70	8%
<i>Very High</i>	99	3%	3,701	87	9%

Table 23. Crashes in Equity Areas
 *This analysis uses non-interstate crashes

Figure 15. Environmental Justice Areas



HIGH INJURY NETWORK – DRAFT

Purpose

A high-injury network (HIN) provides decision-makers with quantitative information about specific streets and intersections where severe traffic crashes are most highly concentrated and can, therefore, benefit most from the implementation of safety countermeasures.

While other tools may complement high injury networks in developing a data-driven safety action plan, high injury networks are useful for:

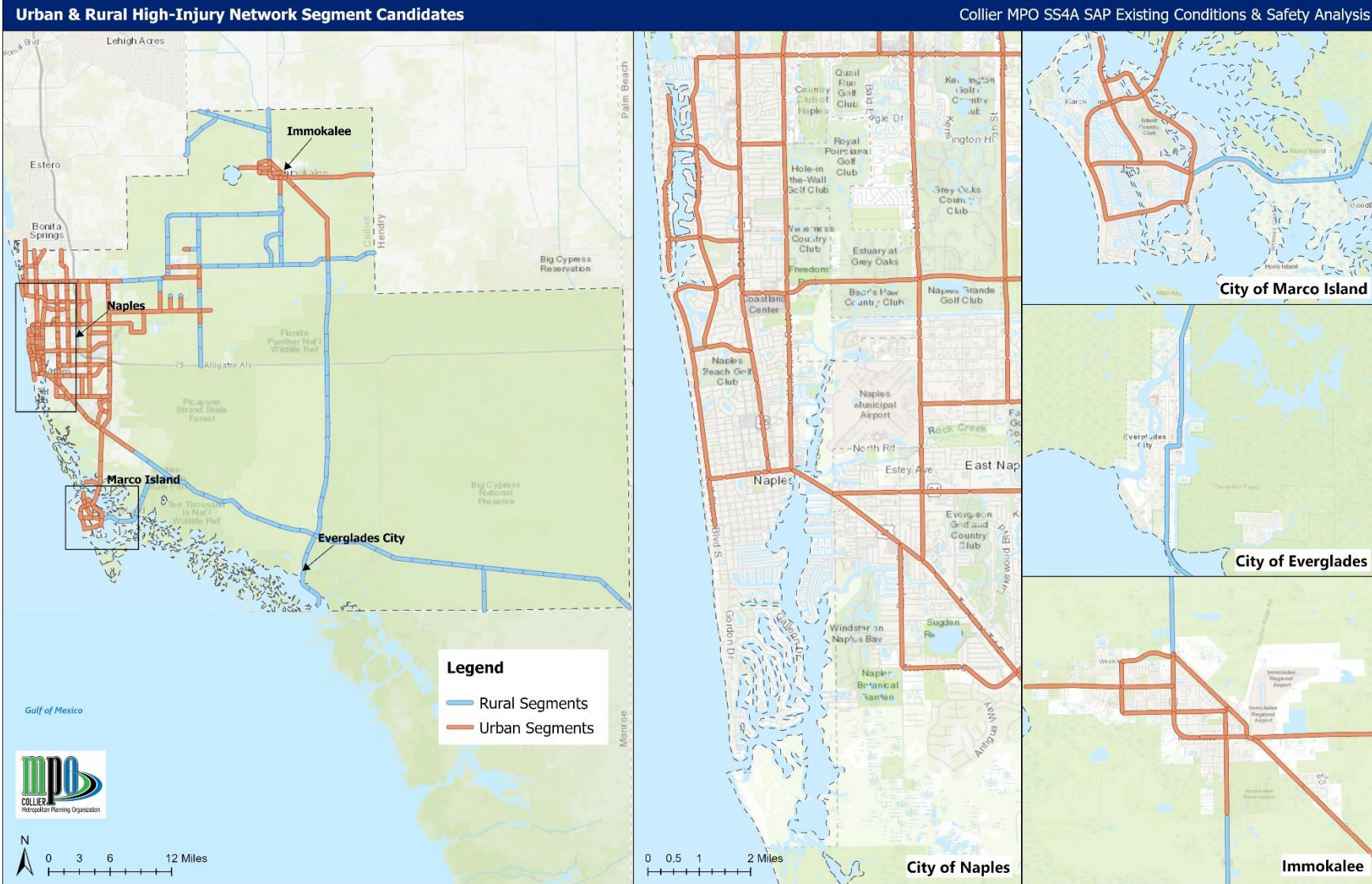
- **Prioritizing Projects.** A high-injury network indicates the major corridors and intersections with both the greatest demonstrated safety need and the greatest opportunities to make progress towards reducing serious injuries and fatalities.
- **Identifying High Impact Grant Application.** A high-injury network indicates the corridors and intersections that are most likely to demonstrate safety need and impact on competitive regional, state, and federal grant applications.
- **Developing Critical Partnerships.** A high-injury network demonstrates where partnerships are most needed, either as part of continuing inter-agency coordination, or as a starting point for collaboration.

Candidate intersections and street segments

Candidate street segments and intersections followed the same guidelines as those included in the systemic analysis. Therefore, candidate intersections included all non-Interstate roadways found in the [FDOT GIS Data Portal](#) and candidate intersections included all intersections where segments met along with all signal locations identified using Open Streets Map. Because the high-injury network is a tool to identify high-impact locations for safety improvements, local street networks were omitted from this analysis.

Due to the size of the county, a separate high-injury network analysis was conducted for both urban and rural segments. FDOT functional classification was used to distinguish urban and rural segments. Any segment with a functional classification >10 was marked urban, while any segment with a functional classification <10 was marked rural. Due to the low number of rural intersections, a single intersection high-injury network analysis was conducted county-wide. Urban and rural segment designations are outlined in Figure 16.

Figure 16: Candidate HIN Segments (Urban vs. Rural)



Evaluation criteria and calculations

To evaluate safety risk at candidate intersections and street segments and develop the high-injury network, all were evaluated on three equally weighted criteria: Severe Crash Risk Score, Facility Risk Score, and Relative Risk Score. Each criteria provides different, but equally important, information on the risk of severe crashes and potential impact of safety improvements for each candidate intersection and street segment.

- **Severe Crash Risk Score** assesses the number of severe crashes that have occurred at each intersection and street segment in the last five years.
- **Facility Risk Score** assesses the risk of each intersection and street segment based on their physical features (i.e. # of lanes, AADT, etc). Facility Risk Score is calculated in the High-Risk Features Analysis.
- **Relative Risk Score** assesses the number of severe crashes that have occurred at each intersection and street segment relative to the expected number based on the location's physical features (i.e. # of lanes, AADT, etc).

These three criteria are combined to produce a net HIN score for each segment and intersection.

Results

Net HIN scores assigned to each segment and intersection are used to rank each location and produce a final high-injury network for intersections, urban segments and rural segments. For each of these high-injury network layers, the top 20% (80th-100th percentile) of scores are identified as the Tier I High-Injury Network and the next 20% (60th-80th percentile) are identified as the Tier II High-Injury Network. These networks are shown in Figure 17 and Figure 18.

Figure 17: Collier County Segment High-Injury Network

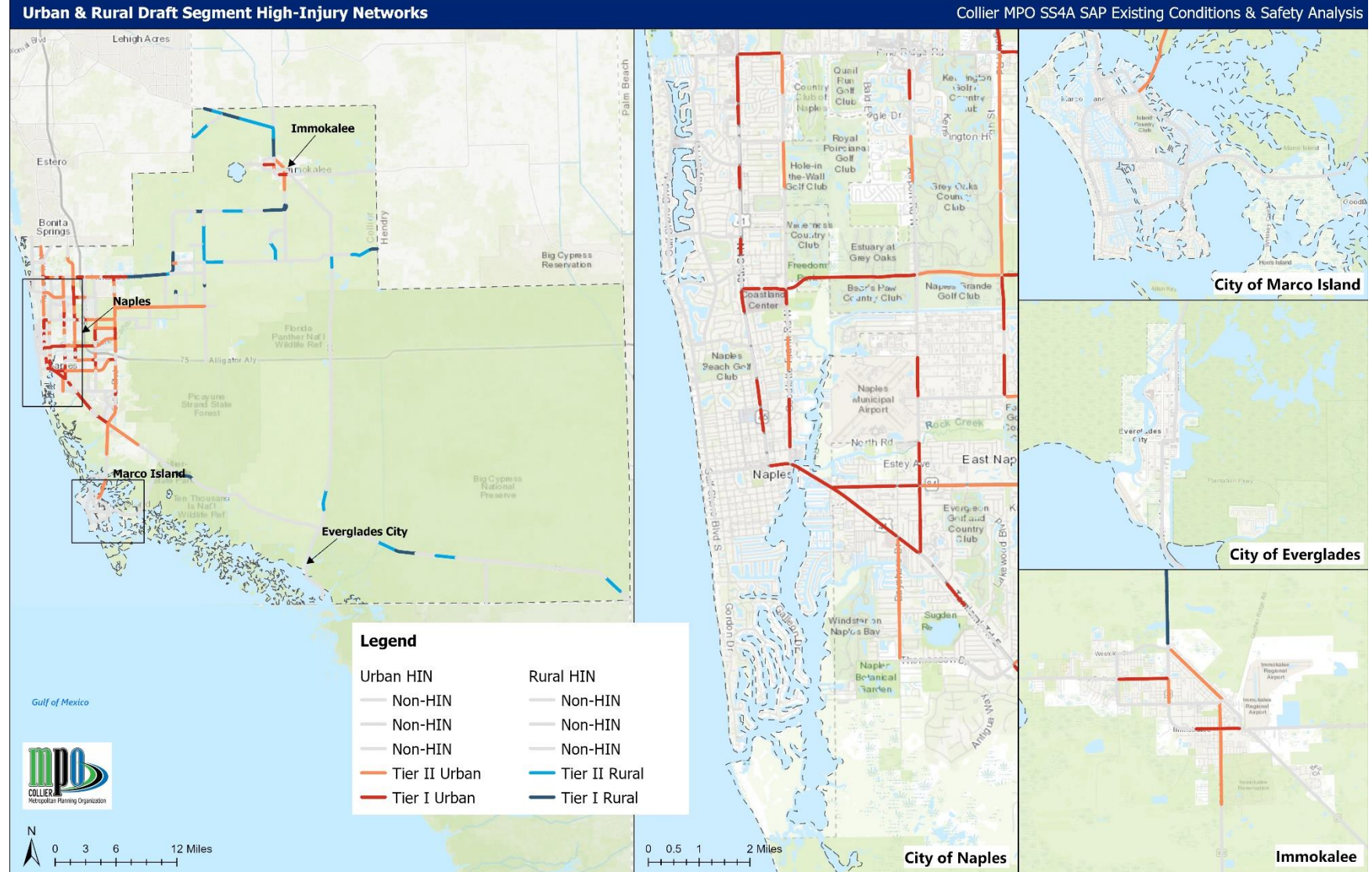


Figure 18: Collier County Intersection High-Injury Network

