

# Martin County

## SAFE STREETS FOR ALL ACTION PLAN

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## Introduction

Martin County's streets and sidewalks should be accessible and safe for all users. Our hidden gem continues to grow due in large part by a strong economy, excellent quality of life, and access to unique recreational amenities. Vision Zero is an international traffic safety policy, which holds that traffic fatalities and serious injuries are preventable. Vision Zero focuses attention on the shortcomings of the transportation system itself, including the built environment, policies, and technologies that influence behavior. The Martin County Board of County Commissioners (BOCC) established the Traffic Safety Measures Capital Improvement Plan sheet in FY2020. In May 2022, the Martin Metropolitan Planning Organization (MPO) Policy Board approved the Vision Zero Plan. This high-level commitment by the MPO identified strategies and actions to reach an eventual goal of zero roadway fatalities and serious injuries.

As a follow-up to the MPO's Vision Zero Plan, Martin County developed a Safe Streets and Roads for All (SS4A) Action Plan to prepare for an SS4A Federal grant application.

The Bipartisan Infrastructure Law (BIL) established the new SS4A discretionary program with \$5 billion in appropriated funds over the next five years. The SS4A program funds regional, local, and Tribal initiatives through grants to prevent roadway fatalities and serious injuries. The SS4A program supports the National Roadway Safety Strategy and the United States Department of Transportation (USDOT) goal of zero fatalities and serious injuries on our nation's roadways.

This SS4A Action Plan is a requirement for applying to use SS4A funds for design and developmental activities to carry out projects identified in the Action Plan. The SS4A Action Plan builds from the foundation of the MPO Vision Zero Plan and demonstrates consistency with the Office of the Secretary of Transportation's Notice of Funding Opportunity (NOFO) for the SS4A Discretionary Grant Opportunity Amendment 1.

Within this Action Plan, the goal of the coordinated set of projects is to achieve fewer traffic fatalities and serious injuries each year on Martin County roadways until the vision of zero fatalities and serious injuries is reached. Recommendations for these SS4A projects were shaped by a crash data analysis, the best available crash countermeasure evidence, stakeholder interviews, and noteworthy practices identified in the Vision Zero Plan, that all address the traffic safety problems described.

## Leadership Commitment and Goals

### *Planning Structure*

The goal of the implementation of this SS4A Action Plan is zero roadway deaths.

The Martin County Board of County Commissioners is committed to eliminating fatalities on County roadways. The SS4A Action Plan uses the latest data and stakeholder input to identify proven countermeasures for implementation that target high risk crash patterns.

The projects identified in this SS4A Action Plan are located on County-maintained roadways, which tasks Martin County Public Works to implement projects and monitor for progress towards Vision Zero. The Martin County Board of County Commissioners will have the authority to approve grant applications requiring a local match amount of no less than 20 percent included in the application upon award of grant notification.

## Engagement and Collaboration

### *Public Engagement*

The Martin County SS4A Action Plan builds from the foundation established in the Martin MPO Vision Zero Plan. Used as a guiding document for transportation safety projects throughout the county, the Martin MPO Vision Zero Plan emphasizes its commitment to including diverse perspectives. This is seen, for instance, during the public engagement and planning phases of the project, during which a variety of representatives—ranging from a local non-profit which provides support to homeless individuals, to members of a local medical center—were invited to take part in a series of meetings to develop the plan. In addition to opportunities for public engagement community-wide, these targeted invitations enabled the County to hear concerns directly from agencies representing underserved communities.

In addition to reaching these historically marginalized groups, significant effort was undertaken during the Vision Zero Plan in order to provide opportunities for all residents to provide input and shape recommendations. Responses from this outreach demonstrate a wide variety of demographics represented. This includes families, who noted concerns about “sidewalks...too narrow for kids to bike safely to school”; non-vehicular commuters who observed towards “downtown, increasingly more walkers and bikers”; walkers who suggested sidewalks and crosswalks should have “pedestrian-scale lighting”; and local drivers who observed “people [ignoring] stop signs” and unsafe driving speeds which prevented getting “across [main] roads without going a mile out of your way.” As part of both ongoing safety campaigns and targeted outreach, residents participated in in-person safety education programs. These were held at different locations and during different times, in order to enable a greater array of residents, including those who may hold non-traditional working hours, to take part in the planning process. These in-person events were supplemented with online surveys and a project website, which allowed users to identify needs across the County.

### *Stakeholder Involvement*

Martin County convened a stakeholder committee composed of representative members and planning partners throughout the county to ensure community representation and feedback during the SS4A Action Plan. The stakeholders include Martin County Fire Rescue; Martin County Growth Management; Martin County Office of Community Development; Martin County Parks and Recreation; Martin County School District; Martin County Sheriff’s Office; Hobe Sound Chamber of Commerce, Jensen Beach Chamber of Commerce, Palm City Chamber of Commerce; and the Stuart/Martin Chamber of Commerce.

Meetings were conducted with each of ten (10) stakeholders in August 2023, where discussions focused on existing safety concerns, projects, or programs in the area as well as commuting trends and infrastructure needs. Information received from collaborating with stakeholders was used to determine the project locations and multimodal safety and efficiency improvements that are detailed in the Strategy & Project Selection section of this Action Plan.

# CRASH ANALYSIS

## Crash Analysis

Crash data for the most recent five years (2018-2022) was obtained for all roads in Martin County from Signal Four Analytics (S4A). The purpose of this analysis was to update the crash data information included in the Vision Zero Plan and to review crash patterns specific to roadways that are under the jurisdiction of Martin County Public Works to develop countermeasures to address crash patterns.

A summary of the crash analysis is provided below.

### Crashes in Martin County

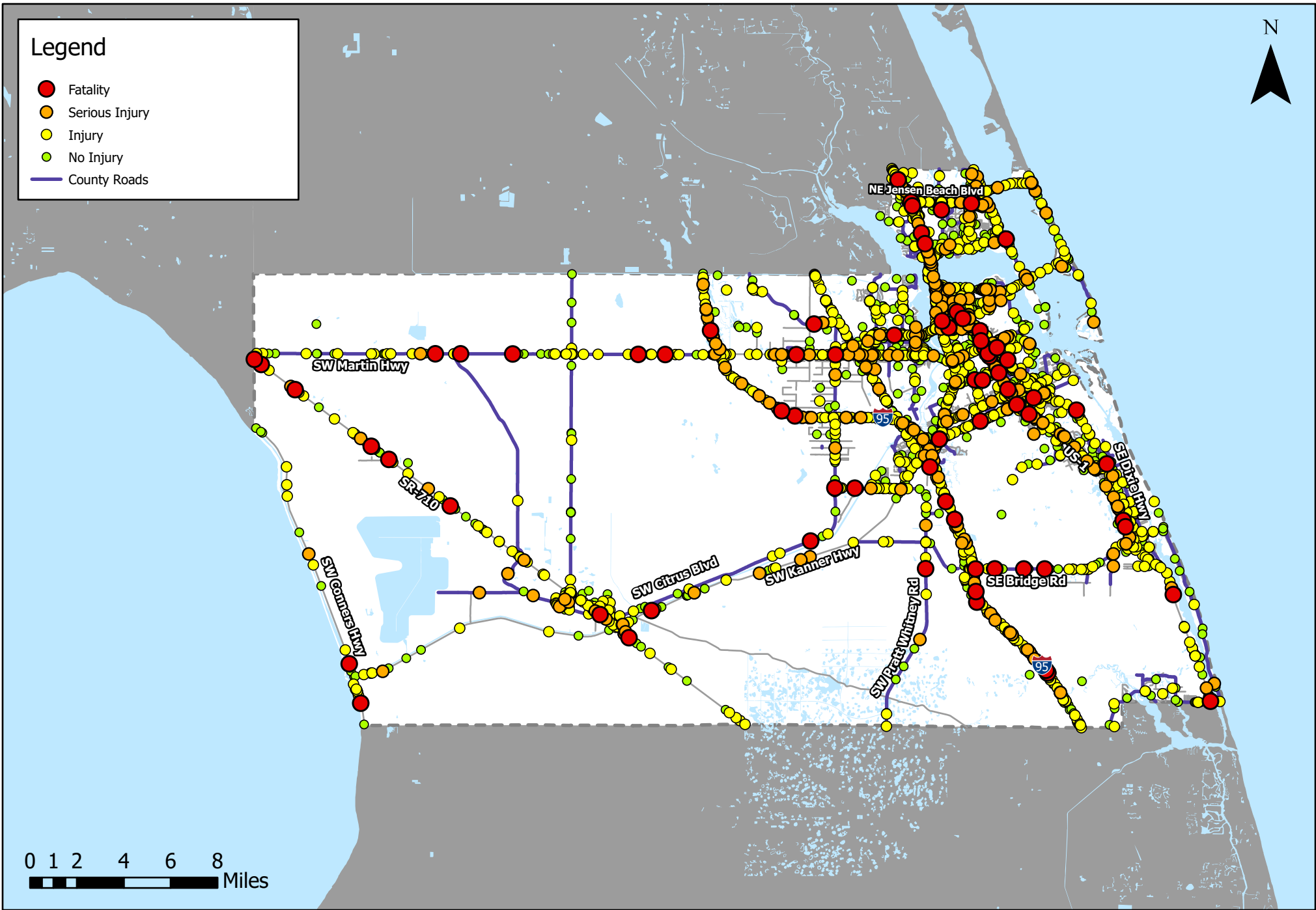
Since 2020, yearly crash totals have risen significantly throughout Martin County and there has consistently been greater than 1,600 crashes each year within the past five years. Total crash occurrence tends to be highest in the urbanized areas along arterial and collector roadways. Some of the roadways with high crash occurrence are listed below:

- SR-710/SW Warfield Boulevard
- SR-76/Kanner Highway
- US-1/SE Federal Highway
- SE Dixie Highway
- SR-714/SW Martin Highway/Monterey Road
- SR-A1A/SE Ocean Boulevard
- SR-732/Jensen Beach Causeway

Crashes outside of the urbanized areas of Palm City, Port Salerno, and Stuart are primarily concentrated along SR-710/SW Warfield Boulevard which is an undivided two-lane roadway with minimal lighting features. In fact, many roadways in the rural portions of Martin County have correlations between a lack of lighting and crashes occurring in dark conditions. Roadway safety issues are likely a result of inadequate lighting and speeding vehicles traversing narrow, undivided roadways. Additionally, two-lane, undivided roadways with fast-moving vehicles create hazardous passing maneuvers because motorists must increase speed and pass in the opposite traffic lane. All these issues negatively affect visibility and force motorists to make quick decisions while traveling at high speeds.

During the stakeholder engagement meetings, multiple participants expressed concern over inadequate lighting features and poor visibility in the less-urbanized areas of the county. Many roadways listed above were mentioned to have very little, or non-existent, lighting fixtures. These were primarily noted on roadways in the western portion of the county, where the only lighting source in dark conditions were from the vehicle itself. Also mentioned among the emergency response departments were situations where fog would limit the sight of motorists in the early morning. This, along with noted concerns of non-daylight visibility, could be mitigated through additional or upgraded lighting features.

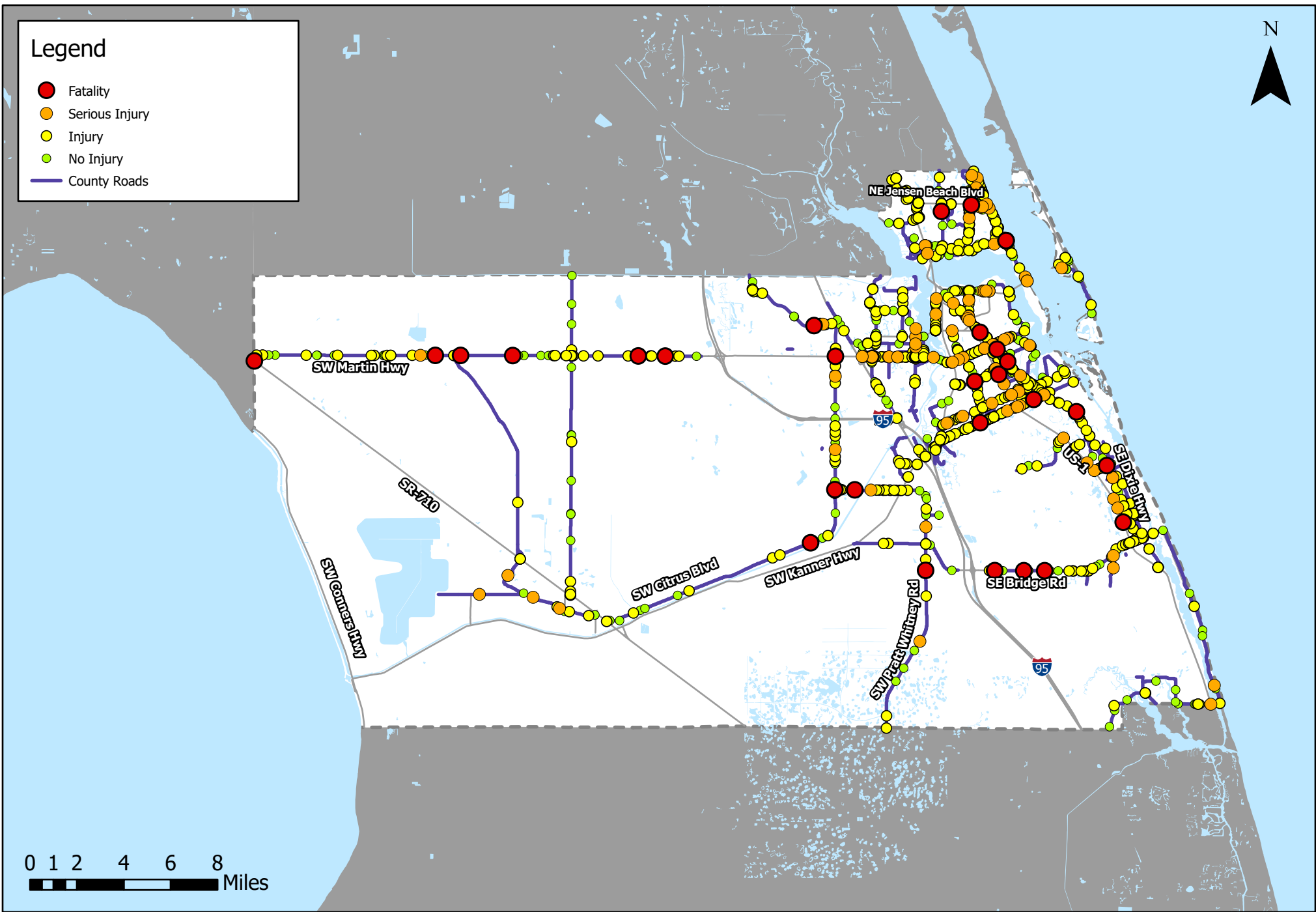
Most of these roadways are under the jurisdiction of the Florida Department of Transportation (FDOT). The following map displays the locations of all crashes on County roads from 2018-2022.



Source: Signal 4 Analytics, 2018–2022

**Safe Streets and Roads for All Action Plan**  
**Crashes by Severity in Martin County**





Source: Signal 4 Analytics, 2018–2022

## Safe Streets and Roads for All Action Plan Crashes by Severity on County Roads

## Serious Injury Crashes in Martin County

The project team examined serious injury crashes on all roadways in Martin County. There were 316 serious injury crashes throughout the county, many of which occurring at intersections of moderate-speed roadways in urbanized environments. The concentration of serious injury crashes at intersections is likely a result of several modes converging at a location with multiple conflict points and complex turning scenarios.

Roadways under the jurisdiction of Martin County were also evaluated for serious injury crash trends, in which there were 100 serious injury crashes that occurred on Martin County roads from 2018 to 2022. These crashes clustered around the following roadways:

- SE Dixie Highway
- SE Cove Road
- SR-714/SW Martin Highway
- SW 96 Street between SW Citrus Boulevard and SR-76/Kanner Highway

Out of the 100 serious injury crashes, 21 percent involved pedestrians or bicyclists, which are vulnerable users of the roadways. Approximately 26 percent of serious injury crashes occurred in the dark.

The most common type of crash resulting in serious injuries was crashes involving a left-turn, which accounted for approximately 29 percent of all serious injury crashes. Martin County's recent implementation of medians on portions of SE Dixie Highway is a good example of applying roadway engineering techniques to respond to a specific safety issue. In this case, the medians were constructed to manage the locations where left-turning movements are permitted. Overall, approximately 13 percent of serious injury crashes occurred on the stretch of Federal Highway traversing Martin County.

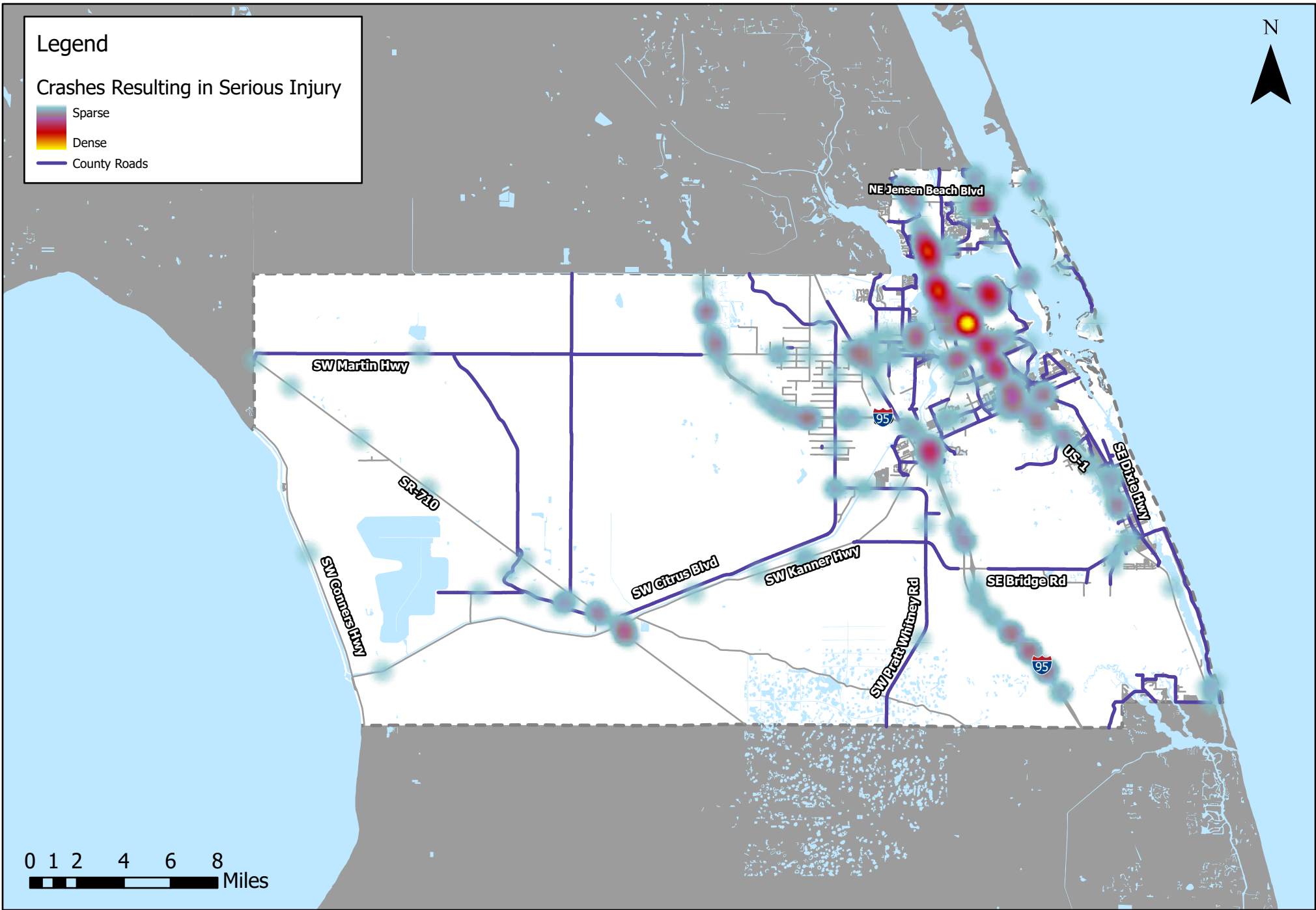
## Fatal Crashes in Martin County

Out of 76 total fatal crashes within Martin County, nearly 40 percent (29 total crashes) occurred on Martin County roads during the study period. Fatal crashes appear common within the county on roadways that currently enable fast vehicle speeds with few interruptions from motorists entering/exiting the roadway, such as SR-710/SW Warfield Boulevard, SE Bridge Road, SR-714/SW Martin Highway, and Interstate 95 (I-95). Apparent from this analysis is the impact of vehicular speed on the occurrence of fatal crashes. Most fatal crashes occurred on roadways with posted speed limits of 45 mph or higher.

Additionally, a considerable number of fatal crashes occurred in non-daylight conditions. 40 of 76 total fatal crashes occurred in these conditions, indicating that the visibility of motorists may be negatively affected at times where the roadway is dark or driver vision may be altered by the sun, mostly being at sunrise and sunset.

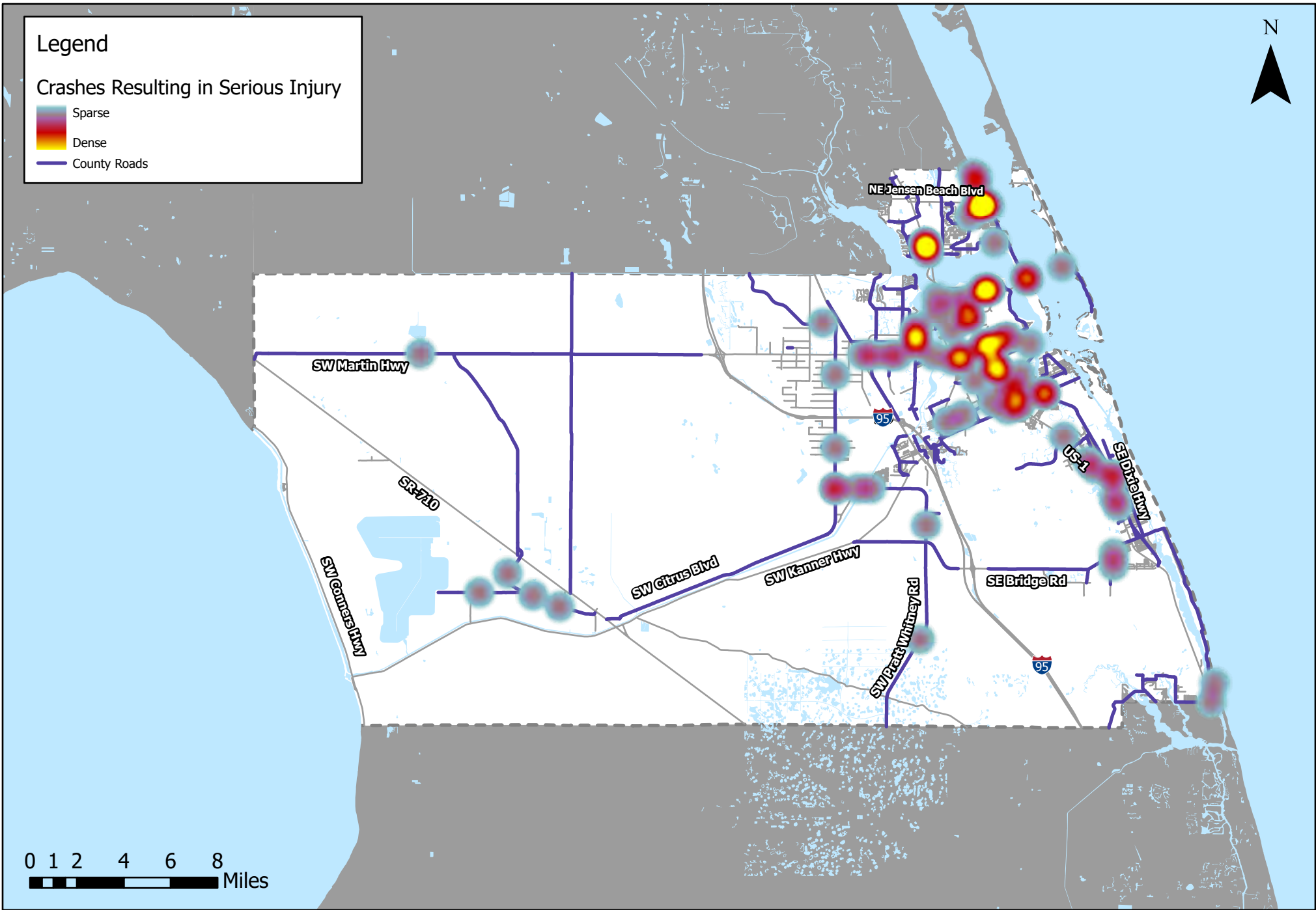
Of all the locations with fatal crashes, there was a small cluster on the SE Dixie Highway corridor and on Martin Highway west of I-95. Other roads with multiple fatalities include SE Bridge Road and SW Citrus Boulevard.

The following maps display serious and fatal crashes on roadways under the jurisdiction of Martin County. Areas shown in yellow indicate a high concentration of crashes.



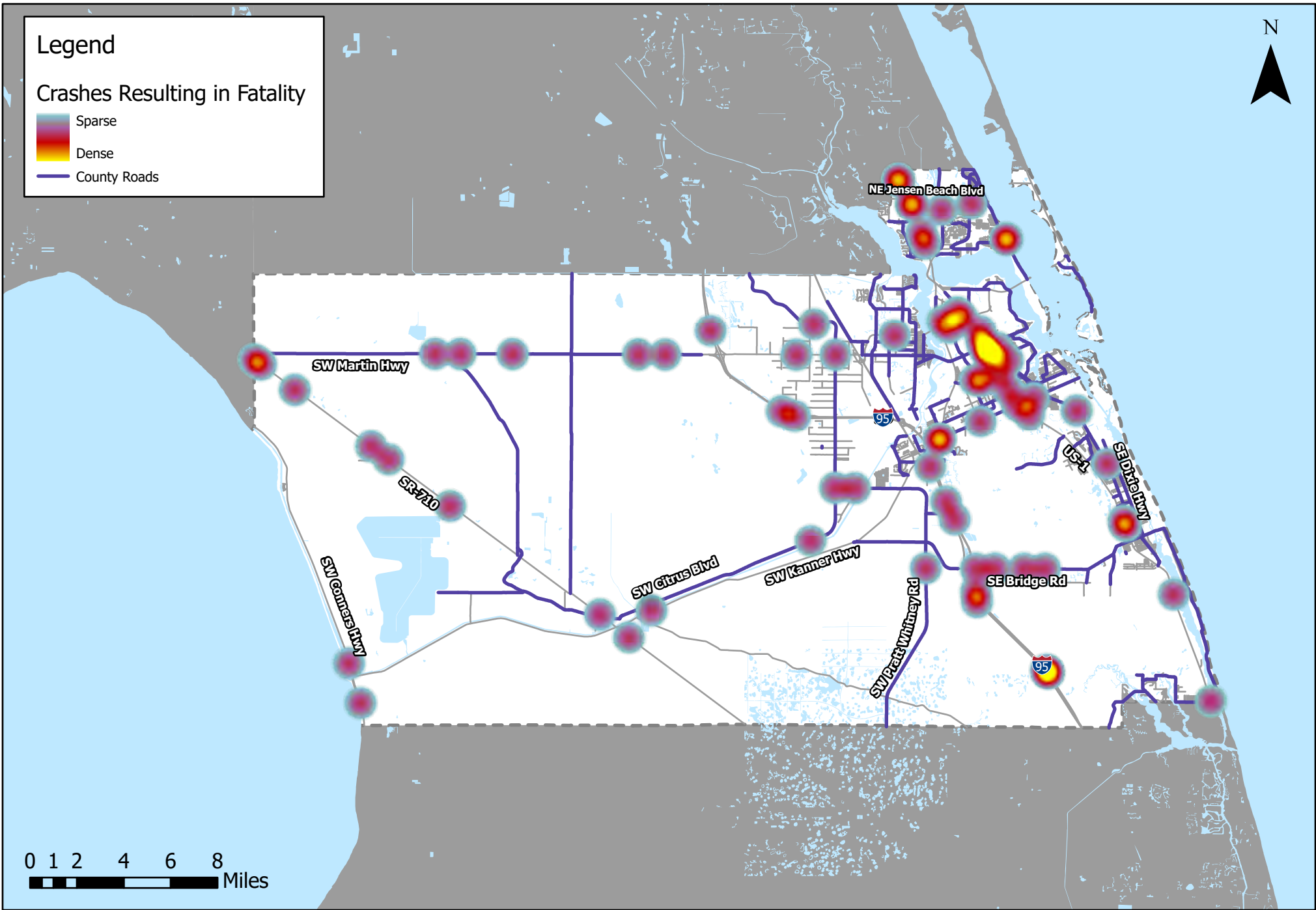
Source: Signal 4 Analytics, 2018–2022

**Safe Streets and Roads for All Action Plan**  
**Serious Injury Crashes on All Roads**



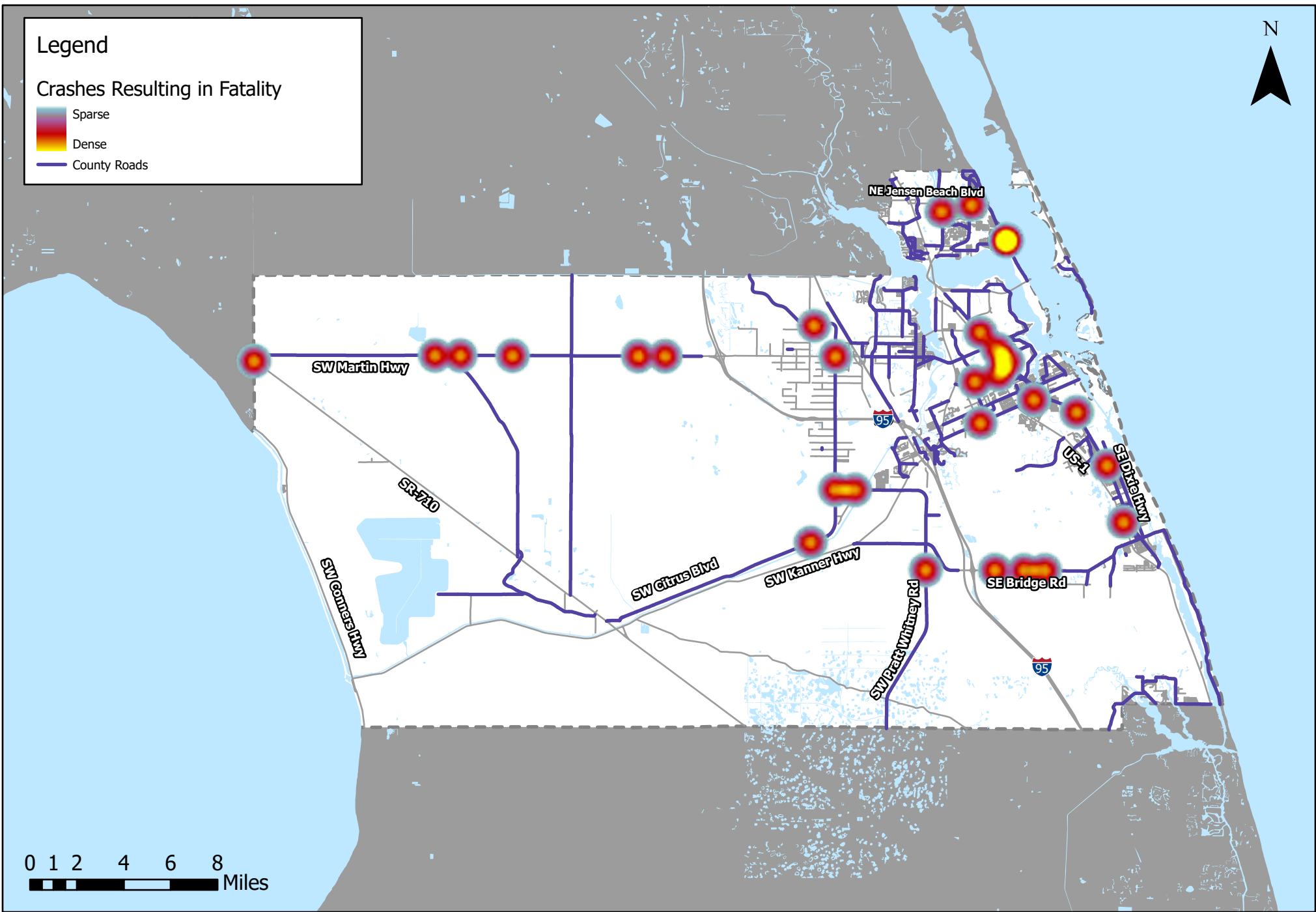
Source: Signal 4 Analytics, 2018–2022

## Safe Streets and Roads for All Action Plan Serious Injury Crashes on County Roads



Source: Signal 4 Analytics, 2018–2022

**Safe Streets and Roads for All Action Plan**  
**Fatal Crashes on All Roads**



Source: Signal 4 Analytics, 2018–2022

## Safe Streets and Roads for All Action Plan

### Fatal Crashes on County Roads

### Countywide Crash Summary (all roads)

Table 1							
Total Crashes by Year		2018	2019	2020	2021	2022	Total
		1884	1825	1626	1994	2041	<b>9370</b>
Crash Severity	No Injury	990	947	850	1034	1108	<b>4929</b>
	Injury	824	794	700	874	854	<b>4046</b>
	Serious Injury	58	64	60	74	63	<b>319</b>
	Fatal	12	20	16	12	16	<b>76</b>
Involved DUI	Yes	81	80	94	90	109	<b>454</b>
	No	1803	1745	1532	1904	1932	<b>8916</b>
Lighting Conditions	Daylight	1496	1461	1258	1579	1652	<b>7446</b>
	Dark- Lighted	388	364	368	415	389	<b>1924</b>
Surface Conditions	Dry	1615	1515	1376	1762	1784	<b>8052</b>
	Wet	269	310	250	232	257	<b>1318</b>
Time of Day	00:00-06:00	77	73	69	89	76	<b>384</b>
	06:00-09:00	278	253	216	289	300	<b>1336</b>
	09:00-11:00	165	208	143	171	188	<b>875</b>
	11:00-13:00	239	204	189	215	252	<b>1099</b>
	13:00-15:00	233	225	219	277	292	<b>1246</b>
	15:00-18:00	505	491	426	519	521	<b>2462</b>
	18:00-24:00	387	371	364	434	412	<b>1968</b>
Crash Type	Rear End	841	823	714	860	884	<b>4122</b>
	Left Turn	260	238	218	251	260	<b>1227</b>
	Sideswipe	209	235	209	285	274	<b>1212</b>
	Other	195	182	163	183	184	<b>907</b>
	Angle	160	153	140	177	165	<b>795</b>
	Parked Vehicle	66	52	54	67	79	<b>318</b>
	Head On	38	41	31	52	55	<b>217</b>
	Backed Into	33	28	31	29	39	<b>160</b>
	Bicycle	23	25	29	30	49	<b>156</b>
	Pedestrian	26	29	23	25	29	<b>132</b>
	Right Turn	33	19	14	35	23	<b>124</b>
Day of the Week	Monday	275	233	245	297	320	<b>1370</b>
	Tuesday	313	287	279	296	283	<b>1458</b>
	Wednesday	290	290	243	307	315	<b>1445</b>
	Thursday	259	284	248	307	314	<b>1412</b>
	Friday	320	328	280	382	341	<b>1651</b>
	Saturday	231	216	190	218	262	<b>1117</b>
	Sunday	196	187	141	187	206	<b>917</b>

### Crash Summary (County roads)

Table 2							
Total Crashes by Year		2018	2019	2020	2021	2022	Total
		603	562	521	636	710	<b>3032</b>
Crash Severity	No Injury	291	257	242	304	353	<b>1447</b>
	Injury	291	275	253	307	330	<b>1456</b>
	Serious Injury	15	23	21	21	20	<b>100</b>
	Fatal	6	7	5	4	7	<b>29</b>
Lighting Conditions	Daylight	489	456	419	524	582	<b>2470</b>
	Dark	114	106	102	112	128	<b>562</b>
Surface Conditions	Dry	547	472	472	575	641	<b>2707</b>
	Wet	55	90	49	61	69	<b>324</b>
Crash Type	Angle	67	73	72	95	82	<b>389</b>
	Bicycle	11	15	11	17	22	<b>76</b>
	Head On	10	22	13	28	25	<b>98</b>
	Left Turn	142	129	121	155	159	<b>706</b>
	Other	57	57	62	58	84	<b>318</b>
	Pedestrian	7	13	8	8	84	<b>51</b>
	Rear End	247	194	181	199	249	<b>1070</b>
	Right Turn	11	11	7	16	12	<b>57</b>
Sideswipe	51	48	46	60	62	<b>267</b>	



# POLICY AND PROCESS REVIEW

## Policy and Process Review

Current policies, guidelines, and design standards along with existing transportation or multimodal related plans were reviewed to enhance transportation safety and to identify opportunities to improve the process of prioritizing transportation safety within the county. The recommended projects detailed in the next section of this Action Plan will benefit from initiatives that prioritize transportation projects with direct improvements to safety or traffic calming.

The MPO and community partners have already made many policy changes and project investments to improve traffic safety and create a more accessible multimodal transportation system. Existing plans and policies document the MPO's commitment to reducing the number of crashes and eliminating traffic related deaths. The plans, policies, and funding programs listed within this section present initiatives to prioritize the implementation of safety improvement projects, ambitious performance measures aimed at improving multimodal safety, and best safety practices that can be applied to future transportation projects.

## Plans and Policies

### *Martin County Comprehensive Growth Management Plan*

The Comprehensive Growth Management Plan (CGMP), and specifically Chapter 5 – Transportation Element, contain many standards that the Board set to prioritize safety in the transportation network. These policies are considered and adhered to during 1) transportation planning efforts, 2) capital improvement planning, and 3) the review of all development applications received by Martin County. Below are excerpts of policies and goals in the CGMP.

*Policy 5.2A.12. Promote "Complete Streets".* To the extent feasible, the County shall promote and implement the concept of "Complete Streets" that accommodate all users, including motorized vehicles, bicyclists, public transportation vehicles and riders, and pedestrians of all ages and abilities.

*Policy 5.3A.3. Promote safe roadway designs.* The County shall promote roadway designs that are safe and efficient by...

*Policy 5.3A.4. Separate vehicles from pedestrians.* Traffic flow systems shall be designed to achieve reasonable separation of vehicles and pedestrians, particularly in areas where children are concentrated, including schools, parks and residential areas.

*Policy 5.3A.5. Prepare Crash Surveillance Report.* Martin County shall continue to refine the crash reporting system to produce crash rate information for applicable road links and intersections and incorporate this information into priority setting for improvements for the five-year road program. Every other year, the Public Works Department prepares a Crash Surveillance Report that identifies, analyzes and provides recommendations for reducing high-hazard intersections and fatal crashes as well as pedestrian and bicycle crashes.

**Goal 5.4** To establish the County as friendly to pedestrians and bicyclists by developing a safe bicycle and pedestrian transportation system accessible to all major public and private facilities.

*Policy 5.4A.4. Construct sidewalks on collectors and arterials.* The County shall provide a sidewalk along both sides of all arterials and collectors.

*Policy 5.4B.1. Establish pedestrian and bicycle facilities around schools.* In accordance with guidelines from the AASHTO and the FDOT, the County shall establish pedestrian and bicycle facilities around schools, with emphasis on areas not serviced by school buses.

### *Martin MPO Vision Zero Action Plan (2022)*

The Martin Metropolitan Planning Organization (MPO) and its partner municipalities are taking a bold stand to no longer accept these traffic fatalities and injuries as the status quo. The commitment is Vision Zero, which is a traffic safety initiative to reduce crashes and eliminate traffic related deaths and serious injuries. In the development of this plan, the MPO developed eight guiding principles that will influence future transportation decisions and projects.

### *Martin MPO Complete Streets: Access to Transit Study (2020)*

The purpose of the MPO's Complete Streets: Access to Transit Study is to improve efficiency, effectiveness, and safety for transit users; enhance safety, functionality, and quality of life; and expand the economic benefits to the community. As part of this study, "Opportunity Segments" were selected based on the locations of existing and proposed transit stops throughout the county. To further advance Complete Streets initiatives, the plan supports prioritizing complete streets interventions for city, local government, and FDOT resurfacing and rehabilitation projects as well as new roadway design. Additionally, the study recommends incorporating Complete Streets improvements into the capital plans of local governments and CRA's. From the Complete Streets selection process, multiple roadway segments are recommended for a variety of bicycle/pedestrian accommodations and traffic calming treatments to improve connectivity and safety for non-motorized users seeking access to transit.

### *Martin MPO Martin in Motion 2045 Long Range Transportation Plan (2020)*

Safety is the first priority outcome described in the vision statement. Additionally, the vision for the transportation system in Martin County is one that supports all modes. The Martin MPO's 2045 Long Range Transportation Plan (LRTP), also known as Martin in Motion, includes both long-range and short-range strategies/actions that provide for the development of an integrated multimodal transportation system (including accessible pedestrian walkways and bicycle transportation facilities) to facilitate the safe and efficient movement of people and goods in addressing current and future transportation demand. Every five years, the MPO is required to review and update the LRTP as it sets the vision for all modes of travel throughout the County and influences projects included in the 5-year TIP.

### *Martin MPO Bicycle and Pedestrian Safety Action Plan (2016)*

The purpose statements connect MPO policy with FDOT policy, an important step to coordinate and secure resources to improve transportation safety in Martin County. Additionally, the plan identifies hotspots where crashes occur more frequently and how programs and projects can be used to improve safety at these hotspot locations.

### *Florida Transportation Plan*

The plan presents the framework for creating fundamental change in Florida's transportation system over the next 50 years. Objectives within the plan focus on shifting toward a multimodal environment by prioritizing and implementing transportation projects that create inviting multimodal environments in locations that provide high connectivity between communities and frequently visited destinations. The plan also provides recommendations to help shift the transportation funding process to a more modern approach, stressing the importance of regional

collaboration and tracking of project commitments to various sectors (such as commercial, environmental, and housing) that will inevitably have impacts on the transportation sector.

## Improved Efforts

### Recommendations

The importance of prioritizing safety throughout Martin County is reflected in the various plans and policies put forth by the Board of County Commissioners, MPO and associated agencies. The following measures should be taken to continue incorporating safety measures into future transportation efforts and to ensure these projects are prioritized and implemented.

To identify potential roadway reconstruction projects, the BOCC should refer to the High Injury Network and the US DOT Disadvantaged Communities within Martin County to identify areas where the data overlaps. Targeting roadway improvement projects within these areas that appropriately allocate multimodal features and improve inter-modal connectivity will significantly advance non-motorized mobility while simultaneously resolving roadway features causing crashes or inefficiencies.

Additionally, collaboration between the MPO, local governments, and other transportation agencies to align roadway improvement initiatives and identify priority corridors will streamline implementation efforts and establish accountability and investments needed to accomplish the shared transportation safety goals. Involved agencies should work to align their project selection criteria and process to represent the safety goals detailed in the Martin County LRTP, as this will streamline the implementation process and ensure that safety improvement projects are prioritized at each agency level.

# STRATEGY AND PROJECT SELECTION

## Analysis Approach

From the data collection presented above, the project team determined trends and key takeaways in areas such as crash sites, types of crashes, and potential engineering and non-engineering countermeasures to address existing challenges. Additionally, high-concentration crash corridors were considered within the context of the county's mobility trends and travel patterns. For one, over the last 10 years, Martin County's population has increased by nearly 10 percent, resulting in a rapid rise in demand for safe and efficient roadway infrastructure. This is particularly true on arterial and collector roadways, as these are frequently used by residents as they commute between residential neighborhoods and locations with high concentrations of job sites. As a result, an emphasis was placed on adding infrastructure to high-speed arterial roadways, including adding lighting along roadways, extending rumble strips, and increasing skid resistance.

Many of these strategies align with the Proven Safety Countermeasures outlined by the Federal Highway Administration (FHWA). For instance, the FHWA notes that adding lighting both continuously along road segments and at specific intersection locations helps to reduce the chances of a crash—by as much as 38 percent at intersections and 28 percent on highways. Rumble strips on shoulders, edge lines, and center lines have also been identified by the FHWA to reduce crashes caused by distracted, drowsy, or otherwise inattentive drivers. Given the prevalence of nighttime crashes along certain corridors within the county, adding this infrastructure in targeted locations is likely to effectively reduce the most common types of crashes experienced on these roadways.

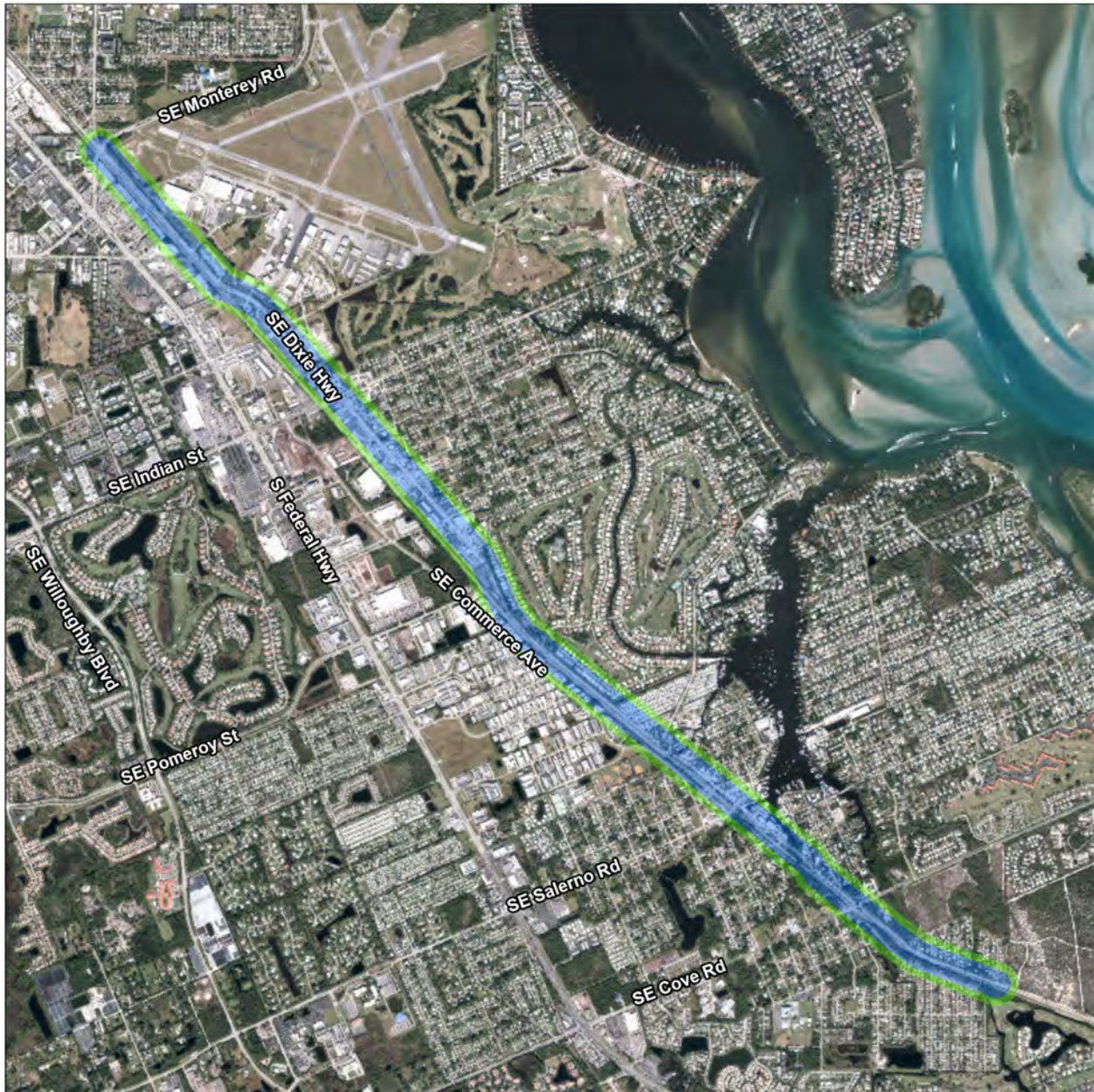
Martin County also recognizes that motorists represent just one segment of roadway users. In many cases, residents who walk and bicycle—whether to run errands, reach their workplace, or just for recreation—compete with motorists for limited space on the roadway. Crash data supports this finding, demonstrating that of the 129 serious injury and fatality crashes occurring on Martin County roads between 2018 and 2022, 26 involved pedestrians or bicyclists. Therefore, this report targets busy roadways which connect areas frequented by pedestrians and bicyclists, such as SE Dixie Highway, with improvements like the extension of a multi-use trail to accommodate non-motorists and reconfiguration of road lanes to lower travel speeds. Again, these strategies are recognized by the FHWA for their ability to effectively reduce car crashes involving bicycles, pedestrians, and other vehicles.

Finally, consideration was given to understand travel patterns of school-aged children who may rely on walking, bicycling, or riding the bus to reach school. In some regions of Martin County, elementary and middle schools draw from neighborhoods which lie beyond major arterial roadways, requiring students to cross these busy corridors twice a day. Therefore, it is a priority to add infrastructure improvements to increase safety at the most common arterial crossings, such as through the implementation of high-visibility crosswalks. Furthermore, expanding the sidewalk network between local streets and these major roadways will increase safety for pedestrians of all ages, including those who may walk from their residences to arterials to access public transportation.

Three (3) specific corridors, including a sub-section of a corridor, are profiled in detail below.

## Site 1: SE Dixie Highway from SE Grafton Avenue to SR-714/Monterey Road

The Site 1 study limits extend along SE Dixie Highway from SE Grafton Avenue to SR-714 /Monterey Road. The study segment is located on the east side of Martin County and abuts retail, industrial, and residential land use types. The typical section ranges between 2 to 5 lanes with bicycle facilities and sidewalks present although the facilities are not continuous. A location map of the study area is provided below.



## Existing Conditions

The following table provides a summary of relevant characteristics for the SE Dixie Highway corridor from SE Grafton Avenue to SR-714/Monterey Road.

Existing Conditions	
Predominant Land Use	Retail, Industrial, Residential
FDOT Context Classification	C3C-Suburban Commercial, C3R-Suburban Residential, C4-Urban General
Posted Speed	30 to 45 MPH (30 MPH only exists in the Port Salerno area)
Number of Lanes	2 to 5 Lanes
Vehicular Volume	16,400 AADT
Roadway Classification	Minor Arterial
Sidewalks	Both Sides
Bicycle Facilities	Varies, mostly unmarked shoulders
Transit Routes	Marty Route 3
Serious Injury Crashes	6
Fatal Crashes	3

## Contributing Crash Factors

The corridor exhibits a prevalent occurrence of crashes involving bicyclists and pedestrians.

## Recommended Countermeasures

Both corridor wide and location specific countermeasures were identified for Site 1. The recommended countermeasures include the following:

- At the intersection of SE Dixie Highway and SE Grafton Avenue, the East Coast Greenway currently transitions into a conventional sidewalk. It is recommended to extend the East Coast Greenway (through widening) from SE Grafton Avenue to SR 714/Monterey Road wherever feasible, to provide a continuous multimodal facility for bicyclists and pedestrians. This expansion would also offer the opportunity to incorporate periodic landscaping.
- Within the five-lane section from SE Normand Street to SE Kensington Street, it is recommended to reconstruct the drainage features and shift them inward by 3 feet. This would provide the space on both sides of the road for the development of dedicated multimodal paths.



- Upgrade existing mid-block pedestrian crosswalks to pedestrian hybrid beacons at the following locations:
  - SE Dixie Highway and SE Broward Street
  - SE Dixie Highway between SE Iris Street and SE Hawthorne Street
  - SE Dixie Highway between SE Garden Street and SE Fairmont Street
  - SE Dixie Highway between SE Fairmont Street and SE Ellendale Street
  - SE Dixie Highway between SE Ellendale Street and SE Delmar Street
  - SE Dixie Highway between SE Delmar Street and SE Clayton Street
  - SE Dixie Highway between SE Clayton Street and SE Bonita Street



Existing Mid-Block Pedestrian Crossing on SE Dixie Highway



Example of Pedestrian Hybrid Beacon at a Mid-Block Pedestrian Crossing

- Upgrade existing crosswalks with high emphasis crosswalks at the following locations:
  - SE Dixie Highway and Monterey Road
  - SE Dixie Highway and SE Airport Road
  - SE Dixie Highway and SE Aviation Way
  - SE Dixie Highway and SE Indian Street
  - SE Dixie Highway and SE Seaward Street
- Improve bus stop boarding and alighting areas to be ADA compliant and add shelters. Martin County Public Transit (MARTY) route 3 currently operates along the northern section of Site 1 along SE Dixie Highway, between Fairmont Street and SE Monterey Road. The bus stop locations just north and south of SE Aviation Way intersection would benefit from these improvements.

The figure below provides a summary of corridor wide recommendations.



*Site 1A: SE Dixie Highway from SE Cove Road to SE Westfield Street*

A closer look was taken at a sub-section of Site 1, along SE Dixie Highway from SE Cove Road to SE Westfield Street, based on the crash data. Site 1A is located in a more urban area of Site 1 and abuts retail and industrial land use types. The typical section includes 2 lanes with sidewalks and no bicycle facilities.

**Existing Conditions**

The following table provides a summary of relevant characteristics for the corridor on SE Dixie Highway from SE Cove Road to SE Westfield Street.

Existing Conditions	
Predominant Land Use	Retail and Industrial
FDOT Context Classification	C4- Urban General
Posted Speed	30 MPH
Number of Lanes	2
Vehicular Volume	16,400 AADT
Roadway Classification	Minor Arterial
Sidewalks	Both Sides
Bicycle Lanes	None
Transit Routes	None
Serious Injury Crashes	4
Fatal Crashes	1

**Contributing Crash Factors**

Along the corridor, there is a high occurrence of serious injury and fatal pedestrian and bicycle crashes. Often occurring in the daytime in dry conditions.

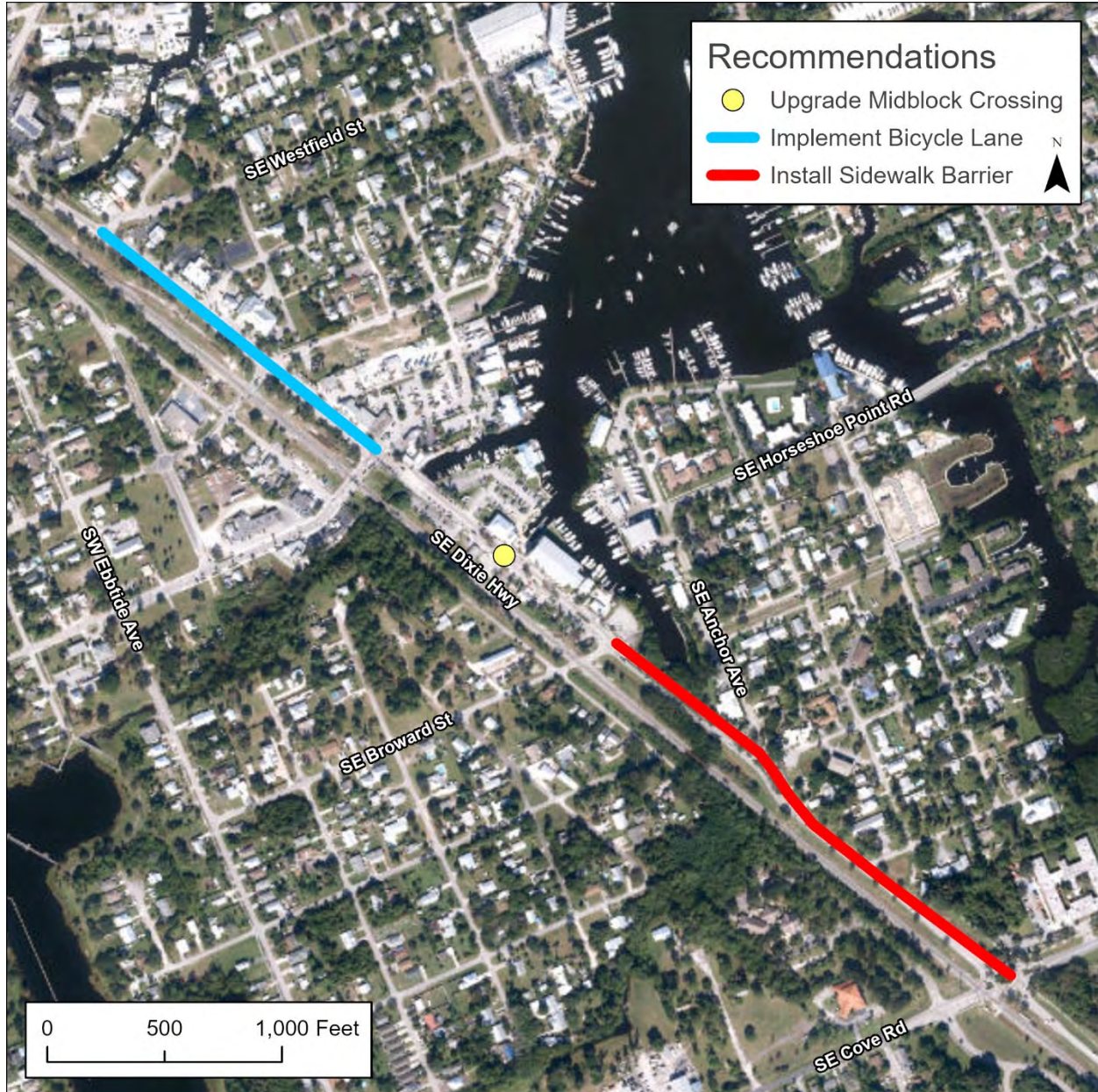
**Recommended Countermeasures**

The following countermeasures and facility improvements are recommended to be implemented within the study limits:

- Starting north of SE Cove Road to SE Broward Street, it is recommended to install sidewalk barriers or fencing.

- From SE Salerno Road to SE Westfield Street, it is recommended to reduce the width of existing street angled parking spaces. The current 22-foot-wide parking spaces should be reduced by 6.5 feet and transformed into parallel parking lanes. This will allow for the implementation of a 4.5-foot-wide bicycle lane.
- Upgrade the existing midblock crossing south of SE Salerno Road to include pedestrian hybrid beacons and high visibility crosswalks.

The below figure provides a summary of the countermeasures.



## Site 2: SE Bridge Road from I-95 to SE Flora Avenue

The Site 2 study limits extend along SE Bridge Road from I-95 to SE Flora Avenue. The study segment is located in the southern part of Martin County and while the corridor abuts residential, agricultural, and retail land use types, the surrounding land use is mostly agricultural and rural in nature. The roadway typical section includes 2 lanes with no bicycle facilities or sidewalks present. A location map of the study area is provided below.



## Existing Conditions

The following table provides a summary of relevant characteristics for the corridor on SE Bridge Road from I-95 to SE Flora Avenue.

Existing Conditions	
Predominant Land Use	Residential, Agriculture, Retail
FDOT Context Classification	C2-Rural
Posted Speed	45 to 55 MPH
Number of Lanes	Primarily 2-Lane Undivided
Vehicular Volume	16,400 AADT
Roadway Classification	Minor Arterial
Sidewalks	None
Bicycle Lanes	None
Transit Routes	None
Serious Injury Crashes	1
Fatal Crashes	4

## Contributing Crash Factors

This corridor has a history of crashes leading to severe injuries and fatalities, most of which involve head-on collisions and left-turn crashes, with a substantial majority occurring in dark, non-lighted conditions. The corridor has very few existing lighting features and is also located in an area with minimal land development, resulting in very dark conditions when driving at night. Many stakeholders also noted the presence of fog early in the morning, which are likely contributing to visibility issues. As this is an undivided roadway with minimal interruptions from alternative roadways, adequate visibility is vital for roadway safety.

## Recommended Countermeasures

Corridor wide and location specific countermeasures were identified for Site 2. The recommended countermeasures include the following:

- Extend the presence of rumble strips along the centerline and edge lines throughout the entire corridor, beyond SE Powerline Avenue to SE Flora Avenue.
- Based on the prevalence of nighttime crashes, install roadway lighting infrastructure along SE Bridge Road. Currently, lighting is not present on the north or south side of the study corridor.

- Install electronic speed feedback signs east and west of the horizontal curve located at SE Powerline Avenue and SE Bridge Road. Based on the Florida Design Manual (FDM 2022) speed feedback signs are most effective at managing operating speeds for short distance (about 1,000 feet) following the sign and when combined with other measures.
  - Coordination with the District Traffic Operations Engineer on use of the device will be required.



Example of Rumble Strips on SW Martin Highway



Speed Feedback Sign (Source: MC BOCC)

The below figure provides a summary of the recommendations.





## Site 3: SW Martin Highway from SW Deer Run to West of I-95

The Site 3 study limits extend along SE Martin Highway from SW Deer Run to West of I-95. The study segment is located in the northwestern part of Martin County and abuts residential and agricultural land use types. Similar to Site 2, the corridor runs through mostly agricultural lands. The roadway typical section includes 2-4 lanes with no bicycle facilities or sidewalks present. A location map of the study area is provided below.



## Existing Conditions

The following table provides a summary of relevant characteristics for the corridor on SW Martin Highway from SW Deer Run to West of I-95.

Existing Conditions	
Predominant Land Use	Residential, Agriculture
FDOT Context Classification	C1- Natural and C2- Rural
Posted Speed	45 to 50 MPH
Number of Lanes	2 to 4 Lanes
Vehicular Volume	7,600 AADT
Roadway Classification	Minor Arterial and Major Collector
Sidewalks	None
Bicycle Lanes	None
Transit Routes	None
Serious Injury Crashes	1
Fatal Crashes	5

## Contributing Crash Factors

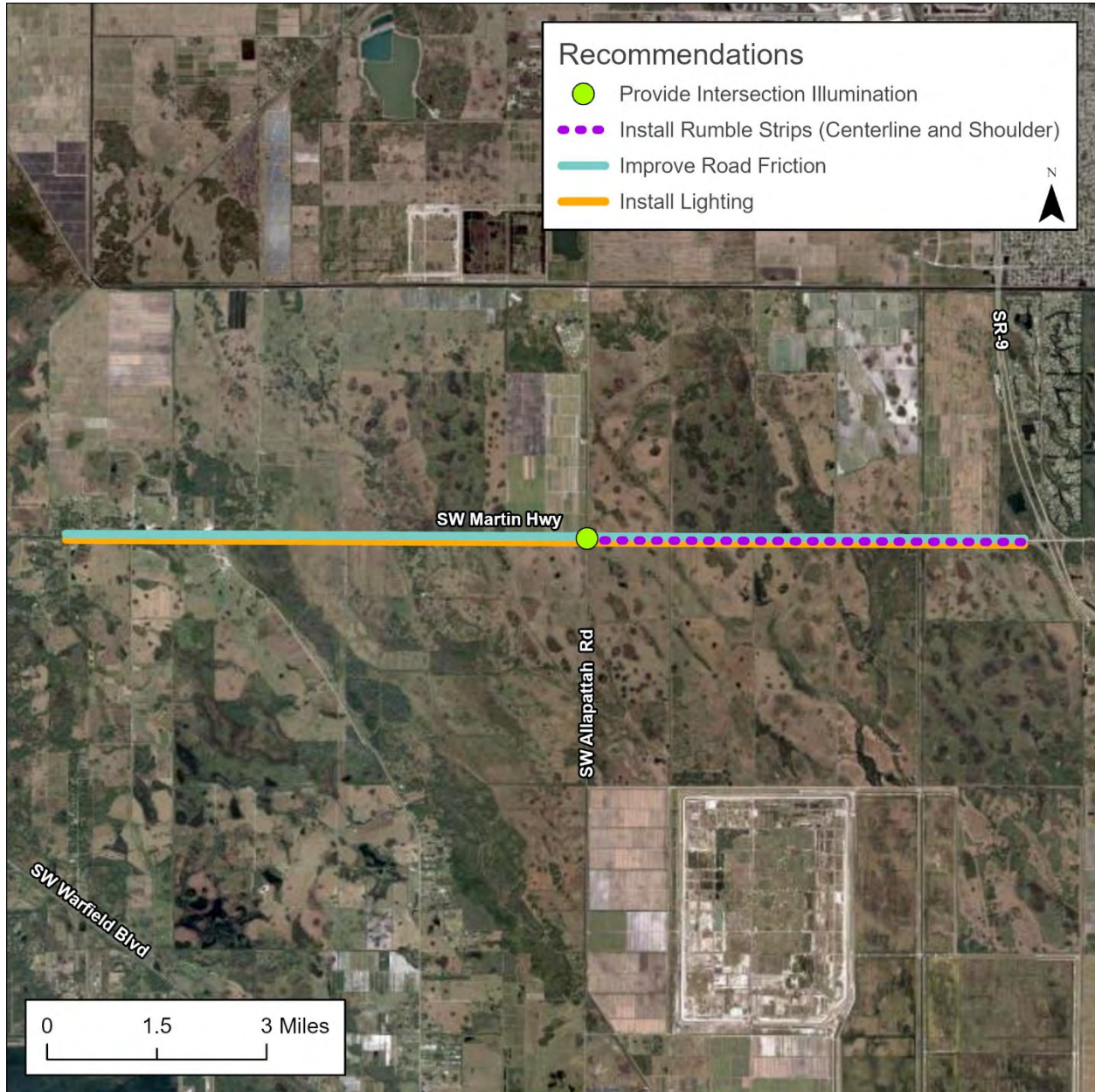
A substantial majority of the crashes leading to fatalities or severe injuries along the corridor occurred in dark, non-lighted, and wet road conditions. Many of the roadways that these crashes occurred on were found to have inadequate lighting features, which would largely contribute to the trend of fatal crashes occurring in non-daylight conditions. These crashes were most commonly head on or angle crashes.

## Recommended Countermeasures

Corridor wide and location specific countermeasures were identified for Site 3. The recommended countermeasures include the following:

- Street lighting is not provided on either the north or south side of SW Martin Highway within the study segment limits. Based on the lack of lighting infrastructure and the prevalence of nighttime crashes it is recommended to install lighting throughout the corridor.
- Based on the high number of wet road crashes (33%) which is greater than the state average of 18%, it is recommended to improve road friction (increase skid resistance) along the corridor.
- Provide intersection illumination, specifically at SW Martin Highway and SW Allapattah Road.
- Provide centerline and shoulder rumble strips east of SW Allapattah Road.

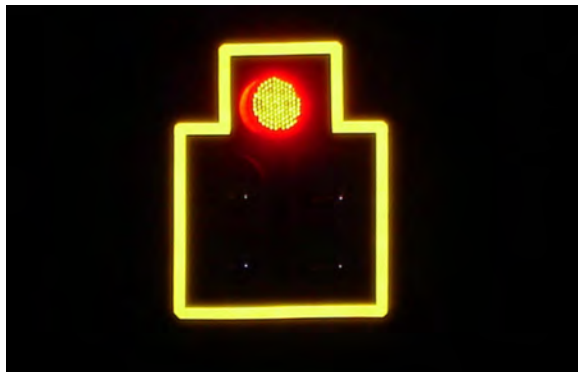
The below figure provides a summary of the recommendations.



## Future Project Initiatives

As Martin County conducts annual assessments to identify roadway safety and efficiency concerns, it is crucial to consider additional project needs and improvements that may arise in the future. The project types and scope elements detailed in **Table 3** are based on FHWA Proven Countermeasures that are both applicable and feasible for implementation within Martin County. These countermeasures have been proven effective in enhancing safety and can serve as a valuable resource to further support the county’s Vision Zero initiatives. For each project type listed in the table, a set of safety countermeasures that directly address that matter are provided. These scope elements range from quickly implementable, cost-effective solutions to network-wide systematic conversions and can include, but are not limited to:

- Intersection improvements
- Bicycle and pedestrian safety enhancements
- Speed management measures
- Roadway lighting upgrades
- Roadway geometry modifications
- Distracted driving mitigation



Example of Backplate with Retroactive Backplate (Source: South Carolina DOT)



Example of Median with Pedestrian Refuge Islands (Source: MCB OCC)



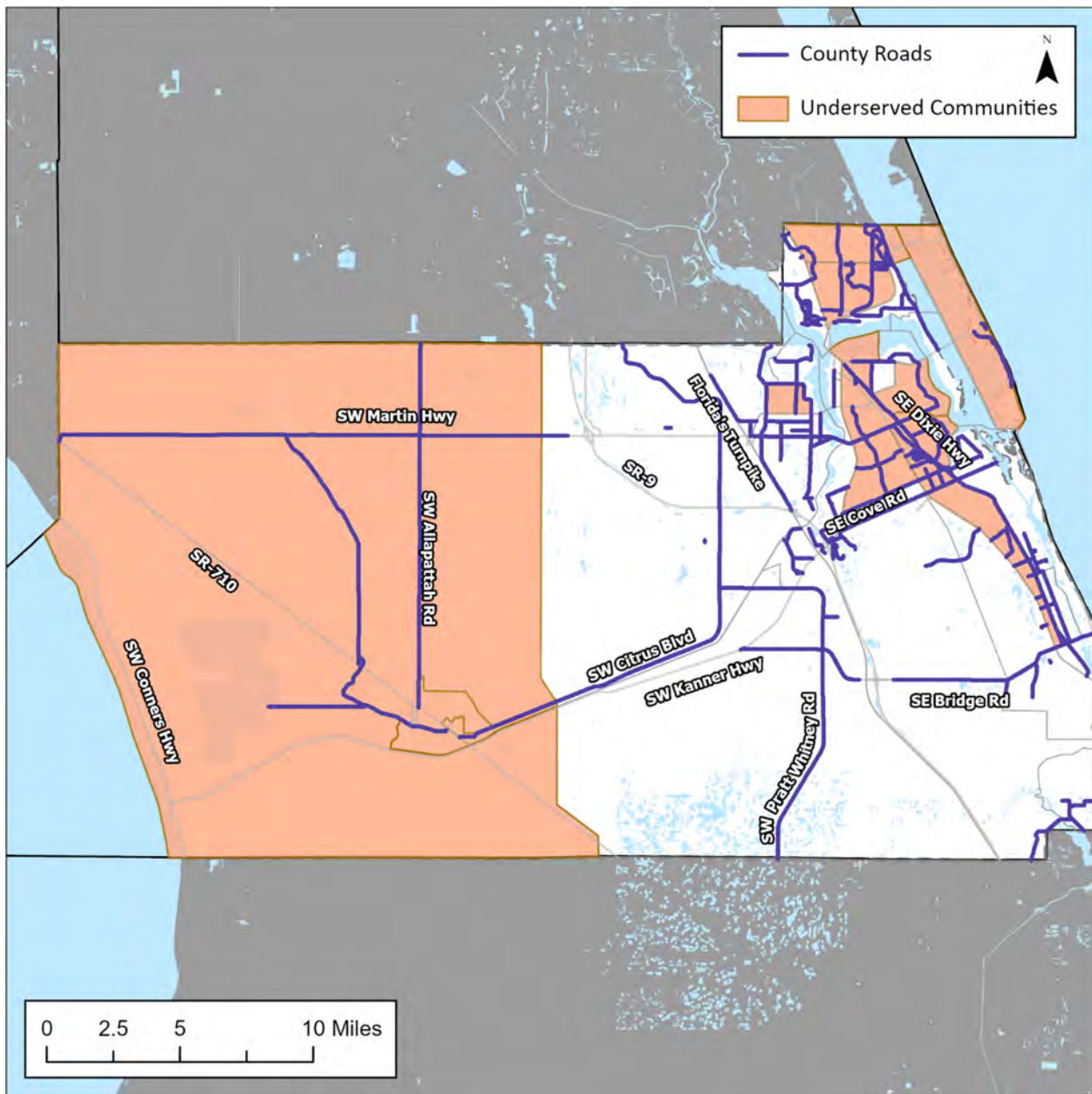
Example of Median Barrier (US-1 Miami-Dade County)



Example of Low-Cost Treatment for Horizontal Curve Safety (Source: MCB OCC)

Table 3		
	Project Type	Scope
Construction	<b>School and Recreation Safety</b>	<ul style="list-style-type: none"> <li>• Crosswalk markings</li> <li>• Raised crosswalks</li> <li>• Pedestrian Hybrid Beacons (PHB)</li> <li>• Curb extensions</li> <li>• Eliminating sidewalk gaps</li> <li>• ADA compliance</li> </ul>
	<b>High Speed Streets</b>	<ul style="list-style-type: none"> <li>• Lane departure mitigation</li> <li>• Median barriers</li> <li>• Road diet</li> <li>• Speed limit reduction</li> <li>• Speed feedback signs</li> <li>• Wildlife crossings</li> </ul>
	<b>Enhanced Pedestrian and Bicycle Crossings</b>	<ul style="list-style-type: none"> <li>• Active crossing infrastructure (e.g., PHBs, flashers)</li> <li>• Refuge islands</li> <li>• Crosswalk markings</li> <li>• Lighting</li> </ul>
	<b>Traffic Signals</b>	<ul style="list-style-type: none"> <li>• Backplates with retroreflective borders</li> <li>• Modernization</li> <li>• Phase enhancements</li> <li>• Retiming</li> <li>• Interconnects</li> <li>• Rail safety</li> </ul>
	<b>Complex Intersections</b>	<ul style="list-style-type: none"> <li>• Intersection control evaluation</li> <li>• Access management</li> <li>• Signal upgrades</li> <li>• Protected intersections</li> </ul>
	<b>Enhanced Protection Projects</b>	<ul style="list-style-type: none"> <li>• Streetscape</li> <li>• Curb extensions</li> <li>• Separated bike lanes</li> <li>• Lighting</li> </ul>
	Technology and Data	<b>Big Data</b>
<b>Smart Cities Infrastructure &amp; ITS</b>		<ul style="list-style-type: none"> <li>• Passive detection</li> <li>• Interconnection</li> <li>• Wireless communications</li> <li>• Smart school zones</li> <li>• Cameras</li> <li>• Sensors</li> </ul>

# Equity Assessment



Within Martin County there are four census tracts that are designated by the United States Department of Transportation (USDOT) to be Areas of Persistent Poverty (AOPP) and Historically Disadvantaged Communities (HDC). In order to determine these tracts, USDOT takes into account data for 22 indicators collected at the census tract level and grouped into six (6) categories: transportation access disadvantage, health disadvantage, environmental disadvantage, economic disadvantage, resilience disadvantage, and social equity disadvantage. Two of the recommended sites fall within these areas, on SW Martin Highway and SE Dixie Highway.

Specific focus is placed on these areas, and their population makeup, when proposing project recommendations within these corridors. For instance, the local elementary and middle school within Census Tract 12 (“Port Salerno”), noted as an AOPP and HDC, are both located within the borders of SE Dixie Highway and US-1/SE Federal Highway, yet these schools draw from neighborhoods “beyond” these highways, requiring students to cross these arterial roadways twice each day. Given significantly-high numbers of youth living in poverty (41 percent) within the census tract, it is likely that many students walk or bicycle to school. This awareness of current conditions, and attention to serving disadvantaged communities, contributed to recommendations focused on improving pedestrian facilities along SE Dixie Highway. In addition to such specific infrastructure improvements, the general geographic focus on the SE Dixie Highway and US-1/SE Federal Highway corridors is motivated by a desire to decrease disparities between communities in the County, in terms of the rate of serious injury and fatality crashes.

# MEASURING PROGRESS



## Measuring Progress

Monitoring the effectiveness of implemented transportation programs and projects ensures that projects are generating positive outcomes. A data-driven process that evaluates the progress toward eliminating serious injuries and fatalities through recommended roadway safety projects was completed in the development of the Martin MPO Vision Zero Plan (2022). The strategy ensures annual public and accessible reporting on the success of implemented projects and programs along with an element that recommends analyzing the effectiveness of investments in roadway safety projects. To maintain consistency and accuracy in reporting, it is recommended to employ the project evaluation methodology and performance measures outlined in the Martin MPO Vision Zero Plan. These established evaluation methods and metrics provide a standardized framework for assessing the effectiveness of projects. By utilizing this methodology, the county can compare the results of different projects and identify best practices for future transportation initiatives.

The Vision Zero plan suggests an evaluation process consisting of the following:

1. Conduct before/after traffic and safety data collection for roadway projects.
2. Publish annual report noting trends related to key Vision Zero performance metrics.

The Vision Zero plan provides a table detailing desired outcomes, performance measures, and the responsible agency for different Safe Streets initiatives such as Speed Management techniques and Safety Countermeasures. The referenced table is on pages 35-39 of the Martin MPO Vision Zero Plan (2022). Lastly, the Biennial Crash Surveillance Report will be the County's mechanism to track the progress of eliminating fatalities and serious injury crashes over time.

