



# BROWARD MPO BICYCLE & PEDESTRIAN SAFETY ACTION PLAN

MARCH 2018

Broward **MPO**  
Metropolitan Planning Organization  
*Bicycle & Pedestrian*  
**SAFETY ACTION PLAN**



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To order additional copies of the Bicycle and Pedestrian Safety Action Plan, contact the Broward MPO. The Bicycle and Pedestrian Safety Action Plan is also posted on the Broward MPO's website: [BrowardMPO.org](http://BrowardMPO.org)

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## Letter from the Broward MPO Executive Director

The Broward Metropolitan Planning Organization (MPO) is committed to protecting all users of the transportation system and making safety our highest priority. Unfortunately, every year many people are seriously injured or lose their lives on our roadways. People who walk and ride bikes are the most vulnerable among these roadway users. The statistics related to bicycle and pedestrian deaths and serious injuries highlight an ongoing problem in our transportation network. We must take further action, break down our professional silos, and work together on an inclusive approach to roadway safety.

Each statistic represents a human life. We have made the commitment to the safety of our transportation system and recognize there is always more we can do together to save lives. The Bicycle and Pedestrian Safety Action Plan is the foundation for this interdisciplinary effort to address our safety issues and work harder to protect our most vulnerable roadway users.

Safer roadways cannot be achieved through engineering solutions alone. Bicycle and pedestrian safety also involves enforcement, education, encouragement, and evaluation. We incorporated these five E's into the development of the Bicycle and Pedestrian Safety Action Plan. We identified problem areas through a data driven approach, and applied a holistic method for addressing our region wide bicycle and pedestrian safety issues. The Advocacy Team that helped us draft the Plan included a diverse set of agency partners, law enforcement, and community advocates to ensure a variety of perspectives and encourage the participation of multiple partners in the implementation of the plan.

This process involves you. Together, we can influence this change by altering behaviors and modifying the conditions to reverse our past trends. The Broward MPO is confident in leading this partnership to promote bicycle and pedestrian safety. The endorsement of this Plan by our MPO Board provides a path forward to collectively work with all advocates to increase safety and reduce deaths and serious injuries on our roadways to zero. Join us in our call to action as part of this plan to help Set the Stage, Create Safe Streets, Prevent Aggressive Behavior, and Bring All Hands on Deck.

Sincerely,  
Greg Stuart, Executive Director

# EXECUTIVE SUMMARY

Broward County consistently ranks as one of the most dangerous places to walk and bike in the country<sup>1</sup>, with an average of 5-6 crashes involving walking or bicycling happening per day. Over 80 percent of those crashes result in someone being injured or killed.

The Broward Metropolitan Planning Organization’s (MPO) Bicycle and Pedestrian Safety Action Plan aims to create a safer walking and bicycling environment in Broward County. The plan aims to do this by identifying “Calls for Action” that focus on areas where institutional changes should be explored. Beyond the “Calls for Action” the plan also includes preliminary strategies and ideas for how change can be accomplished.

In order to create the plan, a study team conducted an in-depth analysis into the systemic walking and bicycling safety issues in the County. Multiple factors were included in the analysis, examples include crash statistics, land uses, demographics,

and existing walking and bicycling facilities. Utilizing this data, the team worked with a group of advocates for walking and bicycling safety to identify five demonstration sites. The sites were chosen as representative examples of conditions in Broward County. Field reviews during the morning and evening were conducted to identify pedestrian and bicycling safety related issues. Additionally, the study team worked with the advocates and other key stakeholders, such as the municipalities and law enforcement officers, to identify walking and bicycling safety issues experienced in the county.

To move the Broward region forward, this Action Plan identifies key action items, partner organizations, and time frames to guide the work of the MPO and its partners in improving walking and bicycling safety. The Action Plan serves as a foundation to improve safety for all roadway users in the Broward region by shifting the transportation focus from moving cars to moving people utilizing four calls to action:



## SET THE STAGE

Enact transportation and land use plans and policies that better supports all users and all modes of transportation.



## CREATE SAFE STREETS

Implement complete streets projects and evaluation measures that go beyond a focus on vehicles and prioritize walking, bicycling, and riding transit.



## PREVENT AGGRESSIVE BEHAVIOR

Enhance training of law enforcement officers and the public on pedestrian and bicycle safety laws, conduct targeted enforcement, and take legal action.



## ALL HANDS ON DECK

Coordinate an identified diverse group of advocates that will lead and support moving forward an agreed upon vision for pedestrian and bicycle safety.

## CALLS TO ACTION

## PRIORITY ACTION ITEMS

Set the Stage

Identify areas throughout the County where bicyclists and pedestrians are the priority movement

Create Safe Streets

Implement “quick build” temporary projects that showcase innovative bicycle and pedestrian infrastructure

Prevent Aggressive Behavior

Align design standards with the bicycle and pedestrian safety goals for the region

All Hands on Deck

Institute a district-wide bicycle and pedestrian safety school education program

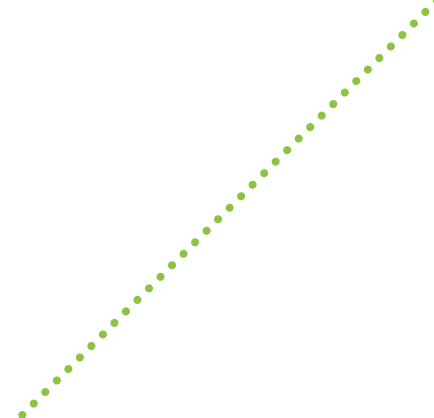
Create an educational program with law enforcement that focuses on bicycle and pedestrian laws

<sup>1</sup> 2016 Dangerous by Design report published by the National Complete Streets Coalition



# TABLE OF CONTENTS

- 4 EXECUTIVE SUMMARY
- 5 TABLE OF CONTENTS
- 6 WHAT IS AN ACTION PLAN?
- 7 WHY NOW?
- 29 CALLS FOR ACTION
- 33 ACKNOWLEDGMENTS



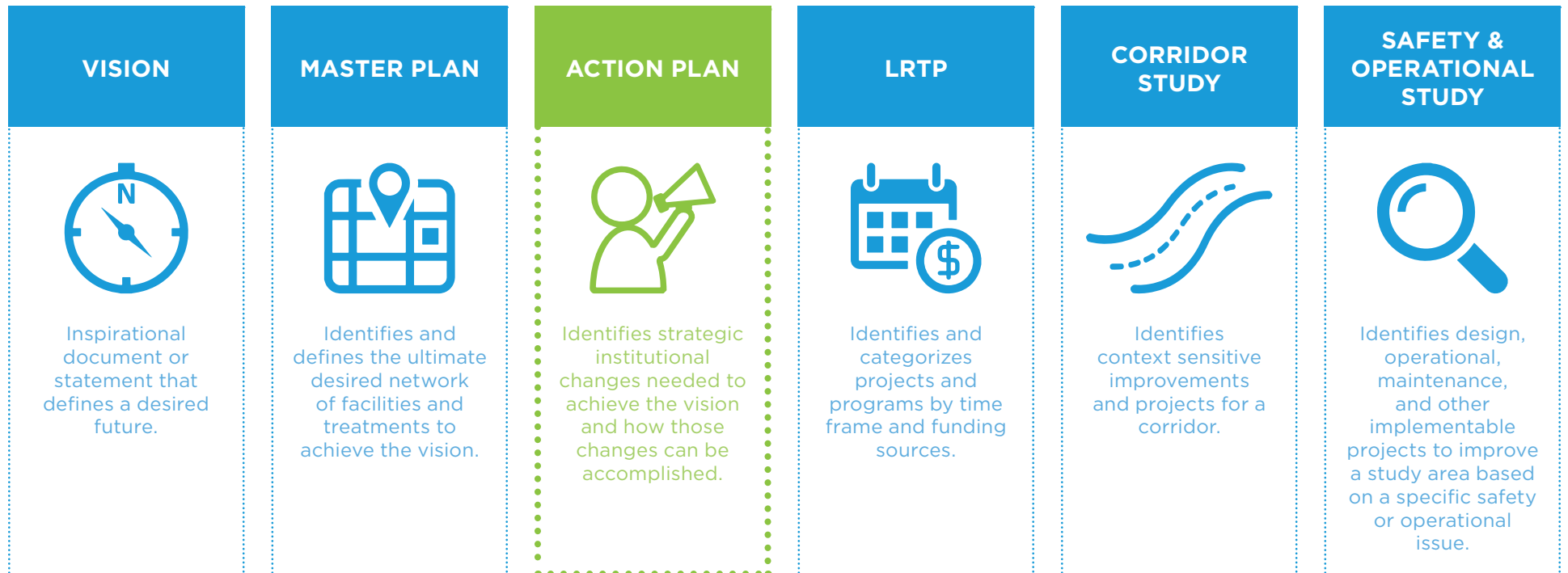
# WHAT IS AN ACTION PLAN?

The Broward MPO's Bicycle and Pedestrian Safety Action Plan (BPSAP) is a plan to improve safety for all roadway users in the Broward region by shifting the transportation focus from moving cars to moving people.

This Action Plan is one step in the process towards this transformation and fits as one of several pieces in the planning process and specifically within Broward MPOs on-going efforts. As shown in the figure below, several other types of studies will be used to identify specific projects to move forward. However, the Action Plan identifies institutional changes that will provide a baseline for future development of plans and programs.

By following the steps laid out in this plan, the region will be able to transform itself into one that:

- prioritizes walking and bicycling through providing safe and comfortable facilities;
- encourages people to walk and bike through educational campaigns and physical amenities;
- enforces laws related to walking and bicycling safety with a focus on aggressive behavior from drivers;
- evaluates the impact of changes to hold agencies accountable for outcomes; and
- brings together agencies to work towards a common goal.



# WHY NOW?

The 2016 *Dangerous by Design* report published by the National Complete Streets Coalition highlights an ongoing problem for Broward residents who walk and/or ride bicycles on our roadways. The State of Florida was home to the top 7 metropolitan areas with the highest pedestrian danger index with the Broward-Miami-Dade region ranking 11th overall in this study. The facts are clear – the Broward region is suffering from a roadway safety crisis. You are more likely to die in a car crash than be murdered in Broward County. If transportation were looked at in the way that public health is, the current state of the health impacts caused by our transportation system should be considered a public health crisis. Action must be taken to address these issues in order to create a safer environment for Broward’s residents. The time to tackle this problem is now, however, this effort must begin by recognizing the interdisciplinary and complex nature of improving bicycle and pedestrian safety.

The issue of bicycle and safety is a multi-faceted problem that cannot be solved by funding, design, or paradigm shifts alone. A more comprehensive approach including more enhanced facilities, enforcement, and education is required. The Broward MPO recognizes the complexity of this issue and is tailoring its efforts to seek a remedy to balance the role of the automobile in our society while accommodating other modes of transport. The Broward MPO’s Bicycle and Pedestrian Safety Action Plan (BPSAP) is the first of many steps in applying this holistic approach.

As a region, the Broward MPO and its partners are seeking to build upon the nearly \$300 million investment in Complete Streets projects with complementary engineering, education, enforcement, encouragement, and evaluation efforts through the development of this BPSAP. This plan also builds upon partner efforts, such as Vision Zero, in order to support the recent push to drive down bicycle pedestrian deaths and serious injuries in Broward using more than engineering solutions alone. The goal of the BPSAP is to recommend safety countermeasures (infrastructure and non-infrastructure) and identify potential hot spots for bicycle and pedestrian crashes throughout the county.

Fortunately, transportation planning and engineering work around the country has ushered in a more progressive approach to addressing bicycle and pedestrian safety. From buffered and protected bicycle lanes and high visibility crosswalks to law enforcement education and engaging safety awareness campaigns, national examples are providing a new foundation for roadway safety. The BPSAP draws from these examples using a data-driven approach to develop recommendations and countermeasures targeted to address Broward’s bicycle and pedestrian safety issues. Through ongoing and well-established partnerships, the Broward MPO and its peers are in a unique position to leverage this network and work toward implementing the recommendations outlined in this plan.

You are more likely to die in a car crash than be murdered.



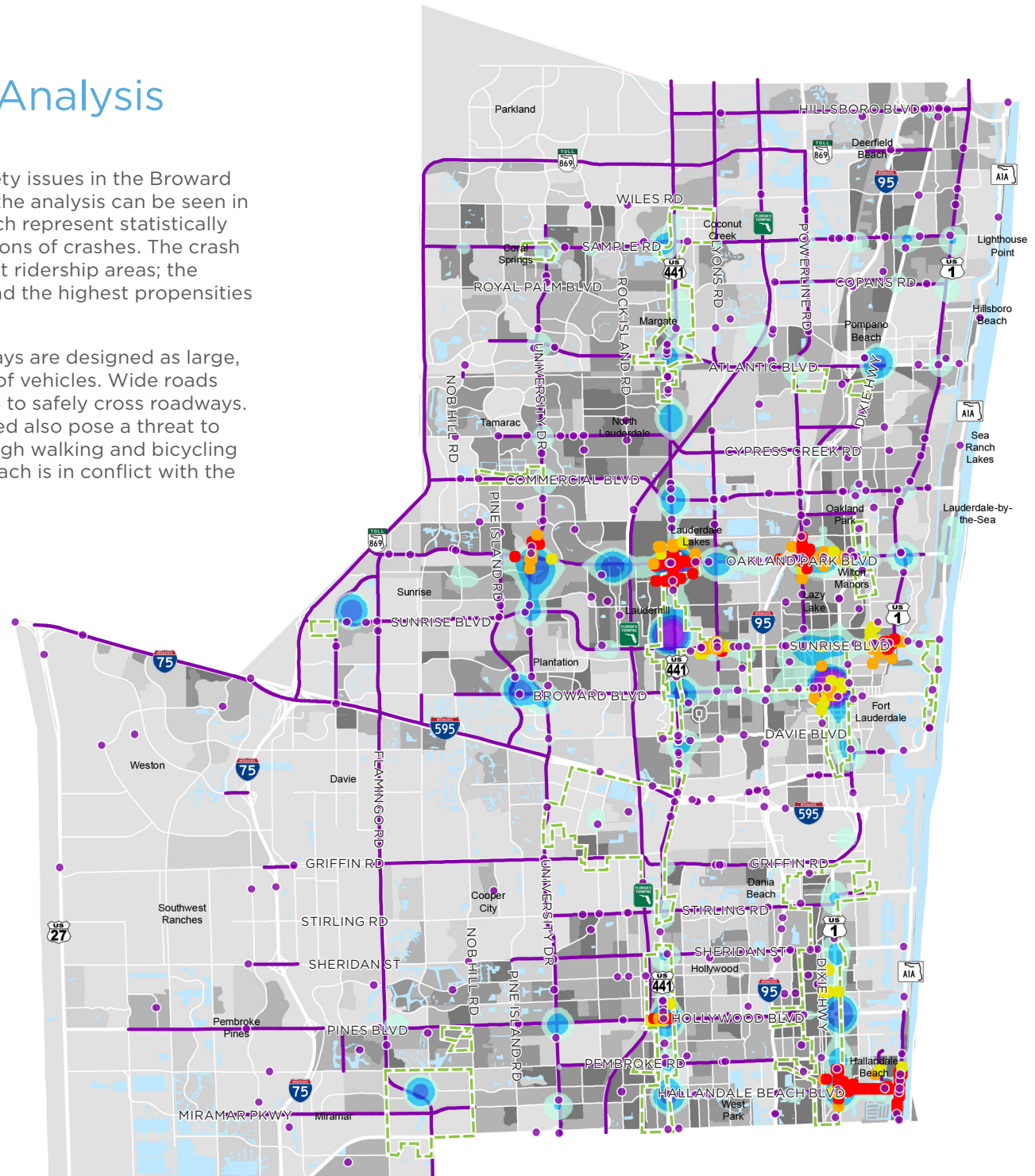
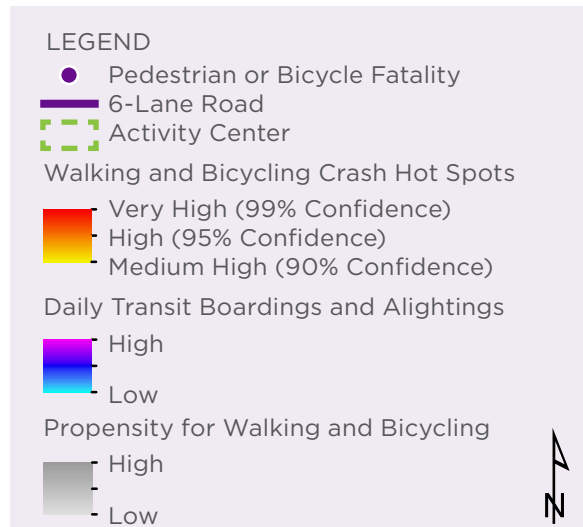
Source: Florida Department of Law Enforcement, 2010-2015 Crime Data; Signal Four Analytics 2010-2015 Crash Data.

# County-Wide Data and Analysis Results

A detailed analysis of the walking and bicycling safety issues in the Broward region was conducted for this study. The results of the analysis can be seen in **Figure 1**. The analysis revealed crash hot spots, which represent statistically significant (i.e. not random) geographic concentrations of crashes. The crash hot spots in the region correlate with the high transit ridership areas; the areas with the highest land use intensity and mix; and the highest propensities for walking, bicycling, and riding transit.

In the crash hot spot areas, a majority of the roadways are designed as large, high-speed roadways that prioritize the movement of vehicles. Wide roads such as this pose significant barriers for pedestrians to safely cross roadways. The higher speeds and volumes typically experienced also pose a threat to bicyclists and pedestrians. In areas where there is high walking and bicycling activity or a desire for it, this roadway design approach is in conflict with the surrounding land use context.

**Figure 1** Data Analysis Results





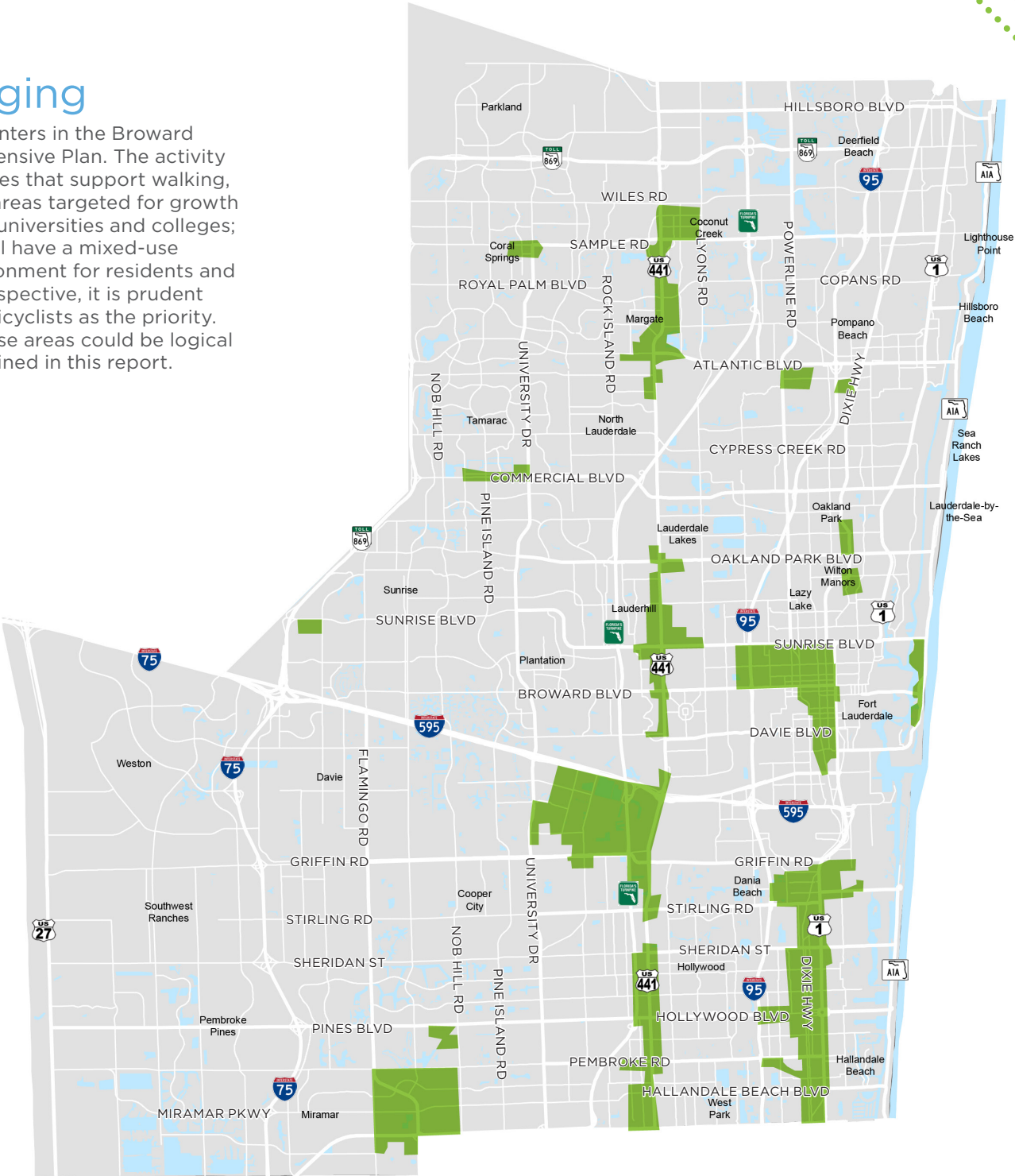
# The Land Uses are Changing

The areas shown in **Figure 2** are the major activity centers in the Broward region as defined by the Broward County's Comprehensive Plan. The activity centers include a mix of future land uses and intensities that support walking, bicycling, and transit. Activity centers represent the areas targeted for growth and may include municipal downtowns; transit hubs; universities and colleges; employment centers; and other areas that have or will have a mixed-use character which supports a live, work, and play environment for residents and businesses. From a bicycle and pedestrian safety perspective, it is prudent that these areas are designed with pedestrians and bicyclists as the priority. Also, given the characteristics of activity centers, these areas could be logical places to first begin implementing the strategies outlined in this report.

**Figure 2** Broward Region's Activity Centers

LEGEND

Activity Center

Source: Broward County GIS, 2015

## The Roads are Wide & Don't Match the Land Use Context

The Broward region's development pattern is generally supported by a largely spaced grid network made up of wide roadways. This causes challenges for walking and bicycling, as it creates long distances between destinations.

This network design may also create an environment where the major roads have to be widened over time in order to carry the amount of traffic needing to use them to get from point A to point B. Throughout the region, these roads typically carry higher traffic volumes (50,000+ vehicles) and higher posted speeds (40+ MPH), both of which can create an uncomfortable and potentially unsafe space for those walking and bicycling. **Figure 3** (on the following page) provides a map of walking and bicycling crashes that have resulted in deaths in relation to 6-lane roadways.

Historically as roads have been widened throughout the Broward region the design has focused on how to best move vehicles. Many facilities in the region traverse several communities with different physical and built environments; however, the roads typically have the same design and posted speeds.

This creates a scenario where drivers have the same driving behavior and expectations even though the built environment around them has changed. For example, the speed limit on Broward Boulevard in Fort Lauderdale changes from 40 MPH just west of I-95 to 35 MPH in the downtown area; however, the roadway design changes minimally. The safety concern is that drivers under this condition will naturally continue to drive at faster speeds and may not be expecting potential conflict with those walking and bicycling. Ideally, once entering the downtown environment, the roadway design would change indicating to drivers that they are in an environment with high volumes of people walking and bicycling (whether along the street or at frequently-spaced crossings) naturally making them drive slower.



20 MPH

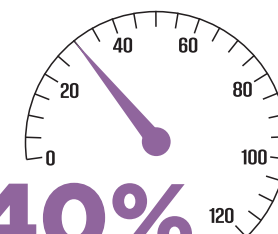


10%

Likelihood of Fatality  
or Severe Injury



30 MPH

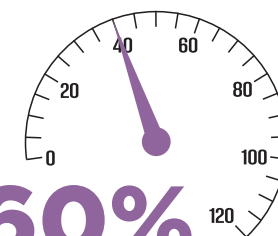


40%

Likelihood of Fatality  
or Severe Injury



40 MPH



60%

Likelihood of Fatality  
or Severe Injury

# 61%

of all deadly crashes occurred on roads with speeds 40+ MPH, even though those roads only make up **6%** of the network




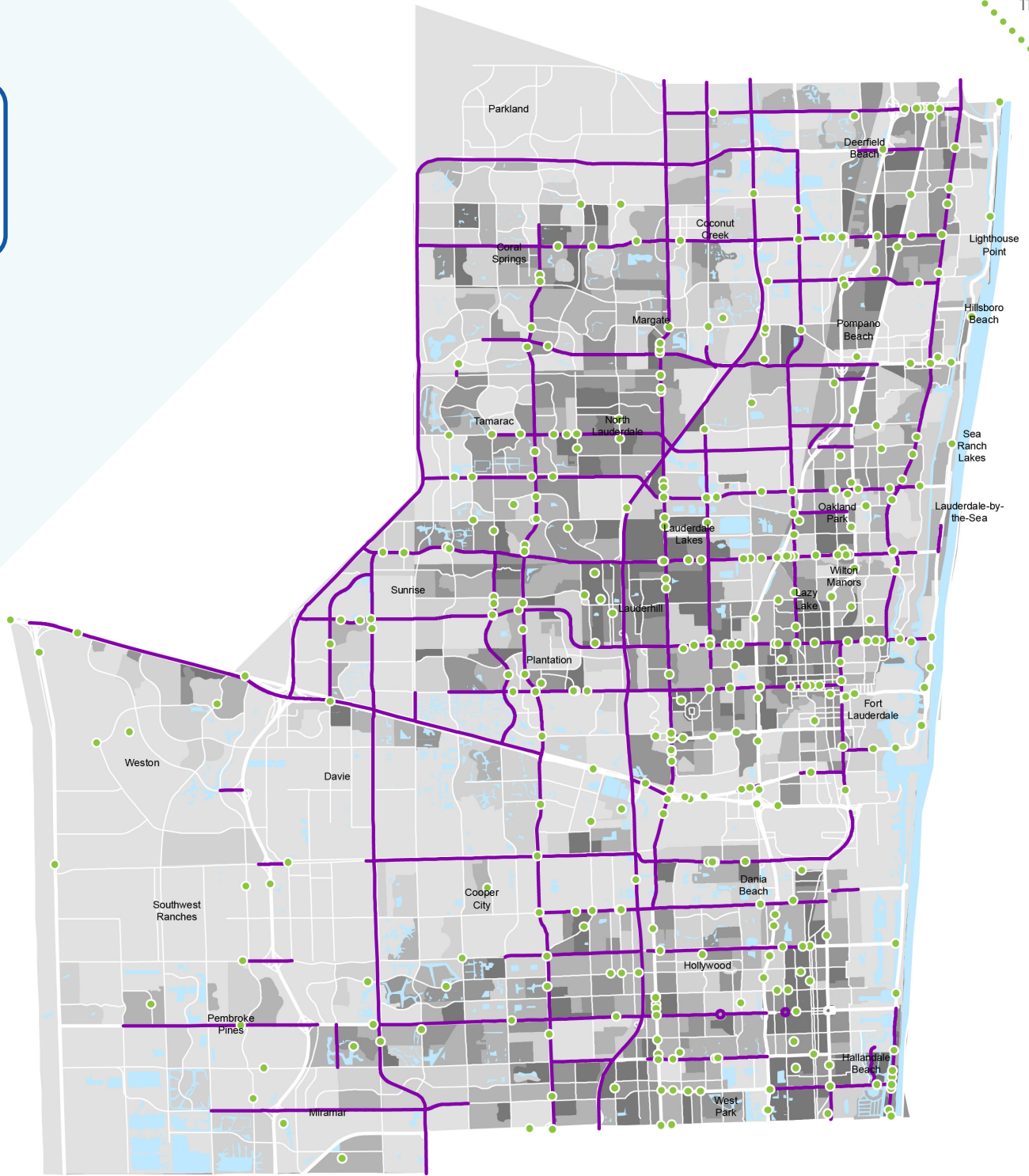
# 56%

of deadly crashes occurred on **4%** of the network (made up of 6-lane roads)

Figure 3 Fatalities + 6-Lane Roads

LEGEND

- Pedestrian or Bicycle Fatality
- 6-Lane Road

Source: Broward County Transit, 2015

## There is an Incomplete Network for Bicyclists & Existing Bicycling Facilities Aren't Comfortable for All Rider Types

The bicycling network is disconnected, as shown in **Figure 4**. Only three-percent of the roadway network in the region currently has a bike lane or shared use path. Studies have shown that a completed network of comfortable bicycling infrastructure for all age levels will provide the best opportunities for increasing bicycle safety and ridership.<sup>1</sup> Comfort may include but is not limited to wider infrastructure, infrastructure not spaced closely to traffic travelling at high speeds, intersection design treatments for bicyclists, etc. A 2016 study considered 10 U.S. cities that have worked to improve their bike networks over the last 15 years. The study found that all 10 cities saw increases in bicycling along with a decrease in crashes, fatalities, and severe injuries.<sup>2</sup> Another study for 74 U.S. cities found that dense networks and direct connections were most likely to increase bicycle commuting.<sup>3</sup>

National and international practices and standards suggest the use of speeds and traffic volumes as factors when determining bicycling facilities. The most well-known of these is The Netherlands' Design Manual for Bicycle Traffic; however, national guidance is reflecting this as well in places like Maryland, Oregon, and Pennsylvania. Experts suggest that on higher speed and volume roadways, bicycle facilities should be separated by a physical barrier to provide the most comfortable and safe riding experience.<sup>4</sup>



**3%** of network has a bike lane



**25%** of bike crashes are occurring in places with bike lanes or shared use paths

1 Boldry, J., Anderson, M., and Roskowski, M. (May 2017). *Defining Connected Bike Networks*. Pedestrian and Bicycle Information Center. Chapel Hill, NC.

2 Pucher, R. & Buehler (2016). *Safer Cycling Through Improved Infrastructure*. *American Journal of Public Health*, 106(12), 2089-2091.

3 Schoner, J.E. & Levinson, D.M. (2014). *The missing link: bicycle infrastructure networks and ridership in 74 US cities*. *Transportation*, 41, 1187-1204.

4 The Metropolitan Washington Council of Governments & Montgomery County Planning Department. (July 2014). *Montgomery County Bicycle Planning Guidance*. Montgomery County, MD.

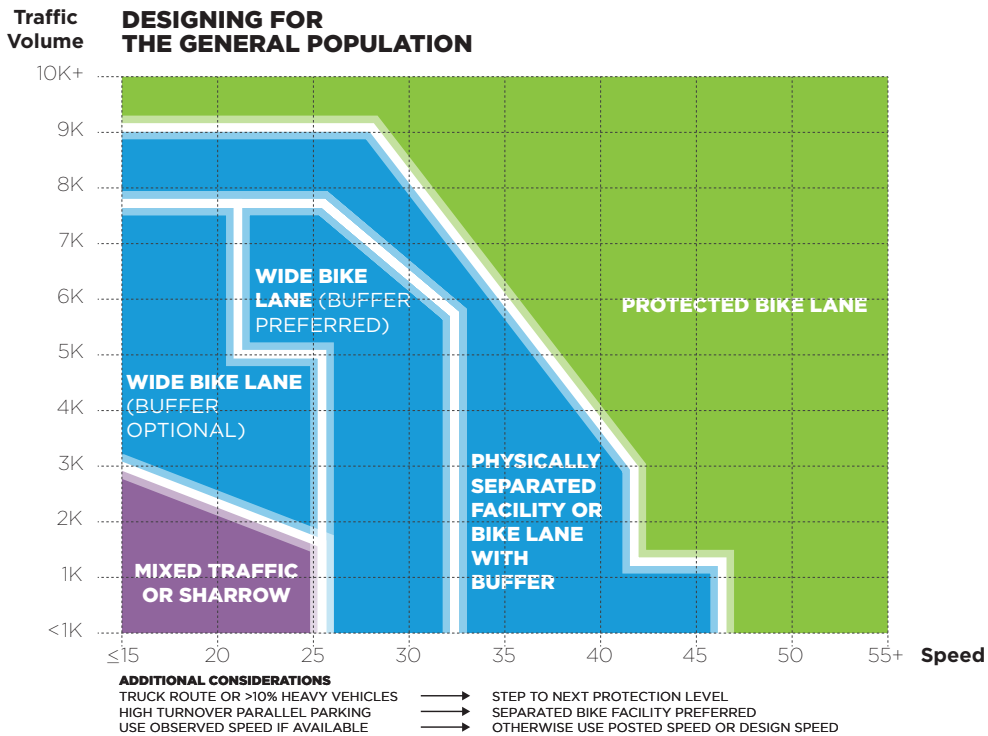
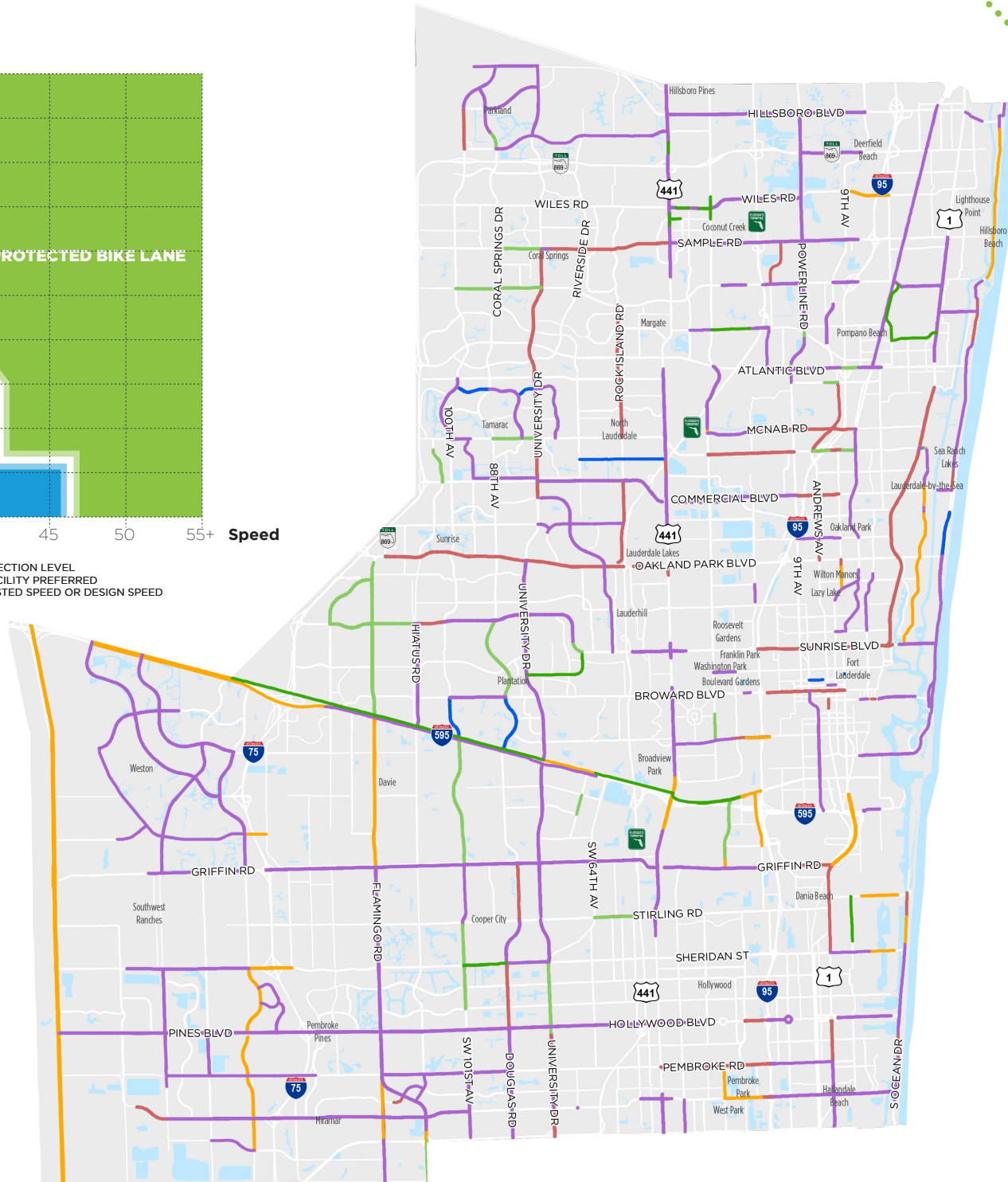
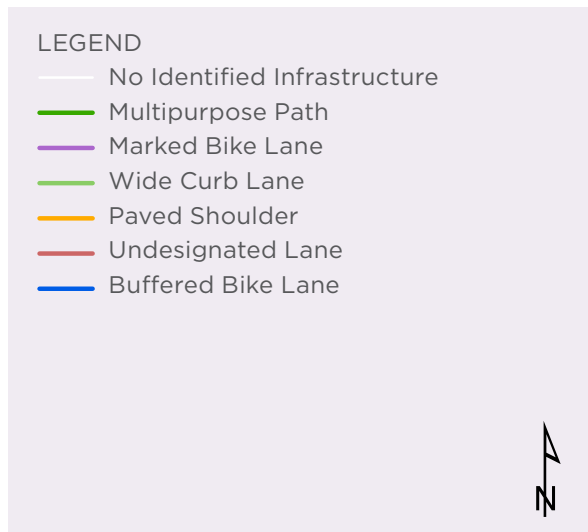


Figure 4 Existing Bicycling Facilities

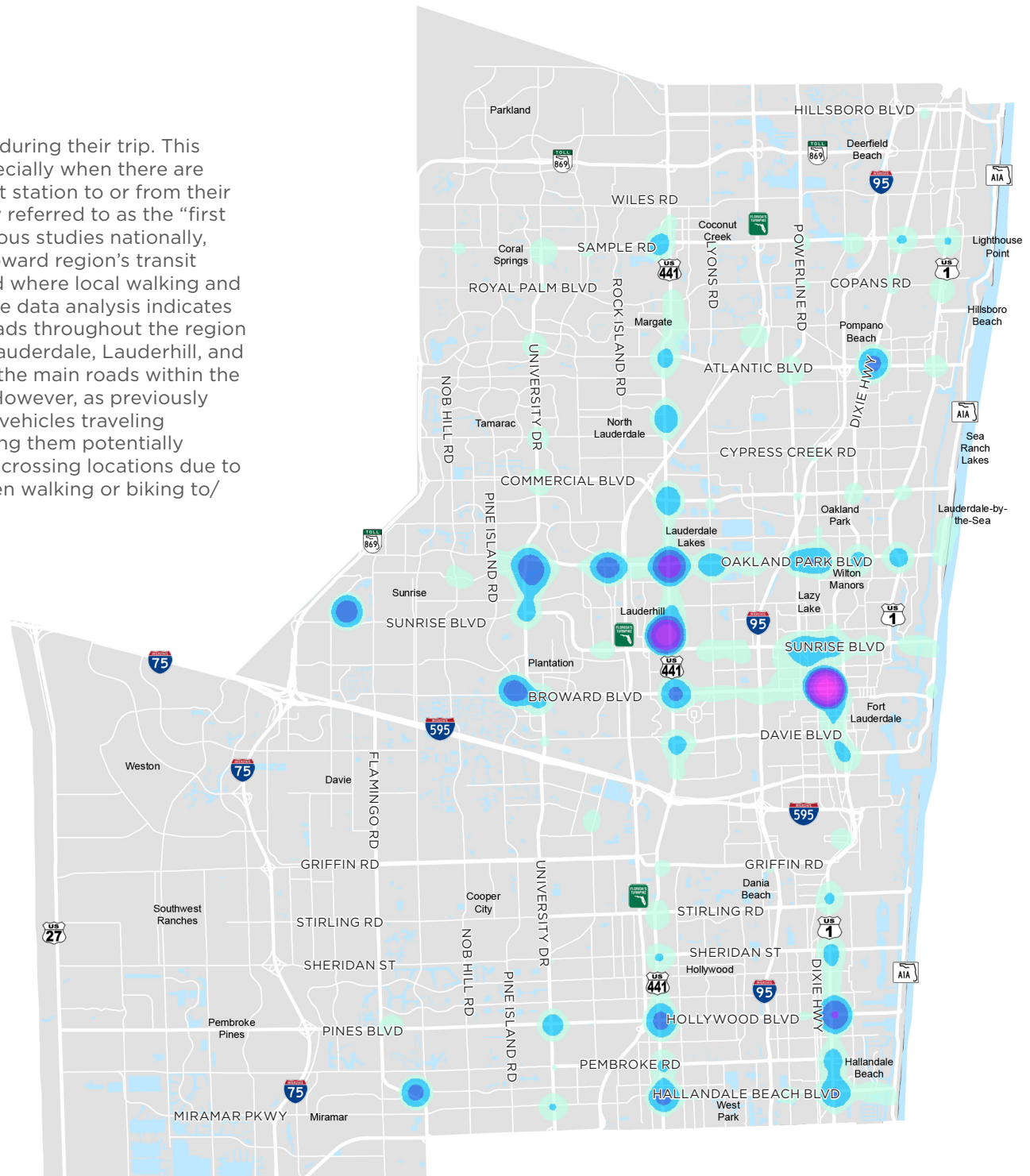
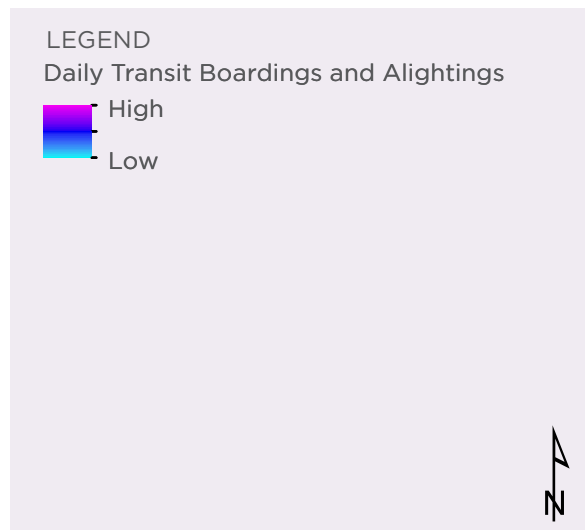


Source: FDOT, 2017; CARS 2010-2014 Crash Data; Signal Four Analytics 2010-2015 Crash Data.

# Transit Ridership

Every transit rider walks and/or bikes at some point during their trip. This portion of the trip can, at times, be challenging, especially when there are missing walking or bicycling facilities from the transit station to or from their final destination. This stretch of the trip is commonly referred to as the “first mile” or “last mile” and has been the focus of numerous studies nationally, regionally, and locally. As part of the BPSAP, the Broward region’s transit ridership was analyzed in order to better understand where local walking and biking activity occurs. As can be seen in **Figure 5**, the data analysis indicates that transit ridership is concentrated along major roads throughout the region with the highest concentrations in downtown Fort Lauderdale, Lauderhill, and Lauderdale Lakes. Providing access to transit along the main roads within the network is a good first step for maximizing access. However, as previously discussed, these facilities are designed primarily for vehicles traveling at higher speeds, which makes walking or biking along them potentially uncomfortable and unsafe. A lack of frequent street crossing locations due to long block lengths also may make it challenging when walking or biking to/from transit stations and final destinations.

**Figure 5** Existing Transit Ridership



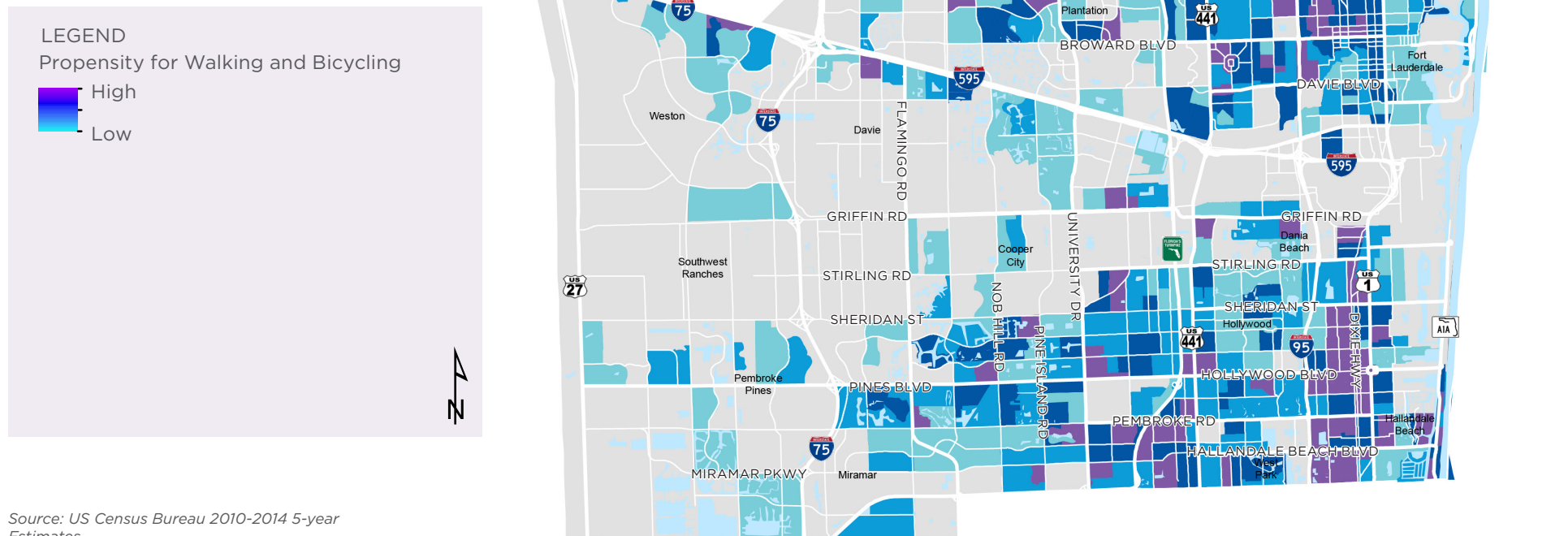
# Propensity for Walking and Bicycling

An analysis was conducted to identify areas where there is a propensity for walking and bicycling based on socioeconomic characteristics. This type of analysis is not based on where the highest concentrations of people are currently walking or bicycling, but does identify areas where the highest potential for walking and bicycling could occur if comfortable, connected, and convenient infrastructure was present. For the BPSAP, these areas could also be priority areas for the region to invest bicycle and pedestrian infrastructure for the purpose of increasing safety. The analysis considers the following characteristics:

- Population density (persons per acre)
- Employment density (number of employees per acre)
- Children (persons under 18 per acre)
- Seniors (persons over 65 per acre)
- Poverty rate (persons with income below the federal poverty line per acre)
- Households without access to a car (households without access to a car per acre)
- Commute mode (people who walk, bike, or ride transit to work)

**Figure 6** shows that the areas with the highest propensity for walking and bicycling, in many cases, match the areas with activity center designations. The current areas with the highest propensities can be found in Hallandale Beach, Hollywood, Fort Lauderdale, Lauderdale, Lauderdale Lakes, Oakland Park, and North Lauderdale.

**Figure 6** Propensity for Walking and Bicycling



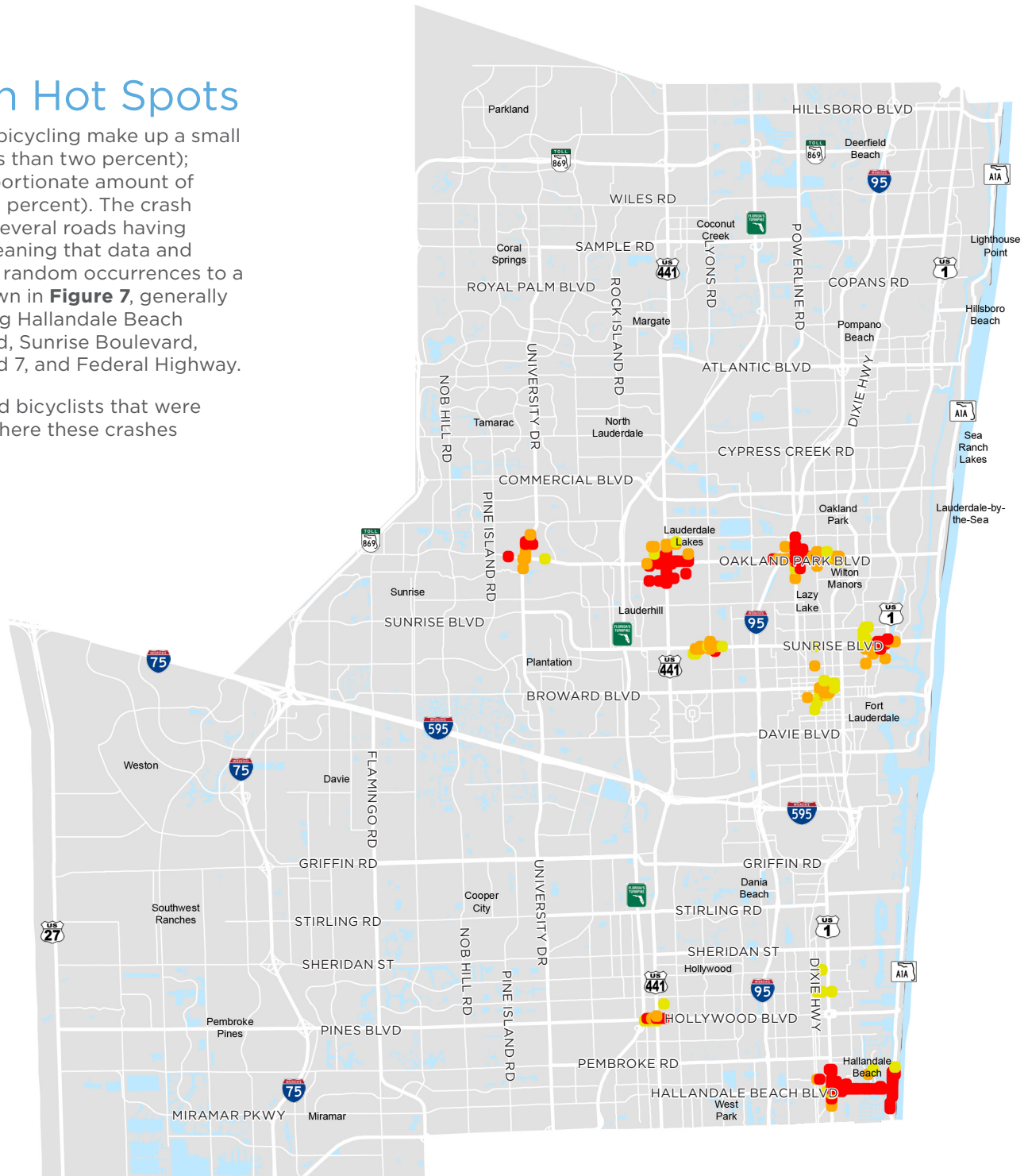
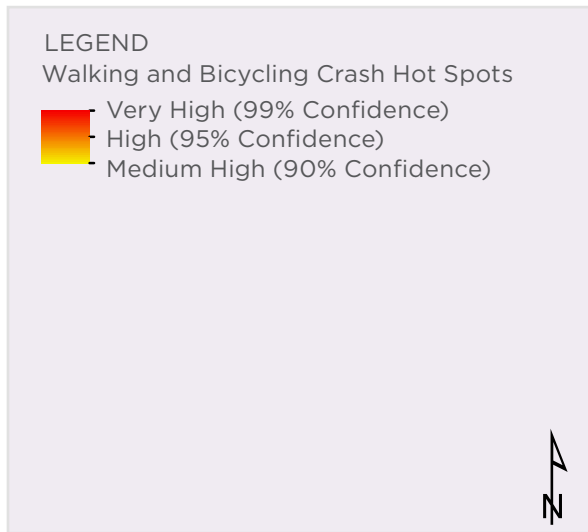
Source: US Census Bureau 2010-2014 5-year Estimates

# Pedestrian/Bicycle Crash Hot Spots

Based on the most recent census data, walking and bicycling make up a small share of the region's transportation travel mode (less than two percent); however, pedestrians and cyclists make up a disproportionate amount of those involved in fatalities in the region (thirty-seven percent). The crash locations are dispersed throughout the region with several roads having statistically significant concentrations of crashes (meaning that data and analysis shows that the crash concentrations are not random occurrences to a high level of confidence). These concentrations, shown in **Figure 7**, generally occurred along wider, highly travelled roads including Hallandale Beach Boulevard, Hollywood Boulevard, Broward Boulevard, Sunrise Boulevard, Oakland Park Boulevard, University Drive, State Road 7, and Federal Highway.

**Figure 8** shows the crashes involving pedestrians and bicyclists that were injured or killed. While there are concentrations of where these crashes occurred, it is a Countywide and systemic problem.

**Figure 7** Walking and Bicycling Crash Hot Spots, 2010-2014




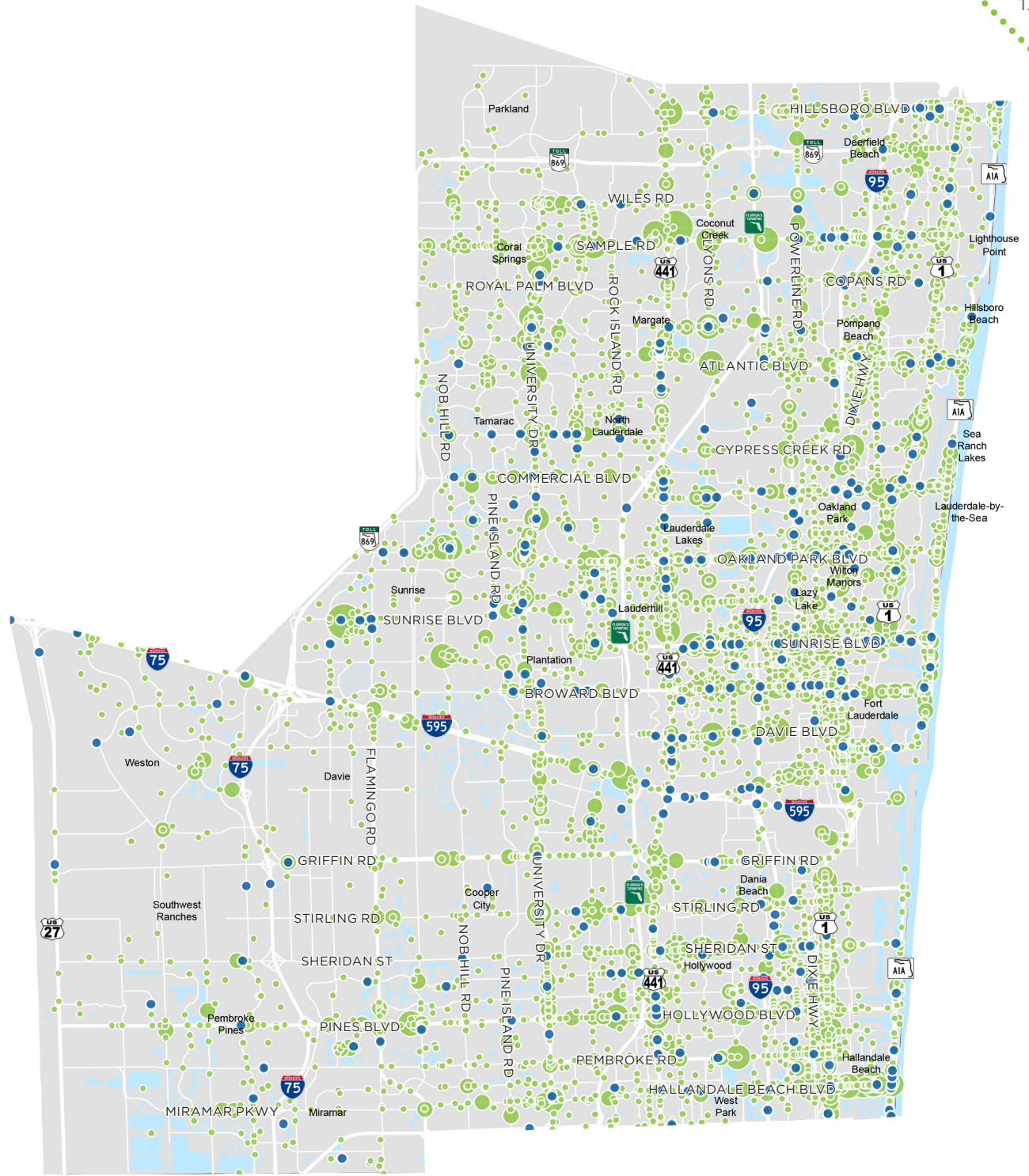
Source: FDOT, 2017; CARS 2010-2014 Crash Data; Signal Four Analytics 2010-2015 Crash Data.



**Figure 8** Walking and Bicycling Crashes that Resulted in an Injury or Fatality, 2010-2014

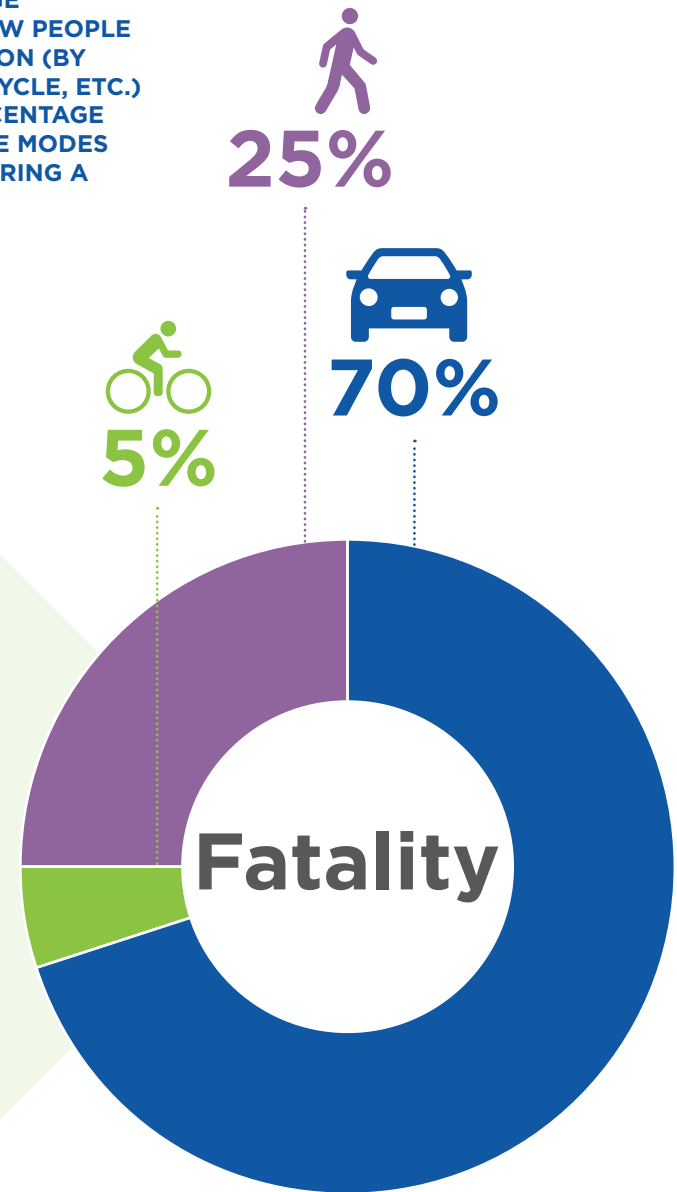
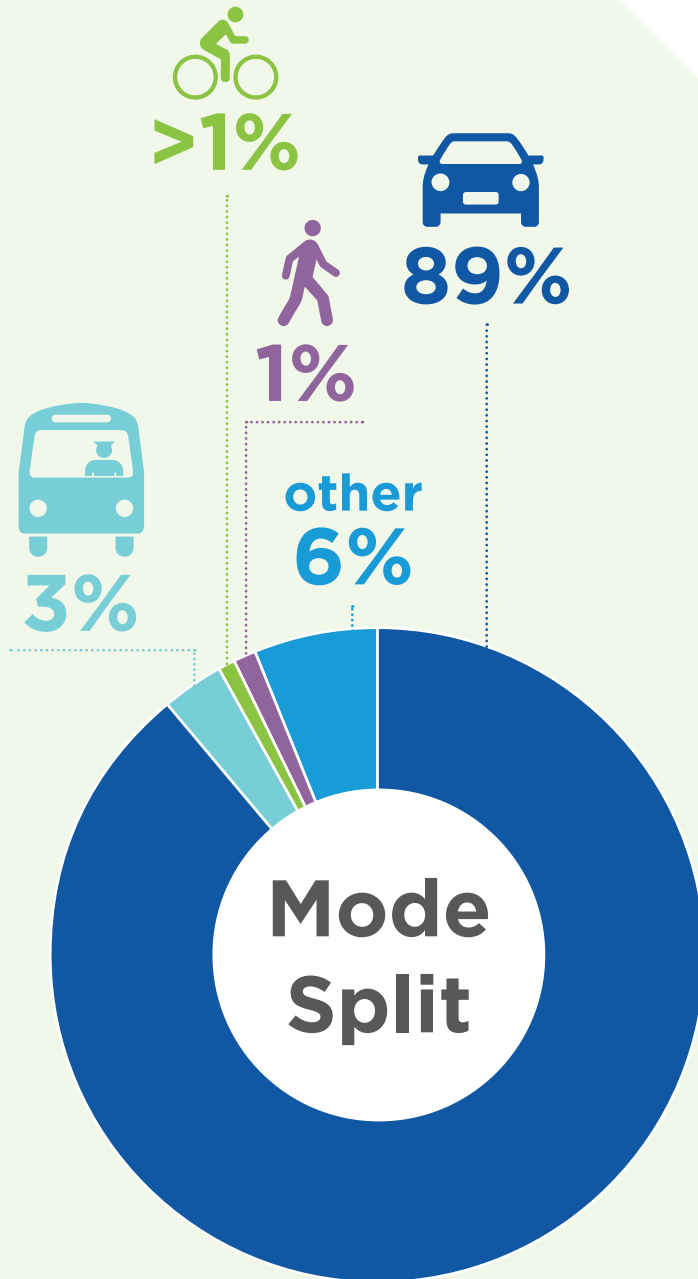
**LEGEND**

- Pedestrian or Bicycle Fatality
- Pedestrian or Bicycle Injury Crash
- Fewer Injury Crashes
- Most Injury Crashes

Source: FDOT, 2017; CARS 2010-2014 Crash Data; Signal Four Analytics 2010-2015 Crash Data.

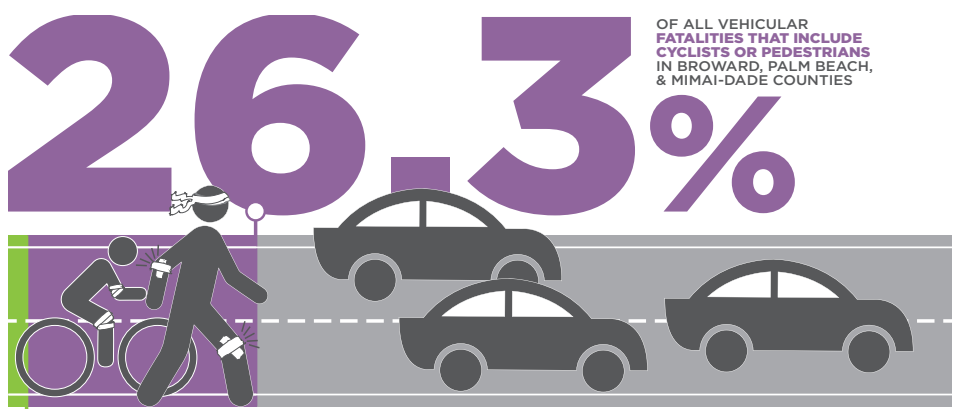
THE FOLLOWING GRAPHICS SHOW A PERCENTAGE BREAKDOWN OF HOW PEOPLE TRAVEL IN THE REGION (BY BUS, CAR, FOOT, BICYCLE, ETC.) AND ALSO THE PERCENTAGE BREAKDOWN OF THE MODES OF TRAVEL USED DURING A FATAL CRASH.



# Pedestrian and Bicycle Crashes Impact Lives and Our Economy

Every life is priceless. One preventable crash is one too many and each crash has the potential to cause physical, mental, emotional, and financial stress to victims. Crashes also have significant economic impact on our society and can result in unemployment for those involved. Nationwide, funding for improvements to the walking and bicycling network makes up only a small amount of total funding for transportation improvements. With that said, the Broward MPO has planned over \$120 Million in bicycle and pedestrian improvements over the next five years. To see a reduction in the frequency and severity of pedestrian and bicyclist related crashes, the region should continue to prioritize funding towards improving the existing pedestrian and bicycle infrastructure and creating new system connections.

THE UNITED STATES SPENDS \$1 FOR EVERY \$228 LOST TO CYCLIST/PEDESTRIAN INJURY OR FATALITY



Source: Southeast Florida 2040 Regional Transportation Plan, 2015.

# CALLS FOR ACTION

The BPSAP process concluded with an agreed to set of “Calls for Action” needed to improve bicyclist and pedestrian safety in the Broward region. The steps taken to arrive here involved a comprehensive collection of data and analysis; interviews with stakeholders such as Elected Officials, law enforcement, school board members, etc.; field reviews; and multiple working sessions with an advisory team that provided technical guidance and insight. Together, these steps helped the region collectively better understand the policies, programs, and standards that created the built environment within the Broward region today and ultimately what changes are needed.

## The Advocacy Team

A strong and united partnership between various groups in the Broward region is needed if the actions identified in the BPSAP are to be implemented. As a first step to creating this united front, a team of walking and bicycling advocates was formed to help guide its development. This diverse team, known as the Advocacy Team (A-Team), consists of representatives from the following groups:

- The Broward Metropolitan Planning Organization
- The Florida Department of Transportation
- Cooper City (representing western Broward communities)
- North Lauderdale (representing central Broward communities)
- City of Fort Lauderdale (representing eastern Broward communities)
- Broward County residents
- City of Fort Lauderdale Police Department
- Broward Sheriff’s Office
- Broward County Public Schools and the School Board of Broward County
- Broward County Highway Construction and Engineering
- Broward County Planning
- Broward County Transit
- FLIPANY (a non-profit organization)
- University of Miami UHealth
- American Association of Retired Persons (AARP)
- Transportation Engineering and Planning Consultants

The A-Team met at three key points in the project process and gave direction on the following components:

- The BPSAP goals, objectives, and performance measures
- The Countywide data assessment findings
- The five demonstration areas, the goals of the demonstration site field reviews, and its findings
- The “calls to action” to be included in the BPSAP
- The agencies or other parties needed to move forward actions
- The draft BPSAP
- The performance measures to be used to monitor the effectiveness of the actions taken once implemented

A-Team member responsibilities included but were not limited to:

- Being a champion of walking and bicycling safety and the intended outcomes of the BPSAP;
- Being an advocate of the BPSAP recommendations to funding partners;
- Providing guidance and input throughout the project; and
- Helping spread the word about the BPSAP findings and recommendations and soliciting input from others.

*More detail on the Advocacy Team meetings is found in the Stakeholder Engagement Technical Memorandum.*

# Stakeholder Interviews

Various stakeholders within the transportation industry were interviewed for their individual insights regarding bicycle and pedestrian safety in the Broward region. These anonymously conducted interviews focused on identifying specific “road blocks” encountered when trying to implement walking and bicycling infrastructure related projects throughout their career. The following key issues were raised:

- FDOT, the MPO, the County, and the cities are interested in prioritizing innovative, low-cost projects that can be immediately implemented because they help gain buy-in. However, these projects inherently require the collaboration of multiple organizations to be successful, and there is no set process or standard for the coordination of funding, implementation, and evaluating/monitoring these types of projects. There is a desire to work together to set the expectations for these projects through a comprehensive process that has buy in from all potential partners.
- Broward County residents and leaders recognize that there is a walking and bicycling safety issue in the region. There is room for improvement in terms of the messaging and education on the issues, potential solutions, and required trade-offs to solving those issues. There is also an opportunity to obtain a stronger, unified voice to prioritize bicycle and pedestrian safety projects in the region. Having consensus to prioritize bicycle and pedestrian infrastructure will also help in navigating discussions with the community regarding real or perceived impacts the prioritization would have on vehicular modes of travel. In the past, there have been occurrences of bicycle and pedestrian projects not moving forward due to concerns of impact on vehicular travel. Determining collectively as a region how to handle these concerns will help ensure the region can implement the safety related projects needed to reduce deaths and serious injuries.

In addition to the feedback received from the anonymous interviews, the Broward MPO Board endorsed the following five priority actions to be taken as a first step following the conclusion of the BPSAP:

- Identify areas throughout the County where bicyclists and pedestrians are the priority movement
- Implement “quick build” temporary projects that showcase innovative bicycle and pedestrian infrastructure
- Align design standards with the bicycle and pedestrian safety goals for the region
- Institute a district-wide bicycle and pedestrian safety school education program
- Create an educational program with law enforcement that focuses on bicycle and pedestrian laws

# Demonstration Site Field Reviews

In order to gain a better understanding of the typical conditions for walking and bicycling in the Broward region, five demonstration sites were selected. The demonstration sites were chosen as representative examples of conditions in the Broward region for use in identifying systemic issues. The following criteria were applied when selecting the sites:

**DIVERSITY IN ROADWAY CHARACTERISTICS:** the type of road, the number of lanes, the posted speed limit, and the transit, pedestrian, and bicycling facilities of the demonstration site were considered.

**DIVERSITY IN LOCATIONS:** the location of the demonstration site within the Broward region were considered.

**DIVERSITY IN AREA TYPES:** the land uses surrounding the demonstration site were considered.

**DIVERSITY IN DEMOGRAPHICS:** the social and economic characteristics surrounding the demonstration site were considered.

The five demonstration sites selected were:

SITE TYPE	SITE LOCATION
Urban Corridor (UC)	Sunrise Blvd. (NE 13th Ave. to Middle River)
Urban Intersection (UI)	Broward Blvd. at Andrews Ave.
Suburban Corridor (SC)	Oakland Park Blvd. (NW 84th Ave. to Atrium West)
Suburban Intersection (SI)	Oakland Park Blvd. at SR 7
Beach Access Corridor (BAC)	Hallandale Beach Blvd. (NE 4th Ave. to NE 26th Ave.)

Samplings intended to represent all municipalities within the County

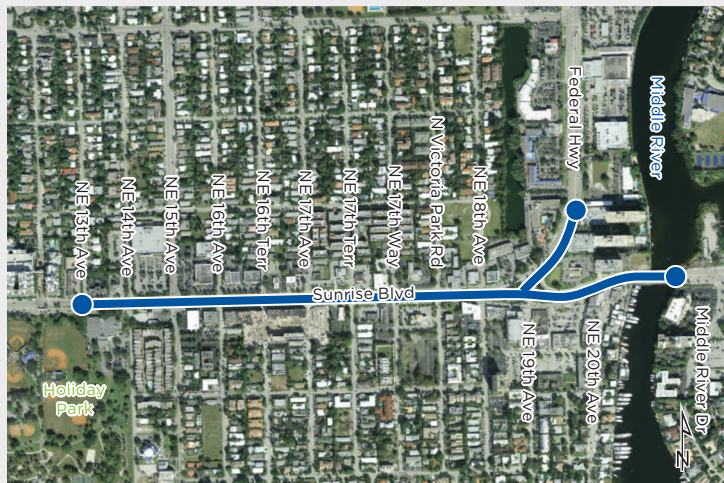
Field reviews were completed for each location in July of 2016 during the daytime and nighttime hours. The following pages include summaries of each demonstration site field review.

More detail on the Demonstration Site field reviews and recommendations is found in the Demonstration Sites Technical Memorandum.

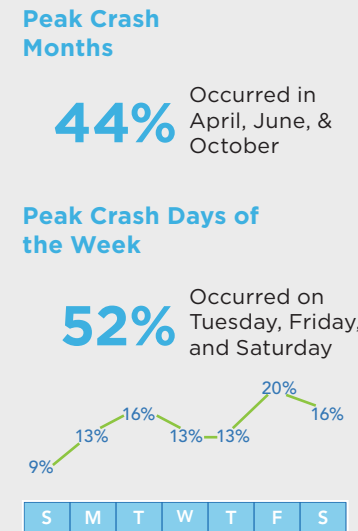
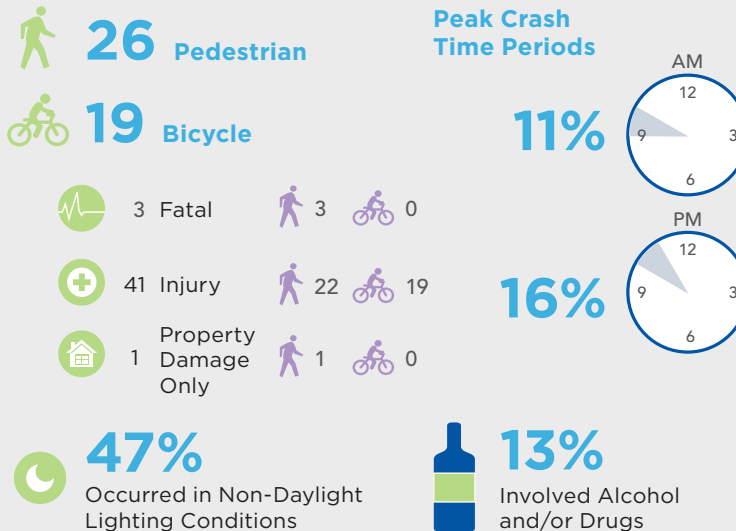
# URBAN CORRIDOR DEMONSTRATION SITE

## Sunrise Boulevard from NE 13th Avenue to Middle River

### STUDY AREA | 1 Mile



### CRASH DATA - 2010 TO 2015



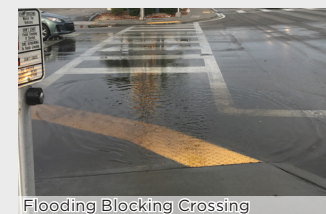
### ROADWAY CHARACTERISTICS



The corridor has a three lanes in each direction. It has intermittent right- and left-turn lanes. It also has median with intermittent landscaping, cobra style vehicular lighting, and dynamic message signs. The corridor has 5' - 7' sidewalks and no marked bike lanes or paved shoulders. The posted speed is 35 MPH. The land uses are redeveloping; new buildings front the street while older buildings and shopping centers are set behind large surface parking lots.

### FIELD REVIEW OBSERVATIONS

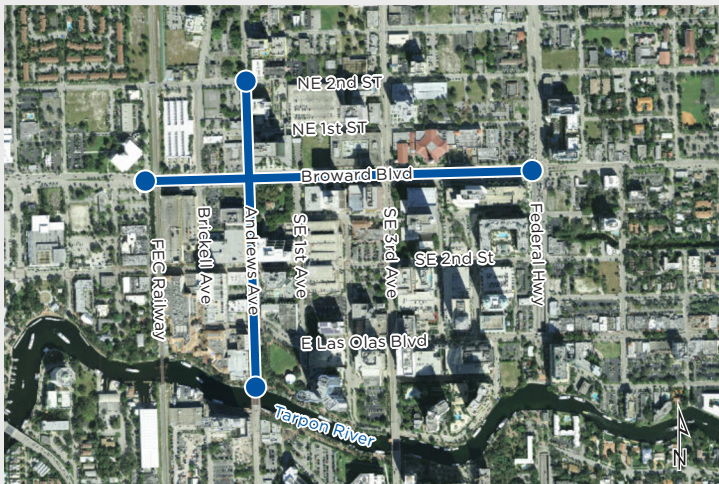
- No Bike Lanes
- Bicyclists Riding on Sidewalks
- Objects Blocking Sidewalks
- Narrow Sidewalks
- ADA Noncompliant Sidewalks and Ramps
- Missing Crosswalks
- Lack of Crossing Opportunities
- Illegal Mid-Block Crossings
- Frequent Driveways
- Poorly Marked Driveway Crossings
- Inattentive Drivers (Especially at Driveways and Intersections)
- Vehicles Blocking Crosswalks
- Lack of Shade/Shelter
- Lack of Bicycle Markings at Conflict Areas
- Poor Drainage
- Too Much/Poor Signage
- Long Signal Times



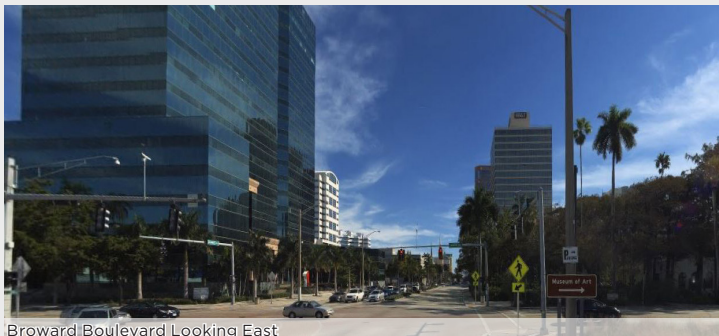
# URBAN INTERSECTION DEMONSTRATION SITE

## Broward Boulevard at Andrews Avenue

### STUDY AREA | Intersection Study



### ROADWAY CHARACTERISTICS



Broward Boulevard Looking East

Broward Boulevard has three lanes in each direction and Andrews Avenue has two lanes in each direction. Both roads are divided with intermittent right- and left-turn lanes. At the intersection, each leg has left turn lanes. The roads have cement or lightly vegetated medians and cobra style vehicular lighting. The corridor has 6' or wider sidewalks and no marked bike lanes, although Broward Boulevard has paved shoulders that could potentially be widened and converted into bike lanes in the future. The intersection is located in the most urban part of Fort Lauderdale and is surrounded by high rise, mixed use buildings arranged in a generally walkable manner.

### CRASH DATA - 2010 TO 2015

**33** Pedestrian

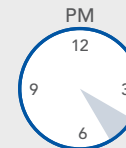
**22** Bicycle

1 Fatal	1	0
45 Injury	26	19
9 Property Damage Only	6	3

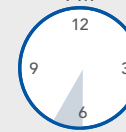
**49%** Occurred in Non-Daylight Lighting Conditions

#### Peak Crash Time Periods

**11%**



**14%**



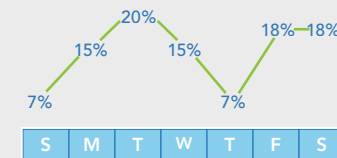
**18%** Involved Alcohol and/or Drugs

#### Peak Crash Months

**35%** Occurred in March & November

#### Peak Crash Days of the Week

**56%** Occurred on Tuesday, Friday, and Saturday



### FIELD REVIEW OBSERVATIONS

- Illegal Mid-Block Crossings
- Inattentive Drivers (Especially at Driveways and Intersections)
- Vehicles Blocking Crosswalks
- Speeding/Aggressive Driving
- ADA Noncompliant Sidewalks and Ramps
- No Bike Lanes
- Missing/Faded Crosswalks
- Lack of Crossing Opportunities
- Objects Blocking Sidewalks
- Broken/Out of Date Pedestrian Signage and Signals
- Poor Pedestrian Access to Adjacent Development
- Wide Intersection/Excessive Pavement/Wide Turn Radius
- Lack of Bicycle Markings at Conflict Areas
- Long Signal Times
- Poor lighting



Bicyclists Riding in the Shoulder Against Traffic



Pedestrian Desire Line



Pedestrian Crossing Mid-Block



Vehicle Parked on Sidewalk



Out of Date Pedestrian Signage

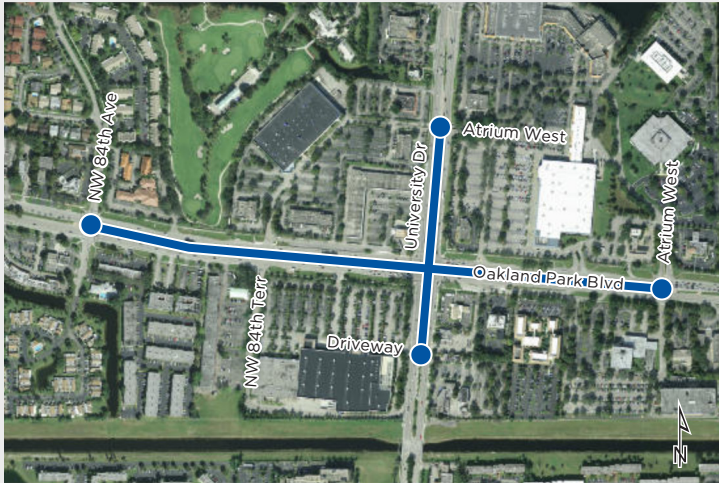


Vehicle Blocking Crosswalk

# SUBURBAN CORRIDOR DEMONSTRATION SITE

## Oakland Park Boulevard from NW 84th Avenue to Atrium West

### STUDY AREA | 1 Mile



### CRASH DATA - 2010 TO 2015

**28** Pedestrian

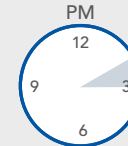
**9** Bicycle

- 1 Fatal
- 0
- 1
- 34 Injury
- 26
- 8
- 2 Property Damage Only
- 2
- 0

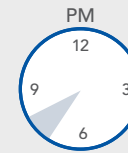
**51%** Occurred in Non-Daylight Lighting Conditions

#### Peak Crash Time Periods

**13%**



**18%**



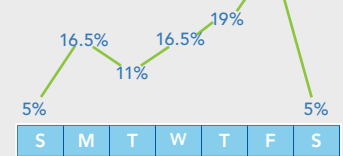
**0%** Involved Alcohol and/or Drugs

#### Peak Crash Months

**30%** Occurred in June & December

#### Peak Crash Days of the Week

**46%** Occurred on Thursday & Friday



### ROADWAY CHARACTERISTICS



Oakland Park Boulevard Looking East

The corridor has a three lanes in each direction. It has intermittent right- and left-turn lanes. There are access roads in some areas as well. It also has median with intermittent landscaping. The corridor has 5' - 6' sidewalks separated from the roadway; and while there are no marked bike lanes, it does have paved shoulders that could potentially be widened and converted into bike lanes in the future. The posted speed is 45 MPH. The land uses generally consist of auto-oriented shopping centers and big box retail set behind large surface parking lots.

### FIELD REVIEW OBSERVATIONS

- Illegal Mid-Block Crossings
- Inattentive Drivers (Especially at Driveways and Intersections)
- Vehicles Blocking Crosswalks
- Speeding/Aggressive Driving
- ADA Noncompliant Sidewalks and Ramps
- No Bike Lanes
- Missing/Faded Crosswalks
- Lack of Crossing Opportunities
- Objects Blocking Sidewalks
- Broken/Out of Date Pedestrian Signage and Signals
- Frequent Driveways
- Poorly Marked Driveway Crossings
- Wide Intersection/Excessive Pavement
- Lack of Bicycle Markings at Conflict Areas
- Long Signal Times
- Poor lighting



Excessive Pavement Width



Poor Lighting at Night



Faded Pavement Markings



Illegal Mid-Block Crossing



Out of Date Pedestrian Signage



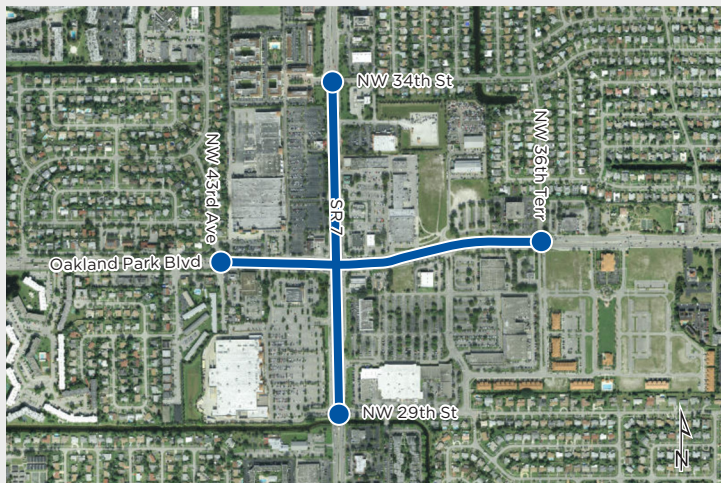
High Speed Turn Lane to Driveway



# SUBURBAN INTERSECTION DEMONSTRATION SITE

## Oakland Park Boulevard at SR 7

### STUDY AREA | Intersection Study



### CRASH DATA - 2010 TO 2015

**46** Pedestrian

**17** Bicycle

1 Fatal  
49 Injury  
13 Property Damage Only

1 Pedestrian  
37 Bicycle  
8 Pedestrian  
5 Bicycle

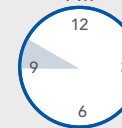
**32%** Occurred in Non-Daylight Lighting Conditions

#### Peak Crash Time Periods

**13%**



**11%**

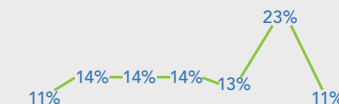


#### Peak Crash Months

**35%** Occurred in January, February, & August

#### Peak Crash Days of the Week

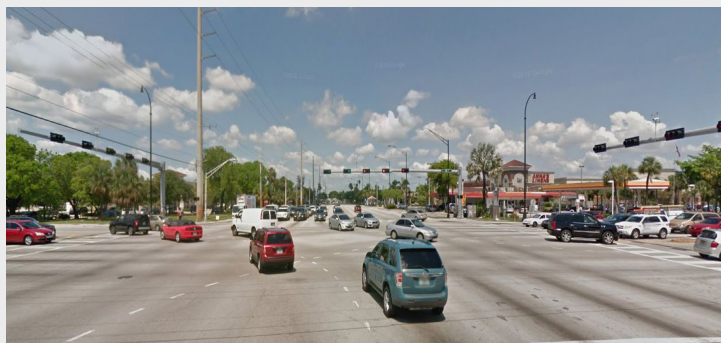
**23%** Occurred on Friday



**8%** Involved Alcohol and/or Drugs



### ROADWAY CHARACTERISTICS



Oakland Park Boulevard Looking West

Oakland Park Boulevard and SR 7 are each 6 lane, divided roads with intermittent right- and left-turn lanes. At the intersection, each leg has dual left turn lanes and right turn lanes. The roads have cement or lightly vegetated medians and cobra style vehicular lighting. The corridor has 6' sidewalks and no marked bike lanes, although SR 7 has paved shoulders that could potentially be widened and converted into bike lanes in the future. The intersection is surrounded by large shopping centers with big box stores and out parcel development set behind expansive surface parking lots.

### FIELD REVIEW OBSERVATIONS

- Illegal Mid-Block Crossings
- Inattentive Drivers (Especially at Driveways and Intersections)
- Vehicles Blocking Crosswalks
- ADA Noncompliant Sidewalks and Ramps
- No Bike Lanes
- Bicyclists Riding on Sidewalks
- Lack of Crossing Opportunities
- Objects Blocking Sidewalks
- Narrow Sidewalks
- Frequent Driveways
- Poorly Marked Driveway Crossings
- Poor Pedestrian Access to Adjacent Development
- Lack of Shade/Shelter
- Lack of Bicycle Markings at Conflict Areas
- Long Signal Times
- Buses Bunching and Stopped in Road
- Broken/Out of Date Pedestrian Signage and Signals



Pedestrians Crossing Mid-Block



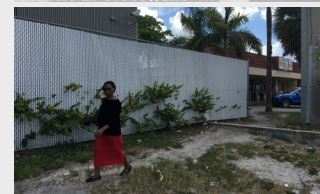
Bicyclists in Sidewalk



Vehicle in Crosswalk



Wide Driveway



Poor Connectivity to Destinations

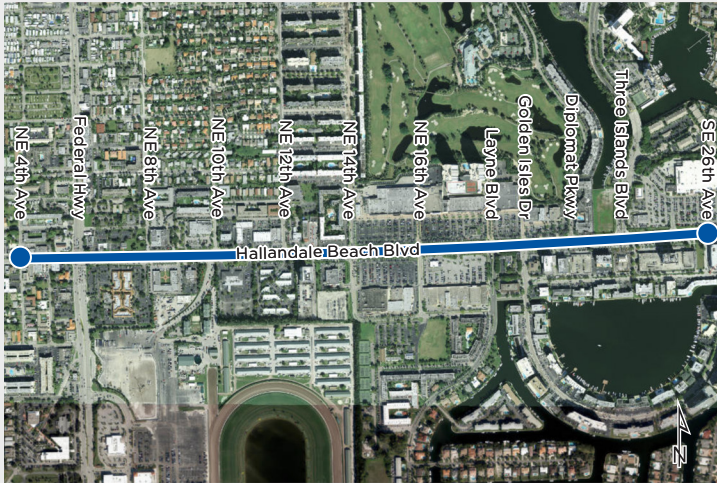


Poor ADA Compliance

# BEACH ACCESS CORRIDOR DEMONSTRATION SITE

## Hallandale Beach Boulevard from NE 4th Avenue to NE 26th Avenue

### STUDY AREA | 1.30 Miles



### CRASH DATA - 2010 TO 2015

**26** Pedestrian

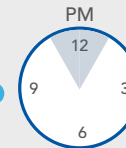
**62** Bicycle

1 Fatal	0	1
81 Injury	25	56
6 Property Damage Only	1	5

**16%**  
Occurred in Non-Daylight Lighting Conditions

#### Peak Crash Time Periods

**20%**



**10%**



**6%**  
Involved Alcohol and/or Drugs

#### Peak Crash Months

**35%** Occurred in January, June, & August

#### Peak Crash Days of the Week

**35%** Occurred on Monday & Thursday



### ROADWAY CHARACTERISTICS



Hallandale Beach Boulevard Looking West

The corridor has a three lanes in each direction. It has intermittent right- and left-turn lanes. It also has a heavily landscaped median and both pedestrian and vehicular lighting. The corridor has 5' - 7' sidewalks and 4' - 5' marked bike lanes. The posted speed is 35 MPH. The land uses mainly consist of new and/or well kept auto-oriented shopping centers set behind large surface parking lots.

### FIELD REVIEW OBSERVATIONS

- Narrow Bike Lanes
- Bicyclists Riding on Sidewalks
- Objects Blocking Sidewalks
- Frequent Driveways
- Poorly Marked Driveway Crossings
- Faded Pavement Markings
- ADA Noncompliant Sidewalks and Ramps
- Missing Crosswalks
- Lack of Bicycle Markings at Conflict Areas
- Skewed Intersection Geometry
- Poor Drainage
- Out of Date Pedestrian Signal Signage
- Obstructed Views at Crosswalks
- Long Signal Times



Objects Blocking the Sidewalk



Narrow Bike Lanes & Faded Markings



Bicyclists in sidewalks and Poorly Marked Driveway Crossings



Missing Pedestrian Crosswalks



Poor Visibility Due to Vegetation



ADA Noncompliance

# Synthesis of Pedestrian and Bicycle Issues

The data analysis findings, field reviews, Advocacy Team working sessions, and stakeholder interviews uncovered the following themes related to walking and bicycling in Broward County:

- There is an “identity crisis” between the road design and user needs
- The roads are not primarily designed to provide for a comfortable and convenient walking or bicycling experience
- Many users of the system are not following walking, bicycling, and driving laws
- Strategic partnerships are needed to see change

## There is an “identity crisis” between the road design and user needs.

The design of roadways within the Broward region traditionally has focused on the movement of vehicles and has not taken into account land use or other context in the design of a roadway. This can create potentially unsafe and uncomfortable conditions for those walking and cycling, especially in areas of high activity potential such as downtowns and urban areas, university and college campuses, schools, employment centers, and recreational areas.

In the Broward region a majority of land has developed more or less in a suburban-style creating what is referred to as sprawl. Under this scenario, the distance between getting from point A to point B is typically longer distance-wise when compared to an urban built environment. Where sprawl is present, the transportation network can be disconnected. A disconnected network further creates a scenario where wide roads are needed to carry large volumes of traffic generated from the isolated land use pattern. These longer distances and isolated development patterns have made it easier to drive than walk to destinations.

Specific to development, it is common to find that commercial and retail development sites have been designed to accommodate vehicular circulation and parking but typically lack comfortable and convenient pedestrian access and/or bicycle parking. Additionally, it is also common to see a lack of pedestrian connections between developments in these suburban style settings due to the assumption that trips between stores are being made using a vehicle.

Complimentary transportation system and land use plans and policies are needed to “set the stage” for implementing a system that supports and encourages walking, bicycling, and riding transit in addition to driving in the Broward region. A strong and unified partnership is needed between local, county, regional, and state-level agencies in order to see this change happen.

## The roads are not primarily designed to provide for a comfortable and convenient walking or bicycling experience.

Many of the roads in the Broward region have been built to suburban-style standards which focus on vehicular movement. Several industry guidebooks, such as the *Highway Capacity Manual* and *A Policy on Geometric Design of Highways and Streets* (often called “The Green Book”) have also historically primarily focused on vehicular throughput and vehicular safety. Within these manuals, guidance is given to design roadways to accommodate traffic at peak hours, which usually is comprised of 4-6 hours of the day. Using this guidance, the roads in the Broward region have been widened over time to accommodate peak hour conditions. This widening approach has affected the ease at which transportation agencies can build a comfortable and convenient walking and bicycling network. Specific challenges include:

- Streets without adequate pedestrian or bicycle facilities, resulting in bicyclists and pedestrians sharing sometimes narrow sidewalk space that creates potential new conflicts.
- Sidewalks with utilities located within them making it difficult for those with disabilities to navigate
- Wide intersections which creates long crossing distances for pedestrians.
- Long distances between pedestrian crossings at signalized intersections, which can encourage people to cross at unmarked and unprotected crossing areas mid-block.
- Long signal cycle lengths, resulting in long wait times for pedestrians at intersections.
- Fast vehicular speeds, causing bicyclists to avoid riding in the street.
- Large and/or complex designed intersections that have many conflict points for pedestrians to navigate.
- Fast-turning vehicles at intersections whether due to a red-turn-on-red movement or physical design features, making it uncomfortable for pedestrians when crossing.
- Lighting that only illuminates the street and not the sidewalk.

## Many users of the system are not following walking, bicycling, and driving laws.

In the Broward region, driving, walking and biking conditions can be challenging whether due to traffic, bad weather, or design and operational issues with the system. The laws citizens should abide by whether driving, walking or biking are not always adhered to and this can further exacerbate unsafe conditions for the users of the system not protected by a vehicle when traveling.

Although law enforcement is heavily present throughout the region and cities, there are limited resources available to enforce all citizens to abide by “the rules of the road”. Outreach and experience tells us that some users of the system are conscientiously not abiding by the walking and bicycling laws due to safety and comfort reasons. For example, some pedestrians choose to cross the street at a mid-block unmarked crossing area because of the number of conflicts points at a signalized intersection with high-speed right-turning traffic and long wait times. By crossing mid-block, those walking or bicycling feel they have fewer vehicular obstacles to pay attention to at given point and can safely cross the street at their own pace and time. Another example is related to transit riders. Given the sometimes lengthy distances to signalized intersections with long wait times to cross, transit riders may choose to cross at an unmarked crossing in order to make their next bus connection or walk to their place of employment. One last example is related to bicyclists. Some bicyclists feel uncomfortable traveling along a street without bike lanes or traveling in a bike lane without a buffer between them and fast-traveling vehicles. Because of this, one can often see bicyclists traveling along sidewalks in Broward County, which can cause conflicts with pedestrians and can also surprise drivers when turning out of driveways or cross streets.

Overall, when a system is primarily designed for vehicles, drivers of those vehicles tend to look less for pedestrians and bicyclists and may not properly remember the laws. Some examples include drivers failing to yield to pedestrians or bicyclists in crosswalks or at driveways; failing to slow down and look for pedestrians and bicyclists when turning right on red or at driveways; or speeding.

In addition, law enforcement interviews conducted during the BPSAP highlighted that users of the system overall are frequently disobeying the rules. It was specifically highlighted that many instances of pedestrian and bicycle related crashes occurred due to the rules not being properly followed (i.e., jaywalking, etc.).

## Strategic partnerships are needed to see change.

FDOT, Broward County departments (such as BCT), the MPO, and the local municipalities are all pushing towards a more pedestrian and bicycle friendly system. FDOT is incorporating complete streets into its design standards and raining its employees on how to plan in a context sensitive manner. The MPO is working to help shepherd the implementation of complete streets throughout the County. Cities are implementing road diets and utilizing statewide funding to educate people and enforce laws pertaining to roadway safety for all modes. Cities are also prioritizing pedestrian and bicycle safety. For example, Fort Lauderdale has adopted Vision Zero, an international movement with a vision for zero transportation related deaths or serious injuries. These efforts are the first steps needed to create a built environment with a connected, comfortable and convenient walking and bicycling network.

However, the need for a stronger, more united comprehensive vision and implementation plan throughout the County is desired by many to ensure the proper tools are in place and that priorities are clearly understood and adhered to when making investment decisions. This requires a continued shift in traditional thinking where vehicular movement is prioritized, but it will result in an environment that is safer for everyone – especially the most vulnerable users such as children, elderly, and disabled persons.

# CALLS FOR ACTION

## Making Walking and Bicycling Safer in the Broward Region

Based on interagency coordination, public input, field reviews, data collection and analysis, and a review of national and international best practices, strategies were developed to address the pedestrian and bicycle safety issues seen throughout the Broward region. In order to make walking and bicycling safer in the Broward region, a Mission and four Calls for Action were adopted.

### Mission

To improve safety for all roadway users by shifting the transportation focus from moving cars to moving people in the Broward region.

### Calls for Action



#### SET THE STAGE

Enact transportation and land use plans and policies that better supports all users and all modes of transportation.



#### CREATE SAFE STREETS

Implement complete streets projects and evaluation measures that go beyond a focus on vehicles and prioritize walking, bicycling, and riding transit.



#### PREVENT AGGRESSIVE BEHAVIOR

Enhance training of law enforcement officers and the public on pedestrian and bicycle safety laws, conduct targeted enforcement, and take legal action.



#### ALL HANDS ON DECK

Coordinate an identified diverse group of advocates that will lead and support moving forward an agreed upon vision for pedestrian and bicycle safety.

All of the strategies and action items developed in this plan aim to meet the mission and guiding themes. In order to do this, they utilize strategies related to engineering, enforcement, education/encouragement, and evaluation.

**ENGINEERING:** Engineering strategies improve safety through physical road design and infrastructure changes.

**ENFORCEMENT:** Enforcement strategies improve safety through effective enforcement of traffic laws, training of law enforcement officials, and legal procedures.

**EDUCATION/ENCOURAGEMENT:** Education/encouragement strategies improve safety through educating residents of all ages and abilities about traffic laws and safe behaviors.

**EVALUATION:** Evaluation strategies improve safety by collecting, analyzing, and sharing data aimed at evaluating and improving the effectiveness of other strategies.

The following section details the action items organized by the calls for action. Time frames and partners for implementation are included to help produce an actionable plan that the MPO, Advocacy -Team, and other partner agencies can push forward.

# PRIORITY ACTION ITEMS

## The Broward MPO Board endorsed the following actions from the BPSAP as priority.

The priority action items are the recommended first steps the region should take to address pedestrian and bicycle safety.

### Identify areas throughout the County where bicyclists and pedestrians are the priority movement

- Helps move the needle toward policy changes and ultimately design and infrastructure change that prioritizes people over automobiles – starting in the most relevant/appropriate locations

### Implement “quick build” temporary projects that showcase innovative bicycle and pedestrian infrastructure

- Helps build support for non-traditional treatments and/or treatments the region historically has not done in an efficient/non-permanent way

### Align design standards with the bicycle and pedestrian safety goals for the region

- Helps continue the momentum currently underway in better aligning local, county and state design standards with land use context and community visions

### Institute a bicycle and pedestrian safety school education program

- Helps spread-the-word on bicyclist and pedestrian safety starting with the most vulnerable users – children

### Create an educational program with law enforcement that focuses on bicycle and pedestrian laws

- Helps educate, in a consistent and up-to-date approach, law enforcement officers and the traveling public on bicyclist and pedestrian safety laws





# ACKNOWLEDGMENTS

The BPSAP was developed for Broward County residents by pedestrian and bicycle advocates; City, County, and State agencies; and members of the community to create a set of actions that address the pedestrian and bicycle safety

needs in Broward County. If the region together commits to the actions outlined in the BPSAP, we may save lives and improve quality of life. The following members of the team made this project possible.





## Broward MPO Board

Commissioner Richard Blattner, Chair, Hollywood  
 Councilmember Bryan Caletka, Vice Chair, Davie  
 Vice Mayor Bruce Roberts, Deputy Vice Chair, Fort Lauderdale  
 Vice Mayor Larry Vignola, Coral Springs  
 Vice Mayor Debra Placko, Tamarac  
 Commissioner Joanne Simone, Margate  
 Commissioner Jerry Graziose, North Lauderdale  
 Mayor Christine Hunschofsky, Parkland  
 Vice Mayor Charlotte Burrie, Pompano Beach  
 Commissioner Gloria J. Battle, Deerfield Beach  
 Commissioner Mikkie Belvedere, Coconut Creek  
 Commissioner Sandy Johnson, Lighthouse Point  
 Vice Mayor Irene Kirdahy, Hillsboro Beach  
 Commissioner Romney Rogers, Fort Lauderdale  
 Councilmember Ron Jacobs, Plantation  
 Commissioner Lawrence A. Sofield, Sunrise  
 Commissioner Margaret Bates, Lauderhill  
 Mayor John Adornato III, Oakland Park  
 Commissioner Beverly Williams, Lauderdale Lakes  
 Commissioner Tom Green, Wilton Manors  
 Councilmember Gregory Sollitto, Sea Ranch Lakes  
 Vice Mayor Keith London, Hallandale Beach  
 Vice Mayor Bill Harris, Dania Beach  
 Mayor Frank C. Ortis, Pembroke Pines  
 Commissioner Yvette Colbourne, Miramar  
 Commissioner Toby Feuer, Weston  
 Commissioner Lisa Mallozzi, Cooper City  
 Mayor Eric H. Jones, Jr., West Park  
 Council Member, Denise “Dee” Schroeder, Southwest Ranches  
 Mayor Ashira Mohammed, Pembroke Park  
 School Board Member Patricia Good, School Board of Broward County  
 Commissioner Tim Ryan, South Florida Regional Transportation Authority (SFRTA)  
 Commissioner Barbara Sharief, Broward County Board of County Commissioners  
 Commissioner Chip LaMarca, Broward County Board of County Commissioners  
 Commissioner Dale V.C. Holness, Broward County Board of County Commissioners  
 Mayor Beam Furr, Broward County Board of County Commissioners

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 Alena Alberani, Broward Regional Health Planning Council  
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 Karen Mendrala, City of Fort Lauderdale  
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 Alex Barr, FDOT  
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 Major Victor London, Fort Lauderdale Police Department  
 Sergeant Brian Fitzgerald, Fort Lauderdale Police Department  
 Sergeant Fromm Jenkins, Fort Lauderdale Police Department  
 Robert Hager, Jr. Broward Sheriff's Office  
 Stewart Robertson, Kimley Horn & Associates  
 Lisa Wight, School Board of Broward County  
 Katrina Lopez, University of Miami Uhealth  
 Daniela Flores, University of Miami Walksafe

## Consultant Team

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 Via Planning, Inc.  
 Enforcement Engineering, Inc.

