

# Baseline Performance REFERENCE GUIDE

Performance Measures Program



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#### **Vision Statement**

To transform transportation in Broward County to achieve optimum mobility with emphasis on mass transit while promoting economic vitality, protecting the environment, and enhancing quality of life.

#### **Mission Statement**

To influence the expenditure of federal and state funds to provide a regional transportation system that ensures the safe and efficient mobility of people and goods, optimizes transit opportunities, and enhances our community's environmental and economic well-being.

**Move People** · Create Jobs · Strengthen Communities

# **Baseline Performance**

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Performance Measures Program

**July 2015** 

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#### **LIST OF ACRONYMS**

American Community Survey **ACS Broward County Transit BCT** Comma Separated Value File CSV Florida Department of Transportation **FDOT FHP** Florida Highway Patrol Federal Highway Administration **FHWA** Federal Transit Administration FTA Florida Department of Highway Safety and Motor Vehicles **FHSMV** Moving Ahead for Progress in the 21st Century Act MAP-21 MP0 Metropolitan Planning Organization National Transit Database NTD Signal Four Analytics S4 Southeast Florida Transportation Council **SEFTC SFRTA** South Florida Regional Transportation Authority **Traffic Records Coordinating Committee** TRCC **USDOT** United States Department of Transportation

Vehicle Miles Traveled

**VMT** 

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## INTRODUCTION

This report briefly presents the Broward Metropolitan Planning Organization's (MPO) new performance measurement framework, introduces the new measures, and applies them to present a baseline performance assessment of the Broward region's transportation system. The report includes a discussion of the context for development and implementation of performance measures by the Broward MPO, documentation of the process the Broward MPO used to develop its measures, a "performance scorecard" that summarizes overall performance results, detailed information on each measure, and conclusions about the performance results. The detailed information is organized by performance area, provides background on the focus and purpose of each measure, and (where applicable) includes data on performance trends.

#### The Context for Performance Measurement

In December 2014, the Broward MPO adopted its updated Long Range Transportation Plan entitled *Commitment 2040*. The resulting document builds on prior planning efforts by laying out a 26-year plan for strategic transportation investments in the MPO's planning area that will improve quality of life, maximize mobility options, and promote a fiscally sustainable future. In addition, the Broward MPO adopted a five-year *Strategic Business Plan* in April 2015 to identify action-oriented strategies that will guide the agency in implementing *Commitment 2040*. Together, the two plans define a strategic framework – goals, objectives, and actions – that will help the MPO accomplish its mission of ensuring the safe and efficient movement of people and goods throughout the Broward region.

Establishing a long range transportation plan and a strategic business plan is important to providing direction and leadership, but these documents alone do not guarantee success. To ensure the plans are both being implemented successfully and are achieving the desired results, it also is necessary to monitor results through measures that assess both regional transportation system and agency performance. In addition, the need for the Broward MPO to develop performance measures is being driven by a few other important considerations:

- 1. **Broward MPO Leadership Focus** The Broward MPO Board and Executive Director have expressed a strong interest in developing performance measures to improve transparency, help the MPO assess the efficiency and effectiveness of its decision making, and to prepare the agency for compliance with emerging federal performance management requirements.
- 2. **New State and Metropolitan Performance-based Planning Requirements** Moving Ahead for Progress in the 21st Century Act (MAP-21) provisions require the Federal Highway Administration (FHWA) to establish a performance-based planning process at the state level, but which also will affect MPOs. In June 2014, FHWA issued a notice of proposed rulemaking on this topic that closely links performance-based planning requirements with the national performance measures program, which is also under development and described below.

- 3. **New National Performance Measures Program** The United States Department of Transportation (US DOT) also is working to implement MAP-21 requirements for implementation of national transportation performance measures in the following areas:
  - a. Pavement condition on the Interstate System and the remainder of the National Highway System (NHS);
  - b. Performance of the Interstate System and the remainder of the NHS;
  - c. Bridge condition on the NHS;
  - d. Fatalities and serious injuries (both number and rate per vehicle mile traveled) on all public roads:
  - e. Traffic congestion;
  - f. On-road mobile source emissions; and
  - g. Freight movement on the Interstate System.

At the present time, FHWA only has announced proposed measures for safety and asset management areas. Proposed measures related to congestion, freight, and the environment are expected to be released by the end of 2015.

- 4. Florida Department of Transportation (FDOT) Performance Measurement Activities For several years, FDOT has been developing and refining its approach to performance measurement and now has an extensive set of performance metrics that are used to inform goal setting, policy development, and project delivery assessment. As a result, FDOT has significant performance measurement data and analytical resources that can be leveraged at the MPO level.
- 5. **Industry-wide Adoption of Performance Management Practices** Over the last decade and more, state transportation agencies and MPOs across the country have increasingly incorporated performance measurement and management into their planning activities, seeking to improve performance in areas that matter to the public and stakeholders.

#### **Performance Measures Development Process**

Development of the Broward MPO's performance measures largely began with *Commitment 2040*, which identified a range of potential measures to monitor progress with respect to the Plan's three core goal areas (move people, create jobs, and strengthen communities). In addition, the Broward MPO's *Strategic Business Plan* established seven strategic directions (multimodal improvements, technology, revenue / funding, economic development, leadership / partnerships, education development, and contingency planning) along with associated objectives, products, and actions. These strategic directions cut across five primary performance areas:

- 1. **Mobility** Focuses on the quantity of services and system (transportation supply), quantity of travel (transportation demand), and / or quality of travel;
- 2. **Connectivity and Accessibility** Considerations associated with transportation accessibility and connectivity:
- 3. **Asset Management** Maintenance and preservation of existing transportation assets such as pavement, bridges, and transit vehicles;
- 4. **Safety** Fatalities and serious injuries; and

5. **Program Delivery** – Administrative performance in completing milestones and delivering the MPO's programs and initiatives.

Using these five areas as an organizing framework, a list of candidate measures was developed based upon:

- 1. Current and anticipated FDOT measures;
- 2. Proposed and anticipated federal measures;
- 3. Best practices from state DOTs and MPOs across the country;
- 4. National-level research on performance measures; and
- 5. Options developed in coordination with MPO staff and selected MPO partners.

This list of measures was then evaluated and a short list of options was recommended to MPO staff based on the following considerations:

- 1. The ability of measures to assess or imply efficiency and effectiveness;
- 2. The data collection, data development, and analysis implications of the measures;
- 3. Alignment of measures with known or anticipated federal MAP-21 requirements; and
- 4. Unique considerations associated with the performance area or proposed measures.

Through an iterative process that included working with MPO staff and getting input from the MPO Board, the recommended measures were then refined into the final set of selected measures and applied to develop the baseline results presented in the remainder of this report and published on the Broward MPO's Performance Measurement Webpage.

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# PERFORMANCE SCORECARD

The following is an overall "performance scorecard" that summarizes the current performance of the Broward transportation system. A detailed description of each measure and the associated baseline performance is provided in subsequent sections. (Note: where possible, "current results" are for 2014 and "previous results" are for 2013, but there are deviations due to available data. See individual measurement descriptions for details.)

**Exhibit 1: Performance Scorecard** 

MEASURE	PREVIOUS RESULTS	CURRENT RESULTS	DESIRED Trend	STATUS			
MOBILITY MEASURES							
Mode Share: Commute by SOV	79.6%	79.6%	7	Stable			
Transit Revenue Hours	1.61M	1.64M	7	Improving			
Transit Passenger Trips	43.0M	43.6M	7	Improving			
On-time Transit Trips	59.2%	60.6%	7	Improving			
On-time Rail Trips	89%	92%	7	Improving			
Per Capita Highway Hours of Delay	_	66.2	7	TBD			
CONNECTIVITY & ACCESSIBILITY MEASURES							
Transit Revenue Hours	1.61 M	1.64 M	7	Improving			
Per Capita Highway Hours of Delay	_	66.2	7	TBD			
New Bike & Pedestrian Facilities	_	19.74 miles	7	TBD			
ASSET MANAGEMENT MEASURES							
Highway Miles Meeting or Exceeding Standards*	92%	93%	7	Improving			
Highway Bridges Meeting or Exceeding Standards*	95%	95%	7	Stable			
Average Age of Transit Fleet – Bus	5.00	4.04	≤ 6 years	Sustaining			
Average Age of Transit Fleet – Rail	17.13	15.95	≤ 20 years	Sustaining			
	SA	FETY & SECURITY MEASURES					
Motor Vehicle Serious Injuries per Million VMT	6.7	6.0	Ä	Improving			
Motor Vehicle Fatalities per Million VMT	.56	.48	A	Improving			
Annual Bike & Pedestrian Serious Injuries	234	194	¥	Improving			
Annual Bike & Pedestrian Fatalities	53	47	M	Improving			
Preventable Transit Accidents per 100K Miles of Service	116	130	7	Not Improving			

# **MOBILITY MEASURES**

Mobility is a primary goal of any transportation system and focuses on moving people and goods with ease and without delay through a diversity of travel options. In the Broward region, mobility performance is tracked through metrics that reflect people's travel choices (mode choice) and measures that assess transportation supply (transit revenue hours and trips) and transportation quality (on-time transit trips and highway delay).

#### Mode Share: Commute by Single Occupant Vehicle

Mode share identifies the percentage of trips travelers take using different types of transportation such as car, bus, and bike. Based on the MPO's goals, mobility improves as travelers shift from driving alone - single occupant vehicles (SOV) to using other modes of transportation, including carpooling.

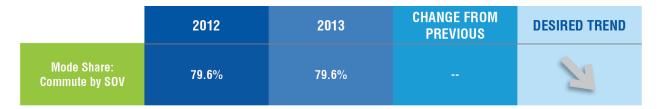
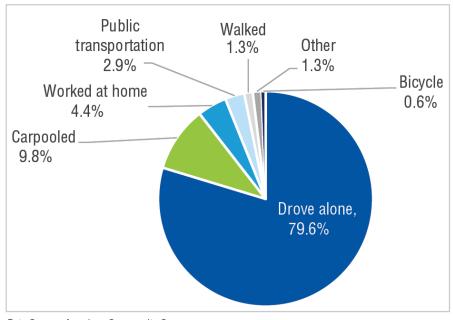


Exhibit 2: Mode Choice within Broward County, 2013



Data Source: American Community Survey

#### **Transit Revenue Hours**

Transit revenue hours (the combined amount of time all transit vehicles operating in an area are available to provide service in a year) measure how much service the region's transit agencies are providing, and reflect the opportunity that exists for residents to use public transit.

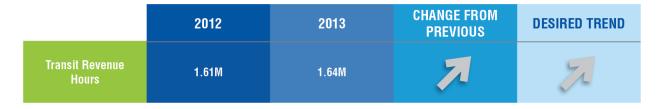
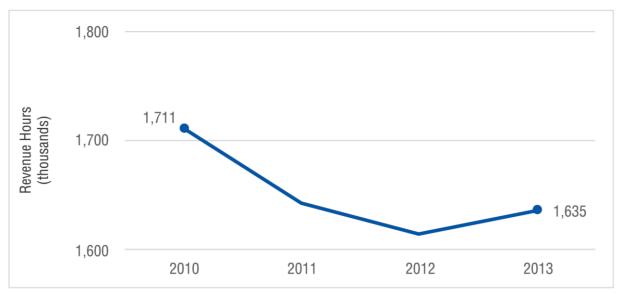


Exhibit 3: Transit Vehicle Revenue Hours within Broward County, 2010 - 2013



Data Source: The National Transit Database for Broward County Transit and South Florida Regional Transportation Authority Tri-Rail

#### **Unlinked Transit Passenger Trips**

The number of unlinked transit passenger trips counts passengers each time they board vehicles no matter how many vehicles they use to travel from their origin to their destination. The metric is an indicator of how the transit system addresses the needs for transit services by county residents and relates to the other measures in this section to give a more complete image of transportation supply in the Broward region.

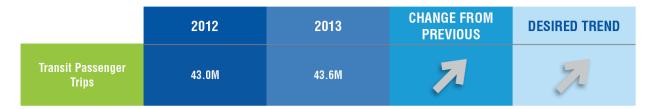
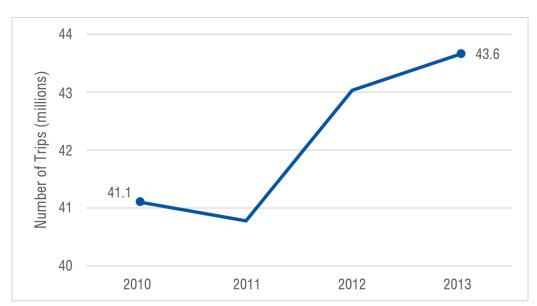


Exhibit 4: Unlinked Transit Passenger Trips within Broward County, 2010 - 2013



Data Source: The National Transit Database for Broward County Transit and South Florida Regional Transportation Authority Tri-Rail

#### **On-time Transit Trips**

On-time transit trips measures the percent of time transit vehicles arrive at stops or termini on schedule. The metric monitors the ability of transit agencies to operate their services on time and provide reliable transportation, which influences peoples' choices to travel by transit vs. other forms of transportation.

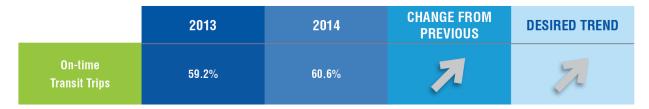
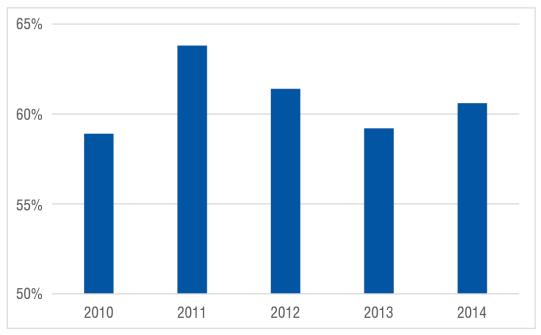


Exhibit 5: On-time Bus Performance within Broward County, 2010 - 2014



Data Source: Broward County Transit

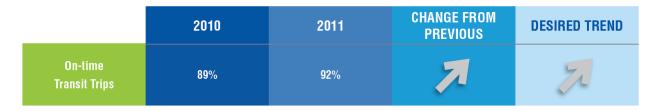
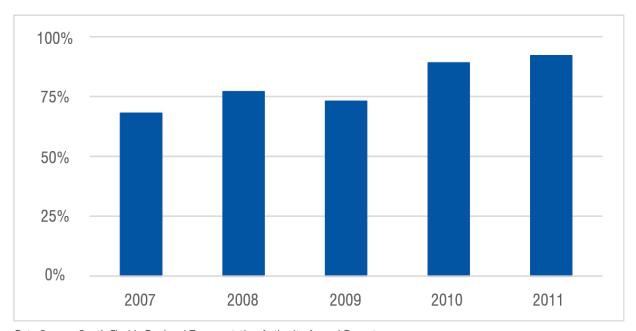


Exhibit 6: On-time Rail Performance within Broward County, 2007 - 2011



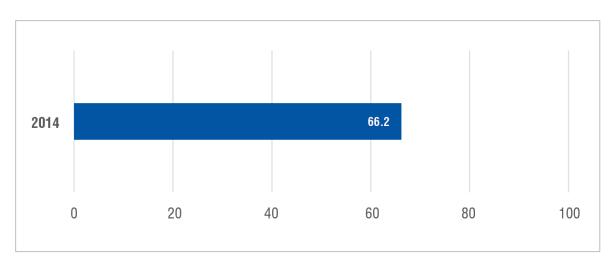
Data Source: South Florida Regional Transportation Authority Annual Report

#### Per Capita Highway Hours of Delay

Per capita highway hours of delay estimates the amount of time the average person loses in a year due to highway congestion and other causes of delay. Recent advances in data collection now enable tracking of total annual highway delay, which is a good indication of highway reliability, congestion levels, and the overall quality of a person's highway-related mobility.



Exhibit 7: Per Capita Highway Hours of Delay within Broward County, 2014



Data Source: Broward MPO

### **ACCESSIBILITY AND CONNECTIVITY**

To use the transportation system, people and businesses need safe and convenient access as well as seamless connections to other segments and modes. Many of the Broward MPO's mobility performance measures (transit revenue hours and per capita highway hours of delay) also provide an indication of the system's level of accessibility and connectivity, as does information on how the region plans to expand its bike and pedestrian network. Future efforts will update the information about system gaps and accessibility needs, and enhance the MPO's ability to measure accessibility and connectivity performance.

#### **Transit Revenue Hours**

Transit revenue hours (the combined amount of time all transit vehicles operating in an area are available to provide service in a year) measure how much service the region's transit agencies are providing. The measure reflects the opportunity that exists for residents to access public transit and use it to connect to other modes.

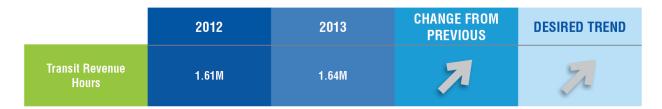
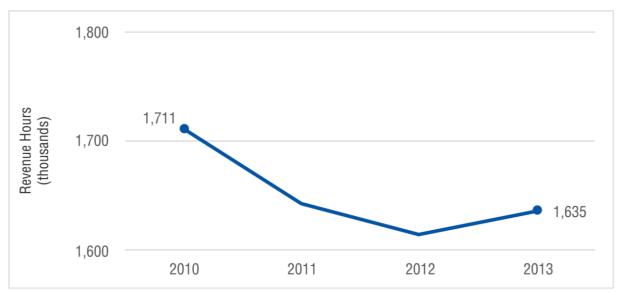


Exhibit 8: Transit Vehicle Revenue Hours within Broward County, 2010 - 2013



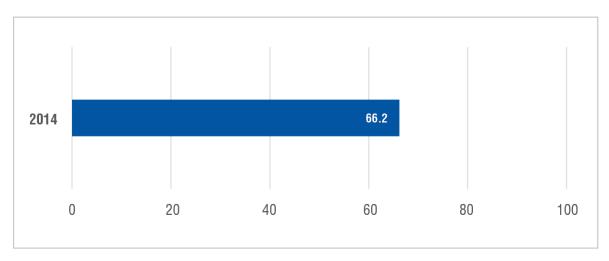
Data Source: The National Transit Database for Broward County Transit and South Florida Regional Transportation Authority Tri-Rail

#### Per Capita Highway Hours of Delay

Per capita highway hours of delay estimates the amount of time the average person loses in a year due to highway congestion and other causes of delay. Recent advances in data collection now enable tracking of total annual highway delay, which provides an indication of how well the highway system supports accessibility throughout the region and connectivity to other parts of the transportation system.



Exhibit 9: Per Capita Highway Hours of Delay within Broward County, 2014



Data Source: Broward MPO

#### Annual Increase in Bike / Pedestrian Facility Mileage

Bike lanes, sidewalks, and trails are essential parts of a thriving multi-modal transportation system. This measure looks at the number of miles programmed for construction over the next several fiscal years. The Broward MPO is developing a Complete Streets Master Plan that will include an inventory of existing facilities. In the future, this information will be used to support a measure that reflects the addition of new facilities to the existing network.

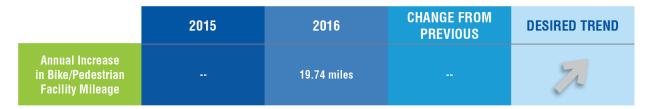
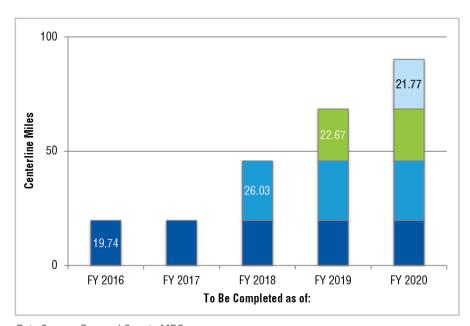


Exhibit 10: Increase in Bike / Pedestrian Mileage within Broward County, FY2016 - FY2020



Data Source: Broward County MPO

### **ASSET MANAGEMENT**

A good transportation system requires investments to preserve the existing infrastructure and maintain existing conditions. For highways, asset management is measured by monitoring pavement and bridge conditions. For transit, a key indicator of the system's "state of good repair" is the average age of vehicles relative to established standards.

#### **Highway Pavement and Bridge Condition Measures**

Highway pavement and bridge conditions are measured by the percent of roadway miles and bridges that meet or exceed established condition standards. These measures help identify whether the region's highway system is being well maintained. While FDOT is responsible for maintaining state highway system pavement and bridges in the county and establishes thresholds for the percent of the system that should meet or exceed standards, the Broward MPO plays an important role promoting the preservation of these vital assets and encouraging FDOT to invest in asset management accordingly to sustain achievement of the desired thresholds.

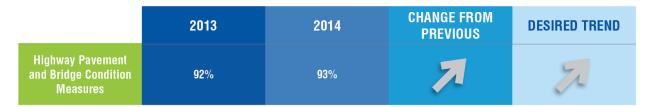
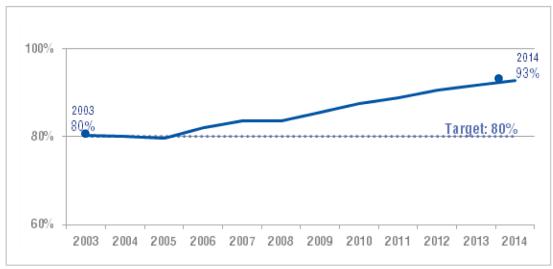


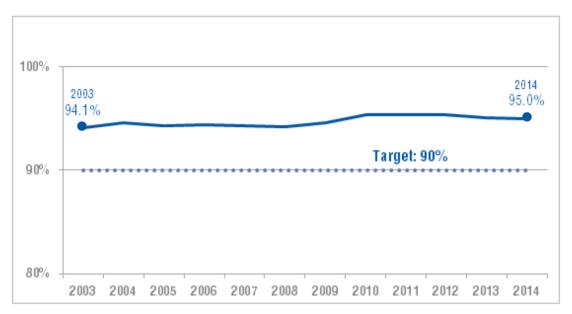
Exhibit 11: Percent of Florida Highway Miles Meeting or Exceeding Standards, 2003 - 2014



Data Source: Florida Department of Transportation



Exhibit 12: Percent of Florida Highway Bridges Meeting or Exceeding Standards, 2003 - 2014



Data Source: Florida Department of Transportation

#### **Average Age of Transit Fleet**

To withstand the daily demands on a transit system, agencies try to maintain the average age of their vehicles at or below industry recommended levels. This measure documents the average age of transit fleet vehicles and enables comparison to established standards for applicable vehicle types. The measure reflects how well the region's transit providers are performing replacement of old vehicles with new ones to sustain achievement of standards.

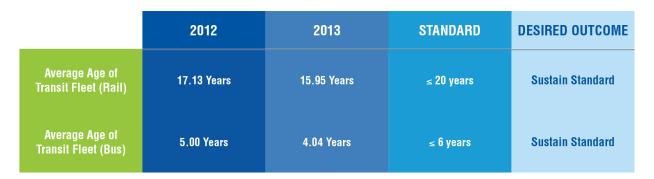
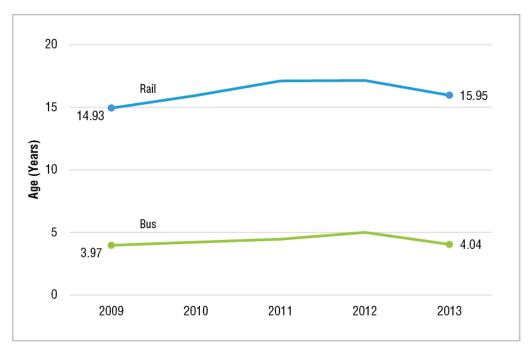


Exhibit 13: Average Age of Transit Vehicles within Broward County, 2009 - 2013



Data Source: The National Transit Database for Broward County Transit and South Florida Regional Transportation Authority Tri-Rail

### **SAFETY AND SECURITY**

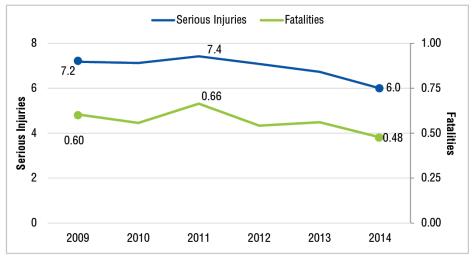
A key part of the Broward MPO's mission is to make the region's transportation system as safe and secure as possible. Strategies to ensure safe travel include promoting safe practices among travelers and making system upgrades. Transportation safety and security in the Broward region is measured by monitoring the number of highway and bike / pedestrian fatalities and serious injuries that occur, and by the number of "preventable" transit accidents.

#### **Highway Fatalities and Serious Injuries**

Roadway safety means protecting those traveling in motor vehicles as well as people who drive, walk, bicycle, and ride transit. Multi-year crash averages provide a better picture of overall trends than single-year figures since spikes in any single year can be misleading. In addition, using a rate rather than raw numbers for motor vehicle safety measures helps account for changes due to increases in driving, thus rates are based on the number of serious injuries and fatalities for every 100 million vehicle miles travelled (VMT). Together, these measures provide a picture of how highway safety in the Broward region is improving.



Exhibit 14: Auto Crashes per 100 Million VMT with Broward County, 2009 - 2014



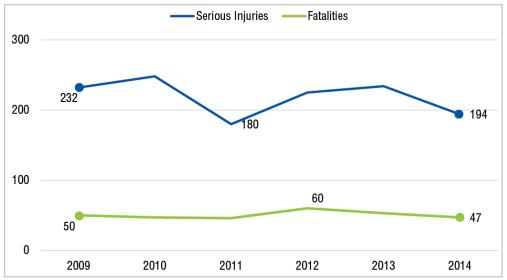
Data Source: Florida Department of Transportation

#### **Annual Bike / Pedestrian Fatalities and Serious Injuries**

Serious bike and pedestrian accidents track the number of serious injuries and fatalities that occur each year. Several cities in South Florida are among the worst locations in the country for bicycle and pedestrian accidents and fatalities, thus pedestrian and bicycle safety is a major concern in the Broward region. Safety metrics provide means of monitoring whether associated safety performance is improving.



Exhibit 15: Bicycle and Pedestrian Roadway Crashes within Broward County, 2009-2014



Data Source: Florida Department of Transportation

#### Preventable Transit Accidents per 100,000 Miles of Service

Preventable bus accidents are defined as accidents in which the vehicle driver failed to do everything that reasonably could have been done to avoid the crash. This measure helps monitor the effectiveness of transit agency efforts to improve the safety performance of its vehicle operators.

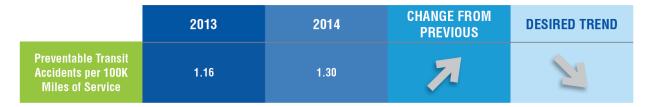
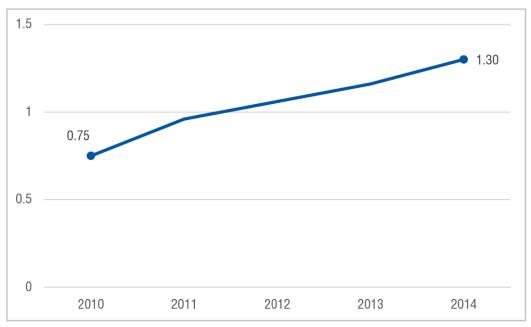


Exhibit 16: Preventable Bus Crashes within Broward County, 2010 - 2014



Data Source: Broward County Transit

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### PROGRAM DELIVERY

To excel in serving its mission, the Broward MPO needs to monitor both the performance of the region's transportation system, and its own performance in delivering a wide range of programs, activities, and services. With the development of *Commitment 2040* and the *Strategic Business Plan*, the Broward MPO now has a clear, new agenda for what it needs to accomplish as an organization. As the MPO begins to implement the plans, two measures will be tracked and reported to monitor the organizations program delivery performance:

- 1. **Percent of Annual** *Strategic Business Plan* **Milestones Met** Will provide transparency and accountability for how well the MPO is delivering on planned strategies, actions, and activities.
- 2. **Percent of TIP Projects compliant with "Reasonable Progress Policy"** Will hold MPO partners accountable for keeping projects on schedule.

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## **CONCLUSION**

The performance results presented in this report create an important starting point for tracking system and agency performance by providing a baseline against which future performance can be compared. To the extent the current baseline figures can be compared to prior year performance (this varies by measure), it appears that system performance is generally improving, although there are a few measures where performance is stable and one area (preventable transit accidents) where performance is declining. As the MPO begins to make decisions about how to invest scarce transportation resources in the future, it can both use the current performance levels and trends as an input to project selection, and will now have a means to assess the efficiency and effectiveness of decisions once they are implemented.

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Transportation Planner

**Daniel Knickelbein** 

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**Buffy C. Sanders II** 

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