# Appendix D Performance Measures

Performance management is a strategic approach to connect investment and policy decisions to achieve performance goals. Performance goals are achieved through establishing performance measures and targets adopted in the TPA's Long Range Transportation Plan (LRTP). The TPA's aim is to provide a process that uses data-driven, quantitative criteria to set and analyze achievable targets. Using a performance-based method ensures the most efficient investment of federal transportation funds by increasing accountability, transparency, and providing for better investment decisions that focus on key outcomes.

The FHWA and FTA have established performance measures and reporting requirements for DOTs, MPOs, and transit agencies through five Planning Rules. In response, the Palm Beach TPA and FDOT have adopted performance measures and targets based on the national goals enacted by Congress in Moving Ahead for Progress in the 21st Century (MAP-21). The Planning Rules specify the requirements to implement a performance-based approach to planning and programming. In total, there are three FHWA performance measure (PM) rules and two FTA rules for transit-transit asset management and transit safety.

The performance measures within the Planning Rules assess:

- Roadway Safety (PM1)
- Pavement and Bridge Condition (PM2)
- System Performance and Freight Movement (PM3)
- Transit Asset Management (TAM)
- Transit Safety

The Planning Rules and associated performance measures also specify how the TPA should set targets, report performance, and integrate performance management into the Long-Range Transportation Plans (LRTP) and Transportation Improvement Programs (TIP).

To coordinate between agencies, the FDOT and the Metropolitan Planning Organization Advisory Council (MPOAC) developed the Transportation Performance Management (TPM) Consensus Planning Document to describe the processes through which FDOT, the TPA, and the providers of public transportation in the TPA planning area will cooperatively develop and share information related to transportation performance management and target setting. The Consensus Planning Document can be found after the performance measures. The adopted FDOT/TPA performance measures and targets are listed in the table below.

# Federal Performance Measures and Targets

Category	Performance Measure	TPA Target
Safety	Fatalities	(2024) Zero
	Serious Injuries	Zero
	Rate of Serious Injuries per 100M vehicle miles travelled (VMT)	Zero
	Rate of Fatalities per 100M VMT	Zero
	Nonmotorized Fatalities and Serious Injuries	Zero
System Performance	Percent of reliable person-miles traveled on the Interstate	(2025) ≥ 75%
	Percent of reliable person-miles traveled on the non-Interstate NHS	≥ 50%
	Truck travel time reliability ratio (TTTR) on the Interstate	≤ 1.75
Bridges	Percent of NHS bridges classified as in Good condition by deck area	(2025) ≥ 50%
	Percent of NHS bridges classified as in Poor condition by deck area	≤10%
Pavement	Percent of Interstate pavements in Good condition	(2025) ≥ 60%
	Percent of Interstate pavements in Poor condition	≤ 5%
	Percent of non-Interstate NHS pavements in Good condition	≥ 40%
	Percent of non-Interstate NHS pavements in Poor condition	≤ 5%
Transit (Palm Tran)	Percent of Vehicles exceeding useful life	(2024)
Vehicles	Vehicles - Articulated Bus (> 14 yrs old)	≤ 10%
	Vehicles - Fixed Route Bus (> 14 yrs old)	≤ 10%
	Vehicles - Cutaway Bus (> 10 yrs old)	≤ 13%
	Equipment - Automobiles (> 4 yrs old or 100,000 miles)	≤ 14%
Equipment		
	Percent of Equipment exceeding useful life	
	Equipment – Automobiles	≤ 0%
Facilities	Equipment – Trucks	≤ 0%
	Percent of Facilities exceeding useful life	≤ 0%
Transit (SFRTA)		(2024)
Rolling Stock	Revenue vehicles (>39 yrs old)	≤ 30%
Equipment	Non-revenue support service & maintenance vehicles (>8 yrs old)	≤ 50%
Facilities	Stations, maintenance facilities, & operations center (<2.5 on 1-5 scale)	≤ 5%
Fixed Guideway	Rail fixed-guideway track with performance restrictions	≤ 3.5%
Transit Safety (Palm Tran)	Fixed Route / Paratransit	Fixed Route/Paratransit
•	Fatalities	(2022) Zero/Zero
	Fatality Rate per 100k vehicle revenue miles (VRM)	Zero/Zero
	Injuries	63/34
	Injury Rate per 100k VRM	0.9/0.4
	Safety Events	43/32
	Safety Event Rate per 100k VRM	0.6/0.3
	System Reliability (VRM per failure)	14,000/7,700

#### Safety Performance Measures (PM1)

Safety is the first national goal identified in the FAST Act and is also the first goal of the Florida Transportation Plan (FTP), the state's long-range transportation plan, and the emphasis of Florida's Strategic Highway Safety Plan (SHSP). In 2017, FDOT established statewide performance targets of zero fatalities and serious injuries. FDOT has reaffirmed these targets through 2023 in the 2022 Highway Safety Improvement Program (HSIP). The updated SHSP calls on Florida to think more broadly and inclusively by addressing four additional topics, referred to as the 4 ls: information intelligence, innovation, insight into communities, and investments and policies. The SHSP development process includes review of safety-related goals, objectives, and strategies in MPO plans. The SHSP guides FDOT, MPOs, and other safety partners in addressing safety and defines a framework for implementation activities to be carried out throughout the state. The Palm Beach TPA also adopted the target of zero from 2018-2022 and reaffirmed those targets for 2023. The TPA plans and programs projects in the TIP that, once implemented, are anticipated to make progress toward achieving the targets. Safety performance measure targets are required to be adopted on an annual basis.

#### Trend Analysis and Targets

Safety Performance Measures are evaluated using a five-year rolling average of crash data and Vehicle Miles Traveled (VMT). The table below presents the Baseline Safety Performance Measures 2017-2021 five-year rolling average for Florida and the Palm Beach TPA.

#### Safety Performance Measures and Targets (Annual Averages)

Performance Measure	2012-	2013-	2014-	2015-	2016-	2017-	2018-	2024
rei ioi illalice measule	2016	2017	2018	2019	2020	2021	2022	Target
Palm Beach County								
Number of Fatalities	152.8	157.8	167.6	176.0	175.6	182.8	198.2	0
Number of Serious Injuries	1,055.2	1,080.6	1,088.2	1,093.0	1076.2	1,028.6	967.2	0
Fatality Rate per 100 million VMT*	1.181	1.188	1.227	1,243	1.241	1.314	1.40	0
Serious Injury Rate per 100 million VMT	8.203	8.162	7.975	7.712	7.591	7.371	6.80	0
Number of non-motorized Fatalities and serious injuries	203.0	203.8	203.2	207.8	206.8	205.6	204.2	0
100 million VMT (vehicle miles traveled)	128.8	132.6	136.4	139.6	139.5	139.4	139.8	
FDOT - Statewide								
Number of Fatalities	2,683.8	2,825.0	2,972.0	3,110.6	3,191.6	3,306.4	3,397.8	0
Number of Serious Injuries	20,832.8	20,917.2	20,728.8	20,181.0	18,993.8	18,029.8	17,165.2	0
Fatality Rate per 100 million VMT*	1.329	1.361	1.395	1.429	1.467	1.517	1.460	0
Serious Injury Rate per 100 million VMT	10.349	10.126	9.766	9.297	8.716	8.251	7.444	0
Number of non-motorized Fatalities and serious injuries	3,289.4	3,286.4	3,309.4	3,290.2	3,193.8	3,190.4	3,200.2	0
100 million VMT (vehicle miles traveled)	2,011.9	2,067.9	2,126.1	2,175.5	2,177.2	2,183.1	2,200.9	

<sup>\*</sup>VMT= Vehicle Miles Traveled

### Safety Projects and Programs in the TIP

Safety is a primary focus of the Palm Beach TPA's Vision of a "Safe, Efficient, and Connected Multimodal Transportation System". The TPA adopted a Vision Zero Action Plan in April 2019 and an updated version in October 2021 to establish safety priorities and identify achievable strategies to reduce, and ultimately eliminate, fatalities and serious injuries for all roadway users. The Vision Zero Action Plan specifically addresses the five safety performance measures in PM1.

Safety is integrated into the planning, selection, and prioritization of TPA projects, especially projects selected through the Local Initiatives (LI) and Transportation Alternatives (TA) grant programs. LI and TA are annual competitive grant programs for projects submitted by local planning partners. Both the LI and TA grant programs include safety within the scoring criteria, and the TA program includes scoring specific to the Vision Zero Action Plan. The scoring for both programs also includes measures to address priority bike and pedestrian network gaps identified in the TPA's Long Range Transportation Plan. A sample of projects in the TIP that are programmed to address safety are shown in the table below.

TIP Section	Project Location	Project Description
State Road	SR 80 from SR 15 to CR 880	Street Lighting
Modifications	US-1: Camino Real to NE 8th St/Mizner Blvd in	Lane Repurposing from 6L to 4L between Camino Real and SE
(SRM)	Boca Raton	Mizner Blvd; associated multimodal facilities
	Cresthaven Blvd from S Jog Rd to S Military Trl	Construct 7' buffered bike lanes and three intersection
Local Initiatives		modifications
(LI)	Greenview Shores Blvd	Widen the northern pathway from 8' to 10'. Upgrade
	from Binks Forest Dr to Wellington Tr	intersections and pedestrian crossings with enhanced visibility
		and signage.
	36th St & bridge from Australian Ave to Poinsettia	Construct buffered bike lanes, pedestrian enhancements and
	Ave in West Palm Beach	bridge
Transportation	Burns Rd from Military Trail to Alt A1A	Construct 9.5' separated two-way bicycle track
Alternatives (TA)	El Rio Trail from Glades Rd to Yamato Rd	Install lighting
	Fairchild Ave from Fairchild Gardens Ave to Campus	Construct buffered bicycle lanes and 8' pathway on south side
	Dr	of roadway

#### Pavement & Bridge Condition Performance Measures (PM2)

On December 16, 2022, FDOT established statewide performance targets for the second four-year performance period (2022-2025) for pavement and bridge condition. The TPA adopted FDOT's statewide pavement and bridge performance targets on April 20, 2023. The table below shows the Palm Beach TPA and statewide performance and targets.

#### **Pavement and Bridge Condition and Performance Targets**

Performance Measure	2019	2020	2021	2022	2023	2023 Targets	2025 Targets
Palm Beach County (%)							
NHS bridges (by deck area) in good condition	87.44%	85.2%	82.2%	82.1%	not available	≥ 50%	≥ 50%
NHS bridges (by deck area) in poor condition	1.04%	1.02%	1.0%	1.0%	not available	≤ 10%	≤ 10%
Interstate pavements in good condition	61.2%	53.2%	59.5%	65.0%	not available	≥ 60%	≥ 60%
Interstate pavements in poor condition	0.0%	0.2%	0.0%	0.0%	not available	≤ 5%	≤ 5%
Non-Interstate NHS pavements in good condition	44.0%	not available	45.1%	53.3%	not available	≥ 40%	≥ 40%
Non-Interstate NHS pavements in poor condition	0.1%	not available	1.2%	1.1%	not available	≤ 5%	≤ 5%
FDOT - Statewide (%)							
NHS bridges (by deck area) in good condition	65.6%	64.1%	61.3%	58.2%	not available	≥ 50%	≥ 50%
NHS bridges (by deck area) in poor condition	0.45%	0.67%	0.85%	0.63%	not available	≤ 10%	≤ 10%
Interstate pavements in good condition	68.5%	68.8%	70.5%	73.4%	not available	≥ 60%	≥ 60%
Interstate pavements in poor condition	0.2%	0.6%	0.3%	0.2%	not available	≤ 5%	≤ 5%
Non-Interstate NHS pavements in good condition	41.0%	not available	47.5%	48.8%	not available	≥ 40%	≥ 40%
Non-Interstate NHS pavements in poor condition	0.2%	not available	0.6%	0.5%	not available	≤ 5%	≤ 5%

FDOT is mandated by Florida Statute 334.046 to preserve the state's pavement and bridges to specific standards. To adhere to the statutory guidelines, FDOT prioritizes funding to ensure the current transportation system is adequately preserved and maintained before funding is allocated for capacity improvements. These statutory guidelines cover the statewide federal targets that have been established for pavements and bridges.

In addition, MAP-21 required FDOT to develop a Transportation Asset Management Plan (TAMP) for all NHS pavements and bridges within the state. The TAMP must include investment strategies leading to a program of projects that would make progress toward achievement of the state DOT targets for asset condition and performance of the NHS. FDOT's TAMP was updated to reflect MAP-21 requirements in 2018. Most of the NHS bridge and pavement projects that address PM2 are in the Operations and Maintenance (0&M)- Roadways section of the full TIP document. These projects have been identified and programmed by FDOT.

Project Location	Project Description
MILITARY TRAIL FROM PALMETTO PARK RD TO CLINT MOORE RD	Resurfacing
CONGRESS AVE FROM CLINT MOORE RD TO LAKE IDA RD	Resurfacing
SR-7/US-441 FROM N OF BOYNTON BEACH BLVD/SR-804 TO LAKE WORTH RD/SR-802	Resurfacing
LAKE WORTH RD/SR-802 FROM W OF CYPRESS EDGE DR TO W OF CYPRESS ISLES WAY	Resurfacing
JOG RD FROM FOREST HILL BLVD TO SUMMIT BLVD	Resurfacing
OKEECHOBEE BLVD/SR-704 & LAKEVIEW AVE FROM E TAMARIND AVE TO W S FLAGLER DR	Resurfacing
BEELINE HWY/SR-710 FROM W OF PARK COMMERCE BLVD TO E OF AVIATION BLVD	Resurfacing
US-27/SR-25 FROM MP 12.9 TO MP 16	Resurfacing
I-95 BRIDGE VIADUCT FROM 6TH AVE S TO LAKE WORTH RD	Bridge Rehab
FL TURNPIKE BRIDGE APPROACHES (MP 79.8)	Bridge Rehab
PALM BEACH LAKES BLVD. OVER FEC RAILROAD	Bridge Replacement
US-1/SR-5 FEDERAL HWY FROM CR-A1A TO BEACH RD	Bridge Replacement
SR-706/E. INDIANTOWN RD. BRIDGES # 930453 & 930454	Bridge Rehab

## System Performance (Travel Reliability) Performance Measures (PM3)

Travel time reliability provides a way to measure the unexpected congestion drivers experience over normal travel flow during specific parts of the day.

The level of travel time reliability (LOTTR) measures the percent of person-miles traveled on the Interstate or the non-Interstate NHS that are reliable. LOTTR is defined as the ratio of longer travel times (80th percentile) to a normal travel time (50th percentile) of all applicable roads, across four time periods between the hours of 6 a.m. and 8 p.m. each day. The measure is expressed as the percent of person-miles traveled on the Interstate or Non-Interstate NHS system that are reliable. Person-miles assumes a people per vehicle estimate.

The truck travel time reliability (TTTR) measures the reliability index for trucks traveling on the interstate. A TTTR ratio divides the 95th percentile truck travel time by a normal travel time (50th percentile) for each segment of the Interstate system over specific time periods throughout weekdays and weekends. This is averaged across the length of all Interstate segments in the state or metropolitan planning organization (MPO) planning area to determine the TTTR index.

On December 16, 2022, FDOT established statewide performance targets for 2023 and 2025 for the system performance measures that assess the performance of the Interstate and National Highway System (NHS) and freight movement on the Interstate System. On April 20, the TPA adopted FDOT's statewide system performance targets. The table below presents the statewide and TPA targets.

#### Statewide System Performance and Freight Targets and Current Conditions

Performance Measure	2019	2020	2021	2022	2023 Targets	2025 Targets
Palm Beach County						
Percent of person-miles on the Interstate system that are reliable	78.0%	93.6%	83.1%	77.6%	≥ 75%	≥ 70%
Percent of person-miles on the non-Interstate NHS that are reliable	94.0%	98.0%	96.8%	92.4%	≥ 50%	≥ 50%
Truck travel time reliability	1.86	1.66	1.78	1.95	≤ 1.75	≤ 2.0
FDOT - Statewide						
Percent of person-miles on the Interstate system that are reliable	83.4%	92.3%	87.5%	85.7%	≥ 75%	≥ 70%
Percent of person-miles on the non-Interstate NHS that are reliable	86.9%	93.5%	92.9%	92.1%	≥ 50%	≥ 50%
Truck travel time reliability	1.43	1.45	1.38	1.46	≤ 1.75	≤ 2.0

The table below provides a brief list of projects that address system performance on the NHS. They include both TPA, FDOT, and Palm Beach County priorities. System performance can be addressed in a variety of ways, such as through roadway capacity, improved signal and corridor technology, shifts to other reliable forms of transportation such as transit, emergency response, and reducing traffic crashes. Given the significant resources devoted in the TIP to programs that address system performance and freight, the TPA anticipates that once implemented, the TIP will contribute to progress towards achieving the statewide reliability performance targets.

Project Location	Project Description
Atlantic Ave from FL Turnpike to Cumberland Dr Atlantic Ave from Cumberland Dr to Jog Rd	Widen from 4 to 6 lanes, including 7' buffered bike lanes and 10' shared use paths where feasible
FL Turnpike from Beeline Hwy to PGA Blvd	Widen from 4 lanes to 8 lanes.
FL Turnpike from North of Glades RD to North of L-38 Canal	Widen from 6 lanes to 10 lanes, with improvements for future managed lanes
FL Turnpike from Okeechobee Blvd to Beeline Hwy/SR-710	Widen from 4 lanes to 8 lanes, with improvements for future managed lanes
FL Turnpike from Southern Blvd/SR-80 to Okeechobee Blvd	Widen from 4 lanes to 8 lanes
FL Turnpike from Broward County Line to Glades Rd	Widen from 6 lanes to 10 lanes and construct auxiliary lanes
Okeechobee Blvd from SR 7 to US-1; SR-7 from Forest Hill Blvd to Okeechobee Blvd	Implement Transit Signal Prioritization for entire corridor
US-1 from Northlake Blvd to Palmetto Park Rd	Implement Transit Signal Prioritization
Beeline Hwy/SR-710 from N Congress Ave to Barack Obama Hwy	Add connected vehicle elements, as well as traditional TSM&O to the corridor. Includes, but is not limited to, freight signal priority, CCTVs, Bluetooth devices, and ADMS

### Transit Asset Management (TAM)

On July 26, 2016, FTA published the final Transit Asset Management rule. This rule applies to all recipients and subrecipients of Federal transit funding that own, operate, or manage public transportation capital assets. The rule defines the term "state of good repair," requires that public transportation providers develop and implement transit asset management (TAM) plans and establishes state of good repair standards and performance measures for four asset categories: equipment, rolling stock, transit infrastructure, and facilities. The rule became effective on October 1, 2018. The table below identifies performance measures outlined in the final rule for Transit Asset Management (TAM).

#### **FTA TAM Performance Measures**

Asset Category	Performance Measure
Equipment	Percentage of non-revenue, support-service and maintenance vehicles that have met or exceeded their Useful Life Benchmark
Rolling Stock	Percentage of revenue vehicles within a particular asset class that have either met or exceeded their Useful Life Benchmark
Infrastructure	Percentage of track segments with performance restrictions
Facilities	Percentage of facilities within an asset class rated below condition 2.5 on the TERM scale

Within the TPA planning area, there are two Tier 1 providers, Palm Tran operated by Palm Beach County and Tri-Rail operated by the South Florida Transportation Authority. Tier 1 providers, defined by the TAM Rule, are those that operate rail service or more than 100 vehicles in all fixed route modes, or more than 100 vehicles or more in one non-fixed route mode.

#### <u>Useful Life Benchmark (ULB)</u>

For equipment and rolling stock classes, useful life benchmark (ULB) is defined as the expected lifecycle of a capital asset, or the <u>acceptable period of use in service</u>, for a particular transit provider's operating environment. ULB considers a provider's unique operating environment such as geography, service frequency, etc. and is not the same as an asset's useful life.

On September 19, 2019, the Palm Beach TPA incorporated transit asset targets that reflect the targets established by Palm Tran and SFRTA through their TAM Plans. The targets for the TPA planning area are shown in the table that follows. The Palm Beach TPA TIP is developed and managed in coordination with Palm Tran and SFRTA and reflects investment priorities established in the 2045 LRTP.

Palm Tran and the South Florida Regional Transportation Authority (SFRTA) initially established transit asset targets as part of their Transit Asset Management (TAM) Plans in September 2018 and have updated targets annually since. The transit asset management targets are based on the condition of existing transit assets and planned investments in equipment, infrastructure, rolling stock, and facilities. The targets reflect the most recent data available on the number, age, and condition of transit assets, and capital investment plans for improving these assets. The tables below summarize the asset conditions and targets by asset class for each transit provider.

## **Transit Asset Management Performance Measures Targets**

Percentage of assets that meet or exceeds useful life for		
Palm Tran	2023 Condition	2024 Target
Vehicles - Articulated Bus (> 14 yrs old)	0.0%	≤ 10%
Vehicles - Fixed Route Bus (> 14 yrs old)	0.0%	≤ 10%
Vehicles - Cutaway Bus (> 10 yrs old)	0.0%	≤ 13%
Equipment - Automobiles (> 4 yrs old or 100,000 miles)	43.4%	≤ 14%
Equipment - Trucks (> 4 yrs old or 100,000 miles)	0.05%	≤ 0%
Facilities (<2.5 on 1-5 scale)	0.0%	0%
South Florida Regional Transportation Authority	2023 Condition	2024 Target
Rolling stock – revenue vehicles (>39 yrs old)	31.58%	≤ 30%
Equipment – non-revenue support service & maintenance vehicles (>8 yrs old)	41%	≤ 41%
Facilities – stations, maintenance facilities, & operations center (<2.5 on 1-5 scale)	0%	≤5%
Rail fixed - guideway track with performance restrictions	0.16%	≤3%

Transit asset condition and state of good repair is a consideration in the methodology the Palm Beach TPA and the transit agencies use to select projects for inclusion in the TIP. The Palm Beach TPA's TIP, once implemented, will make progress toward achieving these targets. The Transit – Operations and Maintenance section of the TIP provides the full list of capital and operating expenses to maintain the Palm Tran system. Below is a short list of transit projects directly prioritized and funded by the TIP to improve Transit assets.

Transit Agency	Project Location	Project Description
SFRTA	Passenger Rail Cars	Purchase passenger rail cars
Palm Tran	Countywide	Construct and Replace Transit Shelters
Palm Tran	Electric Bus Transition Initiative	Purchase Electric Transit Buses and Charging Stations
Palm Tran	Countywide	Fixed Route Bus Replacement

#### Transit Safety Performance

The Federal Transit Administration (FTA) established transit safety performance management requirements in the Public Transportation Agency Safety Plan (PTASP) final rule published on July 19, 2018. The rule requires public transit agencies that receive federal funding under 49 U.S.C. Chapter 53 to develop and implement a PTASP. Rail operators, such as SFRTA, fall under different rules and are not required to include the same measures. The PTASP must include the following performance measures with associated targets:

- Total number of reportable fatalities and rate per total vehicle revenue miles (VRM) by mode.
- Total number of reportable injuries and rate per total vehicle revenue miles (VRM) by mode.
- Total number of reportable safety events and rate per total vehicle revenue miles (VRM) by mode.
- System reliability mean distance between major mechanical failures by mode.

Palm Tran adopted safety targets in their 2021 Public Transportation Agency Safety Plan. The Palm Beach TPA formally adopted Palm Tran's targets on February 18, 2022. Although Palm Tran is required to set targets annually, the TPA's re-adoption of targets is not required until an update of the next Long Range Transportation Plan (LRTP). Instead, the TPA is required to include Palm Tran's annually adopted targets into this TIP. Palm Tran's reported values for 2021 and new 2022 targets are indicated below.

#### **Transit Safety Performance Measures and Targets**

Performance Measure	Reported 2021	2022 Target
Palm Tran		
Fixed Route Bus		
Number of Fatalities	1	0
Fatality Rate per 100k VRM	0	0
Number of Injuries	34	63
Injury Rate per 100k VRM	0.5	0.9
Number of Safety Events	23	43
Safety Event Rate per 100k VRM	0.3	0.6
Mean distance between mechanical failures (miles)	12,719	14,000
Paratransit (Palm Tran Connection)		
Number of Fatalities	0	0
Fatality Rate per 100k VRM	0	0
Number of Injuries	17	34
Injury Rate per 100k VRM	0.2	0.4
Number of Safety Events	25	32
Safety Event Rate per 100k VRM	0.3	0.3
Mean distance between mechanical failures (miles)	15,581	7,700