MIAMI-DADE TPO
DATA COLLECTION AND SYSTEM ASSESSMENT

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Miami-Dade Transportation Planning Organization

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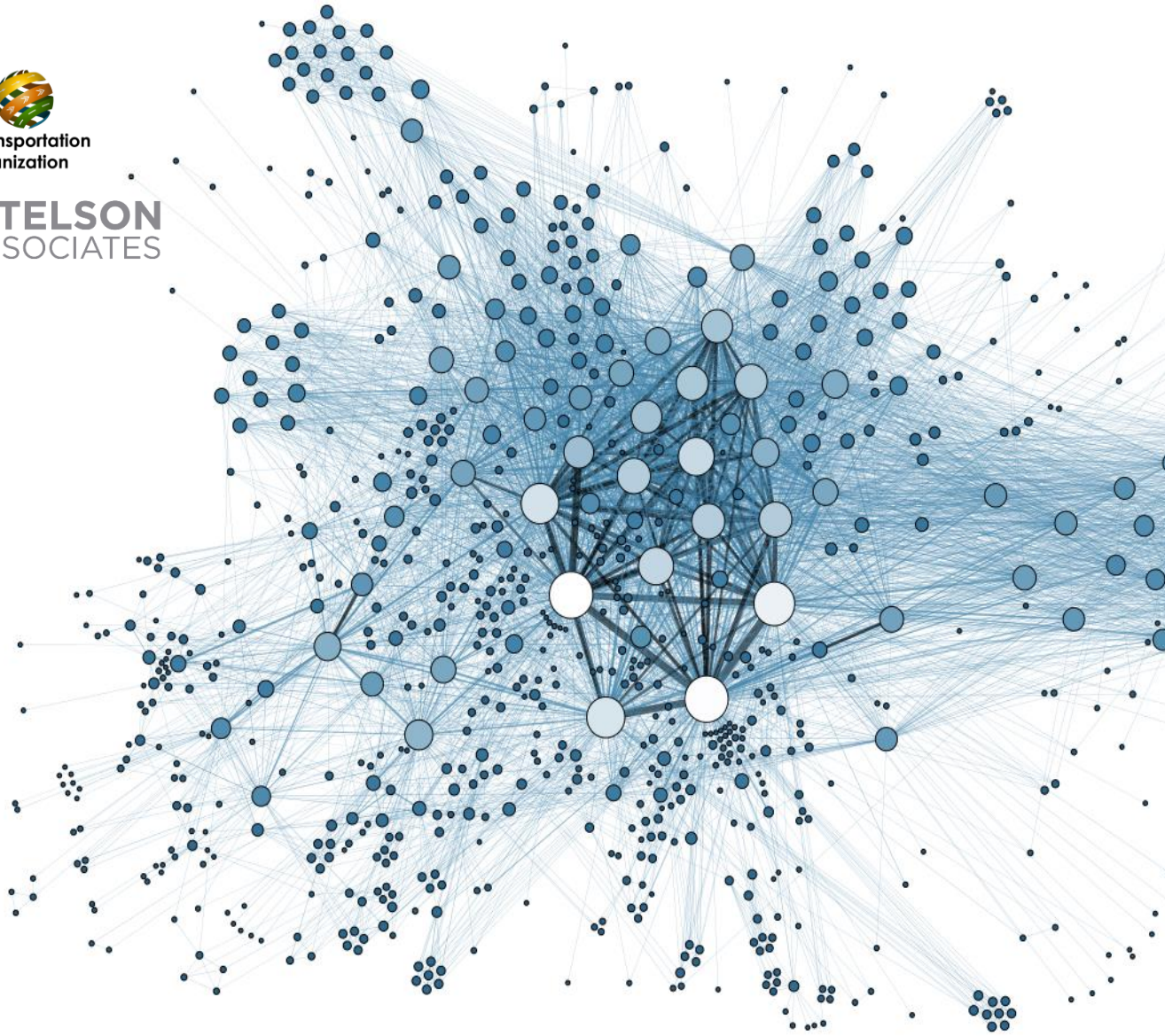

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INTRODUCTION

The project team has developed a performance-based geodatabase for use by the Miami-Dade Transportation Planning Organization (TPO). Performance Management is a strategic approach to connect investment and policy decisions to help achieve performance goals; to set performance targets; and monitor progress toward the targets. Performance measures provide quantitative criteria used to evaluate progress toward the TPO's goals. Performance measure targets are the benchmarks against which progress is assessed using available data. A replicable system of assessing performance measures allows the TPO to understand the impacts of investments over time using a consistent data driven approach.

The Moving Ahead for Progress in the 21st Century Act (MAP-21) requires state departments of transportation and metropolitan planning organizations (MPOs) to conduct performance-based planning by tracking performance measures and establishing data-driven targets to improve performance measures. The efficient investment of transportation funds with performance-based planning increases accountability, provides transparency, and links investment decisions to outcomes connected to seven national goals:

- Improving safety
- Maintaining infrastructure condition
- Reducing traffic congestion
- Improving the efficiency of the system
- Improving freight movement and economic vitality
- Protecting the environment
- Reducing delays in project delivery

The Fixing America's Surface Transportation (FAST) Act creates timelines for state DOTs and MPOs to comply with MAP-21 requirements. FDOT and MPOs must coordinate to set performance targets for the PM1, PM2, and PM3 performance targets. Public transportation providers must also coordinate with states and MPOs to select performance targets for transit asset management and transit safety. The Miami-Dade TPO can use the performance measures geodatabase to track trends in its system performance and understand how investments are affecting areas that need improvements. The network used for the geodatabase is the National Highway System limited to Miami-Dade County. The "Computation of Metrics" section provides a description and justification for the different measures' segmentation, while the "Master Segmentation" feature class provided with the geodatabase has the various measures overlaid onto a single segmentation.

PERFORMANCE MEASURES BACKGROUND

Performance Measure 1 - Safety (PM1)

Safety represents the first performance management category as defined by the United States Department of Transportation (USDOT). FDOT is committed to eliminating fatalities and serious injuries with the understanding that the death or serious injury of any person is unacceptable. Therefore, FDOT has established zero as the only acceptable target for all its federal safety performance measures. FDOT reaffirms this commitment each year in setting annual safety targets. The performance measures for PM1 – Safety are as follows:

- Number of Fatalities
- Rate of Fatalities
- Number of Serious Injuries
- Rate of serious injuries
- Number of non-motorized fatalities
- Number of non-motorized serious injuries

The Florida Transportation Plan (FTP), the state's long-range transportation plan, identifies eliminating transportation related fatalities and serious injuries as the state's highest transportation priority. Florida's Strategic Highway Safety Plan (SHSP), which will be updated in early 2021, specifically embraces Vision Zero/Target Zero and identifies strategies to achieve zero traffic deaths and serious injuries.

As documented in the Federal Highway Administration (FHWA) Highway Safety Improvement Program (HSIP) Implementation Plan, Florida received an allocation of approximately $155 million in HSIP funds during the 2018 state fiscal year from July 1, 2018 through June 30, 2019, and fully allocated those funds to safety projects. FDOT used these HSIP funds to complete 391 projects, which address the safety categories of intersections, lane departure mitigation, pedestrian and bicyclist safety, and other programs representing SHSP emphasis areas.

FDOT updates the HSIP annually, working closely with the FDOT districts and its traffic safety partners to analyze crash data and identify projects that apply proven countermeasures to locations with safety issues specific to the SHSP emphasis areas, resulting in an evolving list of projects prioritized in coordination with partner agencies. While these projects and the associated policies and standards may take years to be implemented, they are predicated on proven countermeasures for improving safety and addressing specific safety challenges. Florida allocates and continues to allocate all available HSIP funding to these projects.

The Miami-Dade TPO sets their target for safety as zero, aligning with the Florida Department of Transportation to set the standard that even one human life lost is not acceptable. The safety performance measures are reported on a rolling, five-year average of safety metrics. These metrics include total crashes, crash rates, and change in the metrics from the previous five-year period. In

addition to reporting the metrics in absolute value terms, the federal requirements for safety measures require calculating rates of crashes based on vehicle miles traveled (VMT). These rates allow critical safety issues to be observed as a fraction of the total vehicular traffic on a roadway. Two roadways may have the same number of crashes, while one roadway would have significantly less vehicular traffic. In this case, the low-traffic roadway may have a critical safety issue resulting in a higher proportion of road users being involved in crashes. Table 1 summarizes the safety performance measures, with all targets shown as zero, adopted by the TPO Board in March 2021 under Resolution 15-2021.

Table 1. FDOT Safety Performance Targets

Safety Performance Measure	One-Year Target
Number of Fatalities	Zero
Rate of fatalities per 100 million vehicle miles traveled (VMT)	Zero
Number of Serious Injuries	Zero
Rate of Serious Injuries per 100 million vehicle miles traveled (VMT)	Zero
Number of non-motorized fatalities and serious injuries combined	Zero

Performance Measure 2 - Pavement and Bridge Condition (PM2)

Pavement and bridge condition is the second category of performance management, as defined by USDOT. FDOT initially sets targets for pavement and bridge condition, and MPOs can choose to adopt the statewide targets, or set its own metropolitan area targets. The Miami-Dade TPO Governing Board agreed to support the pavement and bridge condition targets set by FDOT. The measures for PM2 – Pavement and Bridge Condition include the following:

- Pavement on the Interstate System
  - Percentage of pavement on the Interstate system in good condition
  - Percentage of pavement on the Interstate system in poor condition
- Pavement on the non-Interstate National Highway System
  - Percentage of pavement on the non-Interstate National Highway System (NHS) in good condition
  - Percentage of pavement on the non-Interstate NHS in poor condition
- Bridges on the NHS
  - Percentage of NHS bridges classified as in good condition
  - Percentage of NHS bridges classified as in poor condition

Table 2 and 3 summarize the FDOT targets for pavement and bridge condition measures, respectively. The FDOT 4-year targets were adopted by the TPO Board in October 2018 under Resolution 44-18. The good/poor measures are expressed as a percentage. For pavement, this percentage is determined by summing the total lane-miles of good or poor highway segments and dividing by the total lane-miles of all highway segments on the system. For bridges, this percentage uses the good or poor deck area of all

bridges divided by the total deck area of all bridges. Pavement and bridges in good condition suggest that no major investment is needed and should be considered for preservation treatment. Pavement in poor condition suggests a need for investment in resurfacing and/or reconstruction projects due to either poor ride quality or structural deficiency. Bridges in good condition are safe to drive on. However, bridges in poor condition are approaching the need for either replacement or significant reconstruction.

Table 2. FDOT Pavement Condition Targets

Pavement Condition Measure	Two-Year Target	Four-Year Target
% of Interstate pavements in Good condition	Not Required	≥ 60%
% of Interstate pavements in Poor condition	Not Required	≤ 5%
% of non-Interstate NHS pavements in Good condition	≥ 40%	≥ 40%
% of non-Interstate NHS pavements in Poor condition	≤ 5%	≤ 5%

Table 3. FDOT Bridge Condition Targets

Bridge Condition Measure - National Highway System	Two-Year Target	Four-Year Target
% of NHS bridges classified as in Good condition by deck area	≥ 50%	≥ 50%
% of NHS bridges classified as in Poor condition by deck area	≤ 10%	≤ 10%

PM3 – System Performance

In January 2017, USDOT published the System Performance/Freight/CMAQ Performance Measures Final Rule to establish measures assessing passenger and freight performance on the Interstate and non-Interstate National Highway System (NHS). These measures assess non-recurring traffic congestion and on-road mobile source emissions in areas that do not meet federal National Ambient Air Quality Standards (NAAQS). The rule, referred to as the PM3 rule, requires state DOTs and MPOs to establish targets for the following six performance measures:

National Highway Performance Program (NHPP)

1. Percent of person-miles on the Interstate system that are reliable, also referred to as Level of Travel Time Reliability (LOTTR)
2. Percent of person-miles on the non-Interstate NHS that are reliable (LOTTR)

National Highway Freight Program (NHFP)

3. Truck Travel Time Reliability index (TTTR)

Congestion Mitigation and Air Quality Improvement Program (CMAQ)

4. Annual hours of peak hour excessive delay per capita (PHED)
5. Percent of non-single occupant vehicle travel (Non-SOV)

6. Cumulative 2-year and 4-year reduction of on-road mobile source emissions (NOx, VOC, CO, PM10, and PM2.5) for CMAQ funded projects

The Miami-Dade TPO Governing Board adopted FDOT's 4-year PM3 targets in October 2018 under Resolution 44-18. The entire state of Florida is currently in air quality attainment status, so measures 4, 5, and 6 are not applicable to FDOT or the Miami-Dade TPO. Table 4 provides the system reliability targets set by FDOT. The reliability measure is based on the computation of travel time variability, which is defined as the ratio of 80th percentile travel time to median travel time, or for heavy trucks the ratio uses 95th percentile travel time in the numerator. For general travel time reliability, a ratio of 1.5 is considered the threshold, with travel time variability greater than 1.5 considered unreliable. The reliability computations are described in more detail in the COMPUTATION OF METRICS section below.

Table 4. FDOT Reliability Targets

Reliability Measure - National Highway System	Two-Year Target	Four-Year Target
% of person-miles traveled on the Interstate that are reliable	75%	70%
% of person-miles traveled on the non-Interstate NHS that are reliable	Not Required	50%
Truck travel time reliability ratio (TTR) on the Interstate	1.75	2.00

Transit Asset Management (TAM) and Public Transportation Agency Safety Plan (PTASP)

The Federal Transit Administration (FTA) published the final TAM rule in July 2016, which requires public transportation providers to develop and implement TAM plans. The rule also establishes state of good repair standards and performance measures for rolling stock, transit infrastructure, and facilities. The TAM performance measures are as follows:

- Percentage of non-revenue, support-service and maintenance vehicles that have met or exceeded their Useful Life Benchmark
- Percentage of revenue vehicles within a particular asset class that have either met or exceeded their Useful Life Benchmark
- Percentage of track segments with performance restrictions
- Percentage of facilities within an asset class rated below condition 3 on the Transit Economic Requirements Model (TERM) scale

In Table 5, the state of good repair performance measures are broken out by sub-category with the Miami-Dade Department of Transportation and Public Works (DTPW) targets provided.

Table 5. TAM State of Good Repair Performance Measures

FTA State of Good Repair Performance Measures		One-Year Target (FY 20)
% of revenue vehicles within a particular asset class that have met or exceeded their useful life benchmark	Bus	54%
	Mini-Bus	0%
	Metrorail	23%
	Metromover	0%
% of equipment or non-revenue vehicles within a particular asset class that have met or exceeded their useful life benchmark	Automobile	40%
	Steel Wheel Vehicles	71%
	Trucks & Other Rubber Tire Vehicles	55%
% of track segments with performance restrictions	Rail Fixed Guideway	0%
	Mover Automated Guideway	0%
% of assets with condition rating below 3.0 on the FTA Transit Economic Requirements Model (TERM) scale	Maintenance & Administrative	0%
	Passenger & Parking	0%

In addition to the TAM rule, the final Public Transportation Agency Safety Plan (PTASP) rule was published in July 2018 and requires public transportation providers to develop and implement PTASP plans. The PTASP must include targets for the performance measures the FTA established in the National Public Transportation Safety Plan. The transit safety performance measures are as follows:

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

The FTA does not specify how transit providers must set their safety targets. The FTA does specify that an agency's targets should be set based on safety data reported for each mode to the National Transit Database in the past year or an average of data per mode reported over a certain number of years.

For the performance measures geodatabase, bus incidents are provided as a point shapefile; one feature class provides the raw data while another is queried on incidents that resulted in revenue miles lost. This raw data can be used in future work but is currently not formatted or processed. Additional TAM and transit data were not available and therefore not included in the geodatabase.

DATA COLLECTION

One of the key criteria in the development of a performance management system that is reliant on data is the availability and sustainability of the data identified to support it. Data necessary to establish 2019 baseline performance in Miami-Dade County and the geodatabase that will form the basis for future performance analysis were vetted to ensure availability for future updates. The data supporting this effort are consistently procured and/or collected by TPO planning partners, including the FDOT and the University of Florida. In all cases, the data can reasonably be expected to be available over time to support the TPO's performance management program.

Safety

Crash data was obtained from Signal Four Analytics (S4) for 2019. The data contains identifiers for latitude, longitude, and crash severity to identify fatalities and serious injuries. To calculate crash rates per 100 million VMT, directional AADT, K factors, day of week factors and travel direction factors were obtained from FDOT to compute daily VMT.

Bridge and Pavement Condition

Pavement condition data was obtained from the FDOT Roadway Characteristics Inventory (RCI) in the form of $1/10^{th}$ mile segments. Bridge data was obtained from the National Bridge Inventory (NBI) provided by the Federal Highway Administration as point data. Fields to calculate the deck area for the area-wide performance metric were also available from the NBI.

System Performance

Speed and travel time data were obtained through the FDOT's RITIS Massive Data Downloader. LOTTR computations used travel times from HERE Technologies, though the HERE data were verified to be different from the travel times in the 2019 National Performance Research Data Set (NPMRDS) INRIX data. These INRIX travel times were used to compute TTTR and LOTTR compliant with MAP-21 requirements to inform summary statistics, but HERE data were used to construct the geodatabase, for more comprehensive coverage. Both LOTTR and TTTR used travel times averaged to 15-minute intervals at all times of the day from January 1, 2019 to December 31, 2019. Speed and travel time data are

provided on segments referred to as traffic messaging channels (TMC) that further define the segmentation used for speed data-based performance measures.

Recurring Congestion

While PM3 addresses non-recurring congestion, the team also leveraged speed data to compute measures for recurring congestion. The speed and travel time data used to calculate PM 3 were leveraged to calculate recurring congestion. The calculation divided average travel speed by posted speed. The posted speed dataset from RCI was used for the calculation.

COMPUTATION OF METRICS

Safety

To calculate safety metrics, the S4 data was queried on specific fields that identified the types of crashes. The "Fatalities", "Incapacitating_Injuries, and "Non_Motorists" fields were used to identify fatalities, serious injuries, non-motorized fatalities, and non-motorized injuries. From the S4 data, the field "Incapacitating_Injuries" was used to identify serious injuries.

To calculate rate of crashes on the Miami-Dade NHS, the 2020 FDOT Source Book was leveraged as a tool for associating crashes with VMT. The FDOT Source Book is a tool that uses roadway characteristic data like AADT and an additional computational process to compute measures like VMT with additional hourly, directional, and day of week factors incorporated. The Source Book has the computed measures associated with a unique Source Book segmentation defined by changes in roadway features like geometry or AADT. Crashes were spatially associated with the FDOT 2020 Source Book network if they were within 100 feet of the network. The 2020 Source Book provides 2019 conditions for daily VMT. By dividing the crashes associated with a segment by the daily VMT on that segment, a rate of crashes per 100 million VMT can be obtained.

Bridge and Pavement Condition

The PM2 performance category requires the pavement types to be grouped into the following three categories: Asphalt, Jointed and continuously reinforced concrete pavements (CRCP). Each pavement category requires a separate method of applying a "good", poor", or "fair" rating. For example, while rutting depth is a criterion for assessing asphalt pavement quality, jointed pavement uses faulting depth instead. There is a similar quantity of asphalt and jointed pavement on the Interstate system, with 11.5 miles of pavement being asphalt and 11.2 miles of pavement being jointed. On the non-Interstate NHS, the majority of pavement is in the asphalt category. On the non-Interstate NHS, 392.7 miles of pavement is asphalt while only 2.0 miles of pavement are jointed. No pavement was identified as CRCP. The surface types were grouped as follows:

- **Asphalt**:
    - Bituminous Asphalt Concrete (BAC)
    - BAC Overlaid On BAC Pavement
    - BAC Overlaid on Jointed Plain Concrete Pavement (JPCP)
    - BAC Overlaid on Jointed Reinforced Concrete Pavement (JRCP)
- **Jointed Plain Concrete Pavement (JPCP)**
- **Continuously Reinforced Concrete Pavement (CRCP)**

As stated in the PM2 rule and shown in Table 6, the thresholds for each of the pavement performance metrics were applied.

Table 6. Thresholds For Pavement Condition Ratings

Metric Rating	Good	Fair	Poor
International Roughness Index (IRI) (inches/mile)	< 95	95 – 170	> 170
Cracking Percent (%)	< 5	CRCP: 5 – 10 Jointed: 5 – 15 Asphalt: 5 – 20	CRCP: > 10 Jointed: > 15 Asphalt: > 20
Rutting (inches) (for asphalt only)	< 0.20	0.20 – 0.40	> 0.40
Faulting (inches) (for jointed only)	< 0.10	0.10 – 0.15	> 0.15

The following sections were excluded prior to computing all pavement condition measures:

- Sections where the Bridge and Culvert Numeric fields had entries, identifying the segment as a bridge or culvert
- Sections that have an unpaved surface type or an “other” surface type (such as cobblestone, planks, bricks)
- Sections with missing and invalid data

Overall pavement condition for respective roadway sections is based on the pavement type, and the criteria are described in Table 7. There are a number of segments in the NHS network with gaps in one or more of the pavement rating criteria, causing the composite rating to return a null value. Pavement rating for these segments was overridden with a computation using the available criteria. For example, if a segment only had IRI and cracking reported, the segment would have an overall condition of “Good” if both criteria ranked as “Good”. If at least one of the criteria ranked as “Poor”, the segment would rank overall as ‘Poor”. Where a segment had only one piece of data, for example, IRI, the overall rating of that segment would be the rating of the IRI.

Table 7. Criteria For Overall Segment Rating

	Good	Fair	Poor
Asphalt	Section exhibits good rating for all three conditions: • IRI • Cracking Percent • Rutting	Sections not categorized as Good or Poor	Section exhibits poor rating for two or more of the three conditions: • IRI • Cracking Percent • Rutting
Jointed	Section exhibits good rating for all three conditions: • IRI • Cracking Percent • Faulting	Sections not categorized as Good or Poor	Section exhibits poor rating for two or more of the three conditions: • IRI • Cracking Percent • Faulting
CRCP	Section exhibits good rating for both the following conditions: • IRI • Cracking Percent	Sections not categorized as Good or Poor	Section exhibits poor rating for both the following conditions: • IRI • Cracking Percent

The pavement condition measures were calculated using the 1/10th mile segments scored by Good, Fair, and Poor. The segments are located along the FDOT linear referencing system and comprise a different segmentation from the segmentation used by the FDOT Source Book due to their 1/10th mile lengths. In Equation 1. Percent of Pavement in Good Condition, "section g" refers to the portion of the pavement section with a "Good" rating, and "n" refers to the total number of segments in the network. "Section t" refers to the entire pavement section.

Equation 1. Percent of Pavement in Good Condition

$$Percent\ In\ Good\ Condition = 100 \times \frac{\sum_1^n \{(End_{Point} - Begin\_Point) \times Through\_Lanes\}_{section\ g}}{\sum_1^n \{(End_{Point} - Begin\_Point) \times Through\_Lanes\}_{section\ t}}$$

In Equation 2. Percent of Pavement in Poor Condition, "section p" refers to the subset of the network segments with a "Poor" rating, and "n" refers to the total number of segments in the network. "Section t" refers to the entire pavement section.

Equation 2. Percent of Pavement in Poor Condition

$$Percent\ In\ Poor\ Condition = 100 \times \frac{\sum_{p=1}^n \{(End_{Point} - Begin\_Point) \times Through\_Lanes\}_{section\ p}}{\sum_{t=1}^n \{(End_{Point} - Begin\_Point) \times Through\_Lanes\}_{section\ t}}$$

Like pavement condition, the bridge condition measure aggregates the deck area of bridges assigned an overall 'Good", 'Fair", or "Poor" rating to assess performance. Bridge deck, substructure, and superstructure are each assigned a rating from one to nine. If the lowest rating of the bridge components is greater than or equal to seven, the bridge is classified as "Good". If the lowest rating of the bridge components is less than or equal to four, the bridge is classified as "Poor".

System Performance

The system performance measures LOTTR and TTTR identify the reliability of roadways in serving all vehicular traffic and truck traffic, respectively. These reliability measures provide an understanding of roadway performance in terms of non-recurring congestion. While a measure like annual average travel time can report roadway congestion, it does not offer an understanding of what riders would experience from unexpected delays. LOTTR and TTTR therefore compare a roadway's 80th or 95th percentile travel time against its median travel time to represent time added onto trips from unexpected delays. In Equation 3. Level of Travel Time Reliability (LOTTR), LOTTR is calculated as the ratio of the 80th percentile travel time (TT_{80}) and the 50th percentile (median) travel time (TT_{50}). LOTTR was calculated for each TMC, representing the NHS.

Equation 3. Level of Travel Time Reliability (LOTTR)

$$LOTTR = \frac{TT_{80}}{TT_{50}}$$

Travel time measurements were grouped into four bins for each TMC segment:

- Weekdays from 6:00 AM to 10:00 AM – Weekday AM Peak Period
- Weekdays from 10:00 AM to 4:00 PM – Weekday Midday Peak Period
- Weekdays from 4:00 PM to 8:00 PM – Weekday PM Peak Period
- Weekends from 6:00 AM to 8:00 PM – Weekend Period

The data was checked for null values within the travel time at the posted speed limit, and none were found, so converting speeds to travel times using segment lengths was not necessary. The worst ratio of the four is selected to represent that roadway section. The worst time period LOTTR value was compared to the threshold value of 1.50. If the segment value was below 1.50, that segment was labeled reliable; if the value was 1.50 or more, the segment is labeled unreliable. The annual person-miles of travel on that road segment was placed into a category of "reliable" or "unreliable".

In Equation 4. Truck Travel Time Reliability (TTTR), TTTR is calculated as the ratio of the 95_{th} percentile travel time (TT_{80}) and the 50_{th} percentile (median) travel time (TT_{50}).

Equation 4. Truck Travel Time Reliability (TTTR)

$$TTTR = \frac{TT_{95}}{TT_{50}}$$

While FHWA only requires reporting on TTTR for Interstate facilities, like LOTTR, TTTR was calculated for each TMC representing the NHS. TTTR used the same time periods as LOTTR, but it had an additional overnight period. The periods calculated for TTTR are as follows:

- Weekdays from 6:00 AM to 10:00 AM – Weekday AM Peak Period
- Weekdays from 10:00 AM to 4:00 PM – Weekday Midday Peak Period
- Weekdays from 4:00 PM–8:00 PM – Weekday PM Peak Period
- Weekdays from 8:00 PM to 6:00 AM – Overnight Period
- Weekends from 6:00 AM to 8:00 PM – Weekend Period

The worst ratio of the five was selected to represent that roadway section. The data was checked for null values within the travel time at the posted speed limit, and none were found, so converting speeds to travel times using segment lengths was not necessary. The worst ratio of the five was selected to represent that roadway section. The segmentation for displaying reliability was based on a conflation effort supported by FDOT to have segments of speed and travel time data downloaded from RITIS associated with the FDOT linear referencing system. This segmentation is therefore different from both the Source Book and pavement condition segmentations.

Recurring Congestion

As a supplement to the federally required measures, the project team also computed the mean speed during the identified periods used in the LOTTR and TTTR calculations and compared the lowest mean speed to the posted speed limit. This Percent of Posted Speed Limit measure provided the network a measure to display as a proxy for recurring congestion during the worst-performing period for both mixed-flow traffic and truck traffic.

DISPLAYING METRICS AND STORING DATA

The system results for the performance measures tabulated in tables 8 through 10 are consistent with FDOT data summaries provided to the TPO for the year 2019. The geodatabase constructed as part of this task was not used to summarize system level measures, rather, it will be used for segment level analysis.

Safety

Crashes are available as point data in the geodatabase, while crash rates are available through a line feature class segmented to the 2020 FDOT Source Book segmentation. Crashes and rates are displayed in a series of maps in the attached Map Compendium, including:

- Map 1. 2019 Fatalities
- Map 2. 2019 Fatalities Per 100 Million VMT
- Map 3. 2019 Serious Injuries
- Map 4. 2019 Serious Injuries Per 100 Million VMT
- Map 5. 2019 Non-Motorized Fatalities
- Map 6. 2019 Non-Motorized Serious Injuries

Table 8 summarizes the 2015-2019 annual average results for safety performance measures and figures 1 through 3 illustrate the results in current and previous reporting periods for fatality rates, serious injury rates, and non-motorized fatalities and serious injuries in Miami-Dade County and statewide.

Table 8. PM1 – 2015-2019 Safety Results for Miami-Dade County

Measure	Value
Fatalities	302
Fatalities Per 100 Million VMT	1.48
Serious Injuries	1,664
Serious Injuries Per 100 Million VMT	8.2
Non-Motorized Fatalities and Serious Injuries	427

Source: FDOT

Figure 1. PM1 – Fatality Rate in Miami-Dade and Florida

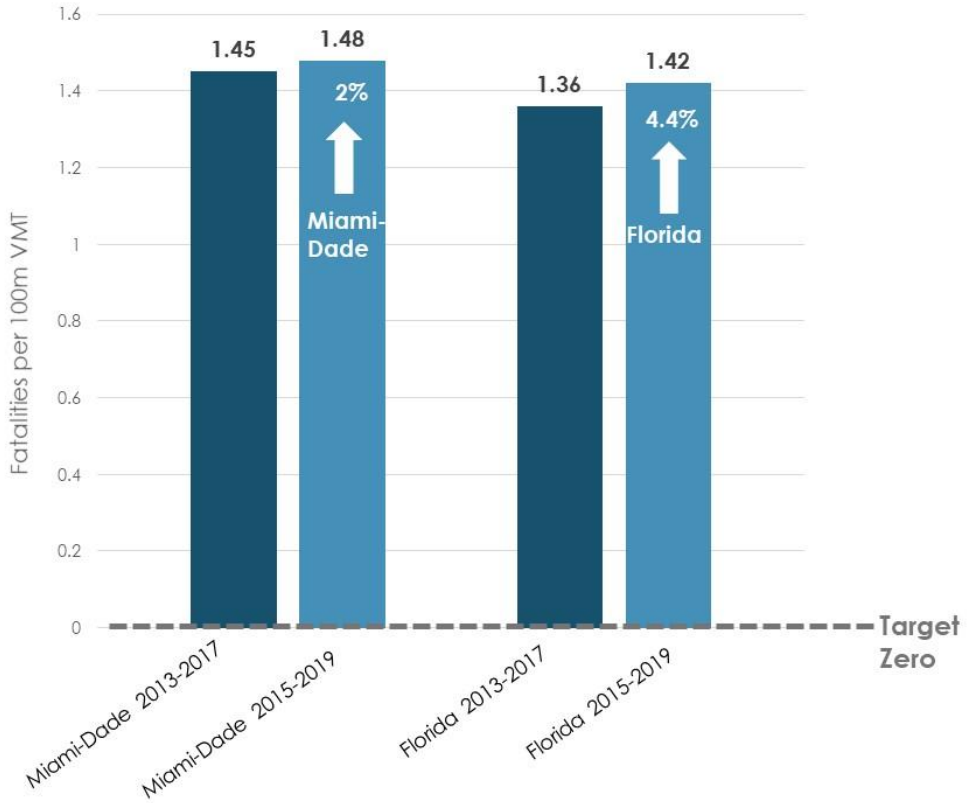


Figure 2. PM1 – Serious Injury Rate in Miami-Dade and Florida

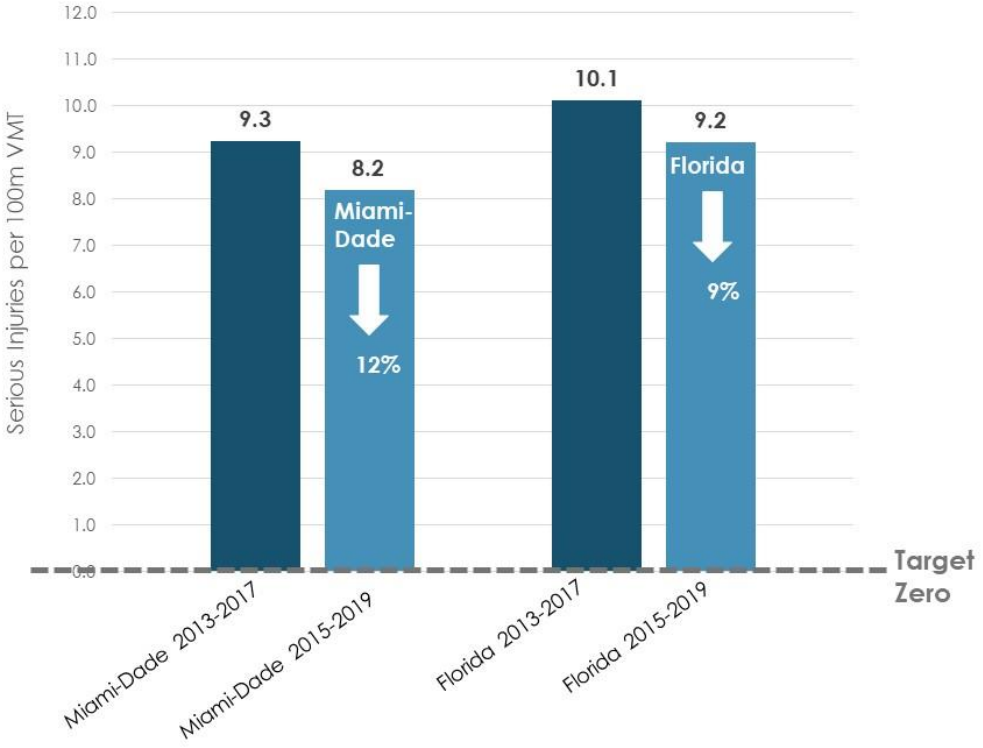
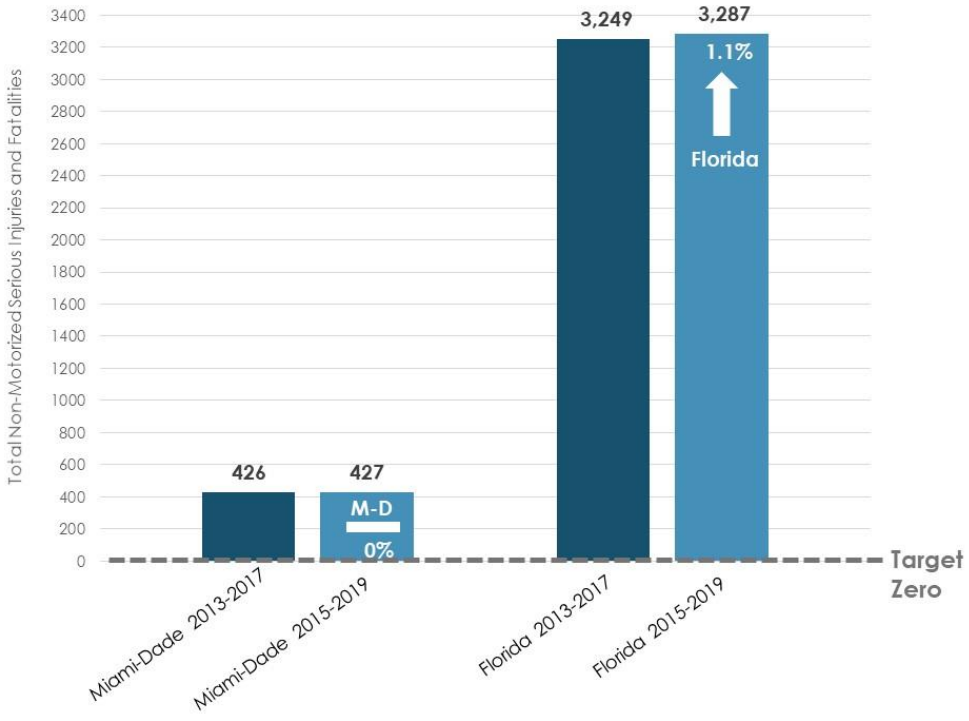


Figure 3. PM1 – Non-Motorized Fatalities and Serious Injuries in Miami-Dade and Florida



Bridge and Pavement Condition

Pavement condition is displayed as a line feature class in a series of maps in the attached Map Compendium, including:

- Map 7. Interstate Pavement Condition
- Map 8. Non-Interstate NHS Pavement Condition

Bridge data is available as a point feature class in the geodatabase and is displayed in Map 9. Bridge Condition. Pavement data is available as a line feature class broken out by Interstate and non-Interstate segments in the geodatabase. Table 9 summarizes the 2019 results and figures 4 through 6 illustrate the results in current and previous reporting periods for bridge and pavement condition in Miami-Dade County and statewide.

Table 9. PM2 – 2019 Pavement and Bridge Condition Results for Miami-Dade County

Measure	Value
Percentage of pavements on the Interstate system in good condition	74.3% of Lane Miles
Percentage of pavements on the Interstate system in poor condition	0.0% of Lane Miles
Percentage of pavements on the non-Interstate NHS in good condition	47.3% of Lane Miles
Percentage of pavements on the non-Interstate NHS in poor condition	0.1% of Lane Miles
Percentage of NHS bridges classified as in good condition	62.5% of Deck Area
Percentage of NHS bridges classified as in poor condition	0.1% of Deck Area

Source: FDOT

Figure 4. PM2 – Interstate Pavement Condition in Miami-Dade and Florida

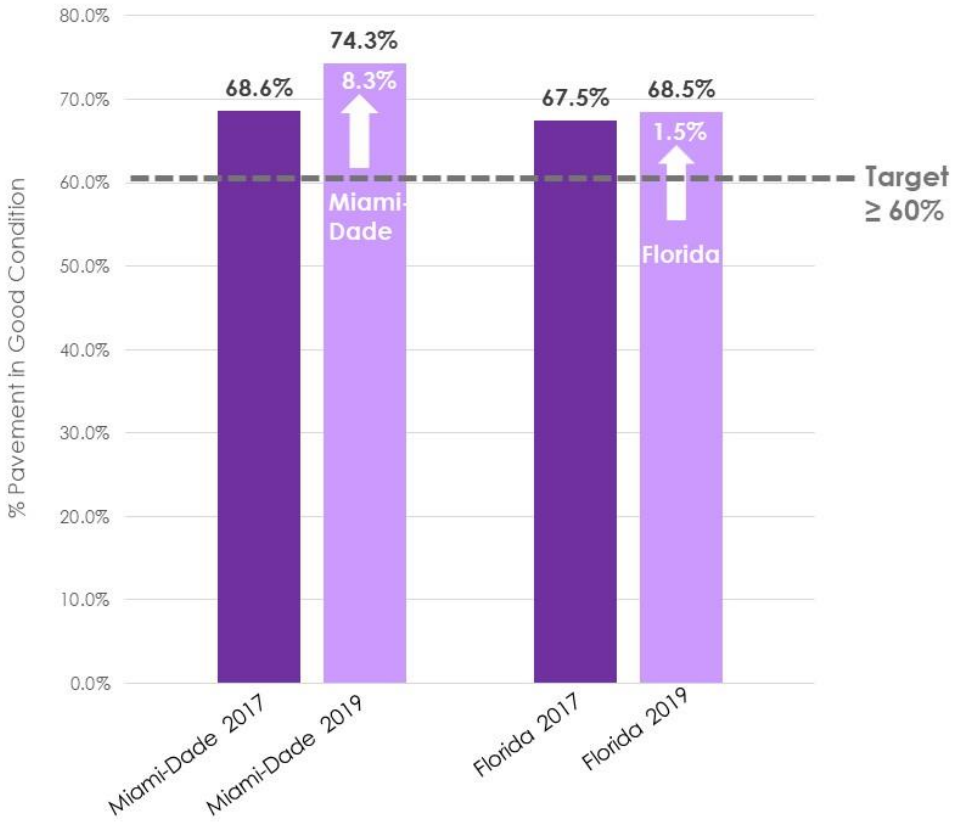


Figure 5. PM2 – Non-Interstate Pavement Condition in Miami-Dade and Florida

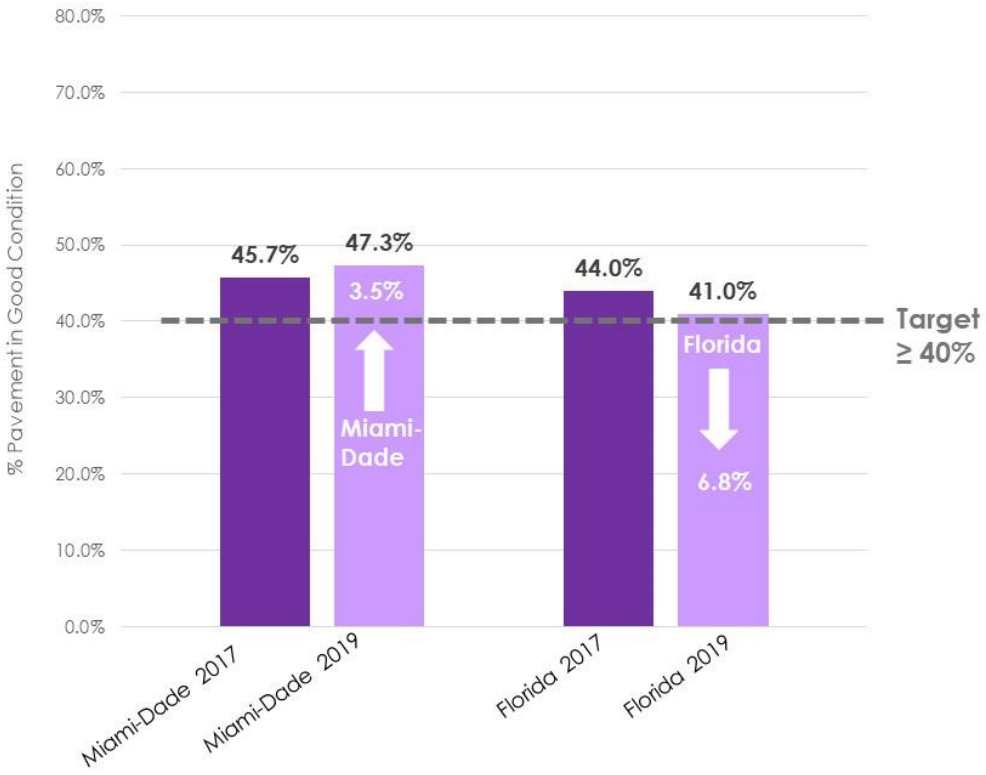
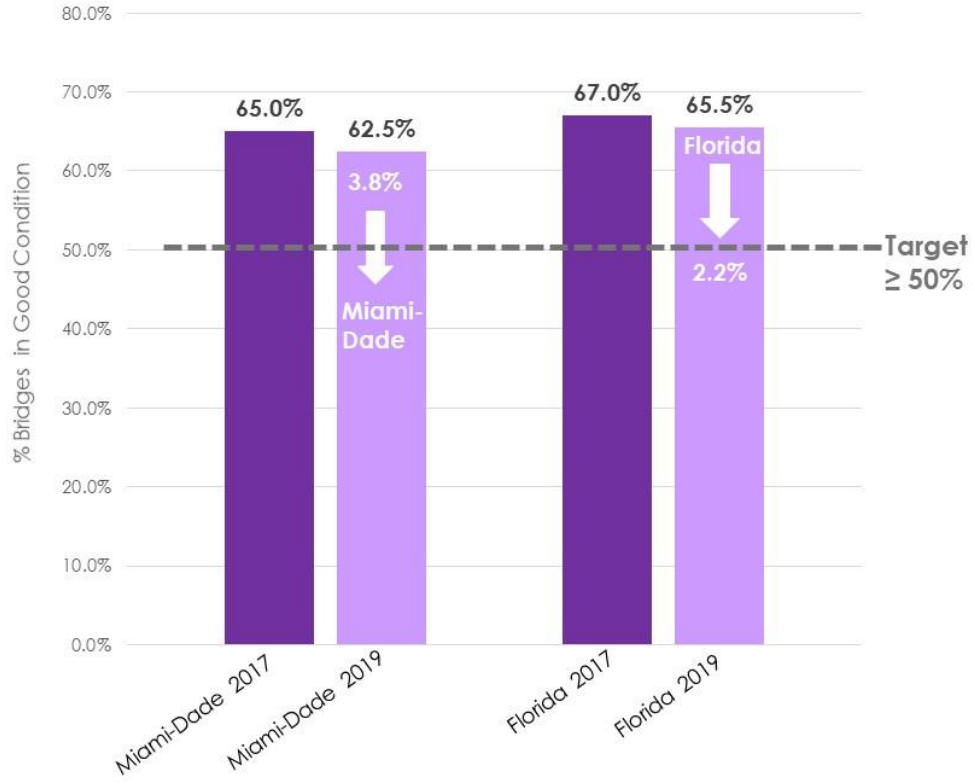


Figure 6. PM2 – Bridge Condition in Miami-Dade and Florida



System Performance and Recurring Congestion

LOTTR is displayed as a line feature class in the Map Compendium in a series of maps including:

- Map 10. Interstate Level of Travel Time Reliability (LOTTR)
- Map 11. Interstate Level of Travel Time Reliability (LOTTR) - Gradient
- Map 12. Non-Interstate Level of Travel Time Reliability (LOTTR)
- Map 13. Non-Interstate Level of Travel Time Reliability (LOTTR) - Gradient
- Map 14. Truck Travel Time Reliability (TTTR)

These maps together use four feature classes to display reliability; these include feature classes for Interstate and Non-Interstate with separate feature classes for negative and positive directions of travel. Maps 10 and 12 display LOTTR with the federal reliability target of 1.5 differentiating reliable (green) segments from unreliable (red) segments.

Likewise, TTTR is displayed in Map 14. Since Miami-Dade TTTR typically falls above the reliability target of 1.5 in 2019, TTTR was scaled using a gradient at a countywide level to better represent facilities with reliability issues. Since the calculation of both LOTTR and TTTR selects the worst-performing time period's measure to be reported, the worst performing time period's measure is likewise displayed. Table 10 summarizes the 2019 results and figures 7 through 9 illustrate the results in current and previous reporting periods for system performance measures in Miami-Dade County and statewide.

Finally, two maps are included in the Compendium to display recurring congestion measures defined by the ratio of observed speed to posted speed, including:

- Map 15. Interstate Percent of Speed Limit Achieved by Mean Speed
- Map 16. Non-Interstate Percent of Speed Limit Achieved by Mean Speed

Maps 15 and 16 display recurring congestion in terms of the minimum directional mean speed divided by posted speed limit for the identified time periods from the LOTTR calculation.

Table 10. PM 3 – 2019 System Performance Results for Miami-Dade County

Measure	Value
Percent of person-miles traveled on the Interstate that are reliable, represented by Level of Travel Time Reliability (LOTTR)	57% of Person-Miles Traveled
Percent of person-miles traveled on the non-Interstate NHS that are reliable	62% of Person-Miles Traveled
Truck Travel Time Reliability (TTTR) Index on the Interstate	3.08

Source: FDOT

Figure 7. PM3 – Percent Reliable Person Miles Traveled on Interstate in Miami-Dade and Florida

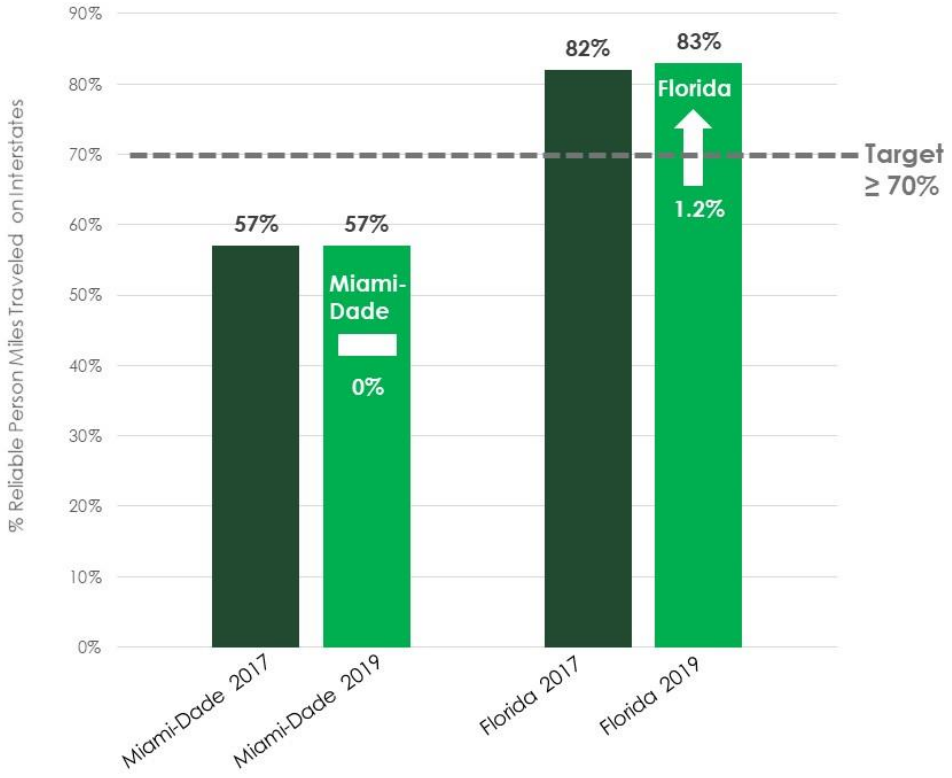


Figure 8. PM3 – Percent Reliable Person Miles Traveled on Non-Interstate in Miami-Dade and Florida

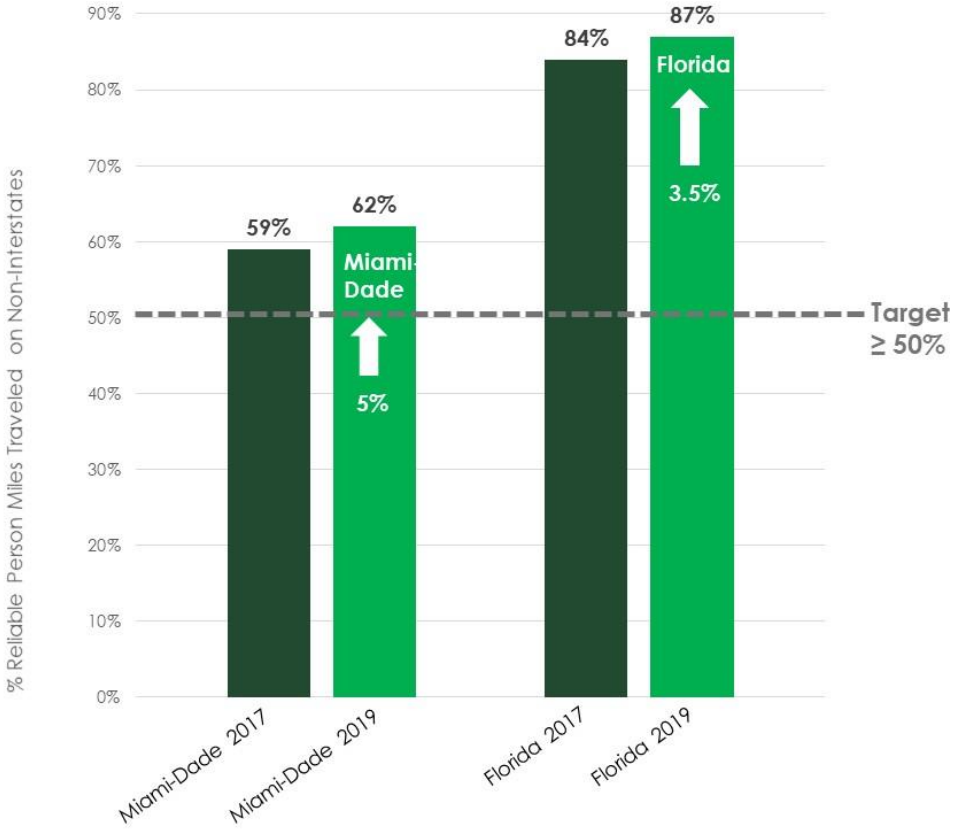
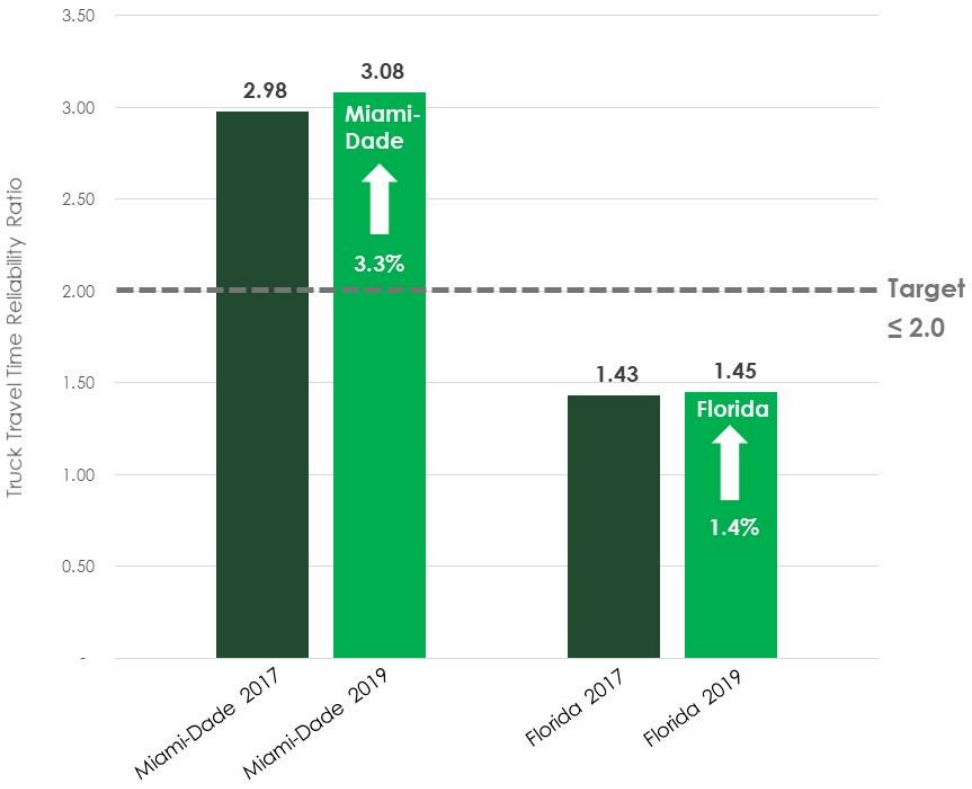


Figure 9. PM3 – TTTR in Miami-Dade and Florida

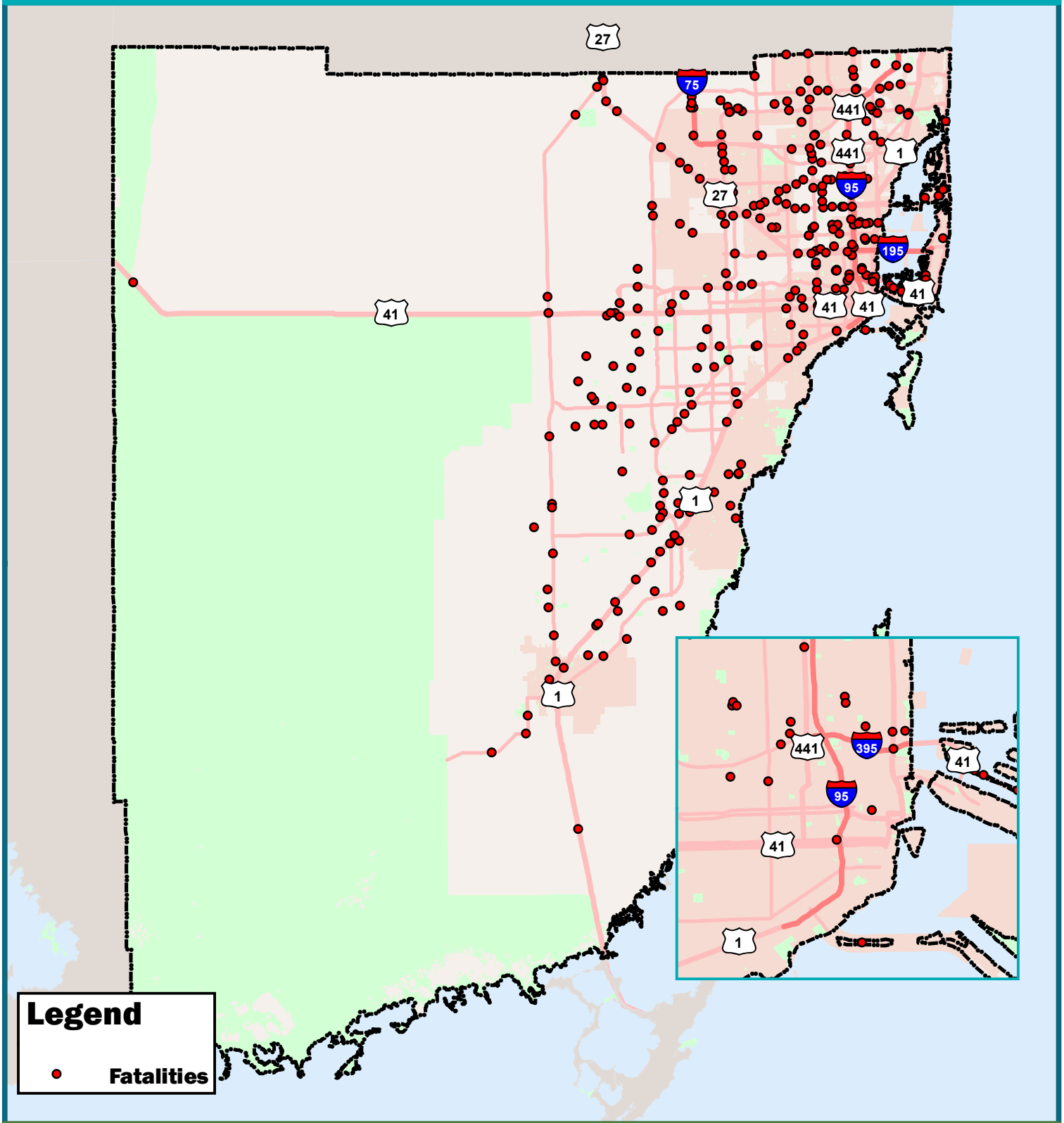


CONCLUSION

Transportation performance in Miami-Dade County viz-a-viz federally required performance measures and targets in 2019 indicates some success and some shortcomings. In terms of safety, 2019 data indicates an improvement in the rate of serious injuries, but a slight increase in the fatality rate. Non-motorized fatalities and serious injuries remained virtually unchanged relative to the previous reporting period. There was a significant improvement in both interstate and non-interstate pavement condition between 2017 and 2019 but a decrease in the percentage of bridges in good condition over the same period. In terms of travel time reliability, interstate performance has remained unchanged, while non-interstate performance improved significantly and surpassed FDOT targets for Miami-Dade County. Specific truck travel time reliability, however, decreased slightly and was significantly short of FDOT targets in Miami-Dade County. The TPO will continue its efforts to tie performance monitoring with planning and project prioritization processes designed to improve transportation performance in terms of safety, pavement, reliability, and other performance categories.

MAP COMPENDIUM

Map 1 Miami-Dade Transportation Planning Organization
2019 Fatalities



Miami-Dade Transportation Planning Organization

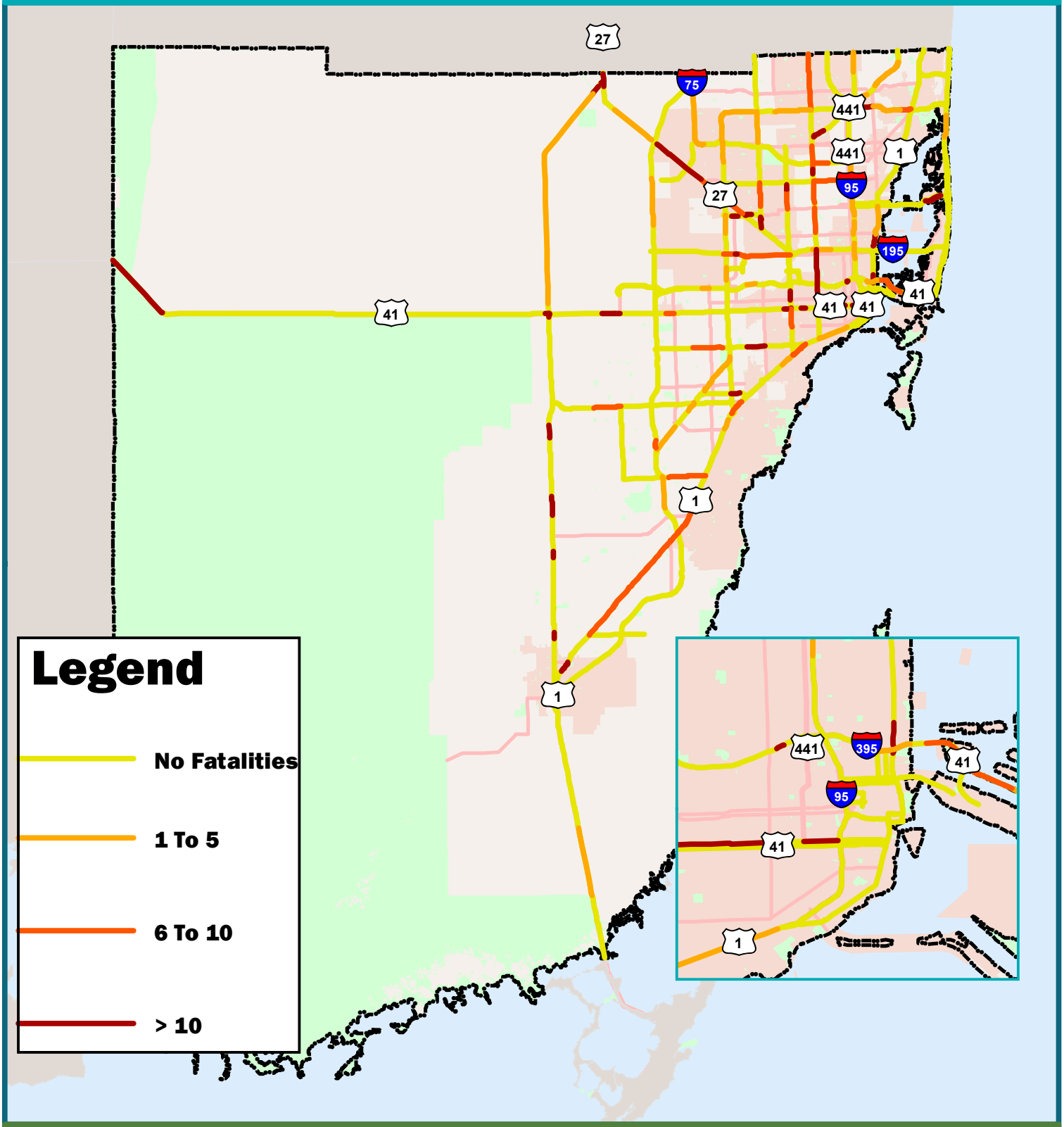
N

0 5 10 20 Miles

Date: 04/2021
Source: 2019 Signal Four Analytics Crash Data

Map 2

Miami-Dade Transportation Planning Organization
2019 Fatalities Per 100 Million VMT



TPO
Miami-Dade Transportation Planning Organization

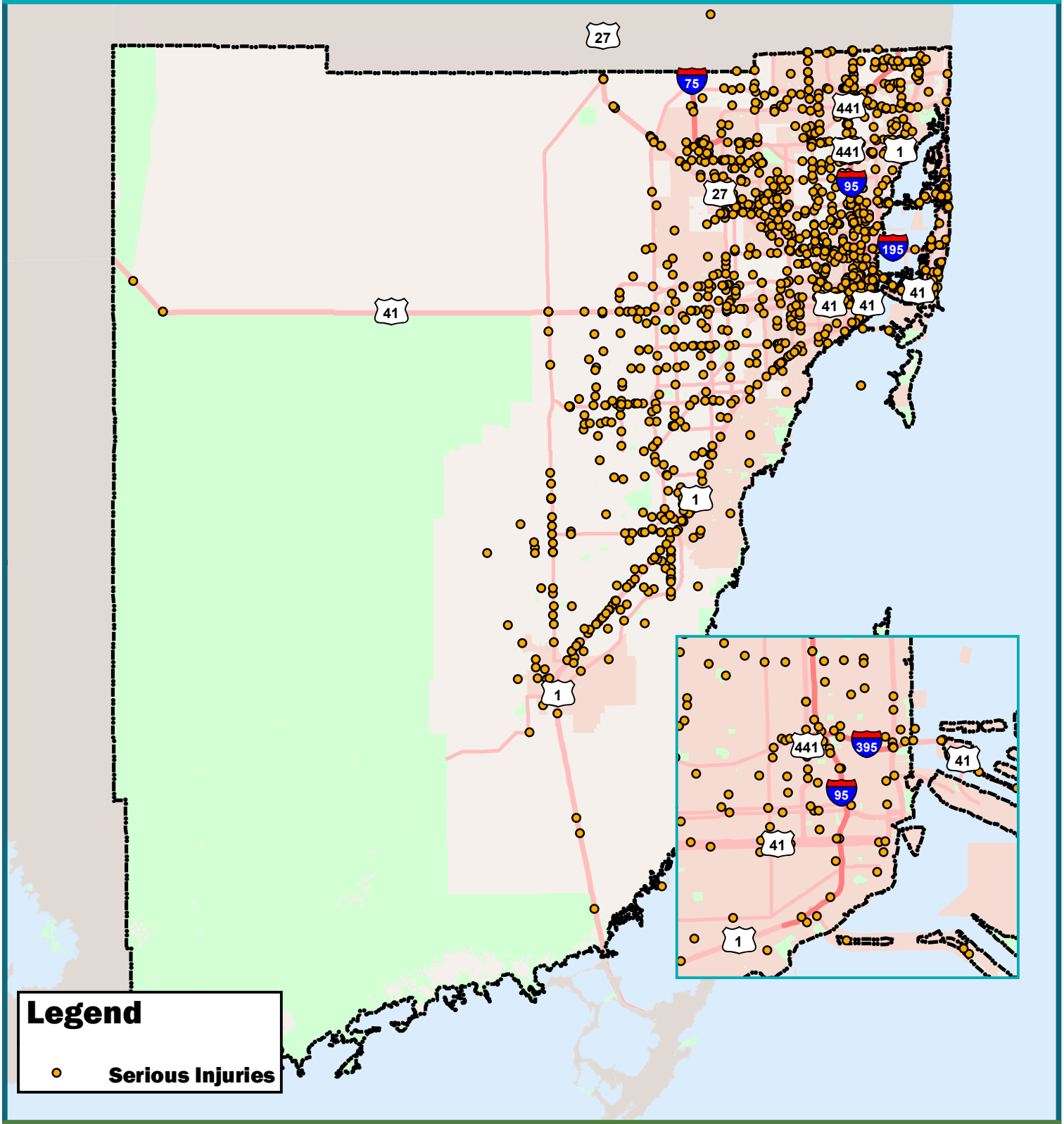
N

0 5 10 20 Miles

Date: 04/2021
Source: 2019 Signal Four Analytics Crash Data and 2019 Roadway Characteristics Inventory Traffic Volume Data

Map 3

Miami-Dade Transportation Planning Organization
2019 Serious Injuries



Legend

- Serious Injuries

TPO
Miami-Dade Transportation Planning Organization

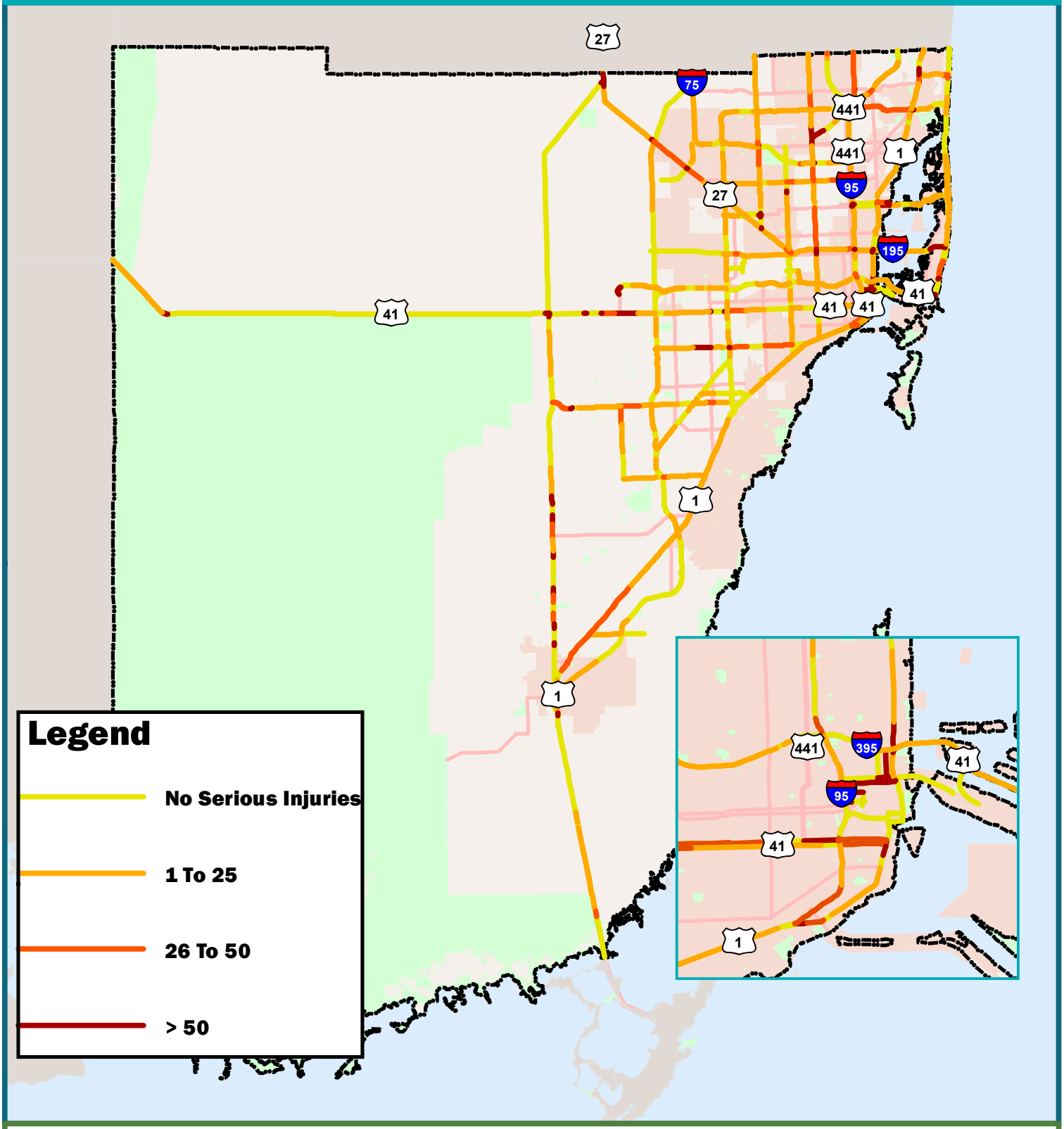
N

0 5 10 20 Miles

Date: 04/2021
Source: 2019 Signal Four Analytics Crash Data

Map 4

Miami-Dade Transportation Planning Organization
2019 Serious Injuries Per 100 Million VMT



TPO
Miami-Dade Transportation Planning Organization

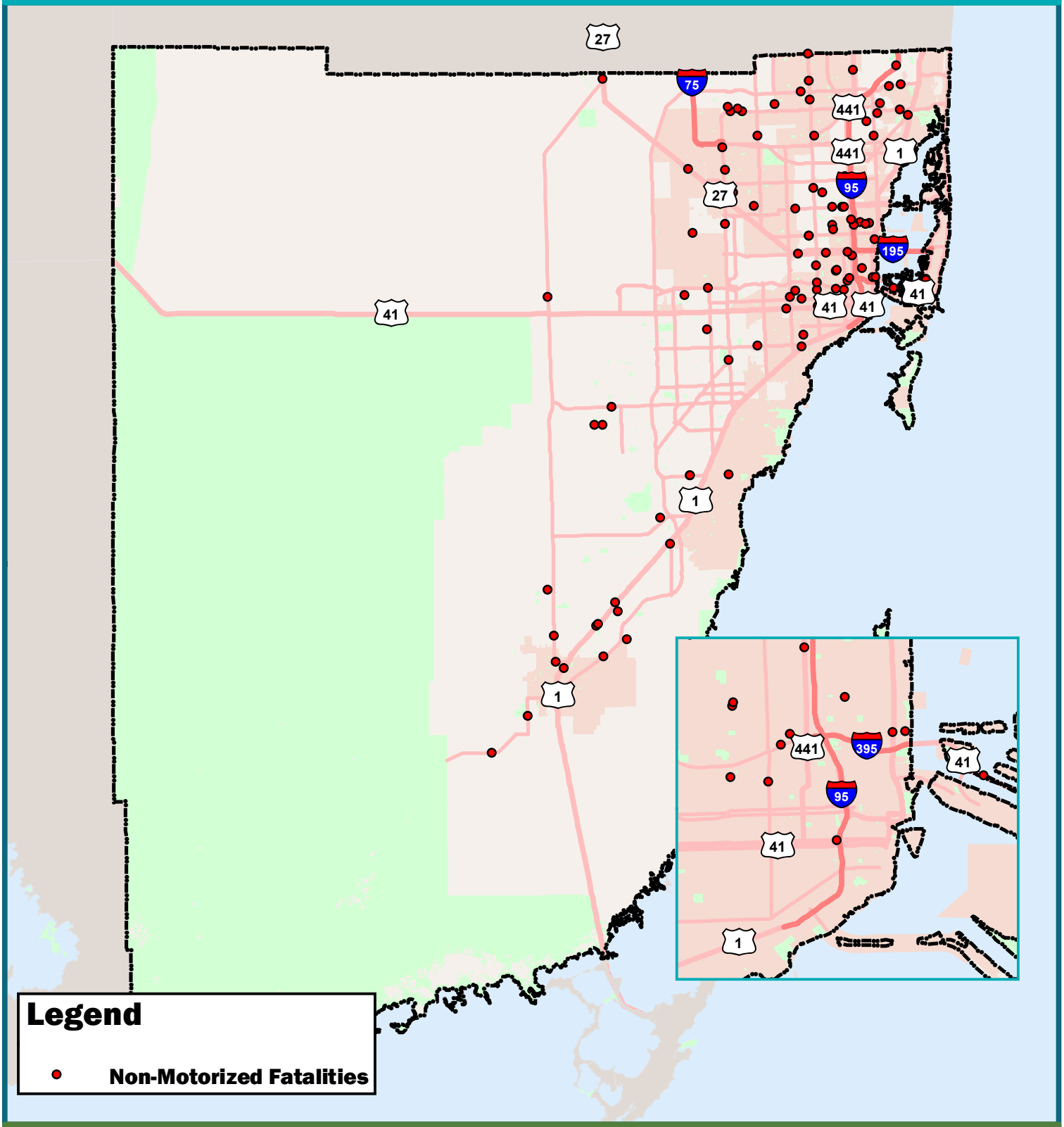
N

0 5 10 20 Miles

Date: 04/2021
Source: 2019 Signal Four Analytics Crash Data and 2019 Roadway Characteristics Inventory Traffic Volume Data

Map 5

Miami-Dade Transportation Planning Organization
2019 Non-Motorized Fatalities



Legend

- Non-Motorized Fatalities

Miami-Dade Transportation Planning Organization

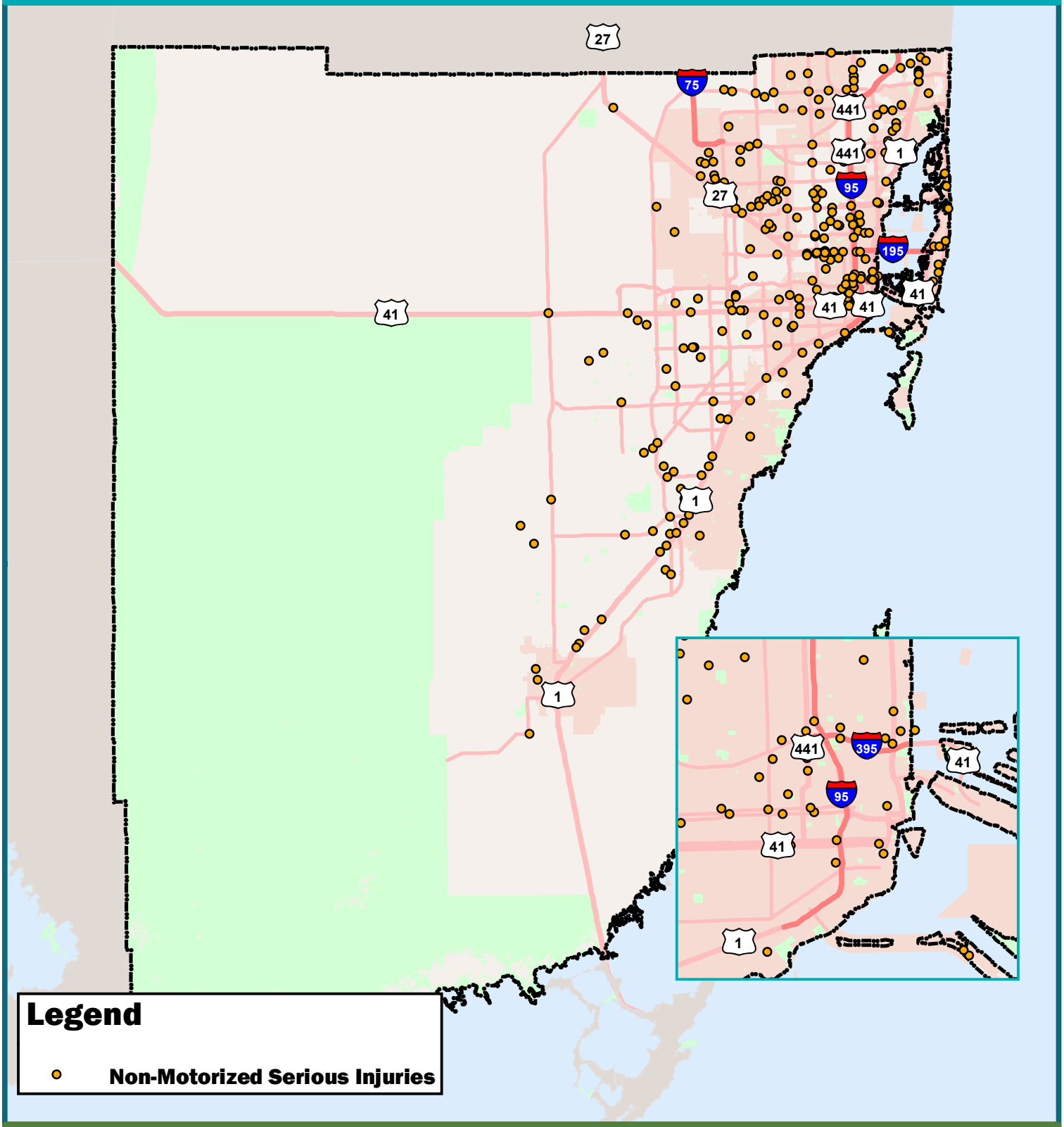
N

0 5 10 20 Miles

Date: 04/2021
Source: 2019 Signal Four Analytics Crash Data

Map 6

Miami-Dade Transportation Planning Organization
2019 Non-Motorized Serious Injuries



Miami-Dade Transportation Planning Organization

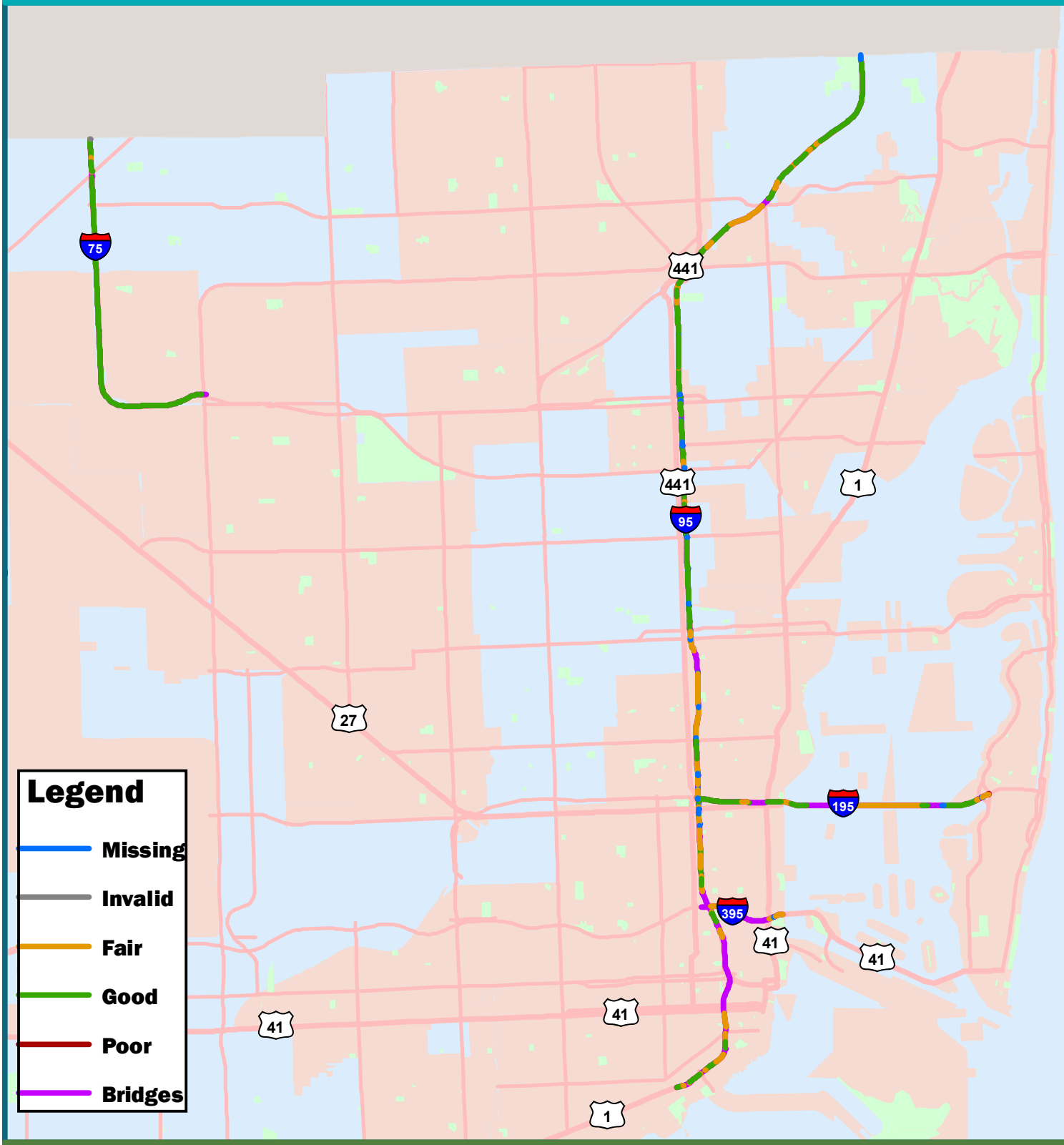
N

0 5 10 20 Miles

Date: 04/2021
Source: 2019 Signal Four Analytics Crash Data

Map 7

Miami-Dade Transportation Planning Organization
Interstate Pavement Condition



Miami-Dade Transportation Planning Organization

N

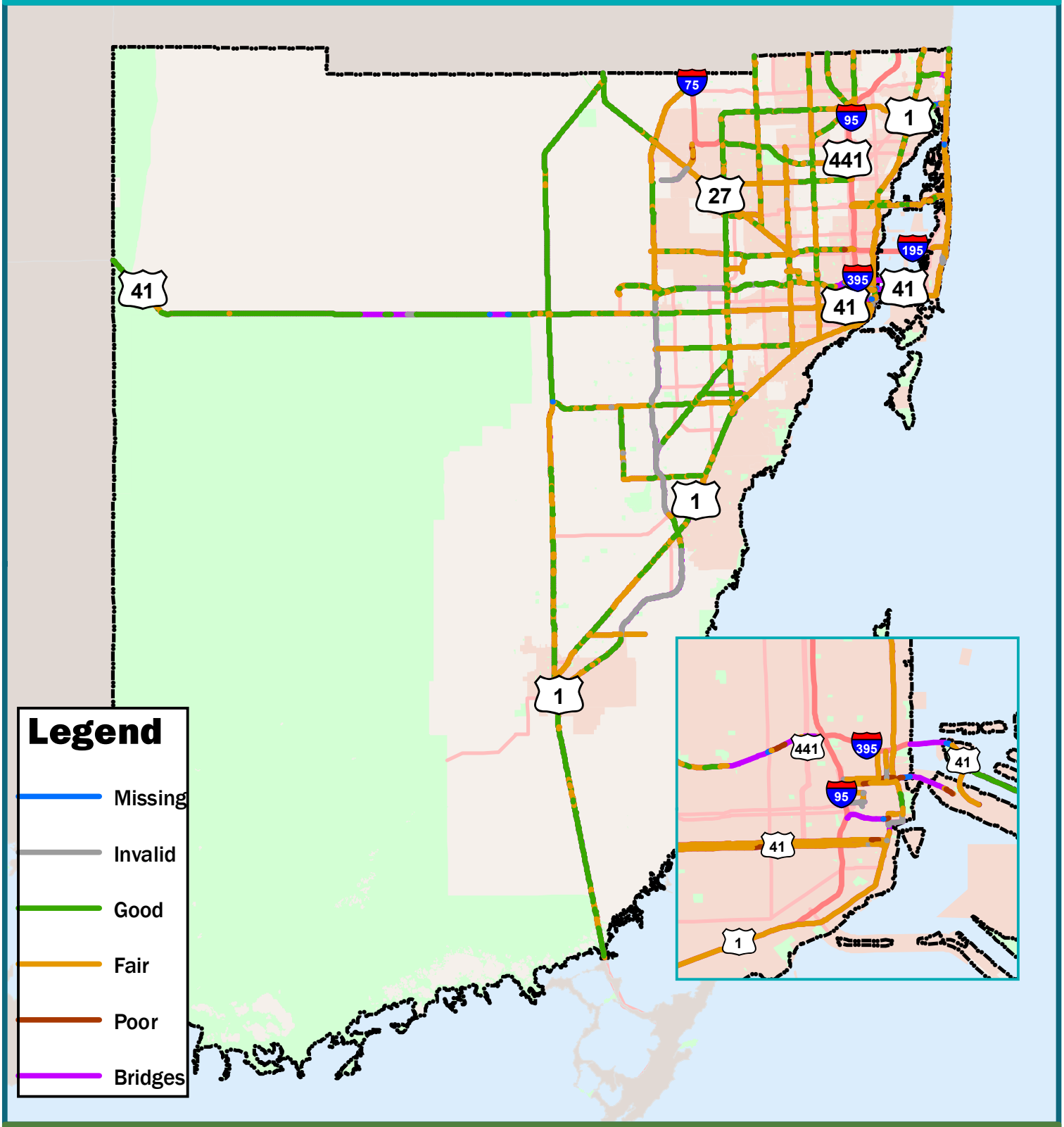
0 1.25 2.5 5 Miles

Date: 04/2021

Source: 2019 Pavement Condition Data from the Florida Department of Transportation Roadway Characteristics Inventory Database

Map 8

Miami-Dade Transportation Planning Organization
Non-Interstate NHS Pavement Condition



TPO
Miami-Dade Transportation Planning Organization

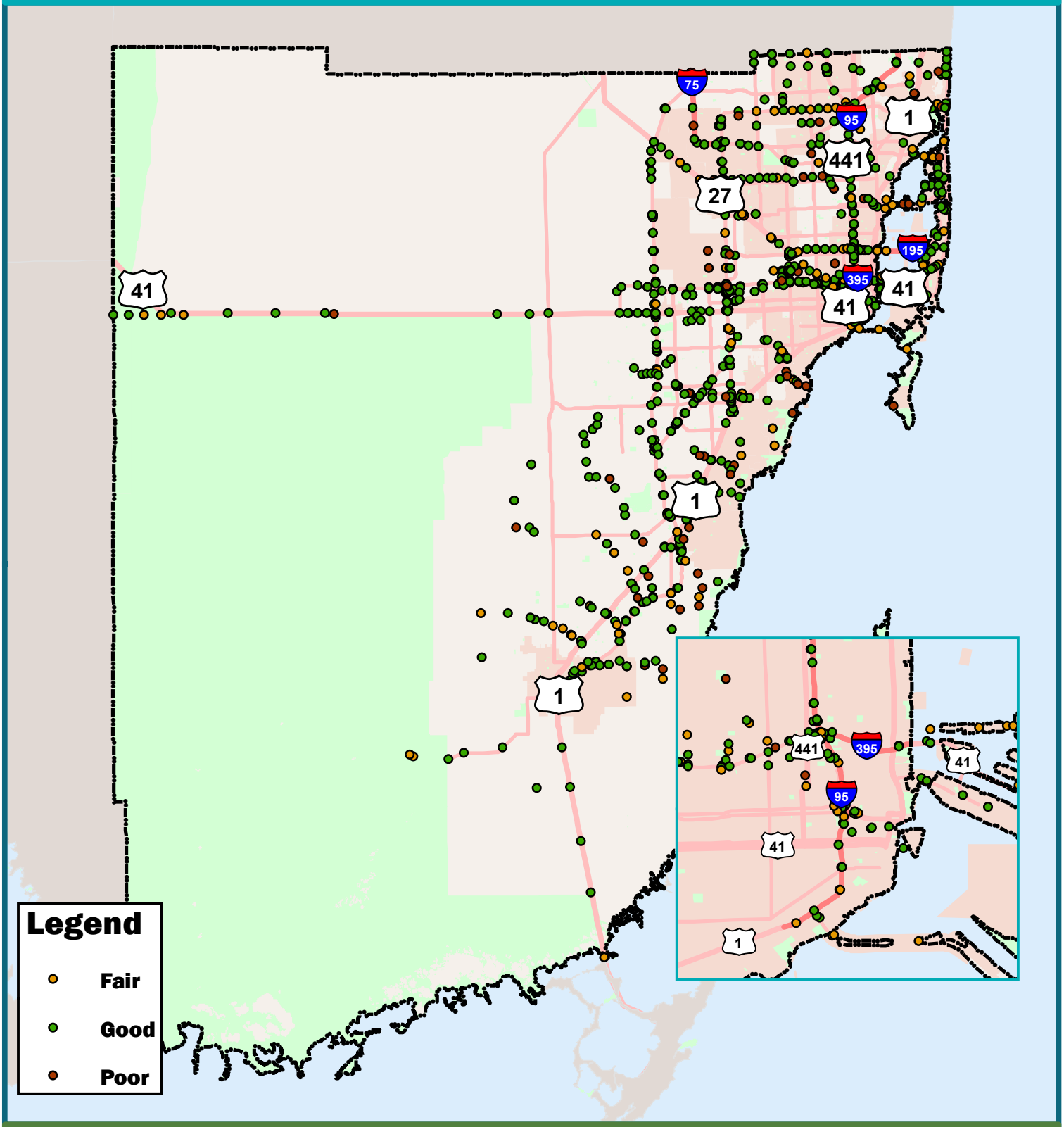
N

0 5 10 20 Miles

Date: 04/2021
Source: 2019 Pavement Condition Data from the Florida Department of Transportation Roadway Characteristics Inventory Database

Map 9

Miami-Dade Transportation Planning Organization
Bridge Condition



Miami-Dade Transportation Planning Organization

N

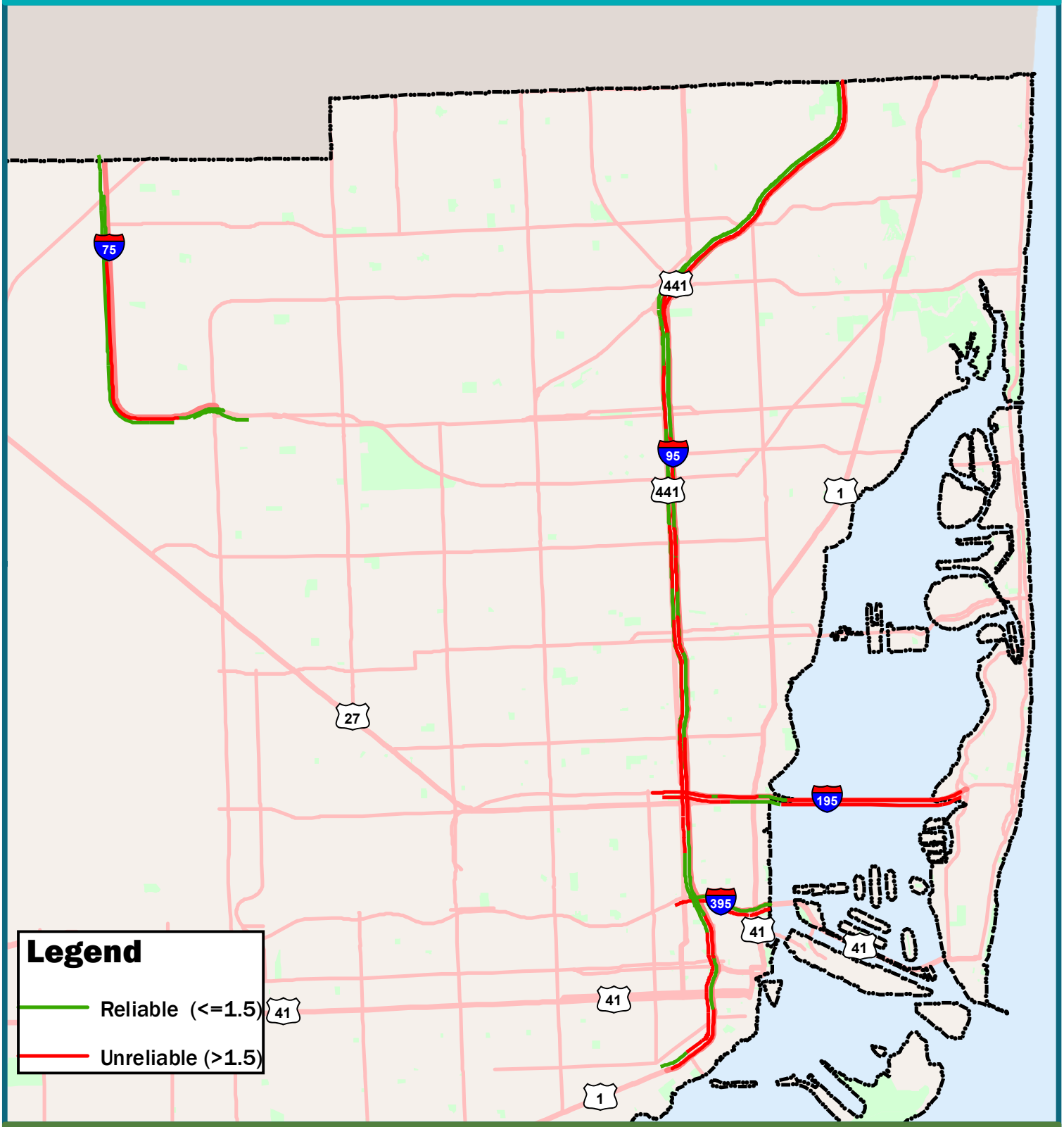
0 4.75 9.5 19 Miles

Date: 04/2021

Source: 2019 Bridge Data from the National Bridge Inventory Provided by the Federal Highway Administration

Map 10

Miami-Dade Transportation Planning Organization
Interstate Level of Travel Time Reliability (LOTTR)



TPO
Miami-Dade Transportation Planning Organization

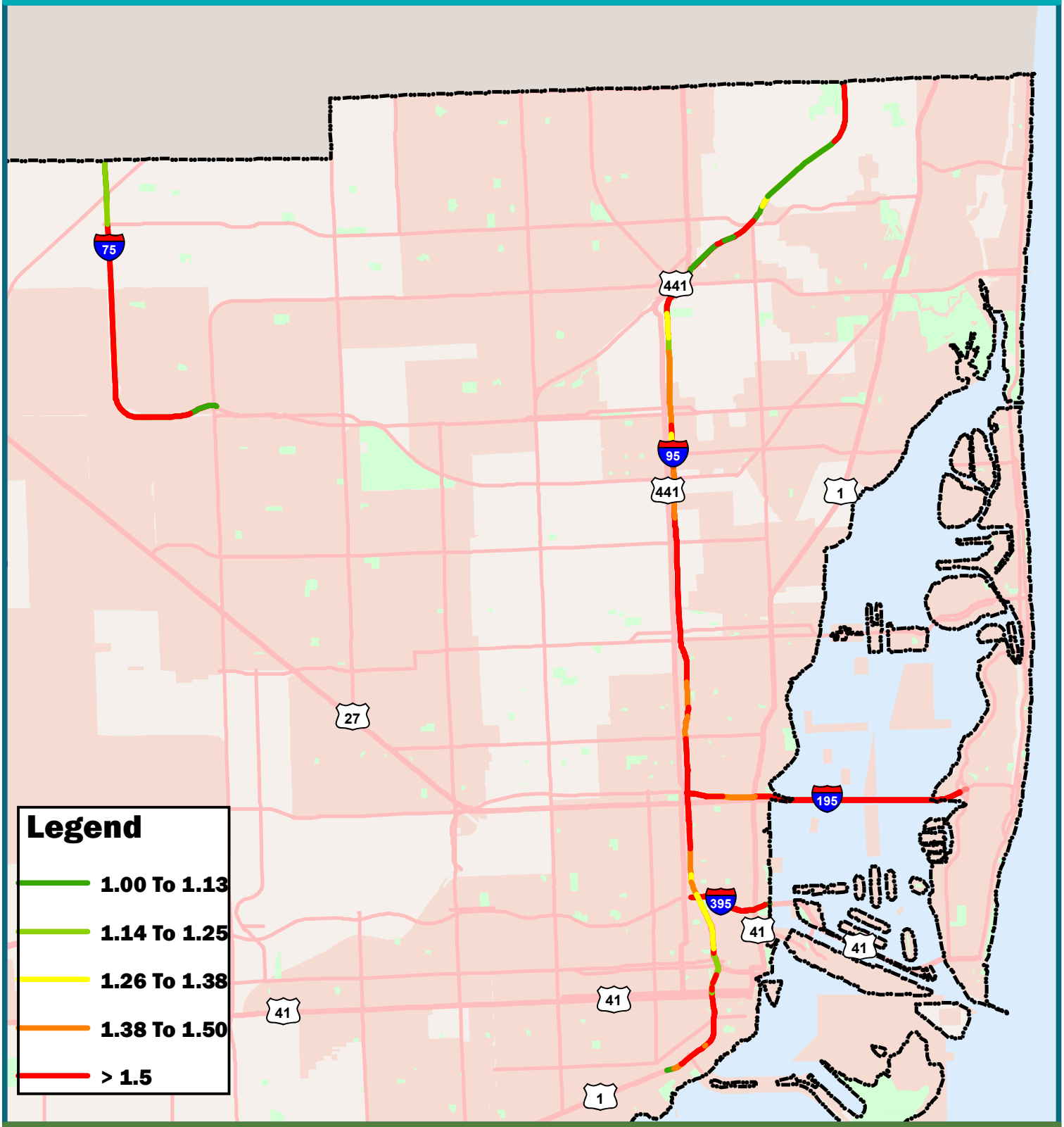
N

0 1.25 2.5 5 Miles

Date: 04/2021
Sources: 2019 Speed/Travel Time Data provided by HERE Technologies

Map 11

Miami-Dade Transportation Planning Organization
Interstate Level of Travel Time Reliability (LOTTR) - Gradient



TPO
Miami-Dade Transportation Planning Organization

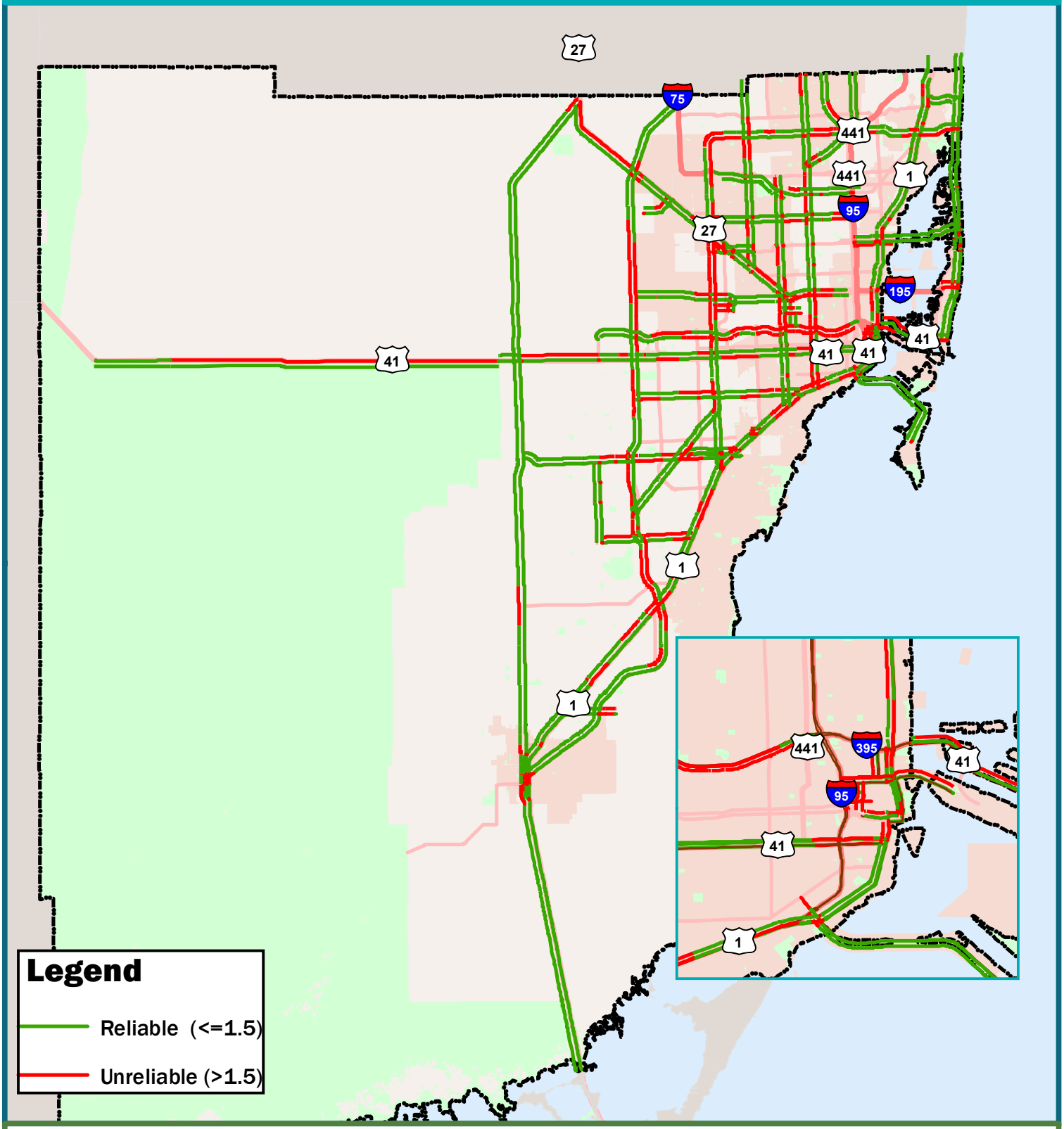
N

0 1.25 2.5 5 Miles

Date: 04/2021
Sources: 2019 Speed/Travel Time Data provided by HERE Technologies

Map 12

Miami-Dade Transportation Planning Organization
Non-Interstate Level Of Travel Time Reliability (LOTTR)



TPO
Miami-Dade Transportation Planning Organization

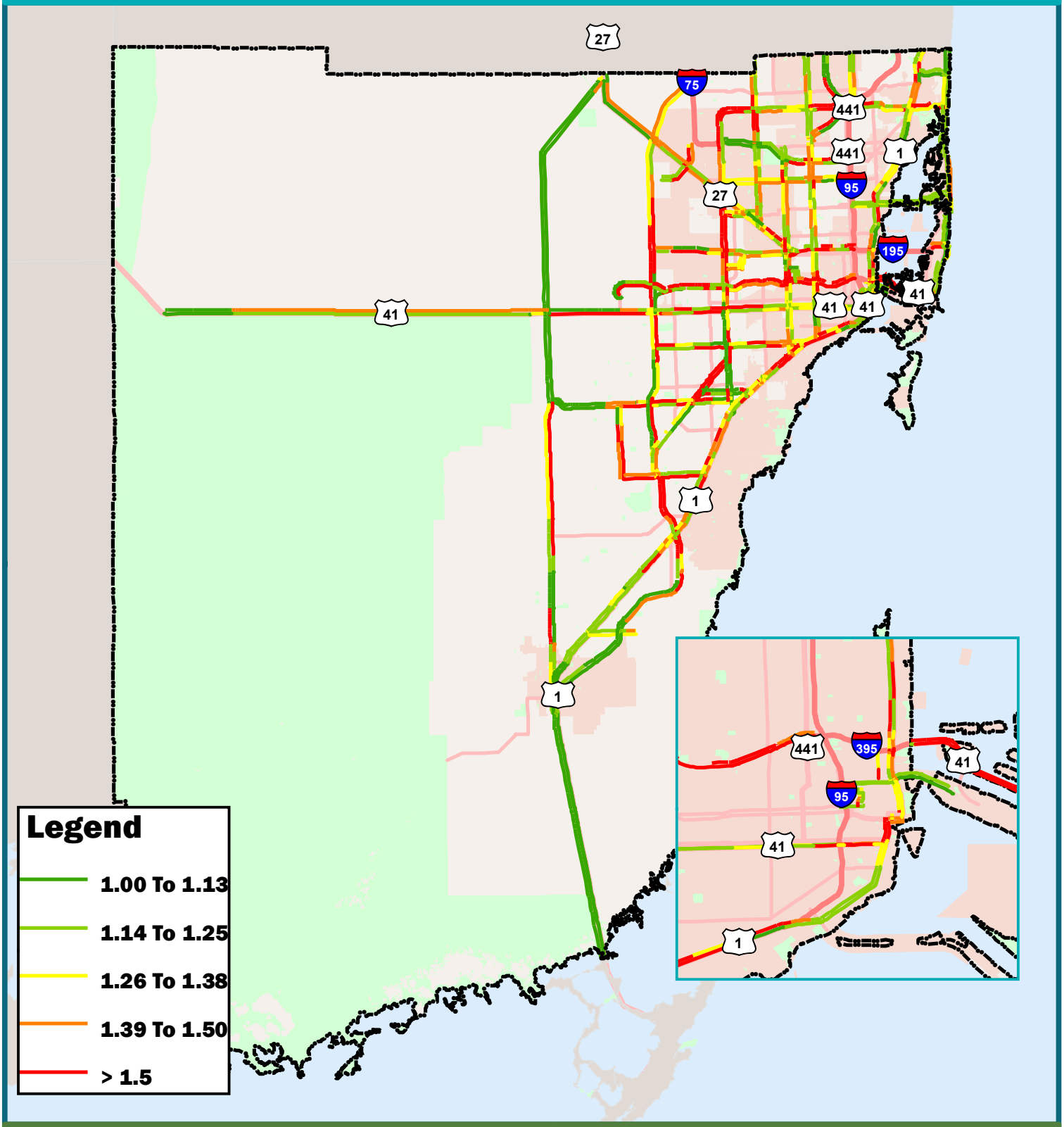
N

0 4.5 9 18 Miles

Date: 04/2021
Sources: 2019 Speed/Travel Time Data provided by HERE Technologies

Map 13

Miami-Dade Transportation Planning Organization
Non-Interstate Level Of Travel Time Reliability (LOTTR) - Gradient



TPO
Miami-Dade Transportation Planning Organization

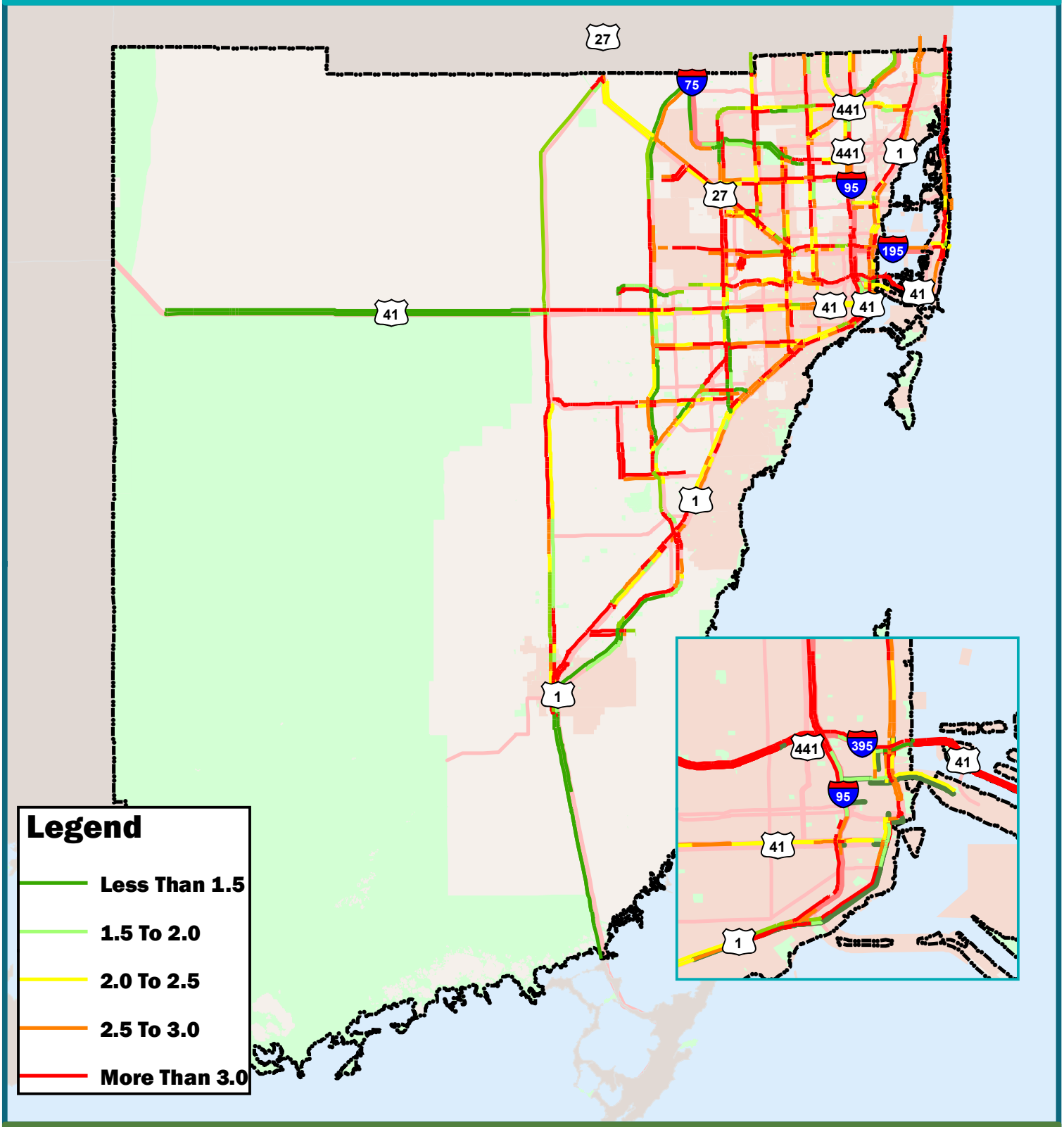
N

0 5 10 20 Miles

Date: 04/2021
Sources: 2019 Speed/Travel Time Data provided by HERE Technologies

Map 14

Miami-Dade Transportation Planning Organization
Truck Travel Time Reliability (TTTR)



Miami-Dade Transportation Planning Organization

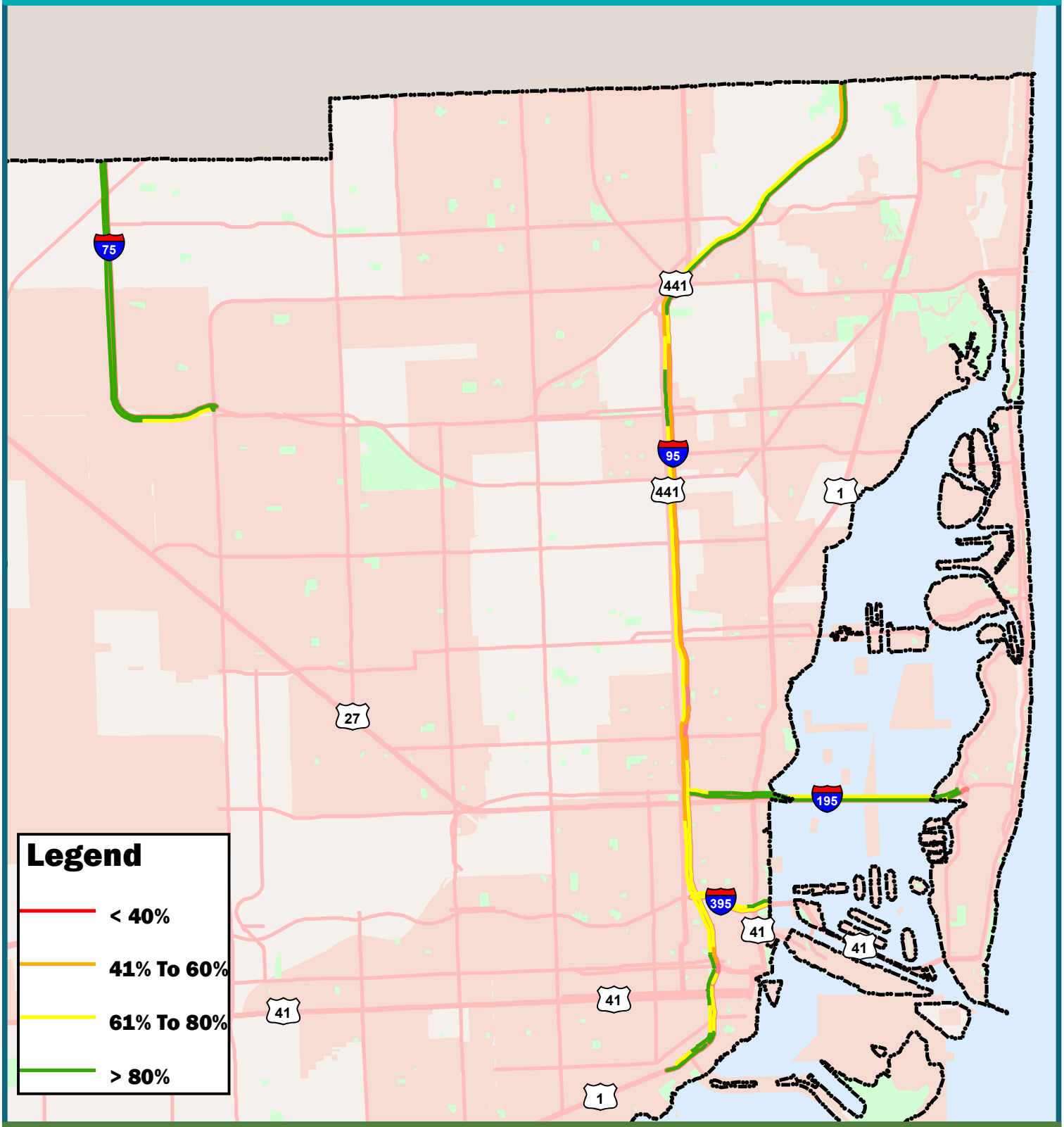
N

0 5 10 20 Miles

Date: 04/2021
Sources: 2019 Truck Speed/Travel Time Data provided by the NPMRDS

Map 15

Miami-Dade Transportation Planning Organization
Interstate Percent of Speed Limit Achieved by Mean Speed



Miami-Dade Transportation Planning Organization

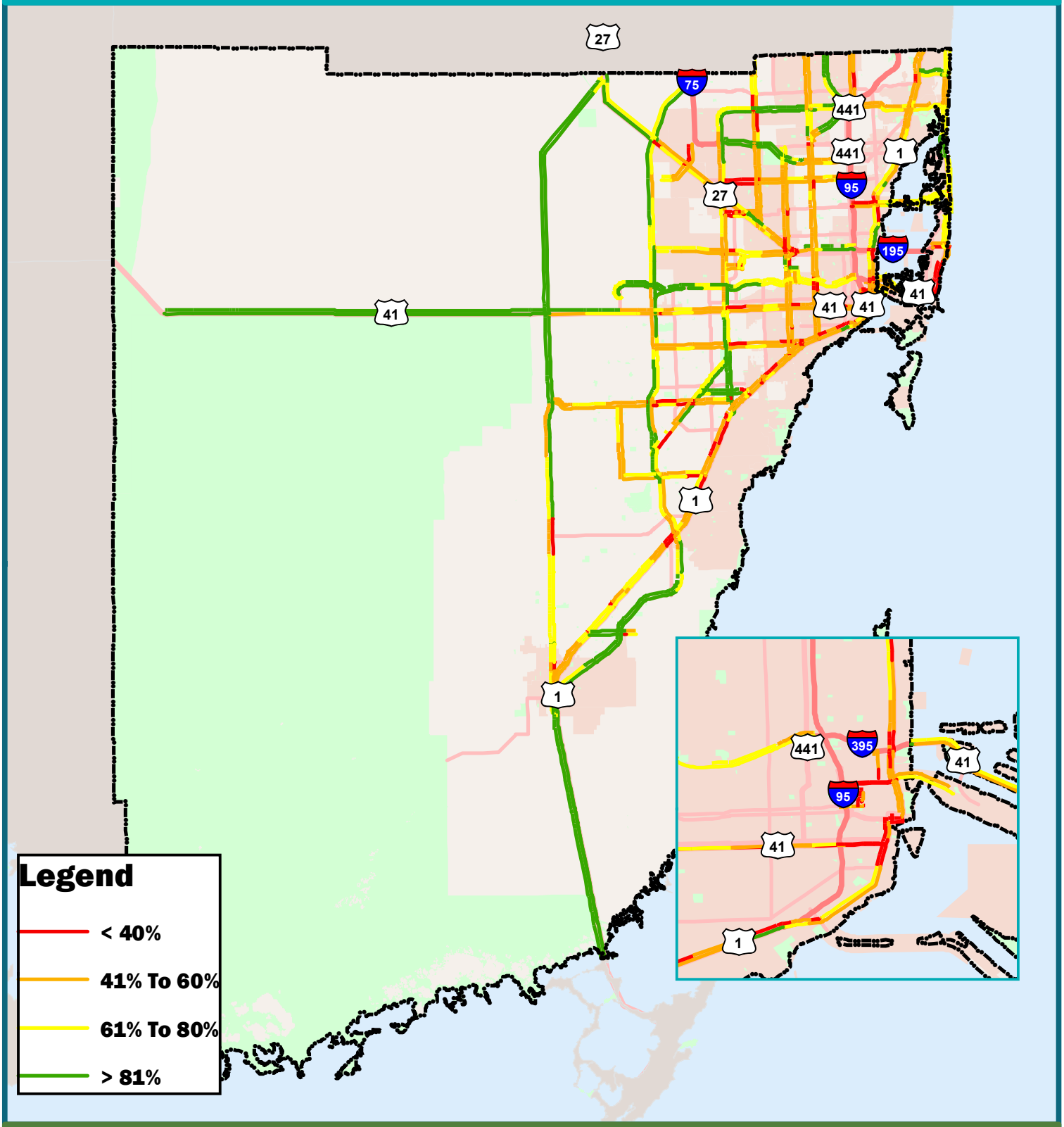
N

0 1.25 2.5 5 Miles

Date: 04/2021
Sources: 2019 Speed/Travel Time Data provided by HERE Technologies

Map 16

Miami-Dade Transportation Planning Organization
Non-Interstate Percent of Speed Limit Achieved by Mean Speed



Miami-Dade Transportation Planning Organization

N

0 5 10 20 Miles

Date: 04/2021
Sources: 2019 Speed/Travel Time Data provided by HERE Technologies

METADATA COMPENDIUM

Metadata for PM1 Point Safety Data Representing Number of Fatalites and Serious Injuries

Source: Signal Four Analytics - Collected for 2019

Group	Field Name	Description
Report	HSMV_Report_Number	HSMV Crash Report Number
	Agency_Report_Number	Investigating Agency Report Number
	Reporting_Agency	Reporting Agency
	Form_Type	Form Type
Crash Setting	Crash_Date	Date of Crash
	Crash_Time	Time of Crash
	City	City of Crash
	County	County of Crash
	Crash_Street	Street, Road, Highway where crash occurred
	Intersecting_Street	Street, Road, Highway Intersecting where crash occurred
	Street_Number	Street number
	Type_of_Intersection	Type of Intersection
	Road_Sys_Identifier	Road System Identifier
	Type_of_Shoulder	Type of Shoulder between Curb, Paved, or Unpaved
	Road_Surf_Cond	Road Surface Condition
Crash Severity	Crash_Type	Type of Crash
	Vehicles	Number of Vehicles involved
	Non_Motorists	Non-motorists involved
	Fatalities	Number of Fatalities
	Injuries	Number of Injuries
	Alcohol_Related	Alcohol Related? (Y or N)
	Distraction_Related	Distraction Related? (Y or N)
	Drug_Related	Drug Related? (Y or N)
	Estimated_Damages	Dollar amount of estimated damages
	Weather_Condition	Weather condition
	Light_Condition	Light condition
	Crash_Type_Detailed	Detailed type of crash (ex. Head-on, left entering, etc.)
	Crash_Type_Dir	Primary direction of travel of motorist
	Crash_Severity	Crash Severity between Property Damage Only, Injury, and Fatality
	Within_City_Limits	Within City Limits (Y or N)
	Manner_of_Collision	Manner of collision (ex. Rear-to-Rear, Rear-to-side, etc.)
First Harmful Event	First_Harmful_Event	First harmful occurrence during crash
	First_HE_Location	Location of first harmful event relative to roadway
	First_HE_Relation_to_Jct	Location of first harmful event relative to junction
	First_HE_Within_Interchang	Is the first harmful event within an interchange? (Y or N)
Contributing Circumstances	Contrib_Circum_Road1	First roadway-based contributing circumstance
	Contrib_Circum_Road2	Second roadway-based contributing circumstance
	Contrib_Circum_Road3	Third roadway-based contributing circumstance
	Contrib_Circum_Env1	First environment-based contributing circumstance
	Contrib_Circum_Env2	Second environment-based contributing circumstance
	Contrib_Circum_Env3	Third environment-based contributing circumstance

Identified Feature Classes:
Total2019Crashes
Total 2019SeriousInjuries
Total2019Fatalities
NonMotorized2019Crashes
NonMotorized2019SeriousInjuries
NonMotorized2019Fatalities

Additional Information	School_Bus_Related	School bus related? (Y or N)
	Work_Zone_Related	Work Zone Related? (Y or N)
	Type_of_Work_Zone	Type of Work Zone
	Loc_in_Work_Zone	Location in Work Zone
	Workers_in_Work_Zone	Workers in Work Zone? (Y or N)
	Law_Enforcement_in_ Work_Zone	Law Enforcement in Work Zone? (Y or N)
	Mopeds	Number of Mopeds Involved
	Motorcycles	Number of Motorcycles Involved
	Passengers	Number of Passengers Involved
	Bicyclists	Number of Bicyclists Involved
	Pedestrians	Number of Pedestrians Involved
	Fatalities_Unrestrained	Number of Unrestrained Fatalities
	Injuries_Unrestrained	Number of Unrestrained Injuries
	Possible_Injuries	Injuries In Category C, "Possible", of KABCO Scale
	Non_Incapacitating_ Injuries	Non-Serious Injuries
	Incapacitating_Injuries	Used as proxy for Serious Injuries
	Fatalities_30_Days	Fatalities not occuring at the scene but within 30 days of the motor vehicle crash
	Non_Traffic_Fatalities	The death did not occur as a result of the crash. Ex. Medical, suicide, natural causes
	Transported_by_EMS	Number of people transported by EMS to a medical facility
	Transported_by_Law_ Enforcement	Number of people transported by law enforcement to a medical facility
	Transported_by_Other	Number of people transported by other means to a medical facility
	Citations	Citations issued
	Property_Dmg_Amt	Property damage amount in USD
	Vehicle_Dmg_Amt	Vehicular damage amount in USD
	S4_Mapping	Identifies presence of latitude and longitude
	S4_Decimal_Degree_ Longitude	Longitude in decimal degrees - use WGS_1984 projection
	S4_Decimal_Degree_ Latitude	Latitude in decimal degrees - use WGS_1984 projection
	S4_Albers_X	X coordinate in Albers Projection
	S4_Albers_Y	Y coordinate in Albers Projection
	S4_Mapping_Date	Mapping Date

Metadata for PM1 Line Safety Data Representing Rate of Fatalites and Serious Injuries Per 100 Million VMT Using FDOT Linear Referencing System

Source: Signal Four Analytics - Collected for 2019

Group	Field Name	Description
Linear Referencing System	ROADWAY	Eight-digit Roadway ID
	BEGIN_POST	Segment Begin Mile Point
	END_POST	Segment End Mile Point
Roadway Characteristics Inventory	USROUTE	US Route Name
	STROUTE	State Route Name
	LOCAL_NAME	Local Road Name
	RLANES	Number of Lanes on Right Side of Roadway
	LLANES	Number of Lanes on Left Side of Roadway
	LANEMILES	Total Lanes * Segment Length (END_POST - BEGIN_POST)
	SECTADT	An estimate of the AADT traveled on the roadway ID
	Speed	Posted Speed Limit
Performance Mearues	VMTD_Weight	Calculated daily vehicle miles traveled in 2019 accounting for different weights to weekdays, Saturday, and Sunday
	Total2019SeriousInjuries	Serious Injuries joined to the roadway segment using a search radius of 100 feet
	Total2019Fatalities	All fatalities joined to the roadway segment using a search radius of 100 feet
	NonMotorized2019SeriousInjuries	All serious injuries joined to the roadway segment using a search radius of 100 feet
	NonMotorized2019Fatalities	Serious Injuries joined to the roadway segment using a search radius of 100 feet
	Tot2019FatalPer100MilVMT	(Total2019Fatalities * 100 Million) / (VMTD_Weight * 365)
	Tot201SerInjPer100MilVMT	(Total2019SeriousInjuries * 100 Million) / (VMTD_Weight * 365)
	NonMot2019FatalPer100MilVMT	(NonMotorized2019Fatalities * 100 Million) / (VMTD_Weight * 365)
	NonMot2019SerInjPer100MilVMT	(NonMotorized2019Fatalities * 100 Million) / (VMTD_Weight * 365)

Identified Feature Classes:
CrashRates

Metadata for PM2 Line Pavement Condition Data

Source: 2019 Pavement Condition Data From The FDOT Roadway Characteristics Inventory Database

Group	Field Name	Description
Linear Referencing System	ROADWAY	Eight-digit Roadway ID
	BMP	Segment Begin Mile Point
	EMP	Segment End Mile Point
Pavement Condition	IRI	International Roughness Index
	Rutting	Wheel path Rutting Depth on Asphalt surfaces
	Faulting	Faulting measurement on Concrete surfaces at slab joints
	Cracking_Flex	Percent Cracking on Asphalt surfaces
	Cracking_Rigid	Percent Cracking on Concrete surfaces
	Cracking_Length	Length of Cracks (Not used for PM2 calculations)
	Flex_Rigid	Surface type as reported by the collection vehicle
	F	Flexible Asphalt pavements
	R	Rigid Concrete pavments
	B	Bridge or Structure
	UC_Flag	Under Construction flag basically a comments code used by the State Materials Office
	A	FHWA under construction code
	LowSp	Low Speed the IRI collected by the collection vehicle may be invalid
	NC	New Construction since the last collection
	NCREC	New Construction / Reconstruction since the last collection
	NP	New Pavement
	NPACC	New Pavement data provided from the construction acceptance testing
	NPO	New Pavement Other
	NPREC	New Pavement / Reconstruction since the last collection
	OthLn	Data reported from other than the Outside Right Lane
	TPLz	Toll Plaza
	UC	Under Construction Test (Pre-construction collection)
	IRI_Date	Month and Year of the data collection
FHWA Description	MPOArea	Florida assigned MPO/TPO Area Number
	MPOName	Florida MPO/TPO Area Name
	NHS	roadway is part of the Nation Highway System
	NHS_Descr	Description of the Nation Highway System code
	F_System	FHWA Functional classification number
	F_System_Descr	FHWA Functional classification description
	Facility_Type	FHWA Facility Type
	Facility_Type	FHWA Facility Type description
	Ownership	FHWA Ownership code
	Ownership_Descrip	FHWA Ownership code description
	ON	On the State Highway System
	OFF	Off the State Highway System (City or County owned)
Roadway Characteristics Inventory	BridgeNO	Bridge number location report the FHWA from RCI
	BoxCulNO	Box Culvert number location report the FHWA from RCI
	TunnelNO	Tunnel number location report the FHWA from RCI
	MaxSpeed	Posted Speed limit as recorded in RCI
	Surfactp	FHWA Surface types
	Surfactp_Descr	FHWA Surface type descriptions
	MID_Post	Mile point located used when merging the RCI data with the pavement distress data
	STATEXPT	RCI Segment Status
	1	Pending roadway
	2	On-System active segment on the State Highway System
	9	Off-System active segment not owned by the State
	Though_Lanes	Number of total though lanes (Excluding managed lanes)
	LM	Lane Miles

Identified Feature Classes:
InterstatePavement
NonInterstatePavement

Metadata for PM2 Point Bridge Condition Data

Source: National Bridge Inventory Data 2019 Provided by the Federal Highway Administration

Group	Field Name	Description
Location	Latitude	WGS_1984 Latitude
	Longitude	WGS_1984 Latitude
Geometry	ApproachRoadwayWidth	Normal width of usable roadway approaching the structure measured to the nerest tenth of a meter; Inlcudes width of shoulders and traffic lanes
	Length	Length of roadway supported on the bridge structure to the nearest tenth of a meter
	DeckWidthOutToOut	Width of deck used in area calculation
	DeckAreaInSquareMeters	Deck Width * Length
Condition	Deck	Overall condition rating of the deck
	Superstructure	Physical condition rating of all structural members
	Substructure	Physical condition of piers, abutments, piules, fenders, footing, or other componenents
	ChannelProtection	Condition of the channel, riprap, slope protection, or stream control devices
	Culverts	Condition of alignment, settlement, joints, structural condition, scour, and other items associated with culverts
	DeckInt	Deck rating expressed as an integer
	SuperInt	Superstructure rating expressed as an integer
	SubInt	Substructure rating expressed as an integer
	Score	Taken as the lowest rating of Deck, Superstructure, Substructure, and Culverts

Identified Feature Classes:
BridgesFromNBIMiamiDade

Metadata for PM3 Point Safety Data Representing Number of Fatalites and Serious Injuries

Source: 2019 Speed/Travel Time Data provided by HERE Technologies

Group	Field Name	Description
Linear Referencing System	TMC	TMC Code
	ROADWAY	Eight-digit Roadway ID
	begin_POST	Begin MP of segment
	END_POST	End MP of Segment
Roadway Characteristics Inventory	USROUTE	US Route Name/Number
	STROUTE	State Route Name/Number
	LOCAL_NAME	Local Road Name
Performance Mearues	VMTD_Weight	Daily VMT Weighted for Saturday, Sunday, and Weekdays
	WkdyAM80	80th Percentile AM Peak Travel Time
	WkdyAM50	Median AM Peak Travel Time
	wkdyAMMeanSpeed	Mean AM Peak Speed
	LOTTR_WkdyAM	Midday Peak LOTTR
	WkdyMidday80	80th Percentile Midday Peak Travel Time
	WkdyMidday50	Median Midday Peak Travel Time
	wkdyMiddayMeanSpeed	Mean Midday Peak Speed
	LOTTR_WkdyMidday	Midday Peak LOTTR
	WkdyPM80	80th Percentile PM Peak Travel Time
	WkdyPM50	Median PM Peak Travel Time
	wkdyPMMeanSpeed	Mean PM Peak Speed
	LOTTR_WkdyPM	PM Peak LOTTR
	Wknd80	80th Percentile Weekend Peak Travel Time
	Wknd50	Median Weekend Peak Travel Time
	WkndMeanSpeed	Mean Weekend Peak Speed
	LOTTR_Wknd	Weekend Peak LOTTR
	LOTTR_Max	Maximum LOTTR of Four Peak Periods
	Speed_Min	Minimum Mean Speed of Four Peak Periods
	LaneMiles_1	Lane Miles represented by segment

Identified Feature Classes:
TTTR_P_Full
TTTR_N_Full
TTTR_P_Interstate
TTTR_N_Interstate
TTTR_P_NonInterstate
TTTR_P_NonInterstate

Metadata for PM3 Point Safety Data Representing Number of Fatalites and Serious Injuries
Source: 2019 Speed/Travel Time Data provided by the NPMRDS

Group	Field Name	Description
Linear Referencing System	TMC	TMC Code
	ROADWAY	Eight-digit Roadway ID
	begin_POST	Begin MP of segment
	END_POST	End MP of Segment
Roadway Characteristics Inventory	USROUTE	US Route Name/Number
	STROUTE	State Route Name/Number
	LOCAL_NAME	Local Road Name
Performance Mearues	VMTD_Weight	Daily VMT Weighted for Saturday, Sunday, and Weekdays
	WkdyAM80	80th Percentile AM Peak Travel Time
	WkdyAM50	Median AM Peak Travel Time
	wkdyAMMeanSpeed	Mean AM Peak Speed
	TTTR_WkdyAM	Midday Peak LOTTR
	WkdyMidday80	80th Percentile Midday Peak Travel Time
	WkdyMidday50	Median Midday Peak Travel Time
	wkdyMiddayMeanSpeed	Mean Midday Peak Speed
	TTTR_WkdyMidday	Midday Peak LOTTR
	WkdyPM80	80th Percentile PM Peak Travel Time
	WkdyPM50	Median PM Peak Travel Time
	wkdyPMMeanSpeed	Mean PM Peak Speed
	TTTR_WkdyPM	PM Peak LOTTR
	Wknd80	80th Percentile Weekend Peak Travel Time
	Wknd50	Median Weekend Peak Travel Time
	WkndMeanSpeed	Mean Weekend Peak Speed
	TTTR_Wknd	Weekend Peak LOTTR
	TTTR_Max	Maximum LOTTR of Four Peak Periods
	Speed_Min	Minimum Mean Speed of Four Peak Periods
	LaneMiles_1	Lane Miles represented by segment

Identified Feature Classes:
TTTR_P_Full
TTTR_N_Full

Metadata for Public Transit Safety Data

Description
BusIRs2019 - Incident reports for transit in 2019. This data is provided in the geodatabase as raw, point data. This data does not have finite categories for grouping incidents. BusIRs2019_LostRevenue - Incident reports for transit in 2019. This data is provided in the geodatabase as raw, point data. This data does not have finite categories for grouping incidents, and this feature class is queried to incidents that resulted in revenue miles lost.

Identified Feature Classes:
BusIRs2019
BusIRs2019_LostRevenue

Metadata for Master Segmentation Feature Class

Group	Field Name	Description
Linear Referencing System	TMC	TMC Code
	ROADWAY	Eight-digit Roadway ID
	begin_POST	Begin MP of segment
	END_POST	End MP of Segment
Safety	Total2019SeriousInjuries	Serious Injuries joined to the roadway segment using a search radius of 100 feet
	Total2019Fatalities	All fatalities joined to the roadway segment using a search radius of 100 feet
	NonMotorized2019SeriousInjuries	All serious injuries joined to the roadway segment using a search radius of 100 feet
	NonMotorized2019Fatalities	Serious Injuries joined to the roadway segment using a search radius of 100 feet
	Tot2019FatalPer100MilVMT	(Total2019Fatalities * 100 Million) / (VMTD_Weight * 365)
	Tot201SerInjPer100MilVMT	(Total2019SeriousInjuries * 100 Million) / (VMTD_Weight * 365)
	NonMot2019FatalPer100MilVMT	(NonMotorized2019Fatalities * 100 Million) / (VMTD_Weight * 365)
	NonMot2019SerInjPer100MilVMT	(NonMotorized2019Fatalities * 100 Million) / (VMTD_Weight * 365)
Pavement & Bridge Condition	Score	Rating of "Good", "Fair", or "Poor" for bridge condition
Reliability	TTTR	TTTR averaged for both the negative and positive direction of retrieved speed data. Useful for displaying a singular TTTR value
	LOTTR	LOTTR averaged for both the negative and positive direction of retrieved speed data. Useful for displaying a singular LOTTR value
	TTTR_N_1	TTTR in the negative direction of retrieved speed data
	TTTR_P_1	TTTR in the positive direction of retrieved speed data
	LOTTR_N_1	LOTTR in the negative direction of retrieved speed data
	LOTTR_P_1	LOTTR in the positive direction of retrieved speed data

This feature class has all linearly referenced data overlaid on one segmentation. This can be a useful tool to see which areas a segment of roadway is experiencing performance issues

- For directional reliability metrics, the singular value for TTTR and LOTTR is the average of the positive and negative directional values for the segment.
- The western-most portion of SR 90 does not typically have speed data downloaded for a Miami-Dade query, so the reliability metrics assigned to this portion are the metrics adjacent to the east of this segment.
- Bridges are not in this segmentation since their data exists as points with deck area and condition data.

Identified Feature Classes:
MasterSegmentation