



# Reporting of Consistent Mobility Performance Measures for Express Lanes Projects

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Florida Department of Transportation



# Presentation

Florida's effort

in developing consistent mobility performance measures for express lanes projects

Overview of mobility performance measures

Probable FHWA requirement for travel time reliability

Positions taken

on major issues, measures, goals





## Why is this Mobility Performance Measures Topic important?

**How well are express lanes performing?  
Are we providing the mobility desired?**





# FDOT's Views of Express Lanes

Manage  
Congestion

Provide  
choices to  
drivers

Express  
Lanes  
Vision

## Express Lanes Policy

“In an effort to better manage congestion and provide choices to drivers, Express Lanes are **required** for additional capacity on limited access facilities on the SHS”

## Express Lanes Vision

To ensure the sustainable success of the lanes, the approach must include the following consideration:

- Travel Time Reliability
- Travel Options for Drivers
- Enhanced Transit Operations
- Dynamic Congestion Pricing





# Status of Florida's Express Lanes Projects

## Current



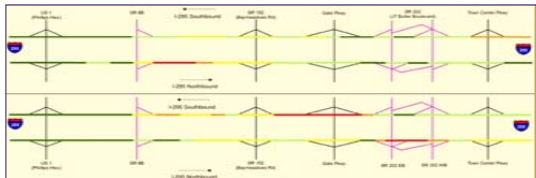
**20 miles of Express Lanes in operation**

## 2 – 5 Years



**108 miles of Express Lanes under construction**

## 5 – 25 Years

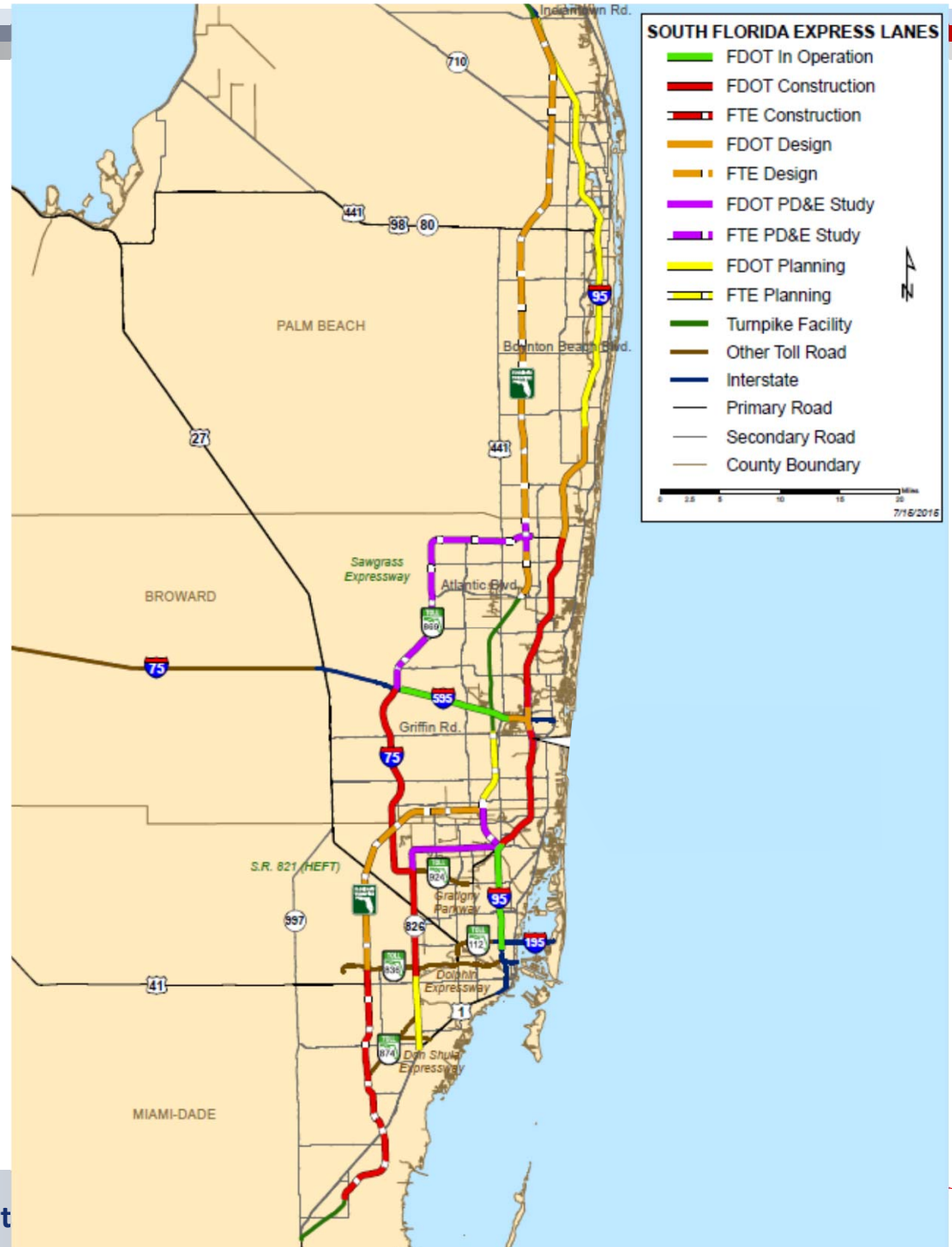


**293 miles of Express Lanes in Planning**





# Southeast Florida Express Lanes in Production Stages





Recognized as a

**Premier**



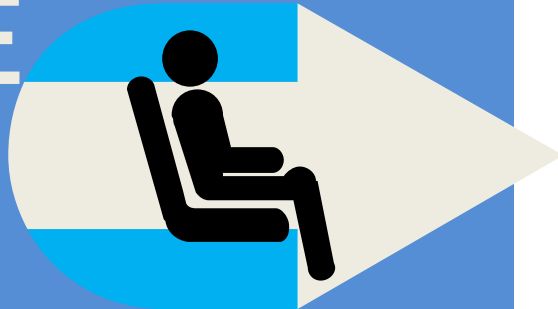
# **Mobility Performance Measures Program**

**in the nation**



# Importance of **Mobility**

PEOPLE



FREIGHT



“Providing **mobility** for people and goods is transportation’s most essential function.”

Mobility performance measures



**MAKE  
SENSE**





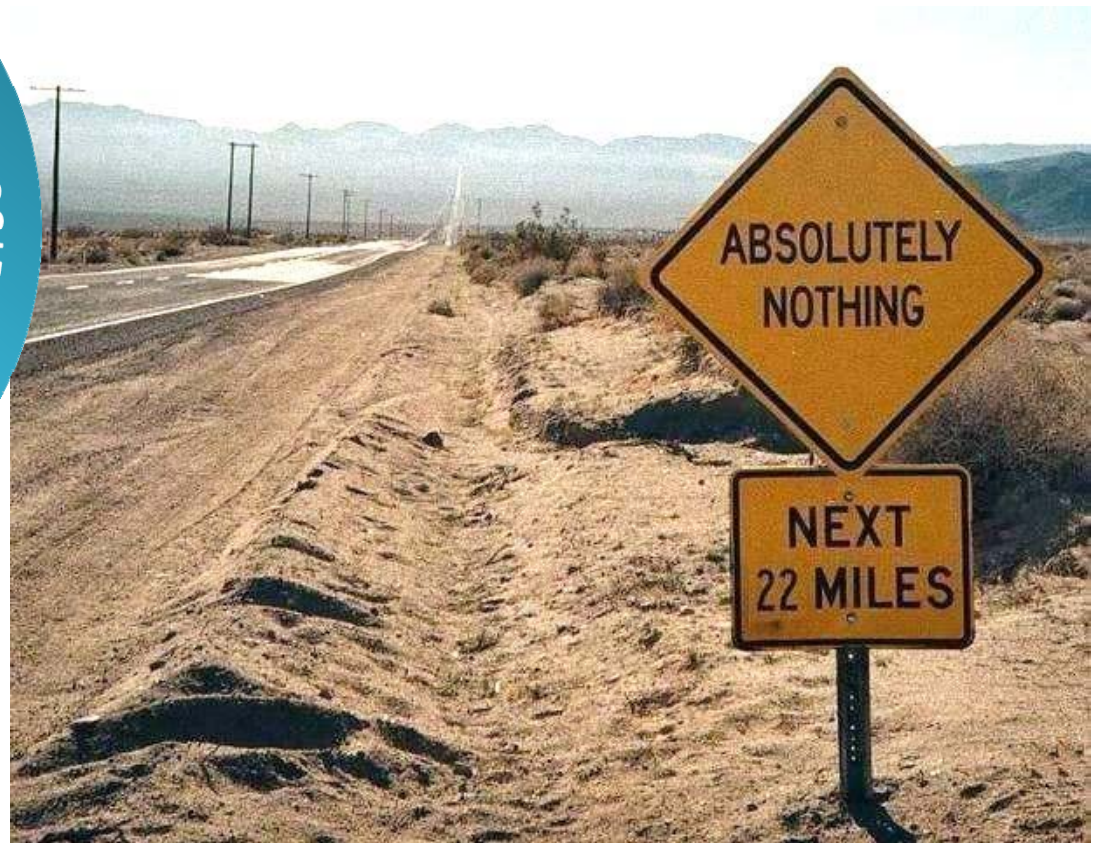
# Dimensions of Mobility

To adequately address mobility,  
**all four dimensions**  
should be emphasized  
and multiple  
performance  
measures used.





# Quantity



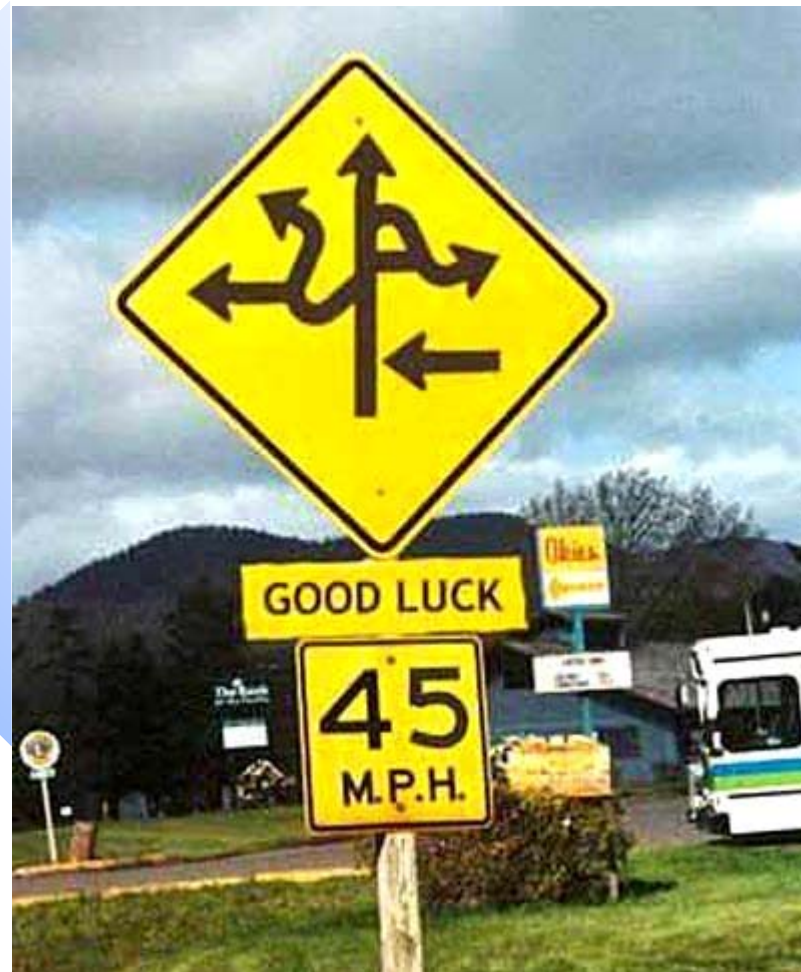


# Quality





# Accessibility





# Capacity Utilization





# Applicability of Dimensions to All Modes/Projects (Express Lane Projects)

Number of  
Vehicles/People

Travel Time  
Reliability/  
Variability



Access at specific  
locations

Capacity < 1



# MAP-21 Requirements



USDOT wants States and MPOs  
to do performance based planning





# MAP-21 National Goal Areas for the Federal Aid Highway Program

Safety

Infrastructure Condition

**Congestion Reduction**

**System Reliability**

**Freight Movement and Economic Vitality**

Environmental Sustainability

Reduced Project Delivery Delays









# Reliability/Variability Components



Congestion  
(traditional capacity analysis)



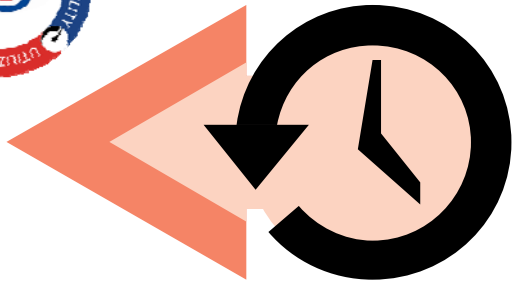
Weather effects



Incidents

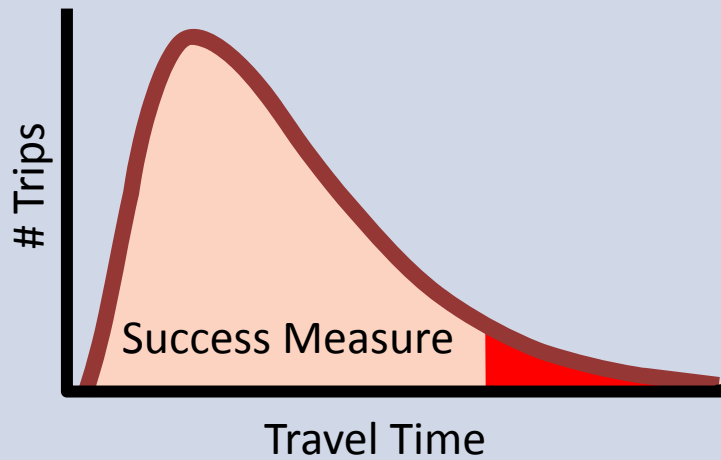


Work zones

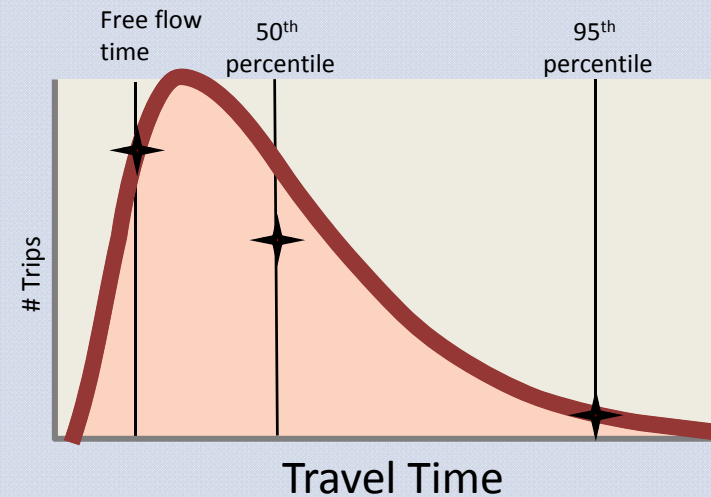


# Travel Time Reliability

## Percent of trips that "succeed"



## Comparison of variability in travel times

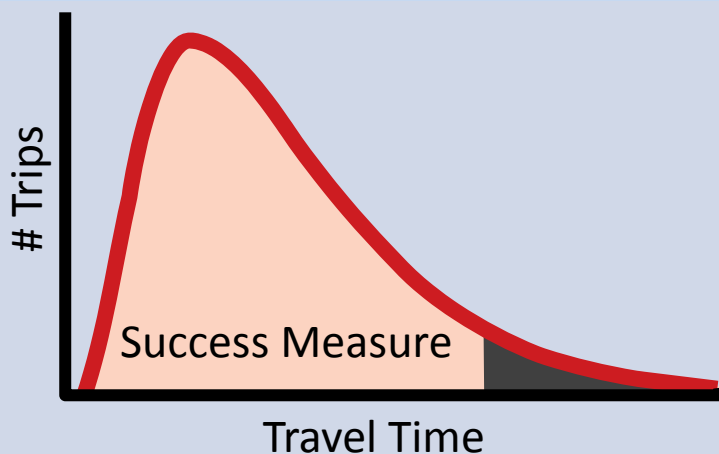




# FDOT Has 2 Primary Measures for Reporting of Travel Time Reliability

## On-time arrival (Reliability) –

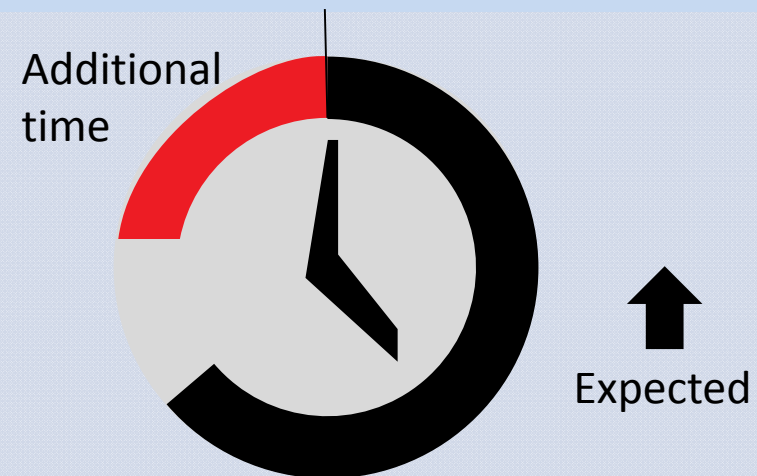
Likelihood a traveler will arrive at a destination in a reasonable amount of time.



(Especially relevant to  
Express Lanes)

## Planning time index (Variability) –

How much travel time varies for a traveler.

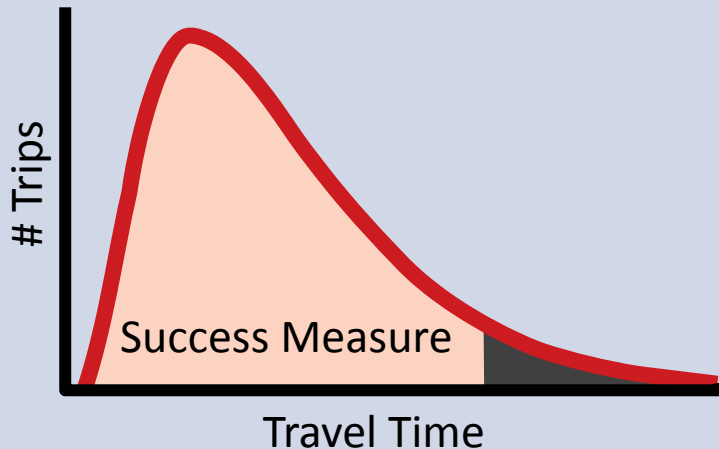




# FDOT Has 2 Primary Measures for Reporting of Travel Time Reliability

## On-time arrival (Reliability) –

Likelihood a traveler will arrive at a destination in a reasonable amount of time.



(Especially relevant to  
Express Lanes)

*Suggested wording for understanding  
Travel Time Reliability measures*

**Measured by** – Percent of time freeway trips able to travel at least 45 mph in Florida's largest urbanized areas or at least within 5 mph of the posted speed limit elsewhere.



# Express Lanes

Express Lane projects are probably the single best example of the first definition of travel time reliability

Essentially we're telling travelers you can expect to

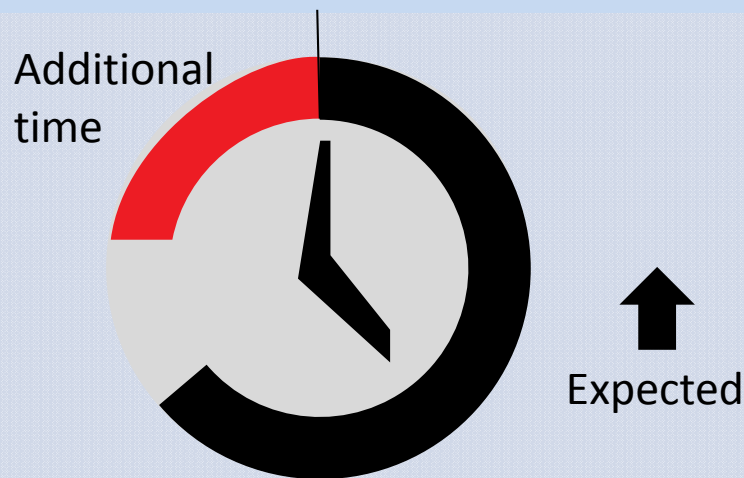
Travel at least  
**45 mph**  
& arrive **on time**



# FDOT Has 2 Primary Measures for Reporting of Travel Time Reliability

## Planning time index (Variability) –

How much travel time varies for a traveler.



*Suggested wording for understanding  
Travel Time Reliability measures*

**Measured by** – A ratio comparing how long it takes a traveler to make a trip near the posted speed limit compared to how long it takes to not be late once a month. How much additional time a traveler should budget to ensure on-time arrival 95 percent of the time. A value of 2 means it will take a traveler twice as long to make a trip than under no congestion.



# FDOT Mobility Performance Measures Express Lanes Effort







# FDOT's Mobility Performance Measures Express Lanes Effort

**Consensus in approach and measures**





# No National Requirements/Guidance

Requirements for  
converting HOV lanes  
to express lanes

90% of peak period  
time traveling at  
45+mph

But no guidance on  
new express lane  
facilities if no HOV  
component



# FDOT's Mobility Performance Measures Express Lanes Coordination

Coordination among FDOT offices involving current Express Lanes projects

- Consistent measures for all express lane facilities
- Discussion of numerous issues and topics

10/15

General agreement on issues and topics among FDOT offices involving current express lane projects

3/16

General agreement on issues and topics among all FDOT offices involving current and future express lane facilities

4-5/16

Output from all current express lane facilities

8/16

Official FDOT guidance

10/16



# Scope

Addresses **mobility performance measures**



- Existing express lane facilities
- Conversions to express lane facilities
- New express lane facilities

Does NOT include



- Incident management/conditions/clearing
- Financial/economic considerations
- Traveler information/signage
- Other system operational measures
- Customer satisfaction/complaints
- Citation tracking





# Mobility Performance Measure Issues

- Separate Reporting
- Peak Hours
- Closures
- Free Flow Speed
- Segmentation
- Directional Analysis
- Measures to report
- Source of speed data
- Source of volume data
- Reporting frequency
- Operational goal



# Separate Reporting at Statewide and Local Levels

Appropriate to have  
separate reports for  
reporting locally and  
statewide

District flexibility in  
reporting locally

Statewide analysis,  
some measures  
need to be reported  
consistently

District  
reports  
go to C.O.

Transportation  
Statistics

Traffic  
Engineering



# Peak Hours/Periods

For statewide reporting purposes only

(not necessarily for operations)

**6:00- 9:00 a.m.**  
**weekday**  
(excluding holidays)

**4:00- 7:00 p.m.**  
**weekday**  
(excluding holidays)



# Closures

For statewide reporting purposes only

(not necessarily for operations)

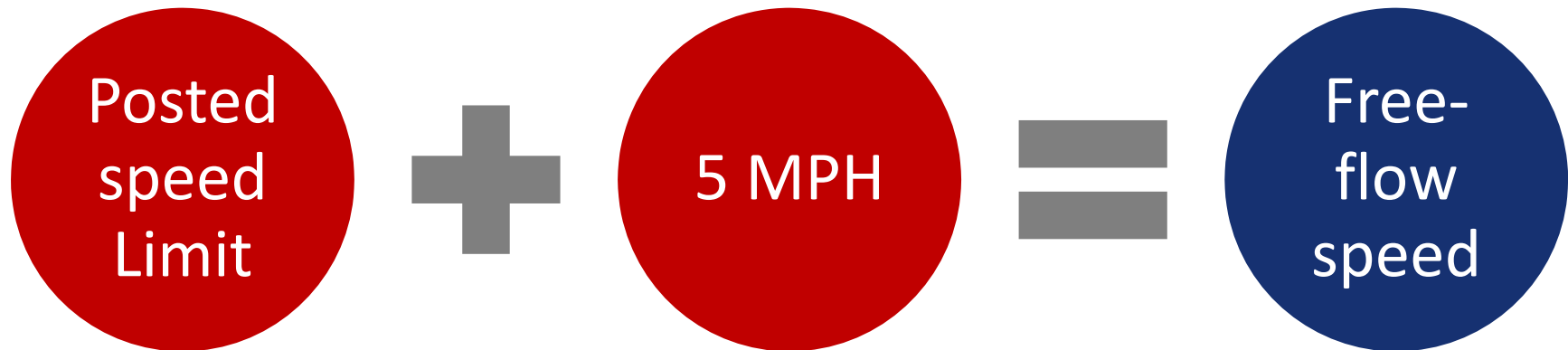
Only during applicable times when the facility is operational

All applicable periods of time regardless of whether lanes are closed or are reduced in operation efficiency





# Free Flow Speed





# Segmentation

For statewide reporting purposes only

(not necessarily for operations)

## Major ingress/egress points

Identified by District  
entity

Coordinated with C.O.  
Transportation  
Statistics



# Directional Analysis

Peak direction as determined by District entity	Two-way



# Applicability of Dimensions to All Modes/Projects (Express Lane Projects)

Number of  
Vehicles/People

Travel Time  
Reliability/  
Variability



Access at specific  
locations

Capacity < 1



# Measures to Report

For statewide reporting purposes

Travel time reliability		Throughput	
On-time arrival	Travel time variability	Vehicle	Person



# Operational Goal

## Facility

**90% at least 45 mph**

(may be higher for each entity)

Of each 15-minute  
time period

For each peak period  
(so 12 analysis periods)

For each direction

## Statewide target

(not for each facility)

**95% at least 45 mph**

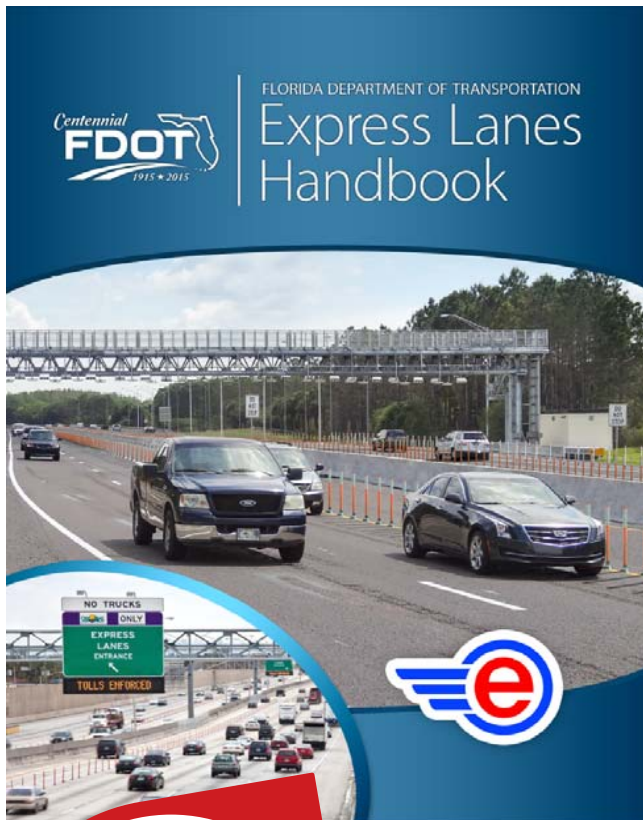
Of each 15-minute  
time period

For each peak period  
(so 12 analysis periods)

For each direction



# Express Lanes Handbook



- Provides Florida specific guidelines
- Answers important questions related to Express Lanes project development
- Guidance on planning, implementation and operations

Not a  
one size  
fits all



# Presentation

Florida's effort

in developing consistent mobility performance measures for express lanes projects

Overview of mobility performance measures

Probable FHWA requirement for travel time reliability

Positions taken

on major issues, measures, goals

