FLORIDA MPOAC STAFF DIRECTORS' ADVISORY COMMITTEE MEETING

January 30, 2020

Orlando, FL

Greg Stuart, Presiding

CALL TO ORDER & PLEDGE OF ALLEGIANCE

APPROVAL OF MINUTES:
OCTOBER 29, 2019 MEETING

PUBLIC COMMENTS
(NON-AGENDA ITEMS)

EXECUTIVE DIRECTOR'S REPORT

A. UPWP Report

B. Legislative Report

UPWP Report

- Accomplishments are in the packet
  - Registrations for MPOAC Weekend Institute
    - March 20 – Orlando – 6 registered so far
    - April 17 – Tampa – 4 registered so far
  - Monitoring transportation legislation

- Budget overall is on track

MPOAC Legislative Report

- Transportation Budget Request – $9.9 B
- Safety, System Preservation, Relieve Congestion and Leverage Technology
- Met with Governor's Staff yesterday
  - Water Quality
  - Teacher Pay
  - FLC and FAC – Short term rentals, preemption

MPOAC Legislative Report

- HB 1371/SB 1000 – Mid-Block Crossings
  - Would require a signal at each Mid-Block crossing
  - Or removal of MBC
  - October 01, 2024 implementation date
  - Cost concerns ($386K/1, $1M/5)
  - Senate intent is for a full signal
  - Senator Perry open to looking at engineering studies to determine signal need
  - Passed House Committee easily

MPOAC Legislative Report

- HB 395/SB 1172 – Transportation Bill
- HB 971/SB 1148 – Electric Bicycles
- SB 1192/HB 6061 – Aviation Fuel Tax
- HB 1039/SB 1352 – Transportation Companies – Movable billboards
- HB 1315 – Transportation Bill
  - MPOs mentioned – submittal of LOPP by August 1st.

Coming up at the April Meeting

- Set meeting dates for 2021 & 2022
  - 5th week option not available
  - Calendar of available dates will be shared
- Staff Directors' Leadership Committee for approval
- Approval of the UPWP, draft presented at this meeting.
- FTP Workshop

AGENCY REPORTS

A. Florida Department of Transportation

B. Federal Highway Administration

Florida Department of Transportation

STRATEGIC INTERMODAL SYSTEM

2045 Long Range Cost Feasible Plan

FY 2031/32-2044/45

Presentation Outline

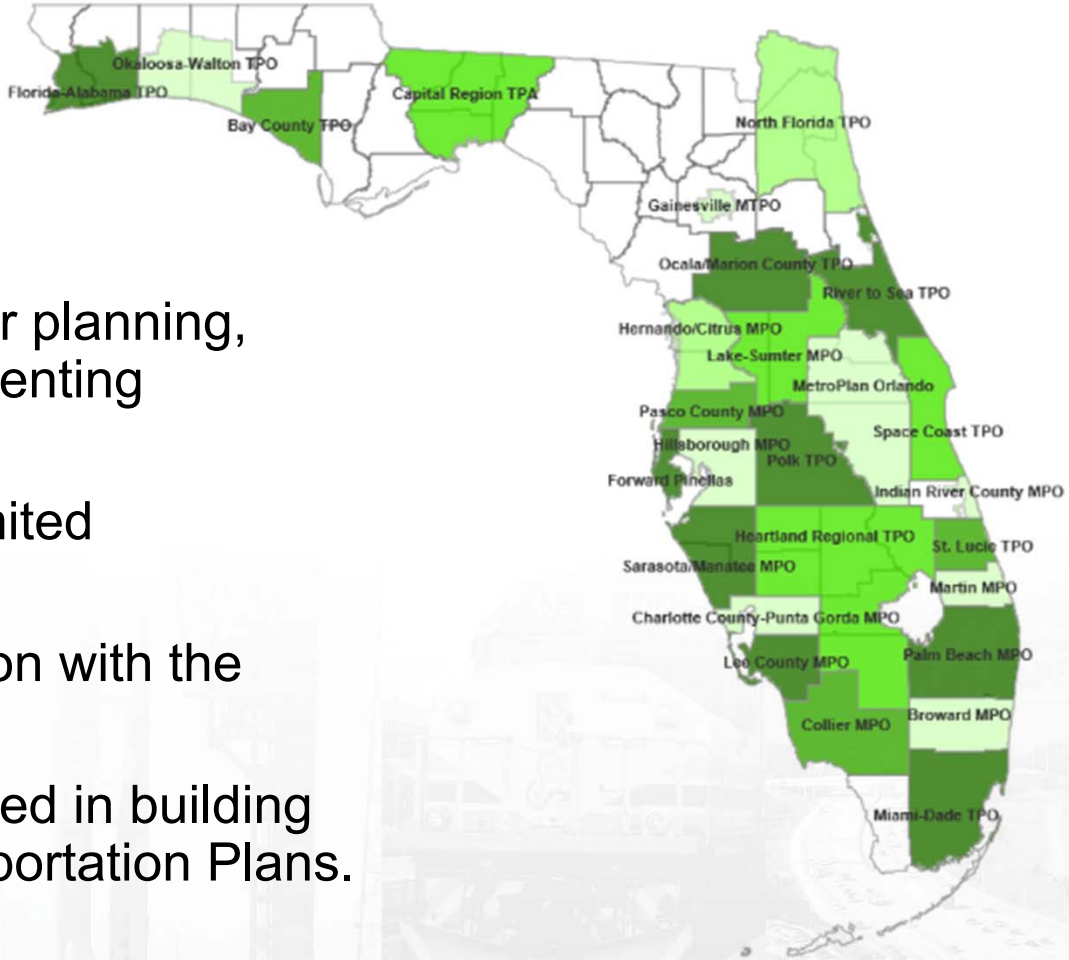
- Purpose
- Methodology
- Timeline
- Questions

Purpose of the Strategic Intermodal System (SIS)

Cost Feasible Plan (CFP)

Purpose of the SIS Funding Strategy

- Provides the framework for planning, programming, and implementing transportation projects.
- Supports investment of limited transportation funds.
- Is conducted in coordination with the Districts and their MPOs.
- Identifies projects to be used in building MPOs Long-Range Transportation Plans.



SIS Funding Strategy

SIS Funding Strategy is comprised of three sequential plans that identify SIS capacity enhancements:

- **1st Five-Year Work Program**
- **2nd Five-Year Plan**
- **Cost Feasible Plan**

Multimodal Unfunded Needs Plan (MMUNP)

Transportation projects that meet mobility needs, but where funding is not expected to be available during the 25-year time period of the SIS Funding Strategy

Purpose of the CFP

- Meet statutory requirement of Chapter 339.64(4)(d), F.S.
- Evaluate the SIS needs while considering future revenues
- Develop a phased financial plan for projects
- Ensure consistency with goals of the Florida Transportation Plan (FTP) and the objectives of the SIS Policy Plan*

Methodology

2045 CFP Update Planning Process

Updated 2045 CFP will reflect:

- Project phases advanced into the SIS 10-Year Work Program
- Project phases deferred during the last Work Program Development Cycle
- Projects advanced into plan from the *SIS 2045 Multi-Modal Unfunded Needs Plan*
- New priority projects identified by executive management, the Districts, and MPOs

2045 CFP Update
Planning Process

Funding Bands and Costs

- Project Costs reflected in Present Day Costs (PDC)
- 3 Funding Bands:
  - 1st Band 2031/32 – 2034/35
  - 2nd Band 2035/36 – 2039/40
  - 3rd Band 2040/41 – 2044/45
- Conversion of the final plan to Year of Expenditure (YOE) will be done by Central Office upon final approval

Project Identification

- Review and update project features:
  - Costs
  - Project segmentation (project limits)
    - Update Roadway ID Information
- Identify and evaluate new projects for funding consideration*:
  - Statewide importance;
  - Expand trade and tourism corridors;
  - Represent the completion of a corridor;
  - Promote overall connectivity;
  - Consistent with local plans; and
  - Meet SIS eligibility criteria**.

*For more information, please see the Funding Eligibility Guidance Document at:
https://www.fdot.gov/planning/systems/documents/brochures/default.shtm

Project Selection

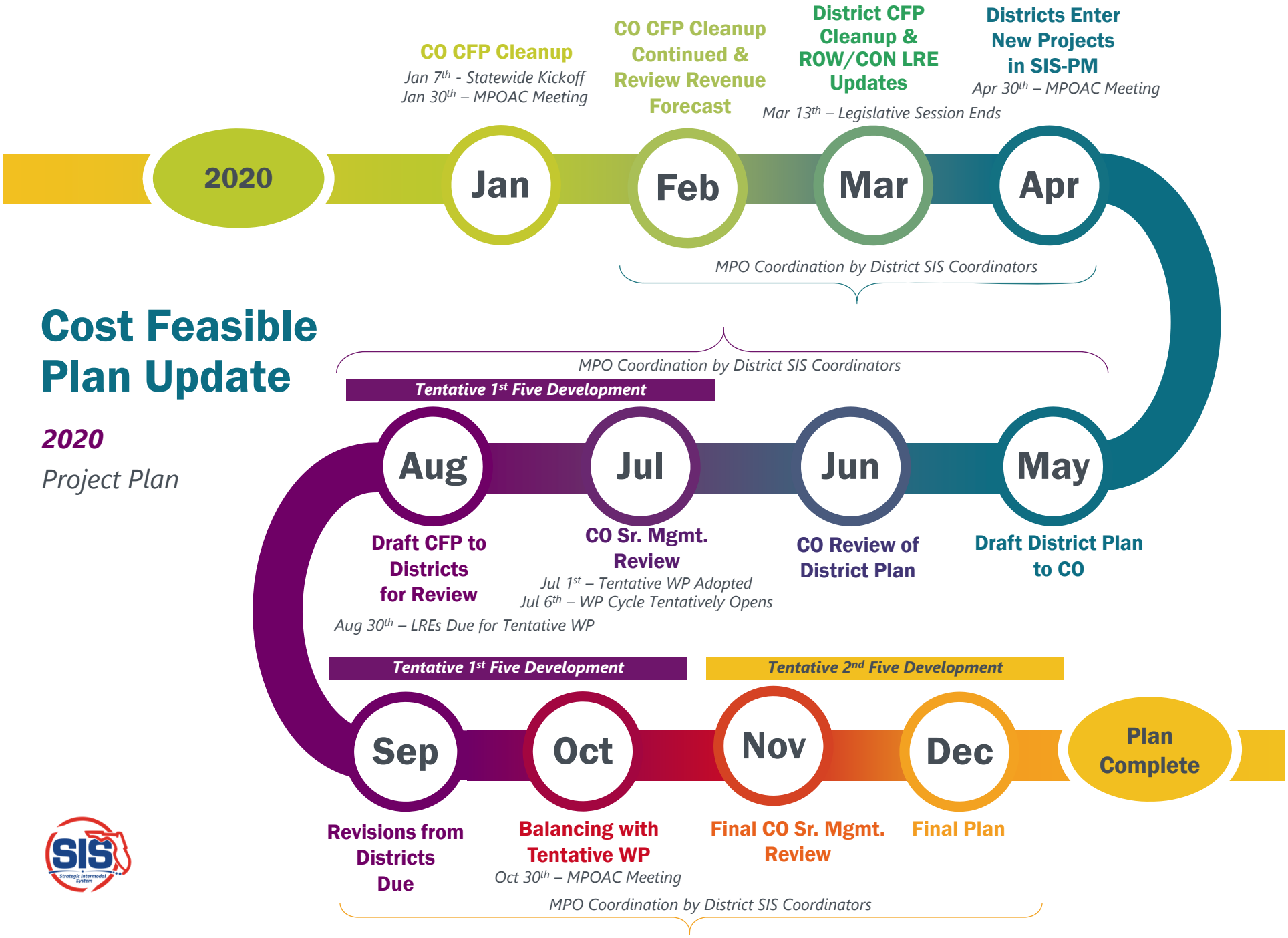
- ✓ As part of the selection process, potential projects are analyzed using the Strategic Investment Tool (SIT)**
- ✓ The SIT analysis takes into consideration:
  - ✓ FTP goals and SIS objectives
  - ✓ SIS eligibility and designation criteria
  - ✓ Safety issues
  - ✓ System connectivity
- ✓ Analysis using the CFP Tool is used to create a draft plan***. Attributes include:
  - ✓ Funding availability
  - ✓ Project costs
  - ✓ District priorities
  - ✓ MPO priorities
  - ✓ Statewide priorities
  - ✓ Production schedule
  - ✓ Project phasing
- ✓ Senior management and executive guidance

Timeline

Cost Feasible Plan Update

2020

Project Plan



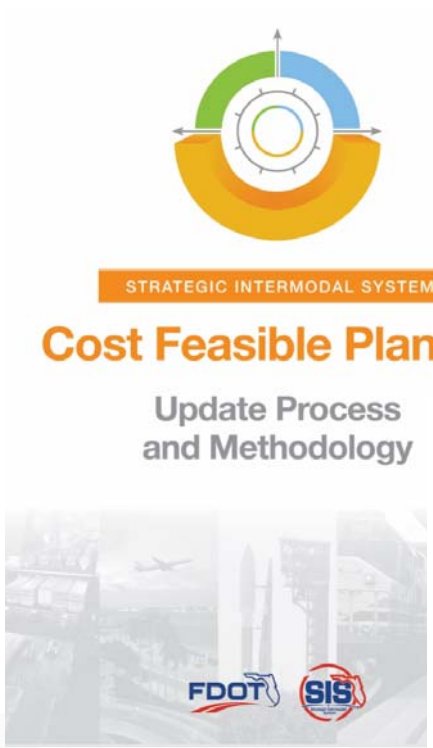
2045 CFP – Beginning Stages

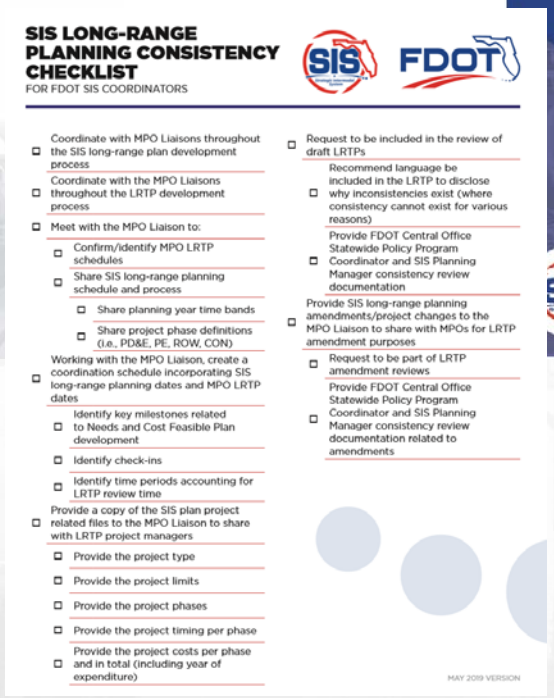
- FDOT Central Office data clean-up:
  - Reflecting projects advanced/deferred into/from the SIS 10-Year Plan
  - Update costs to 2020 dollars
- Review revenue forecasts provided by the FDOT Office of Policy Planning
- Begin preliminary coordination efforts
  - Review local/regional plans to identify and consider the priorities of:
    - MPOs
    - Expressway Authorities
    - Regional Planning Councils
    - Local governments (Non-MPO areas)
    - Other stakeholders

Coordination

- District SIS Coordinators and MPO Liaisons are to work with the MPO staff and sub-committees in sharing information regarding the CFP process
- In non-MPO areas, FDOT District staff are to coordinate directly with the applicable county officials
- Central Office staff will meet with FDOT District staff to track progress, provide resources, address concerns and ensure that MPOs are being fully involved in the CFP update process.

Guidance Documents





Comments

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Federal Highway Administration

Transportation Performance Measurement

Updates

January 2020

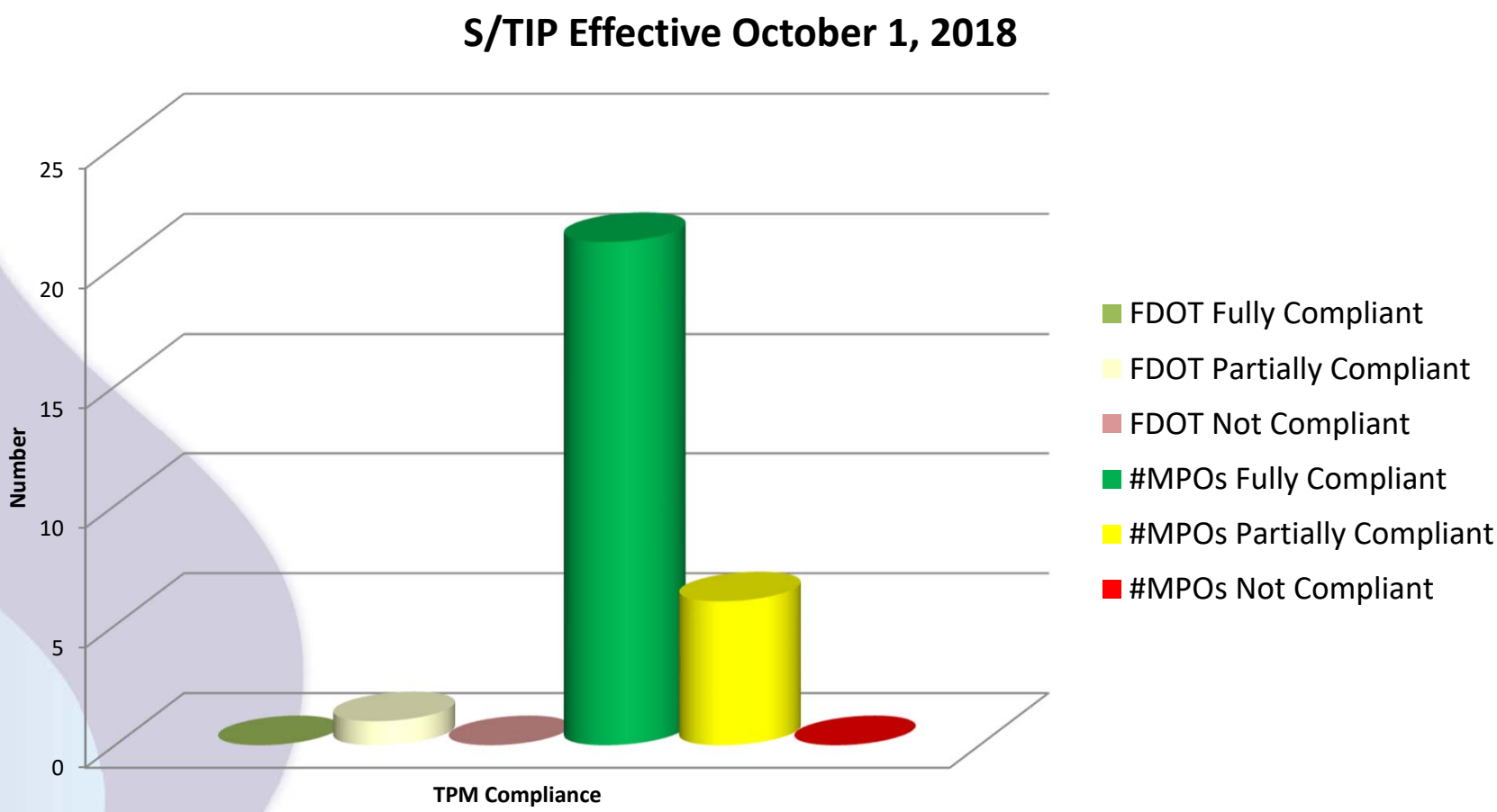
U.S. Department of Transportation
Federal Highway Administration

Recent TPM Activities

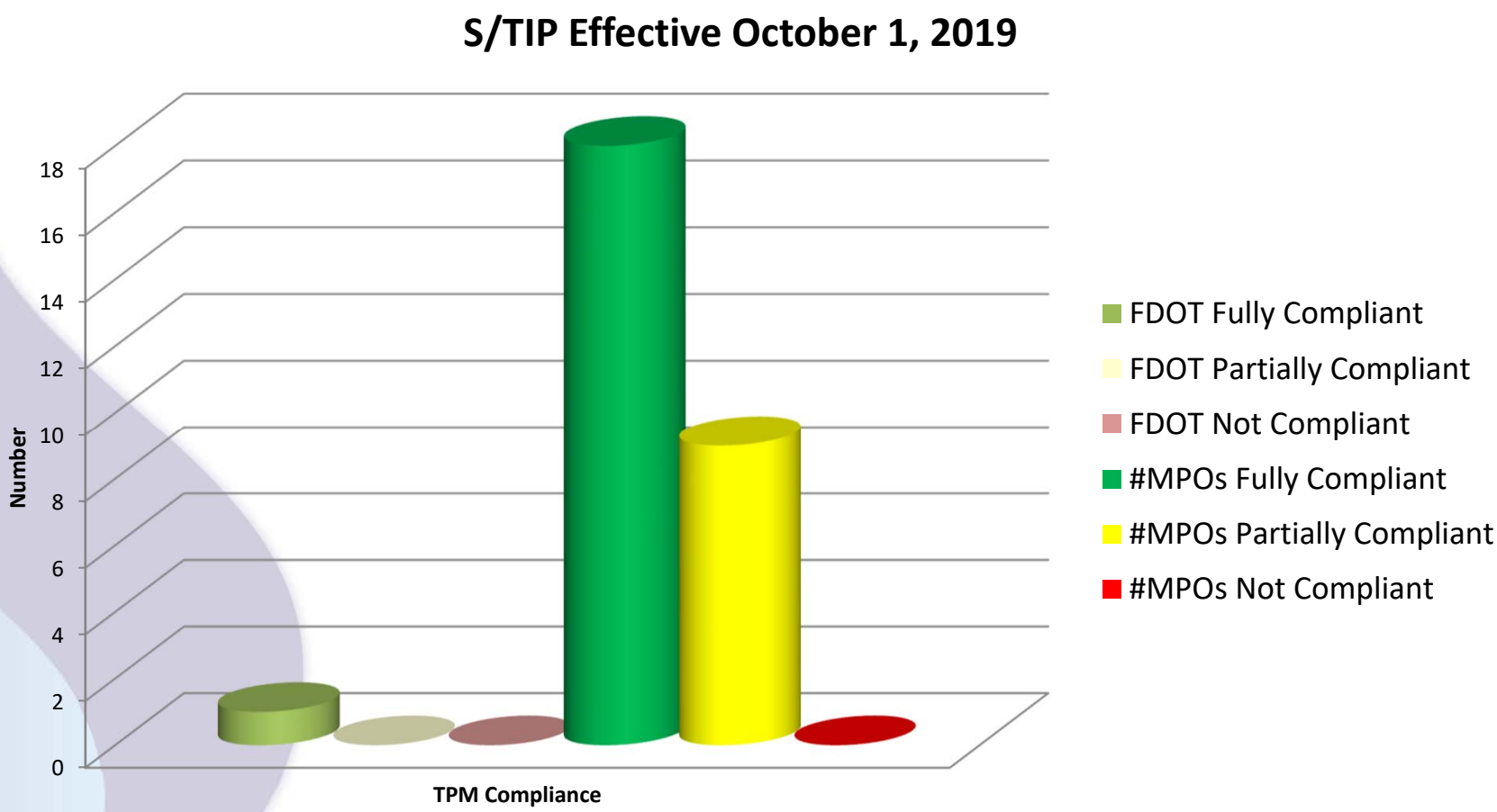
- November 2019:
  - FHWA TPM Safety Target Setting Workshop – Hosted by Hillsborough MPO
- December 2019:
  - FHWA TPM Website Reorganized
    - » www.fhwa.dot.gov/tpm
    - » Added Performance and Targets from all States for the 17 Measures
  - New HEPGIS Annual Travel Time Reliability and Congestion Metrics Maps Updated for TPM Data
    - » https://hepgis.fhwa.dot.gov/fhwagis/# (See Performance Metrics Tab)

- TIPs:
  - Consistency with Regulations Varied
    - » Reg: Description of how MPO/FDOT linked project selections and investments to anticipate target achievement.
    - » What We Saw: Deferring to LRTP project prioritization rather than TIP prioritization for furthering progress towards targets.
  - Reminder – FDOT TIP Templates Available
- Performance of TPM Compliance

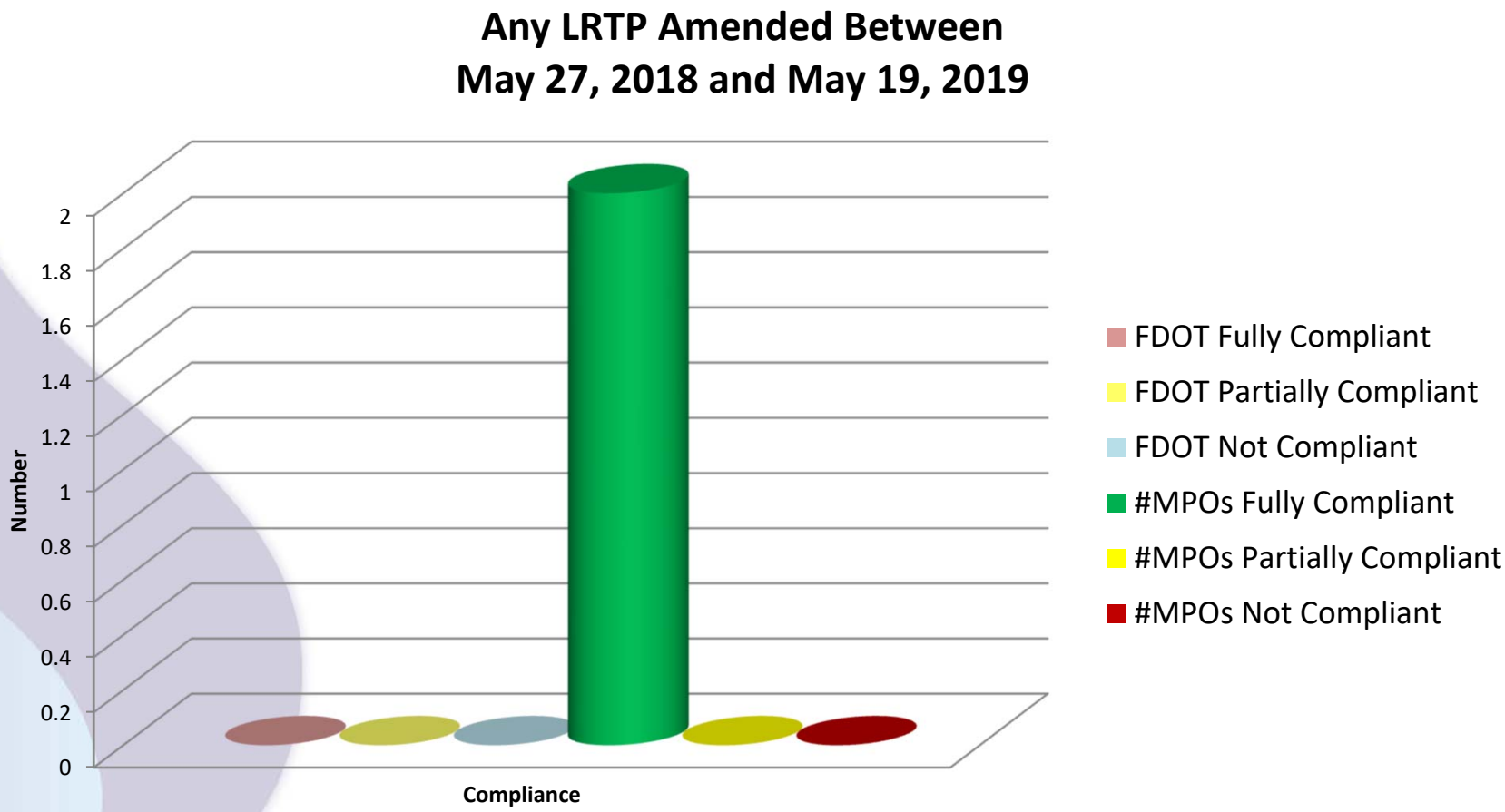
Transportation Performance Management



Transportation Performance Management

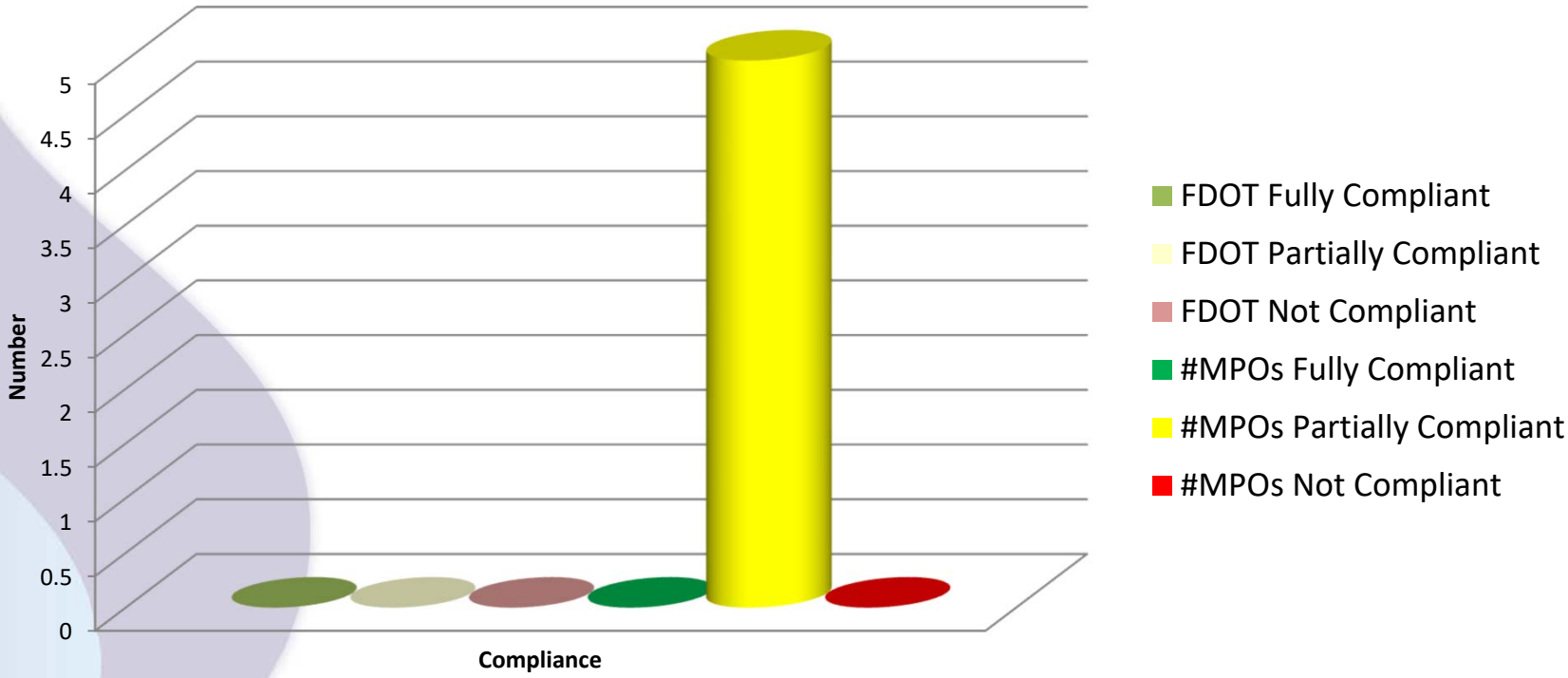


Transportation Performance Management

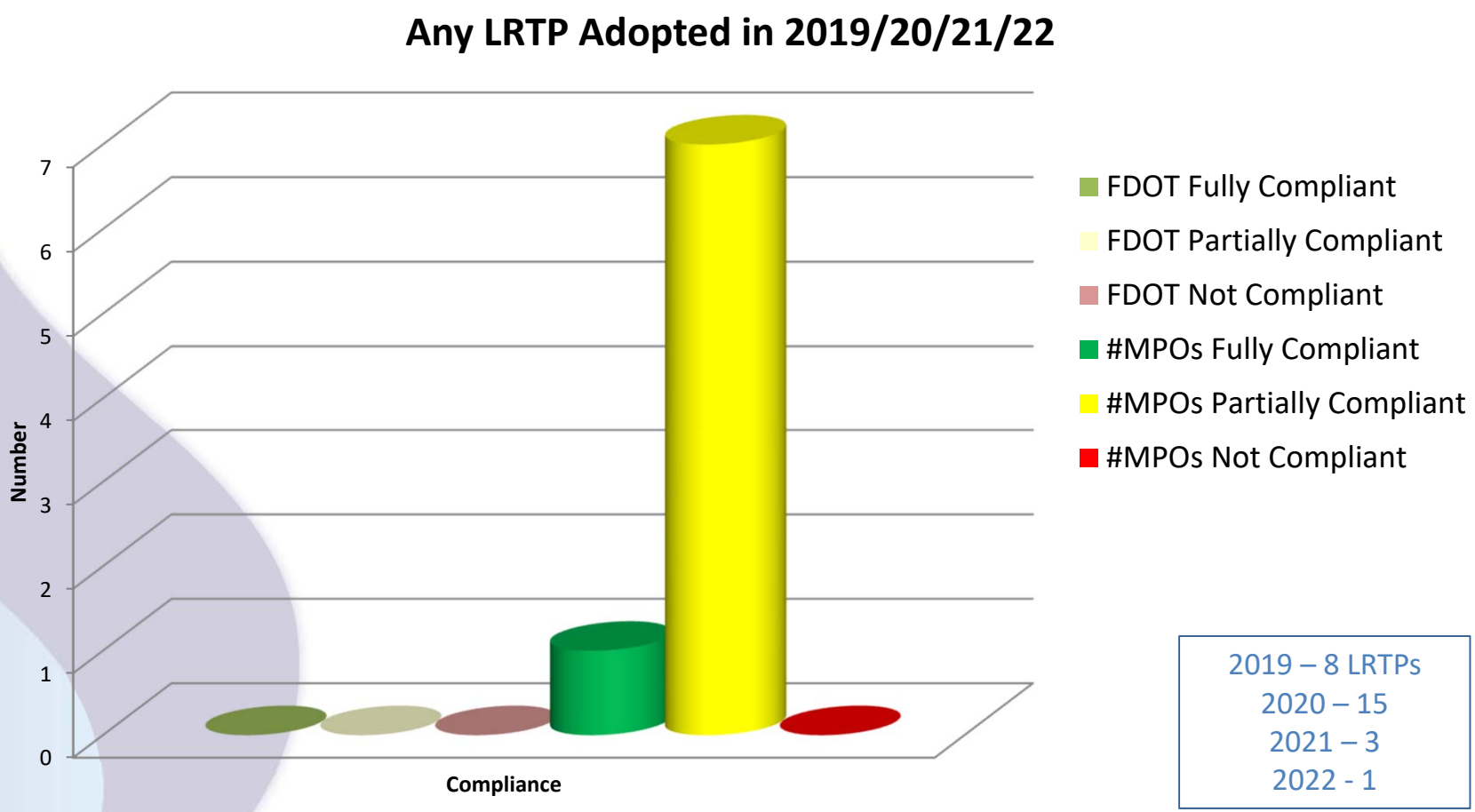


Transportation Performance Management

Any LRTP Amended Between
May 20, 2019 and new adoption date 2019/2020/2021/2022
(First LRTPs Due Oct 2019)



Transportation Performance Management



2019 – 8 LRTPs
2020 – 15
2021 – 3
2022 - 1

Upcoming TPM Activities

- Feb 27: MPO Sets 2019 Safety Targets
- Oct 1: Adjusted Targets Due From FDOT
  - In the Mid Performance Period Progress Report
  - Applies to Systems Performance, Bridge, and Pavement Targets
  - All MPOs Supported State Targets
  - If FDOT adjusts, the MPOs have an opportunity to assess and adjust.

Whether you are a driver, passenger, or pedestrian…

highway safety depends on YOU.

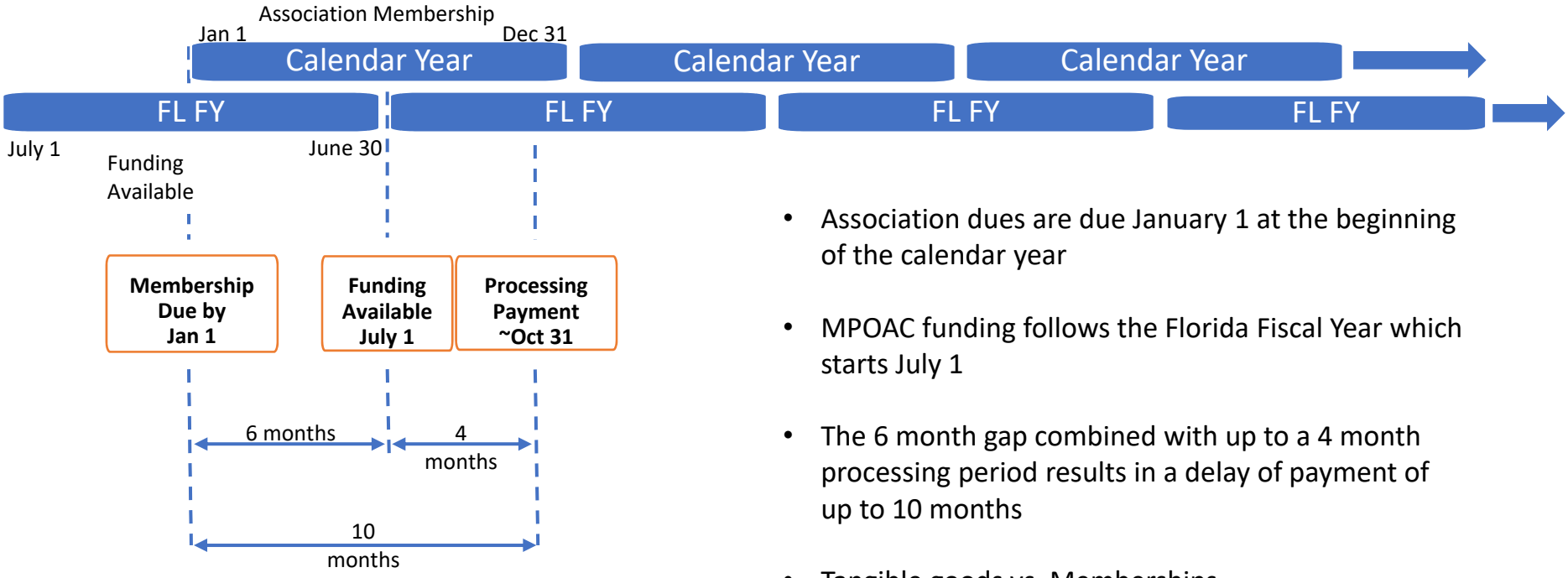
Be observant and be adaptable to be safe.

MPOAC Staff Directors' Business Items & Presentations

Draft UPWP State Fiscal Years 2021-22

- Fairly similar to current UPWP
- Changes include:
  - Added M-CORES involvement
  - Census activity, formation of urbanized areas
    - Expect a Federal Register seeking comment on methodology
  - Earlier payment of AMPO & NARC dues

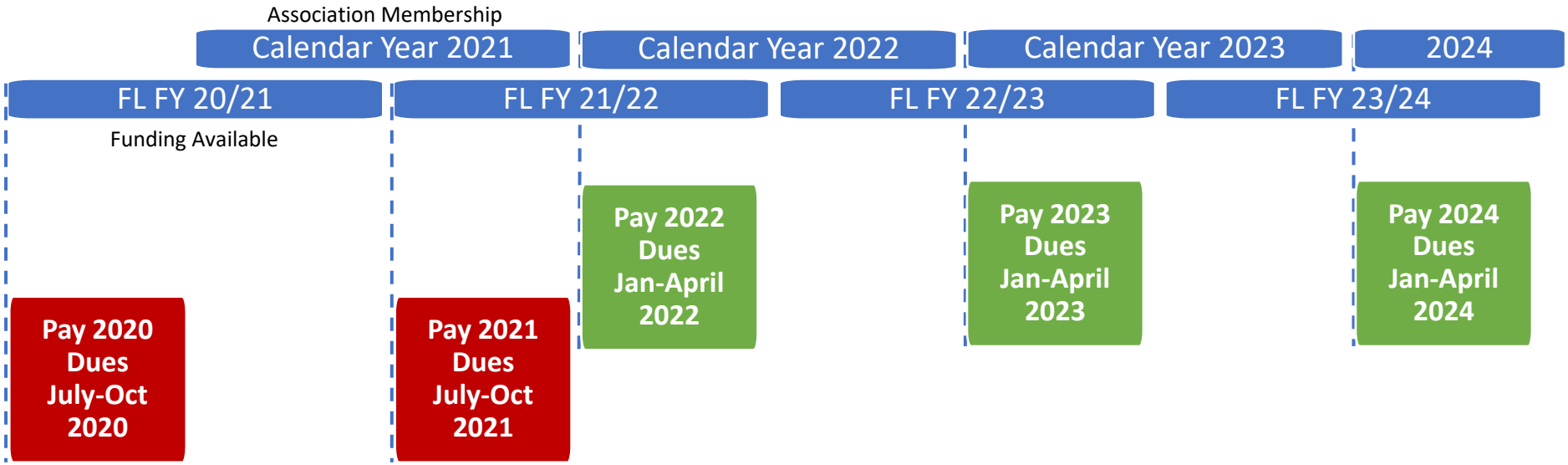
Current Problem



- Association dues are due January 1 at the beginning of the calendar year
- MPOAC funding follows the Florida Fiscal Year which starts July 1
- The 6 month gap combined with up to a 4 month processing period results in a delay of payment of up to 10 months
- Tangible goods vs. Memberships

Proposed Solution

- Make catch-up payment during FL FY 2021/22 to advance dues payment by 6 months



Autonomous Vehicle and Alternate Fuel Vehicle FL Market Penetration Rate and VMT Assessment Study

Sisinnio Concas, Ph.D., Program Director
Autonomous and Connected Mobility Evaluation

Florida Metropolitan Planning Organization Advisory Council
Orlando, January 30, 2020

University of South Florida
Center for Urban Transportation Research

Background

- Autonomous Vehicle (AV) and Alternative Fuel Vehicle (AFV) Florida Market Penetration Rate and VMT Assessment Study
- Funded by FDOT
- 24-month project
- Completed: October 2019

CUTR CENTER FOR URBAN TRANSPORTATION RESEARCH

Autonomous·Vehicle·(AV)·and·Alternative·Fuel·Vehicle·(AFV)·Florida·Market·Penetration·Rate·and·VMT·Assessment·Study

Final·Report

BDV25-977-48

Deliverable·No.·10

PREPARED·FOR
Florida·Department·of·Transportation

FDOT

October·2019

Page Break

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Center for Urban Transportation Research
University of South Florida
4202 E. Fowler Ave., CUT100, Tampa, FL 33620-5375

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Reasons for Analysis

- To effectively plan and create a transportation system for the future, it is important for the state to consider AFV and AV market penetration scenarios and their potential impact on the state's vehicle miles traveled (VMT).
  - What impact will AFV and AV will have on transportation revenues?
  - What additional investments may be needed to facilitate their adoption?
  - What potential savings may be realized?

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Project Objectives

1. Conduct a comprehensive market penetration analysis of autonomous (AV) and alternative fuels vehicles (AFV) and their impact on the state's VMT over 30-year period
2. Produce high, medium, and low projections of market penetration rates and VMT
3. Estimate the impact to current motor fuel-based revenue sources
4. Identify potential investments needed and anticipated cost savings
5. Identify policy considerations for further development by FDOT and policymakers for transportation infrastructure design, construction, maintenance, and operation

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AV Market Penetration Rate Analysis – U.S.

- Review of relevant studies relating increased AV market penetration to changes in VMT at the national level
- By 2035, AVs may make up about 11-14% of private vehicle fleet and approximately 35% of private-vehicle VMT
- AV technologies are expected to be adopted in luxury segment first
- Level 4 may be available in medium, small, and lower priced vehicle categories in the mid-2020s to early-2030s.
- Level 5 expected to have an impact in the mid- to late-2030s.
- Providing shared mobility to underserved population can add 2-14% to VMT

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AFV Current Market Analysis – U.S.

- Review of relevant studies/literature
- 361,000 EVs sold in 2018 (2% of LD sales), half in CA
- EV vehicle stock remains low – 0.37% of LD vehicles
- 160,000 NGV vehicles in U.S., mostly HD
- Primary driver of EV/PHEV sales – battery cost
  - Cost of automotive batteries decreased from $1,000/kWh in 2010 to under $200/kWh in 2018
  - Projected to fall below $100/kWh in 2025-2030 (EV will become comparable in price to ICE)

Other factors influencing EV market: government policy, consumer awareness, fueling infrastructure

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AFV Market Forecast – U.S.

- Projections vary significantly from source to source
- National forecasts imply short-to medium-term (10-15 years) annual growth rates of EV sales of 20.6%-25.1%;

  long-term (20+ years) growth: 7.5% - 16% per year.

- NGV sales: 10% of new MD and HD
- Fuel cell vehicle: 0.6% of total vehicle sales
- National EV stock projections range from 7 million vehicles in 2025, to 15 million vehicles in 2030 and to 41 million EVs in 2040
- EV fleet is not expected to exceed 15 percent

  of the overall U.S. vehicle stock in 2040.

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Florida VMT Projections

- Adjust FHWA long-term VMT forecast using weighted index of key demographic and macro-economic factors specific to Florida
- Multiple assumptions
- Categories of vehicles: LD vehicles, single unit trucks and buses, combination trucks
- Factors affecting VMT in Florida:
  - Population growth (higher than in U.S.)
  - Age (large percentage of 65+)
  - Population density (higher)
  - Household income (lower)
  - Geography and climate
  - Gasoline prices (lower)
  - AFV fueling infrastructure

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Florida eVMT Projections

1. Project number of EVs in Florida
   - Adjust national trend using weighted indexes
   - EV critical factors: growth in disposable income, gasoline prices, electricity rates, prices of PV, government rebates, etc.
2. Project average eVMT per EV (BEV & PHEV)
   - BEV/PHEV split
   - Improvements in battery technology/range
3. Combine number of EVs and eVMT per EV to obtain total eVMT forecast
   - LD, single-unit trucks/buses, combinations trucks

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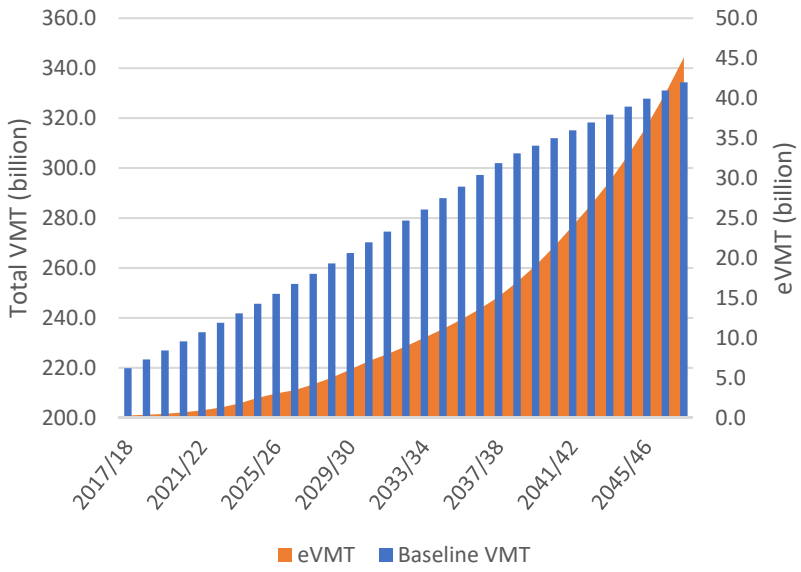
AFV Market Penetration Rate and VMT Projection - Florida

- Moderate eVMT growth until 2030
- EV market accelerates after 2030-2035
- By 2048, eVMT will reach 47.5 billion (14% of the VMT)



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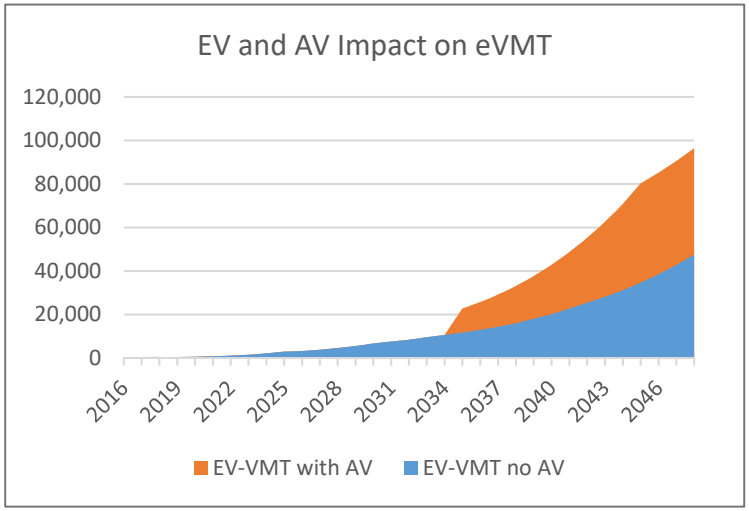
AV Market Penetration Rate and VMT Projection - Florida

- Low penetration rate until 2030-2035
- Starting in 2035:
  - eVMT will grow by 12% per year
- By the end of 2048:
  - 43% of vehicle fleet will be AV
  - VMT will increase by 14.6%
- eVMT is projected to account for 25.1% of total VMT in 2028
- Increased AV VMT fully absorbed by EV (eVMT)
- By end of 2048 AV will double eVMT



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AV and AFV Investment Requirement

- Most of AV capacity improvements will be achieved through vehicle cooperation
- Low levels of market penetration are associated with minimal capacity impacts
- As market penetration increases, the capacity increases remain minimal for non-cooperative AV but increase exponentially for connected AVs
  - 10%-40% connected AVs result in 12%-15% capacity increase
  - 100% connected AVs – 49%-270% capacity improvement
- Special infrastructure considerations for AVs: road markings and signage, managed/dedicated lanes, addition of drop-off lanes, ITS roadside devices (VTI), demand management strategies, etc.
- EV charging infrastructure needs in Florida (by 2040):
  - Additional 19,000 Level-2 public charging stations
  - Additional 2,350 DCFC

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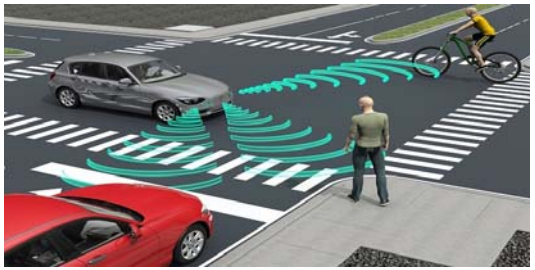
AV and AFV Cost Savings

- Cumulative benefits for EV owners (2018-2048)
  - Fuel cost savings of $15.6 billion
  - Life-cycle cost savings of $40 billion
- HD vehicles will not demonstrate TCO savings until 2030-2035
- Significant savings can be expected from AVs:
  - Crash cost reductions (94% of all crashes can potentially be avoided)
  - Reduction in congestion (improvement in capacity)
- Capacity improvements do not eliminate the need to invest in road construction to address growth in travel demand



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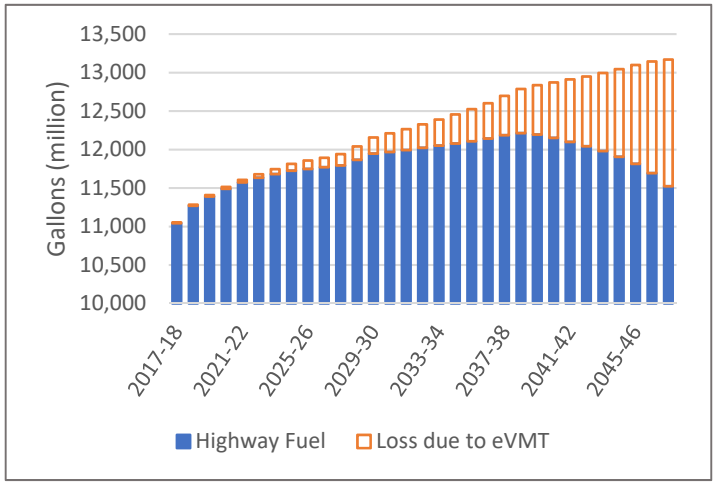
Revenue Analysis

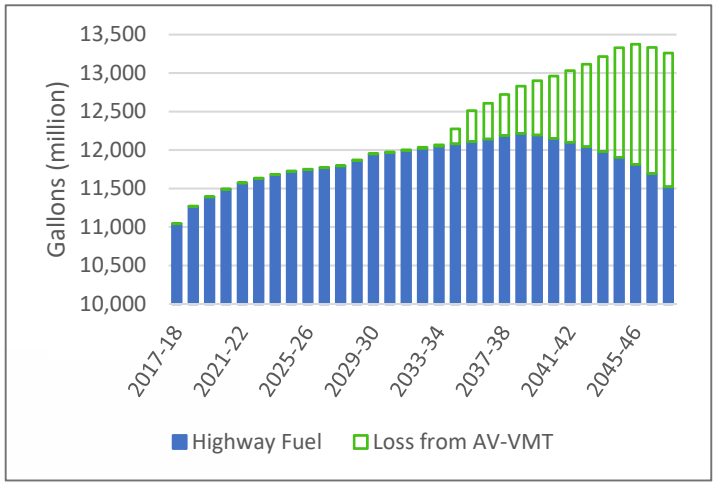
- Assess the impact of AV and AFV on state revenues
  - Federal – Federal Gas (18.4 cents/gal); Federal Diesel Added 6 cents/gal
  - State – State Sales (14.1 cents/gal); SCETS (7.8 cents/gal); 7-percent of 1-6 cents local option
  - Local Option – 1-6 cents/gal; local option 1-5 cents/gal; 9th cent/gal; constitutional, county, and municipal.
- Some are automatically adjusted to CPI, others are adjusted periodically by legislative actions
- Use approach by Florida Office and Demographic Research Revenue Estimating Conference (REC). Extend to FY 2047- 48.
- Employ forecasts of vehicle fleet composition, MPG, VMT, etc.

Impact from AFV and AV on Highway Fuel

- By FY 2047-48 increased AFV market penetration will reduce demand for motor fuel by 1.6 billion gallons annually
- Fuel consumption decreases after 2039

- By FY 2047-48 AVs will reduce highway fuel demand by about 1.7 billion gallons annually





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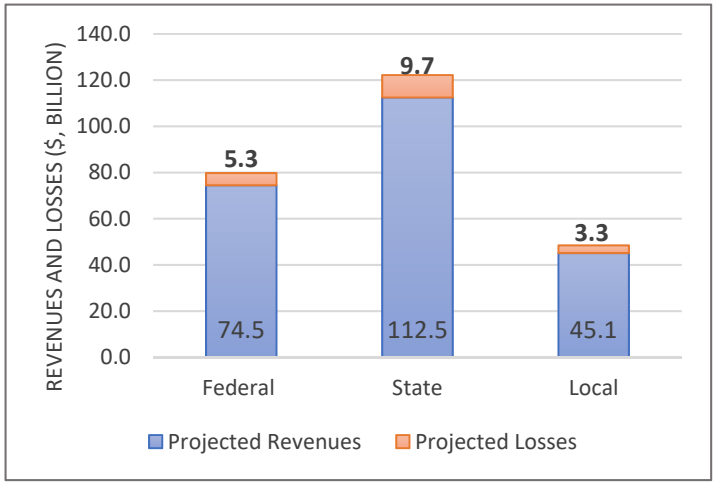
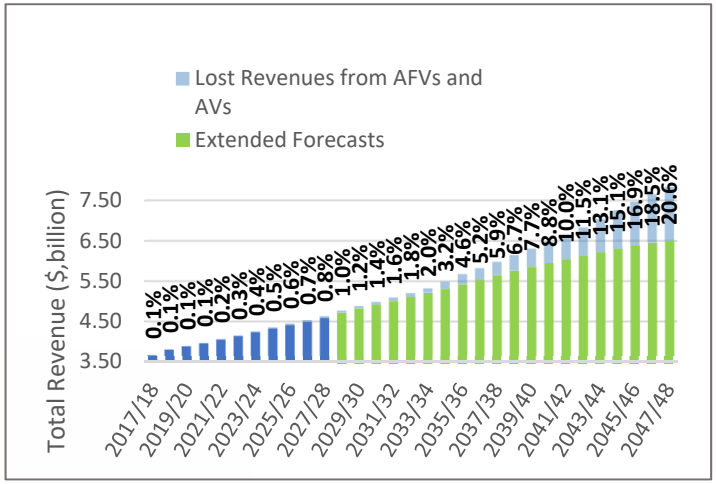
Combined Impact of AFV and AV on Revenues

- Cumulative Revenue Loss over 30-year period
  - $18.3 Billion federal, state and local
  - $9.7 Billion loss from states sales
  - 8.6% of state revenues
  - Revenue loss until FY 2027-28 is insignificant
- By FY 2047-48 annual revenue losses will drastically increase
  - $2.4 Billion/year
  - About 21 % of total revenues or 26 % of annual fuel-based state portion





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Factors Affecting the Projections

- Continuous improvements in ICE fuel efficiency not fully accounted for
- Average miles driven by EV and ICE
- PHEV utility factor (% of eVMT to total miles)
- Age of vehicle fleet
- EV and AV adoption rates
- Impact of EVs on fleet fuel efficiency
- Behavioral changes

Courtesy: EPA

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Policy Considerations

- AFV Fees and Taxes
- Public-Private Partnerships for Transportation Infrastructure
- Tolling and Congestion Pricing
- Road Use Fee/VMT Fee

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Conclusions and Recommendations

- Identify policy-feasible alternatives that are revenue loss neutral and focused on infrastructure preservation.
- Conduct sensitivity analysis of selected policy options
- Continued monitoring of key trends affecting market adoption and VMT generation
- Update forecasts to include recent AFV-AV market developments and changes in regulation

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Thank you!

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FDOT HURRICANE BEHAVIOR STUDY

And other fun modeling stuff!

presented to

Florida MPOAC

Presented by

State Modeling Manager

January 30, 2020

OVERVIEW

- **Background**
- **Purpose of the study**
- **Goals**
- **Other Activities**

BACKGROUND

- **TIME Hurricane Evacuation Model**
  - » Department of Emergency Management
  - » Purpose: County level demand / clearance times
  - » Free-flow conditions
- **Emergency Shoulder vs. Contraflow (2017)**
  - » FDOT Study: Legislature
  - » Hybrid: TIME / FISWM
- **Applications:**
  - » Hurricane Irma – September, 2017
  - » Hurricane Michael – October, 2018

SURVEY PURPOSE

- **Demonstrated need for statewide hurricane model development**
  - » Provide statewide information to Emergency Management
    - Travel demand projections
    - Estimates of congested speeds
    - Projection of bottlenecks
    - Evaluation of alternative evacuation scenarios
      - – i.e., Route elimination
- **Understand the decision making process**
  - » Primarily focus on Irma (2017) and Michael (2018)

SURVEY PURPOSE

- **Investigate behavioral preferences**
  - » Awareness: evacuate or shelter in place
  - » Experience
  - » Expected impact
  - » Referenced resources for information
- **Travel time information**
  - » How did residents react after an order of evacuation
  - » How did they travel
  - » Party size
  - » Route
- **New location technologies**
  - » Smartphone technologies
    - Realtime speed and congestion data
    - Changes in route choice
    - Changes in destinations

WHAT ELSE?

- **Release of the Update FISWM**
  - » Destination choice (2015/2045)
  - » Long Distance Mode Choice
    - Air and Transit
    - AV/CV / Tourism
  - » FreightSIM
    - Firm evolution
- **Emergency Operations**
  - » Urban Evacuation Model
- **Automated and Connected Vehicles**
  - » CAV Modeling applications (TWO)
    - Data surrogates
  - » CAV Freight
    - Shifts in Mode Choice

- **Research**
  - » Tourism
    - UF Department of Tourism
    - Tourist O/Ds
    - Tourist Flows
  - » Trueshape Network
    - UF Department of Civil Engineering
  - » Freight Economics
    - FreighTEC
  - » SIS Integration
    - Strategic Implementation Office
  - » Microsimulation
    - FIU Hadi

OF NOTE:

- **Florida MTF / Data Meeting**
  - » February 26 – 28, Orlando
- **Training**
  - » Comprehensive Modeling
    - • February 17 – 21, Fort Myers
  - » FSUTMS Scripting
    - • March 10-11, Orlando
  - » FSUTMS Executive Level Workshop
    - • March 24, Orlando Turnpike
  - » Python Programming for Modeling
    - • March 31 – April 1, Orlando Turnpike

- **Future Training Courses …**
  - » Mining Big Data
  - » Development Review
  - » CTPP
  - » AVCV Analyses
  - » Suggestions?

Thank You

Questions?

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Creation of Staff Directors' Leadership Committee

- Discussion only
- Fast response committee for technical issues
- Participation in biannual MPOAC Leadership meetings
- Suggested: Current Chair and Vice-Chair, two most recent past chairs, and one at-large member

Election of Officers for 2020

- Chair of the MPOAC Staff Directors
- Vice-Chair of the MPOAC Staff Directors

COMMUNICATIONS – IN YOUR PACKAGE

MEMBER COMMENTS

ADJOURNMENT

Next Meeting – January 30, 2020
Marriott Lakeside – Airport
Orlando, FL