



Florida Department of Transportation District Six

Transportation Systems Management & Operations

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Active Arterial Management in Miami-Dade and Monroe Counties

**2020 FLPRITE Winter Workshop
February 28, 2020**

Yamilet Diaz, P.E., TSM&O Engineer - Arterials

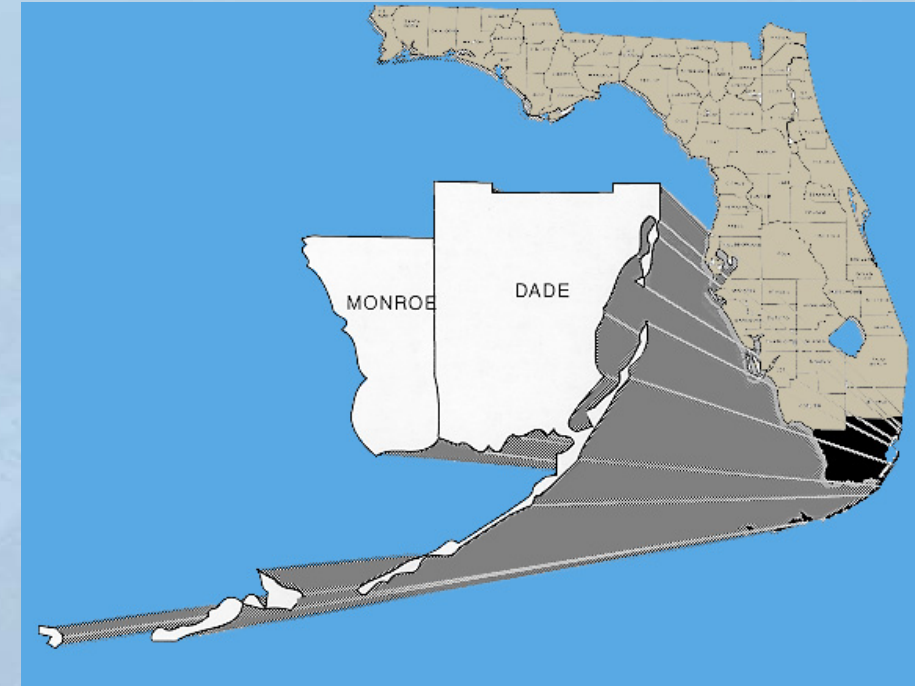
Agenda

- **District Six Overview**
- **District TSM&O Program Update**
- **Active Arterial Management**

District Six Overview

➤ Miami-Dade and Monroe Counties

- Population:
 - 2.8 million residents
 - 16.9 million visitors
- Coverage:
 - 700 centerline miles
 - 270 centerline miles of ITS coverage



- **8 Actively Managed Limited Access Facilities and Roadways**
- **2 Actively Managed Arterial Corridors**
- **Miami is one of the Top Ten Most Congested Cities in U.S.**

➤ SunGuide Transportation Management Center (TMC)

- Command and Control Center
- Collocated Agencies
 - Existing: FHP, MDX, FFWC
 - Future: Miami-Dade County, City of Miami Beach
- 24/7/365 Operations
- Services:
 - Freeway Management
 - Arterial Management
 - Incident Management
 - Traveler Information



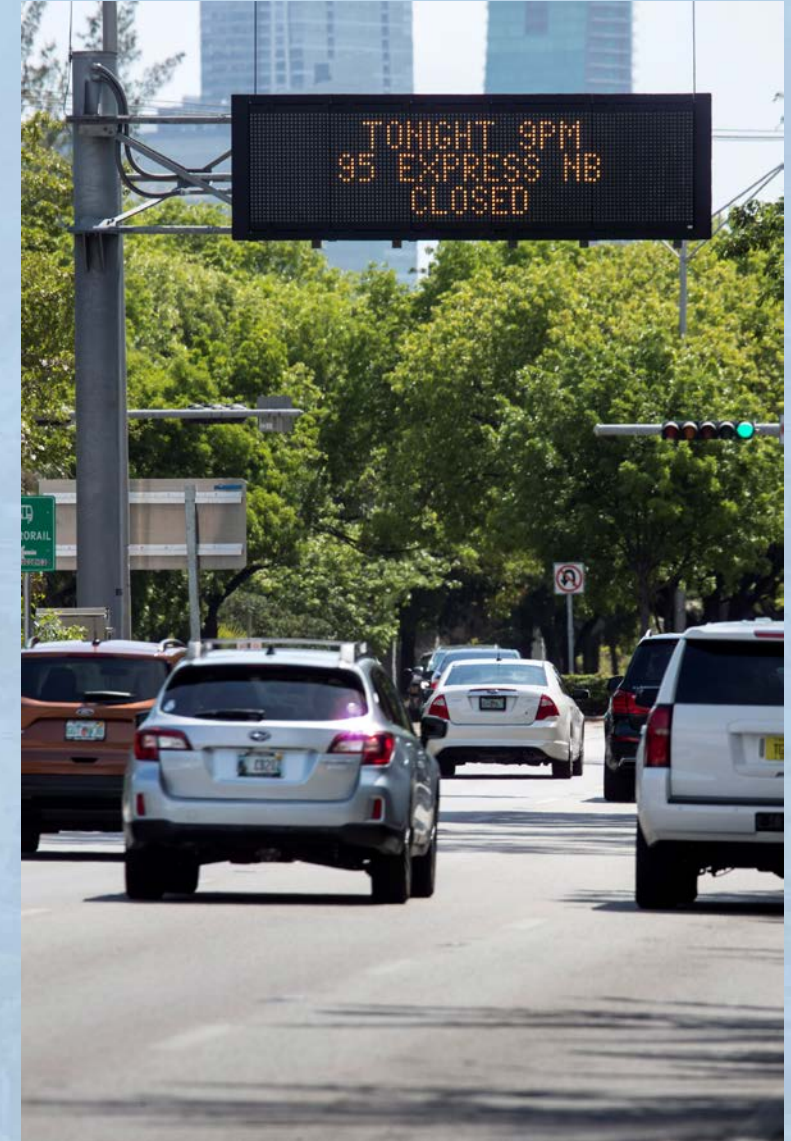
District Six TSM&O Program Highlights

- **Operations Program Experiencing Consistent Growth**
- **On-Going Regional Express Lanes Network Expansion**
- **Expanding Services to Support Arterial Operations**
- **Early Stages of Connected Vehicle Deployments**



Active Arterial Management

- **ASCT Pilot Projects**
- **Traffic Signal Operations & Maintenance**
 - Monroe County
 - City of Key West
 - Miami-Dade County TSMCA
 - Signal Retiming
- **Arterial ITS Deployments**
- **Arterial Incident Management**
 - Rapid Incident Scene Clearance (RISC)
- **Connected Vehicle Applications (Planned)**

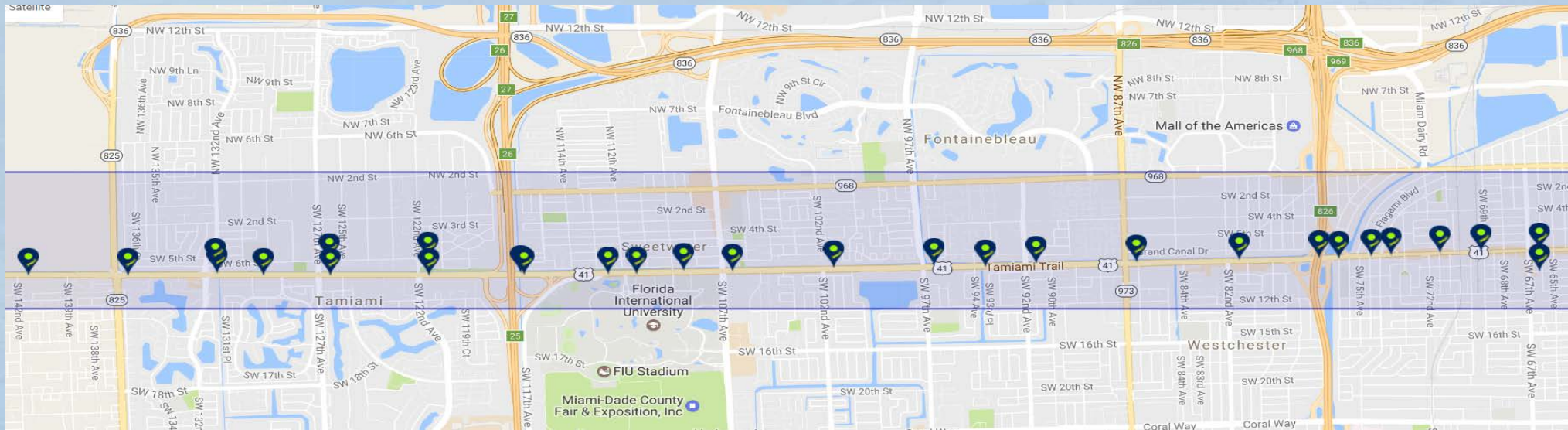


Adaptive Signal Control Technology (ASCT) Pilot Projects

SW 8 Street ASCT Pilot Project

➤ Overview

- Partnership with Miami-Dade County
- Operations Began: April 2017
- 30 Signalized Intersections
 - From SW 67 Avenue to SW 142 Avenue (approximately 7.5 miles)



SW 8 Street ASCT Pilot Project

➤ Year-One Evaluation

• SW 8th Street

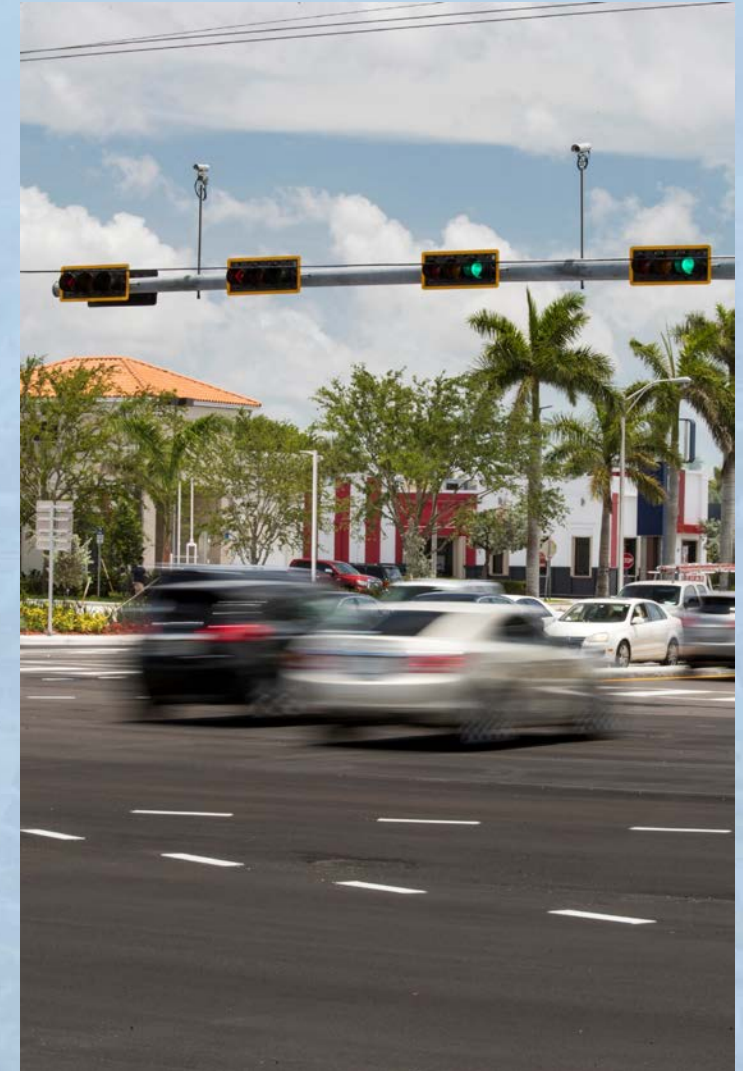
- Travel Time Improved - 3.65% to 12.50%
- Total Delay Reduced - 11.80%
- Crash Frequency Reduced - 9.73%
- Throughput Increased - 5% to 6%

• Cross Streets

- Total Delay Reduced - 9.80% to 23.50%
- Crash Frequency Reduced - 4.05% to 11.60%

• Benefit-Cost

- 3.7 to 8.4



➤ **Lessons Learned/Key Success Factors**

- Dedicated Arterial Operations Staff is Critical
- Availability of Qualified Maintenance Staff
- Heightened Coordination with Miami-Dade County Traffic Signals and Other Partners
- Continuity of Traffic Engineering Support by ASCT Vendor Post-Construction
- Organizational Emphasis on Performance Measures and Reporting
- Hurricane Preparedness
- Management Support

➤ Overview

- 15 Signalized Intersections
 - MD 660X Traffic Controller Cabinets
 - 2070 LX Controller with ATMS software and ASCT system
 - Vehicle Video Detection System
 - Ethernet Based Fiber Optic Cable and Wireless Communications
- Test Bed for Future Connected Vehicle Applications
- Anticipated Completion Date: April 2020

Traffic Signal Operations & Maintenance

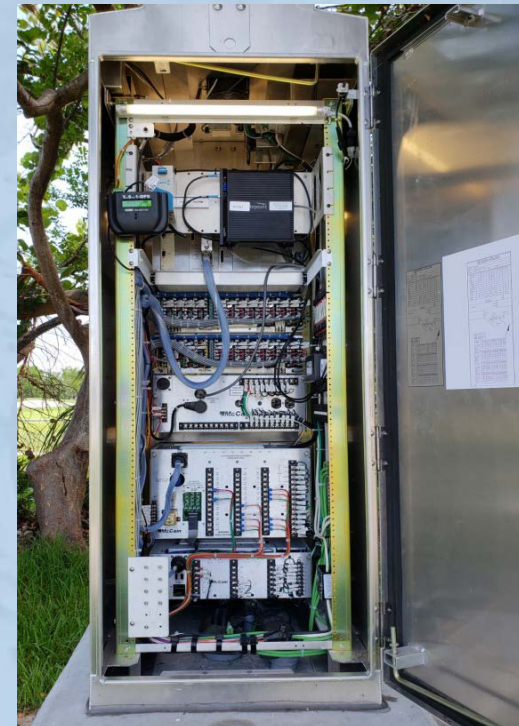
➤ Overview

- FDOT District 6 Assumed Operations & Maintenance: July 2018
- Partnership Monroe County, Islamorada Village of Islands & City of Marathon
- 17 Traffic Signals, 8 Emergency Signals & Other Devices
- Approximately 100 Miles



➤ Readiness Plan

- Stakeholder Meetings for Successful Transition
- Established Standard Operating Guidelines
- Infrastructure Upgrades
 - Wireless Routers, 2070 LX Controllers, UPS
- Control Room Redesign
 - Dedicated Arterial Workstations
 - Arterial Support Staff
 - ATMS
- Supplemented Existing ITS Maintenance Contract



➤ Overview

- 17 Traffic Signals
- 5 Pedestrian Hybrid Beacons (HAWK)
- 2 School Zone Beacons
- 2 Advance Warning Beacons
- 1 Emergency Signal
- O&M Start Date: July 2020

➤ Readiness Plan

- Stakeholder Coordination
- Infrastructure Upgrades
- Law Enforcement Training



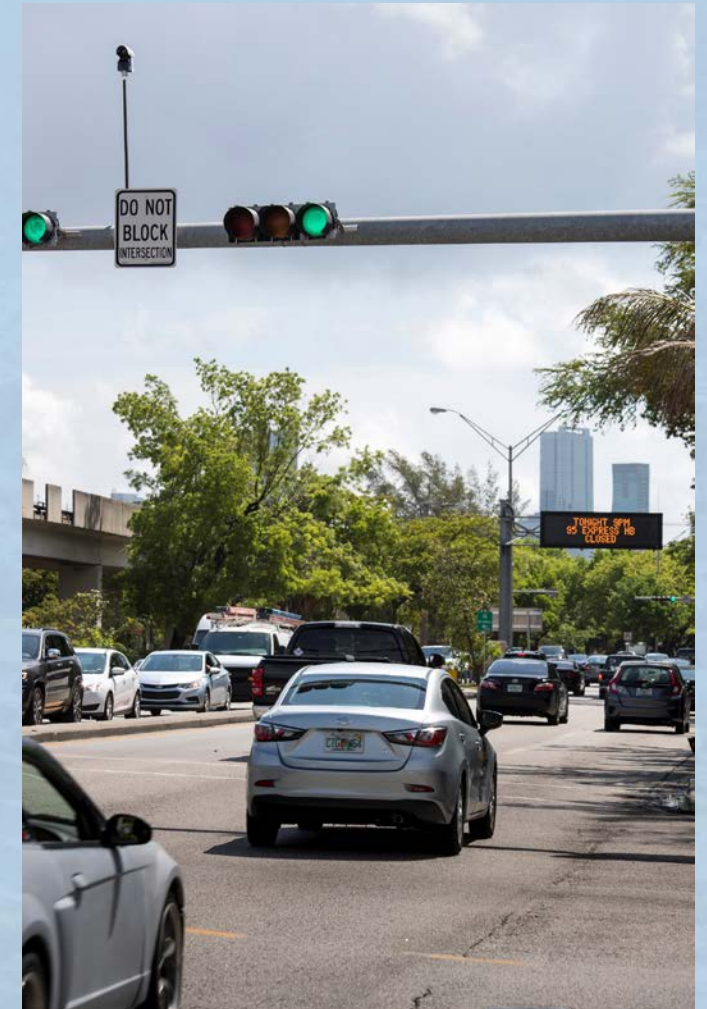
➤ Overview

- 1,329 Traffic Signals
- 128 Pedestrian Flashing Beacons
- 70 Speed Activated Warning Displays
- 61 Traffic Warning Beacons/Flashing Signs
- 11 Emergency Fire Department Signs
- Established New Joint Procedures
 - Preventive Maintenance Spot Inspections
 - Damage Reimbursements

Signal Retiming

➤ Overview

- Retiming 1300+ Signals Within A Three-year Cycle
- Retiming Goal: Improve Travel Times And Speed Along The Corridors
- Efficient Retiming Approach: Primarily “Fine-tuning Approach” During Peak Times
- Traditional Retiming (Data Collection With Hose Counts And TMC’s, Synchro Modeling, Fine-tuning) And Other Peak Periods On A Case-by-case Basis
- Close Coordination With Local Agencies



Arterial ITS Deployments

➤ Overview

- Existing Projects
 - US-1 in Miami-Dade County
- Future Projects
 - US-1 in Miami-Dade & Monroe Counties
 - Krome Avenue
 - Okeechobee Road

➤ FDOT Continues to Look for Opportunities to Expand Arterial Operations on Strategic Corridors



Arterial Incident Management

Rapid Incident Scene Clearance (RISC)

➤ Overview

- Miami-Dade Operations Began: January 2012
 - Krome Avenue, Okeechobee Road, MacArthur Causeway
 - Total Activations Since Launch: 11
- Monroe County Operations Began: September 2019
 - US 1, from MM 5.5 to MM 127
 - Total Activations Since Launch: 1



Monroe County RISC Operations

➤ Boiler Plate Contract Modified to Support Corridor Configurations

- Unique Road Characteristics & Infrastructure
 - Segmented Response Times Developed for US-1 Corridor's Challenging Geometry
 - Limited Turn-Around Points, Fewer Travel Lanes, Bridges
- Limited Availability of Resources
 - Contract Required Additional Equipment for Clearance Assistance Efforts
 - Tank Tapping Equipment & Accessories to Transfer Liquids
- RISC Activation Authorization
 - Florida Highway Patrol (FHP)
 - Monroe County Sheriff's Office (MCSO)
 - FDOT Authorized Representatives

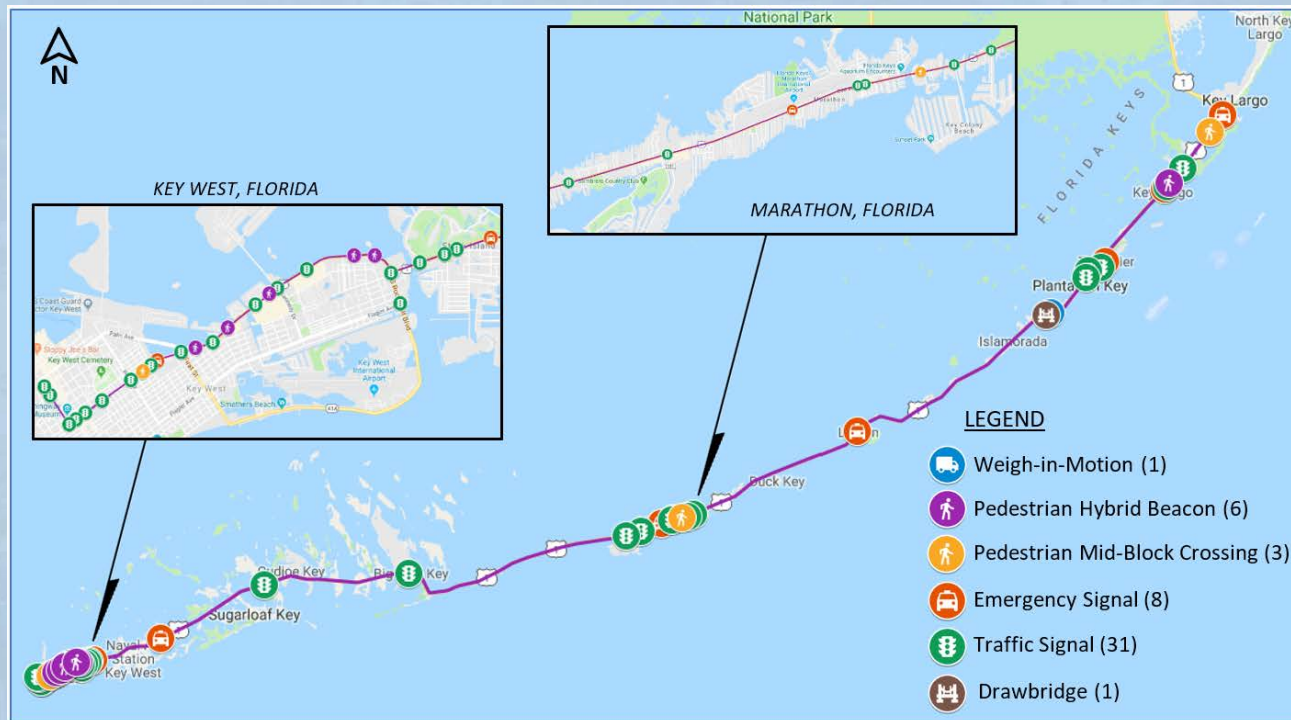


Connected Vehicle Applications (Planned)

Keys COAST Pilot Project

➤ Keys COAST

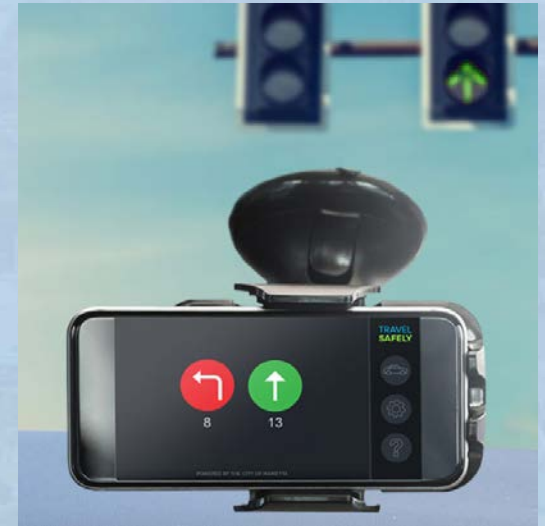
- Partnership with Local Stakeholders in Miami-Dade and Monroe County
- Advertisement: August 2020
- US-1 in Monroe County, Approximately 112.5 miles



Keys COAST Pilot Project

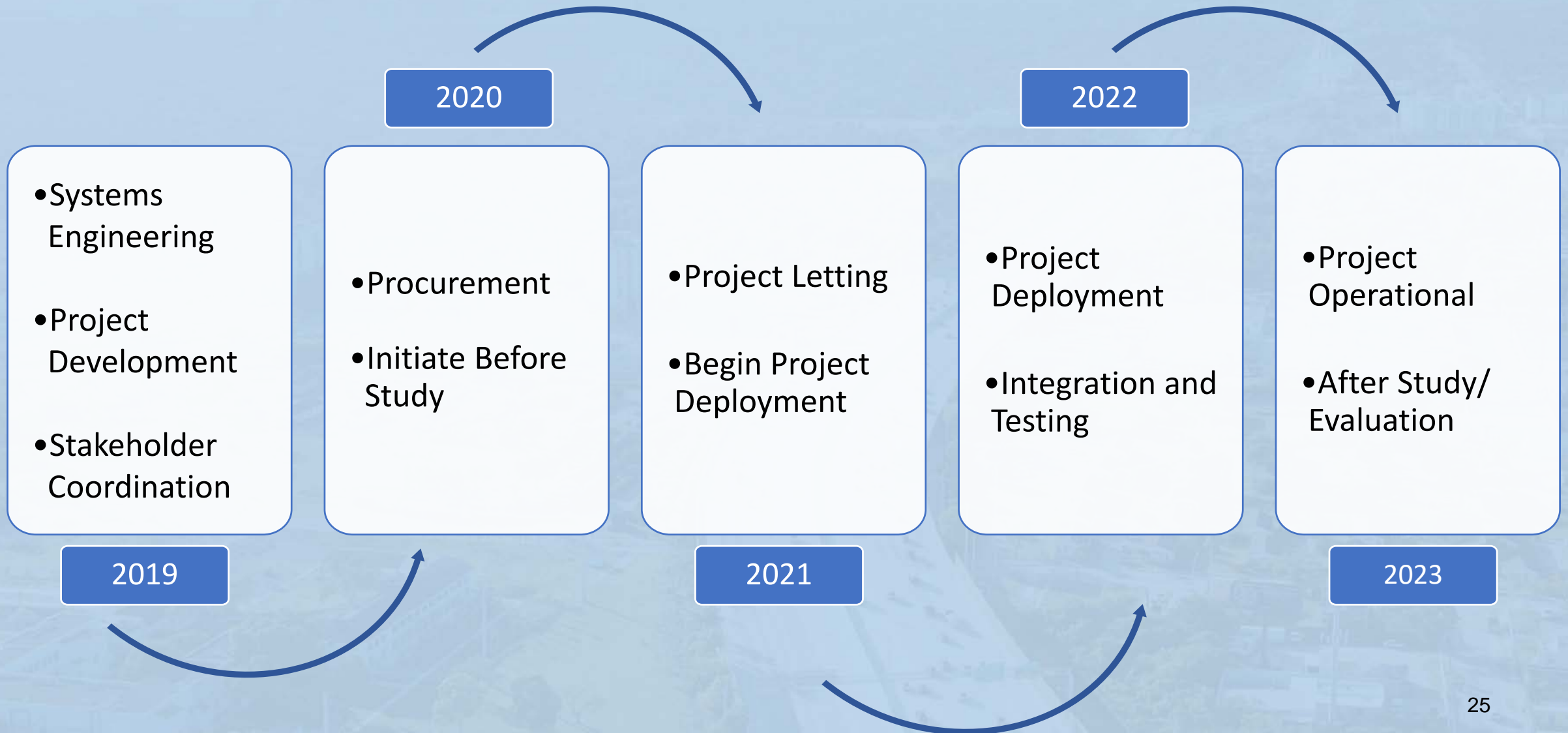
➤ Proposed Project ARC-IT Service Package

- CV Traffic Signal System - TM04
- Pedestrian and Cyclist Safety - VS12
- V2V Basic Safety - VS02
- Drawbridge Management - TM18
- Transit Signal Priority - PT09
- Emergency Vehicle Preemption - PS03
- Freight Signal Priority - CVO06
- Smart Roadside and Virtual Weigh in Motion (WIM) – CVO08



Source: Applied Information

Keys COAST Pilot Project (Timeline)



Questions?