Presentation Outline

• Space Coast Overview
• The SCTPO’s Role in TSM&O
• Success and Next Steps
Space Coast Overview
We are Quintimodal
Space Coast Urbanized Area Boundaries

- Population 579,130
- 1 county
- 72 miles long
- 16 cities and towns
- Two airports
- One seaport
- One spaceport
- Geographically Constrained
Existing Land Use

- Primarily urban sprawl
- Auto as primary source of transportation
- Limited North South connections
2040 Land Use

- Not much is planned to change
- Some additional development in North and South
- Up to local comprehensive plans to approve higher densities
- Lots of conservation land
- We are planned out!
## Operations Overview

<table>
<thead>
<tr>
<th># of Signals/Intersections</th>
<th>Not on ITS</th>
<th>On ITS</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State (Maintained by County)</strong></td>
<td>84</td>
<td>122</td>
<td>206</td>
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<tr>
<td><strong>County</strong></td>
<td>55</td>
<td>54</td>
<td>109</td>
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<tr>
<td><strong>City, Maintained by County</strong></td>
<td>15</td>
<td>4</td>
<td>19</td>
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<tr>
<td><strong>SUB TOTAL</strong></td>
<td>154</td>
<td>180</td>
<td>334</td>
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<tr>
<td><strong>City, Not Maintained by County</strong></td>
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<td></td>
</tr>
<tr>
<td>Titusville</td>
<td>40</td>
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<td>Melbourne</td>
<td>56</td>
<td>10</td>
<td>66</td>
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<tr>
<td>Palm Bay</td>
<td>43</td>
<td></td>
<td>43</td>
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<tr>
<td><strong>SUB TOTAL</strong></td>
<td>139</td>
<td>10</td>
<td>149</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>293</td>
<td>190</td>
<td>483</td>
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</tbody>
</table>
Operations Overview

- TMC’s
- 51 Miles of Fiber
- 79 CCTV Cameras
- 48 Bluetooth readers
- 1325 Wireless pucks
Local Needs

- Future Planning
- Funding for M&O
- Staffing Resources
- Centralized operations
The SCTPO’s Role in TSM&O
TPO/MPOs can help!

- Planning for operations
- Neutral 3rd party
- Existing municipal relationships
- Exist to enhance transportation systems!
ITS Master Plan and Project Overview in Brevard County
Space Coast Transportation Planning Organization

ITS Master Plan for the Space Coast TPO

The **Space Coast TPO ITS Master Plan:**

- Evaluated the existing systems in the Brevard County Area
- Determined future needs and formulate an implementation strategy for the future development and maintenance of the ITS
- A comprehensive report that contains:
  - All essential technology information
  - Recommendations
  - System-wide implementation methodology
  - Operations and Maintenance Plan
Task 1: ITS Vision, Goals and Objectives

**Primary Objectives:**
- Increase the number of roadway miles under surveillance by 50%
- Reduce system wide delay for cars, trucks, and transit
- Reduce corridor delay for cars, trucks, and transit with traffic management
- Improve reliability and predictability of travel
- Improve real time transit management
- Improve real time traffic and transit information

**Secondary Objectives:**
- Maintain the connectivity of intermodal hubs (seaport, airport, spaceport, transit and rail stations)
- Reduce average response times by 10% for each priority crash type (aggressive driving, intersection crashes, vulnerable road users and lane departures)
- Improve ability to evacuate during an emergency event with reduced clearance times and increased capacity during evacuations.
- Reduce greenhouse gas emissions
Task 1: Summary of Goals, Objectives and Performance Measures

**GOALS**

1. Improve Economic Vitality

2. Improve Safety and Security of System

**OBJECTIVES**

1.4 Maintain connectivity of intermodal hubs (seaport, airport, spaceport, transit and rail stations)

2.2 Reduce average response time by 10% for each priority crash type

2.3 Increase roadway miles under surveillance by 50%

2.7 Improve ability to evacuate during an emergency event with reduced clearance times and increased capacity during evacuations

**MEASURES**

1.4.1 Vehicle hours of delay on the system

2.2.1 Average crash response and clearance times by crash type

2.3.1 Number of roadway miles under surveillance

2.7.1 Evacuation clearance times

2.7.2 Evacuation roadway capacity
Task 1: Summary of Goals, Objectives and Performance Measures

**GOALS**

3. Improve Mobility through Management and Operations

**OBJECTIVES**

3.1 Reduce system wide delay for cars, trucks, and transit
3.2 Reduce corridor delay for cars, trucks, and transit with traffic management
3.3 Improve reliability and predictability of travel
3.4 Improve real time transit management
3.5 Improve real time traffic and transit information

**MEASURES**

3.1.1 Vehicle hours of delay on the system
3.2.1 Percent of corridors actively monitored or managed
3.3.1 Variability of travel time on priority corridors
3.4.1 Percent of transit routes with real time monitoring or management
3.5.1 Percent of travelers with access to real time traffic/transit information

4. Improve Sustainability and Livability

4.1 Reduce greenhouse gas emissions
4.1.2 Per capita greenhouse gas emissions from mobile sources and vehicle miles of travel per person
Task 2: Existing Conditions/Infrastructure

- Brevard County contains hundreds of miles of roadways including limited access highways, and arterials
- Important to **understand** and **document** existing conditions and infrastructure to form a foundation from which to build
- ITS-related solutions to resolve current and future traffic related issues
  - 2013 State of the System (SOS) Review
    - Top employment sites, access to jobs via roadway network & transit, Park & Ride, intermodal, freight, airport, seaport, spaceport, hurricane evacuation routes)
Task 3: Identify Transportation ITS Needs

ITS Scoring Methodology

- Scoring factors:
  - Existing congestion (out of 40 pts.)
  - Future activity (2035 LRTP) (max 15 pts.)
  - Existing traffic volumes (max 10 pts.)
  - Intermodal/economic significance (max 10 pts.)
  - Safety (max 15 pts.)
  - Hurricane evacuation (max 5 pts.)
  - Transit (max 10 pts.)

- Each roadway segment went through an evaluation process and were given points for each category.
- Roadways with the highest points were ranked first and are considered as priority for future capital and operational improvements.
- Overall network connectivity and redundancy was also a consideration.
### Task 3: Identify Transportation ITS Needs

#### ITS Needs Corridors

<table>
<thead>
<tr>
<th>ITS Rank</th>
<th>Road</th>
<th>Segment</th>
<th>2013 AADT</th>
<th>Capacity</th>
<th>V/C</th>
<th>Existing Volume to MAV</th>
<th>Future-LRTP</th>
<th>Existing Volume</th>
<th>Intermodal</th>
<th>Economic</th>
<th>Hurricane Route</th>
<th>Transit</th>
<th>Safety</th>
<th>Total</th>
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<td>1</td>
<td>BABCOCK</td>
<td>PT MALABAR-PALM BAY</td>
<td>32,262</td>
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<td>3</td>
<td>US 1</td>
<td>SARNO-EAU GALLIE</td>
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<td>1.06</td>
<td>31.77</td>
<td>15</td>
<td>10</td>
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<tr>
<td>4</td>
<td>SR AIA</td>
<td>FISHER DR-ST LUCIE</td>
<td>32,474</td>
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<td>0.94</td>
<td>28.24</td>
<td>15</td>
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<td>US 1 (WB))</td>
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<td>9</td>
<td>SR 520 (US 1-</td>
<td>DELANNOY-RIVEREDGE</td>
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<td>10</td>
<td>SR AIA</td>
<td>SHEPARD-MCKINLEY</td>
<td>32,465</td>
<td>34,500</td>
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<td>13.5</td>
<td>81.2</td>
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Top Ranked Regionally Significant Roadway Segments
Task 3: Identify Transportation ITS Needs

- Traffic Management Center (TMC) Options
  - Existing City of Melbourne TMC
  - Existing Brevard County TMC
  - Future Regional TMC
    - Co-locate agencies (local maintaining agencies, emergency responders, FHP, etc.)
    - Determine location, operating software, staffing hours & responsibilities

Brevard County TMC

Example of a Future TMC
Task 4: Identification of Applicable ITS Strategies

- Regional Staffing Needs
  - Future additional recommended staffing to effectively operate and maintain the region’s collective infrastructure

<table>
<thead>
<tr>
<th>Position</th>
<th>Existing Regional Staff</th>
<th>Recommended Regional Staff</th>
<th>Additional Regional Staff Needed</th>
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<tbody>
<tr>
<td>Traffic Engineering Operations Manager</td>
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<td>0</td>
</tr>
<tr>
<td>Senior Traffic Signal Engineer</td>
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<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Traffic Signal Engineer</td>
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<td>3</td>
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<tr>
<td>Traffic Signal Analysts/Technician</td>
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<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Network Engineer</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>TMC Manager/ITS Engineer</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Traffic Signal Maintenance /ITS Fiber Technician</td>
<td>14</td>
<td>24</td>
<td>10</td>
</tr>
<tr>
<td>Electronics Specialist (L2 Network Tech)</td>
<td>1</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>TMC Operator (for arterial application)</td>
<td>1</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Public Information Officer</td>
<td>1</td>
<td>1</td>
<td>0</td>
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</tbody>
</table>
Task 5: Regional ITS Architecture (RITSA) and Implementation Plan

- **Level 1: Maintenance**
  - ITS Maintenance
  - Signals Maintenance
  - Reporting (Operations)

- **Level 2: Basic Operations**
  - Retiming (Every 3 years)

- **Level 3: TMC Operations**
  - TMC Necessary

- **Level 4: Active Arterial Management**
  - Interagency Cooperation

- **Operations Contract (and Reporting)**

- **Permissions**

- **Maintenance Contract**

- **Transit & First Responders**

- **City of Melbourne ATMS.NOW**

- **City of Palm Bay**

- **Other Cities & Maintaining Agencies**

- **Brevard County ATMS.NOW**

- **City of Titusville**
Task 6: Concept of Operations

Updated the existing Concept of Operations that defines the roles and responsibilities for maintenance and operation of ITS and also includes the level of information sharing, status and control between agencies.
Task 7: Final ITS Master Plan

- **Completed in July 2015**
  - Fed into FDT D5 ITS Master Plan
  - Next update begin in the Spring of 2019
Success and Next Steps
Projects Funded by TPO

- As-Built Cabinet Drawings Updated
- TPO continues to contribute 225K to Brevard County for ITS operational support
- 3 City of Melbourne Expansion funded for design and construction in FY19 and FY 20
- Design funded for a centralized traffic management center in FY 19
Coordination efforts

- Regional TSM&O representation for local agencies
- Advocate for operational improvements to included with other projects
- Coordinate with FDOT D5 staff to take advantage of district contract opportunities
- Resource Sharing
Pursue Programmatic Approach

- Planning Study
- Concept Development
- Design
- Construction
- Testing
- Operations
- Monitoring
- Maintenance
- System-Wide Planning

ITS Master Plan and Project Overview in Brevard County
Space Coast Transportation Planning Organization

The Planning for TSM&O Guidebook
A comprehensive planning methodology for Transportation Systems Management & Operations.

> More than 80% of traffic in a typical city uses on 10% of the roads.

> In 2010, more than one fifth of the children ages 10 to 15 killed in traffic crashes were pedestrians.

> Flying is the safest mode of transportation in the world.

> Today, 40% of world’s freight cargo is transported via trains.

> Only 20-25% of all hospital users disposed of.
Future Preparation
STAGE 1 LANDING

The first stage of Falcon 9 is attempting an experimental landing on the autonomous spaceport drone ship.

LAUNCH: CRS-8
THANK YOU

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