

FSITE/District 10 & ITS 2017 Joint Annual Meeting



Space Coast TPO

ITS Master Plan and Project Overview in Brevard County

ITS Master Plan and Project Overview in Brevard County

Space Coast Transportation Planning Organization

LIVE

T- 00:00:06



LAUNCH: CRS-8



Presentation Outline

- Space Coast Overview
- The SCTPO's Role in TSM&O
- Success and Next Steps

Space Coast Overview



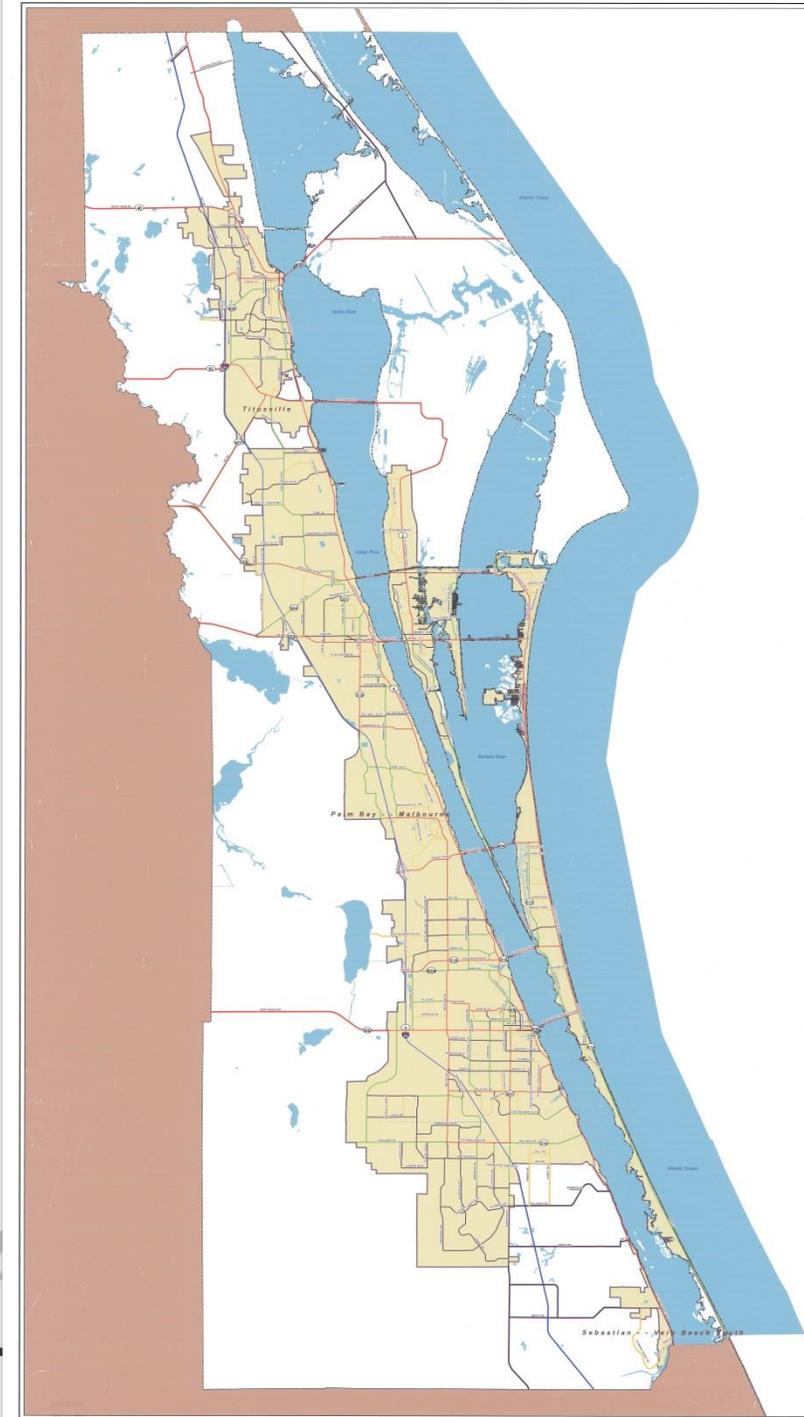


We are Quintimodal



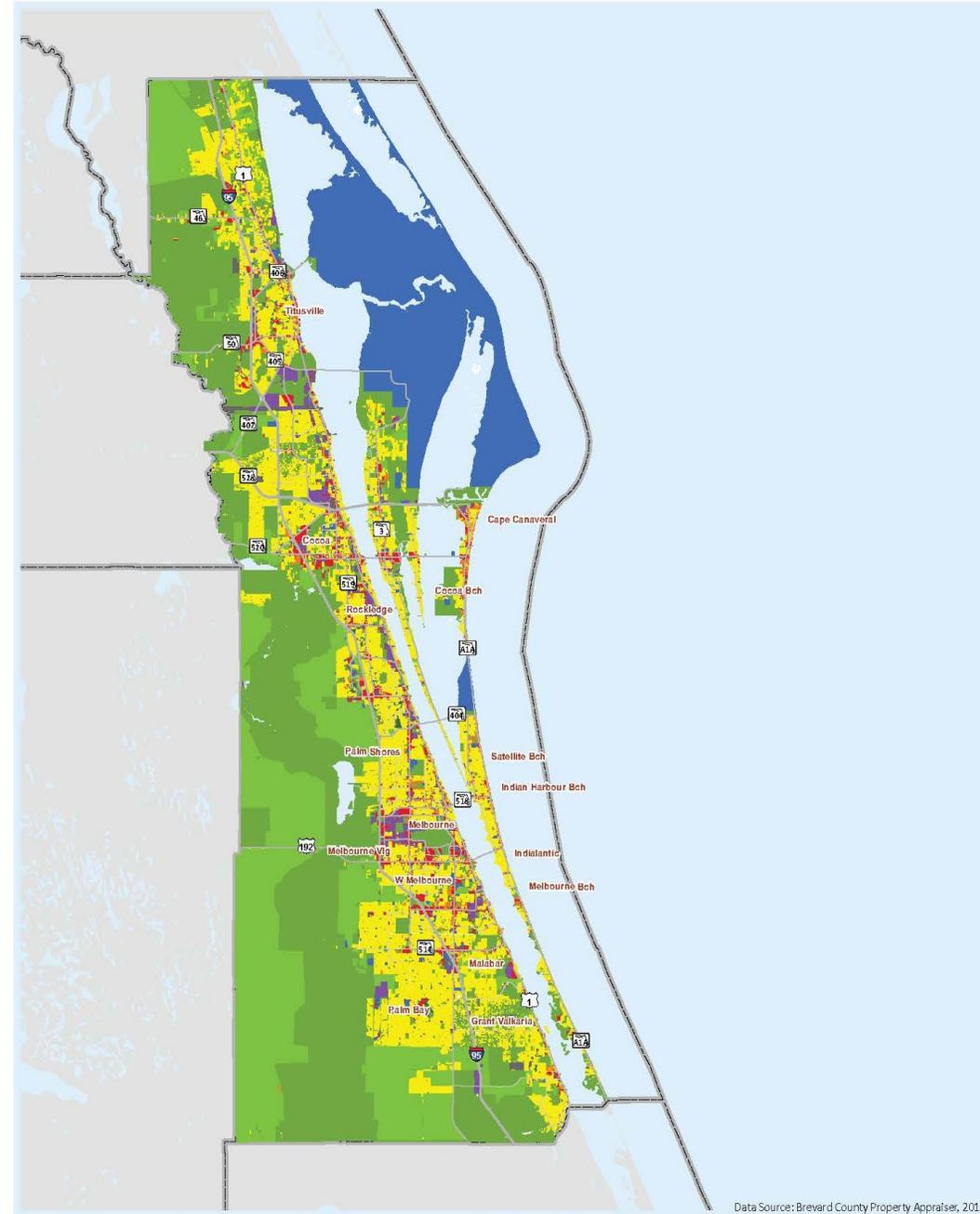
Space Coast Urbanized Area Boundaries

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



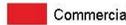
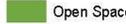
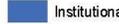
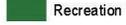
Existing Land Use

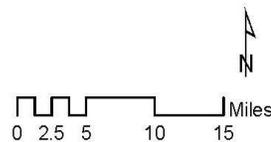
- Primarily urban sprawl
- Auto as primary source of transportation
- Limited North South connections



Data Source: Brevard County Property Appraiser, 2012

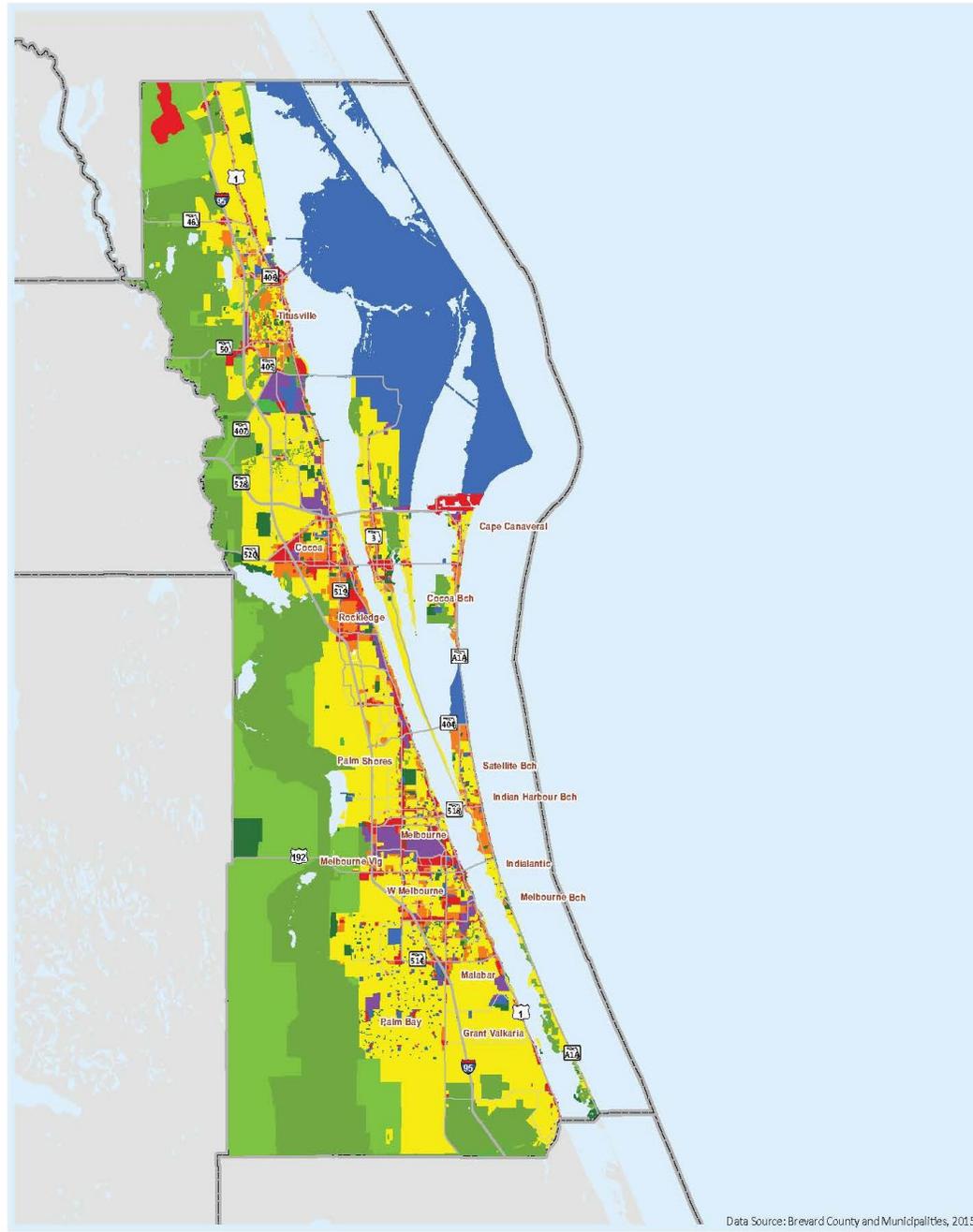
Legend

	Agriculture		Industrial		Commercial
	Open Space		Institutional		Single Family Residential
	Recreation		Utilities		Multi Family Residential



2040 Land Use

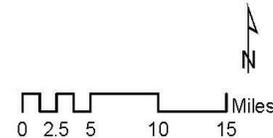
- Not much is planned to change
- Some additional development in North and South
- Up to local comprehensive plans to approve higher densities
- Lots of conservation land
- We are planned out!



Data Source: Brevard County and Municipalities, 2015

Legend

Agriculture	Industrial	Commercial
Open Space	Institutional	Single Family Residential
Recreation	Utilities	Multi Family Residential



Operations Overview

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



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 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:

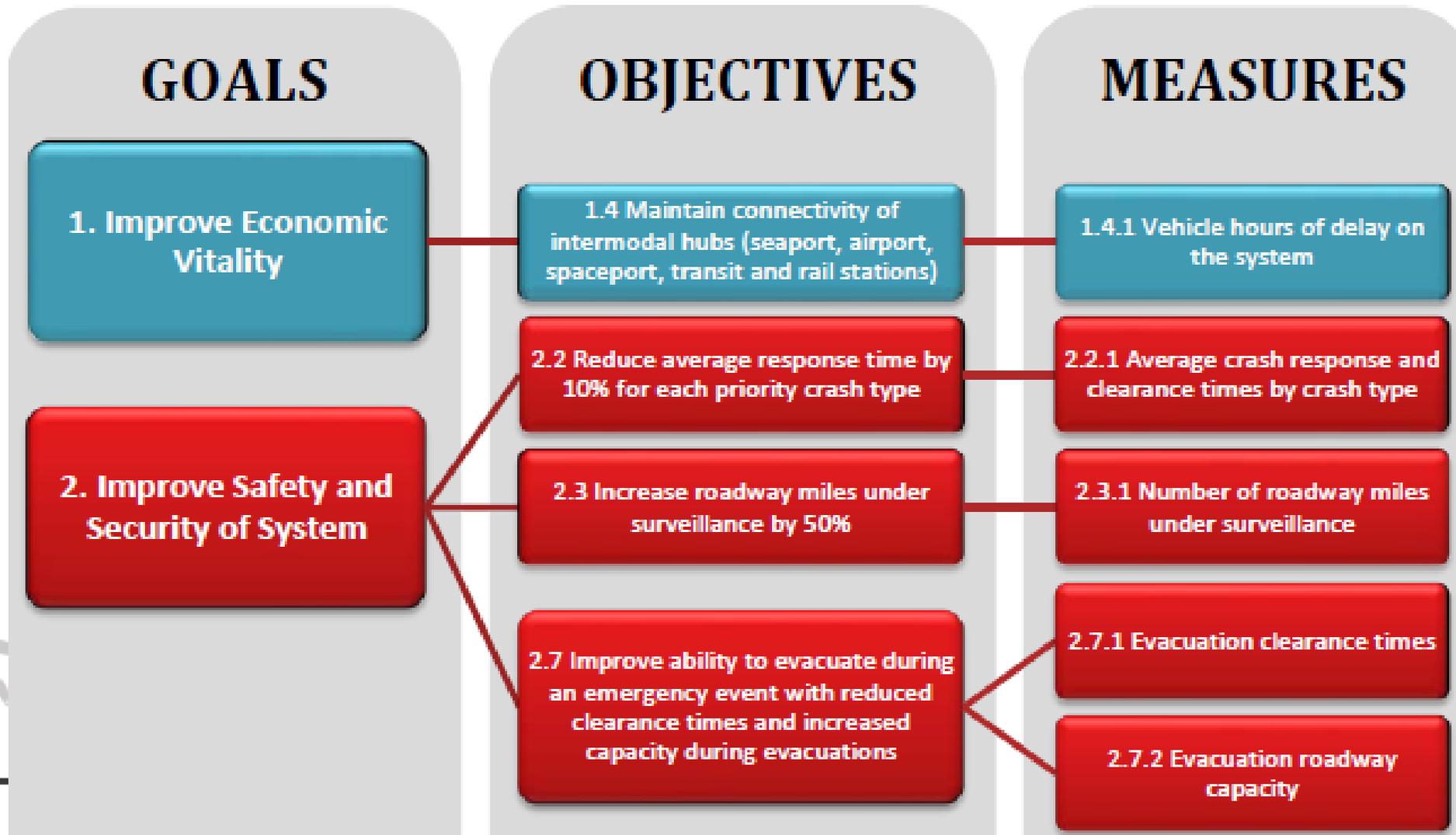
- Increase the number of roadway miles under surveillance by 50%
- Reduce system wide delay for cars, trucks, and transit
- Reduce corridor delay for cars, trucks, and transit with traffic management
- Improve reliability and predictability of travel
- Improve real time transit management
- Improve real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



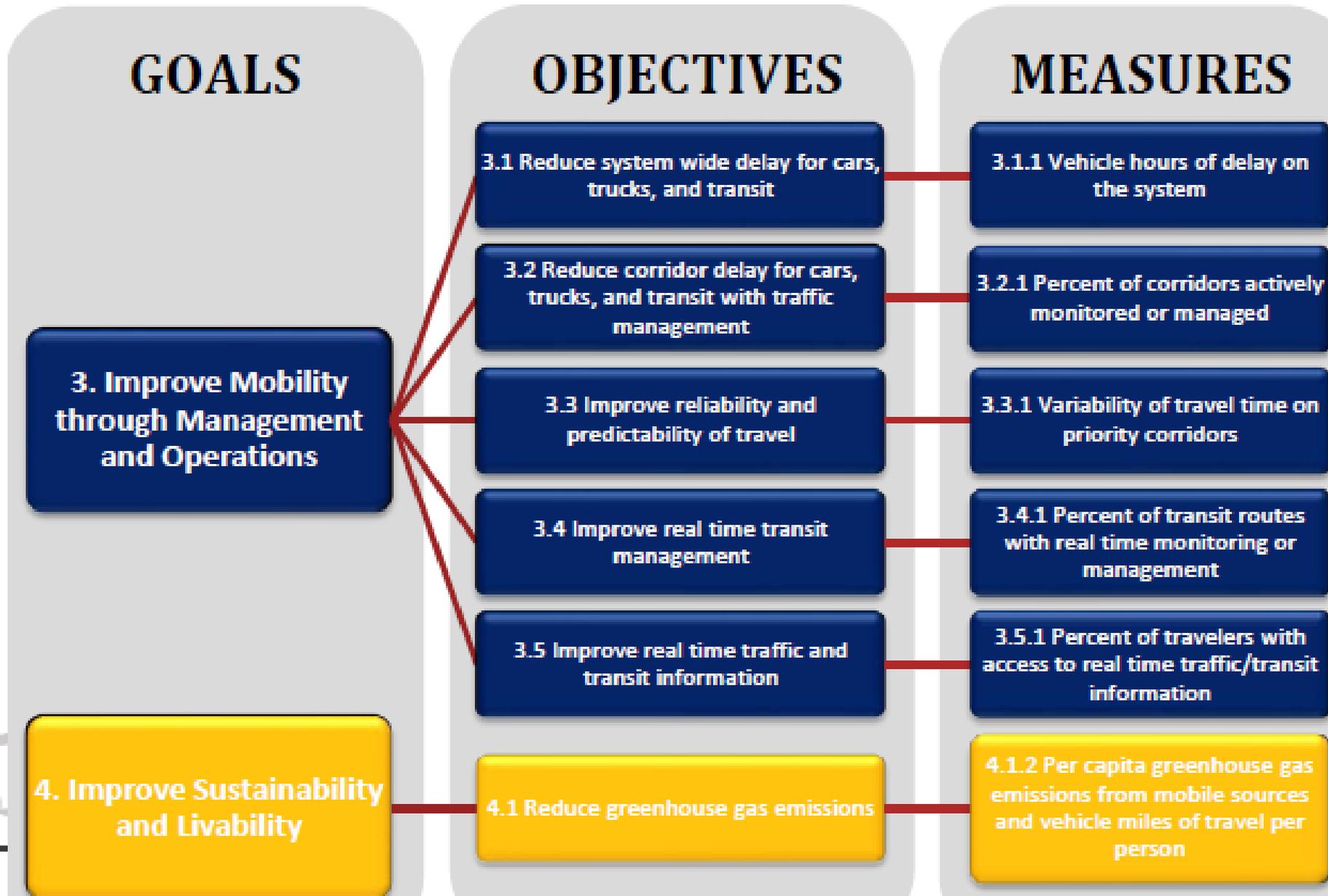
Secondary Objectives:

- 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

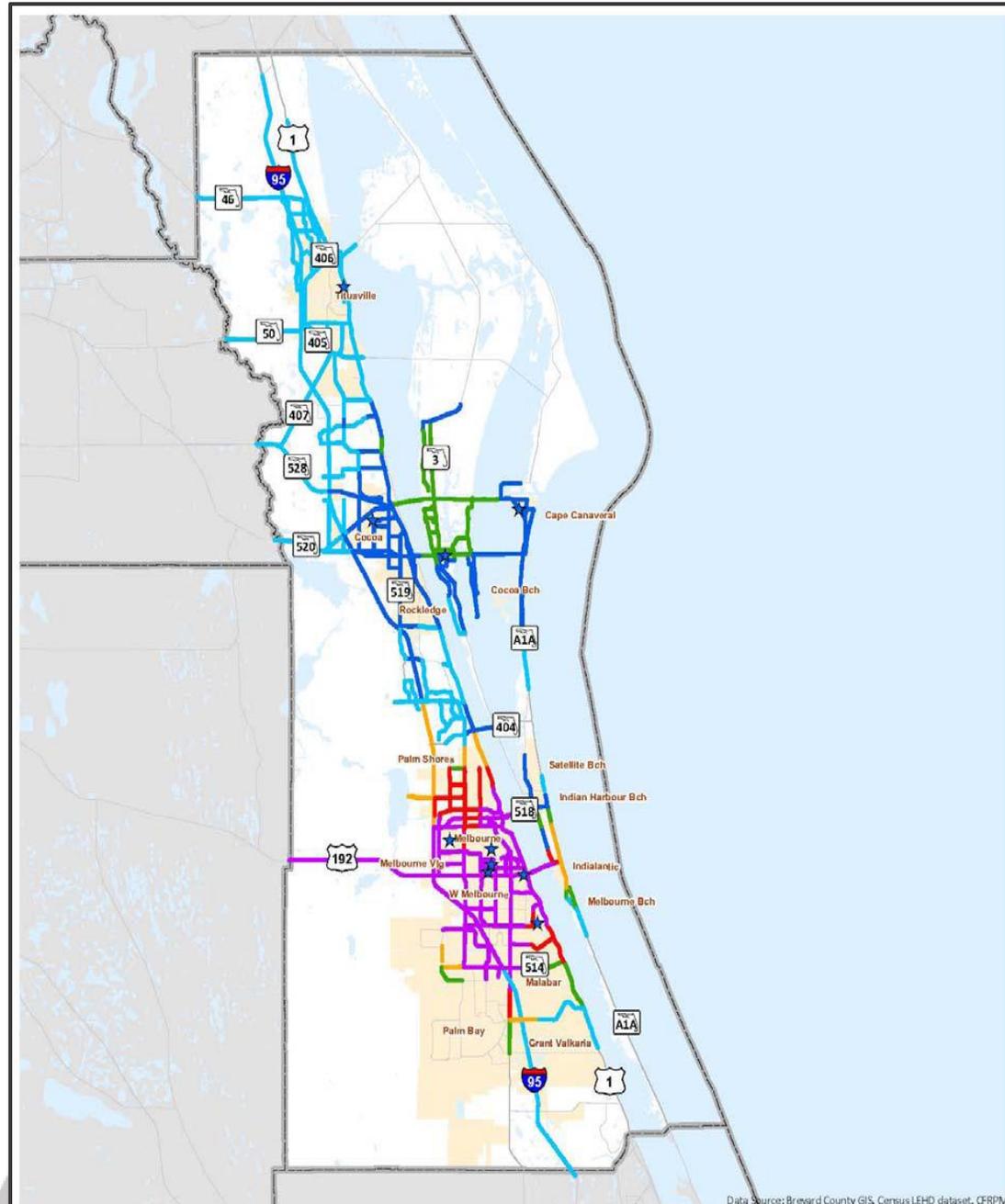


Task 1: Summary of Goals, Objectives and Performance Measures



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)



Legend

Number of Employment Centers Within 15 Minutes



★ Census blocks with highest aggregate number of jobs

0 2.5 5 10 15 Miles



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

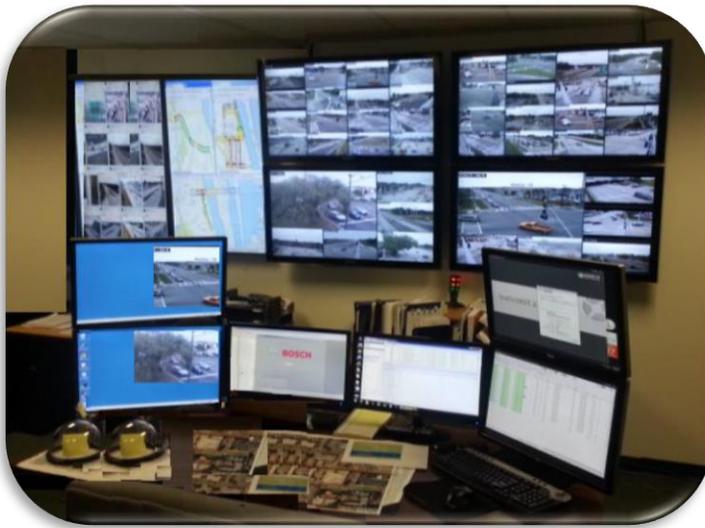
ITS Needs Corridors

ITS Rank	Road	Segment	2013 AADT	Capacity	V/C	Existing Volume to MAV	Future-LRTP	Existing Volume	Intermodal/ Economic	Hurricane Route	Transit	Safety	Total
1	BABCOCK	PT MALABAR-PALM BAY	32,262	35,700	0.90	27.11	15	7.5	7	5	10	14.1	85.7
2	BABCOCK	EBER-FLORIDA	31,283	35,700	0.88	26.29	15	7.5	7	5	10	14.1	84.9
3	US 1	SARNO-EAU GALLIE	52,106	49,200	1.06	31.77	15	10	7	5	5	9.9	83.7
4	SR AIA	FISHER DR-ST LUCIE	32,474	34,500	0.94	28.24	15	7.5	7	5	5	15.0	82.7
5	SR 520	BRIDGE-N.TROPICAL	44,390	49,200	0.90	27.07	15	10	7	5	5	13.7	82.7
6	BABCOCK	PALM BAY-EBER	29,664	35,700	0.83	24.93	15	5	7	5	10	15.0	81.9
7	BABCOCK	CHARLES-PT MALABAR	33,507	35,700	0.94	28.16	15	7.5	7	5	5	14.1	81.8
8	SR 520 (Causeway-US 1 (WB))	DELANNOY-BREVARD	23,970	17,340	1.38	40.00	15	5	7	5	5	4.7	81.7
9	SR 520 (US 1-Causeway (EB))	DELANNOY-RIVEREDGE	21,860	17,340	1.26	37.82	15	5	7	5	5	6.6	81.4
10	SR AIA	SHEPARD-MCKINLEY	32,465	34,500	0.94	28.23	15	7.5	7	5	5	13.5	81.2

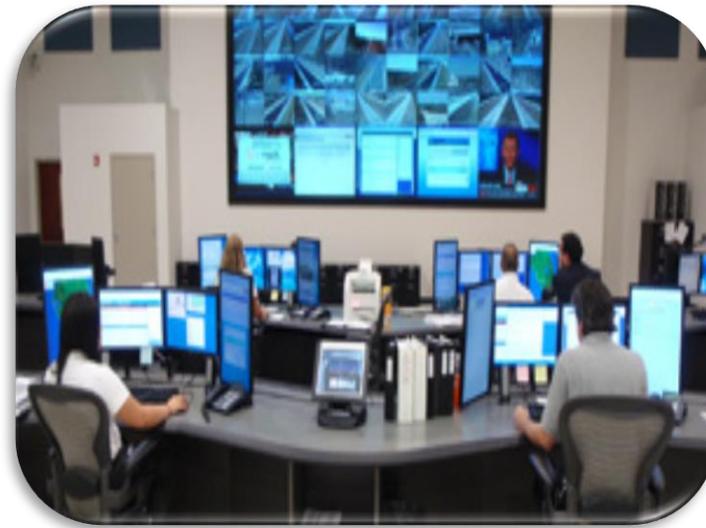
Top Ranked Regionally Significant Roadway Segments

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



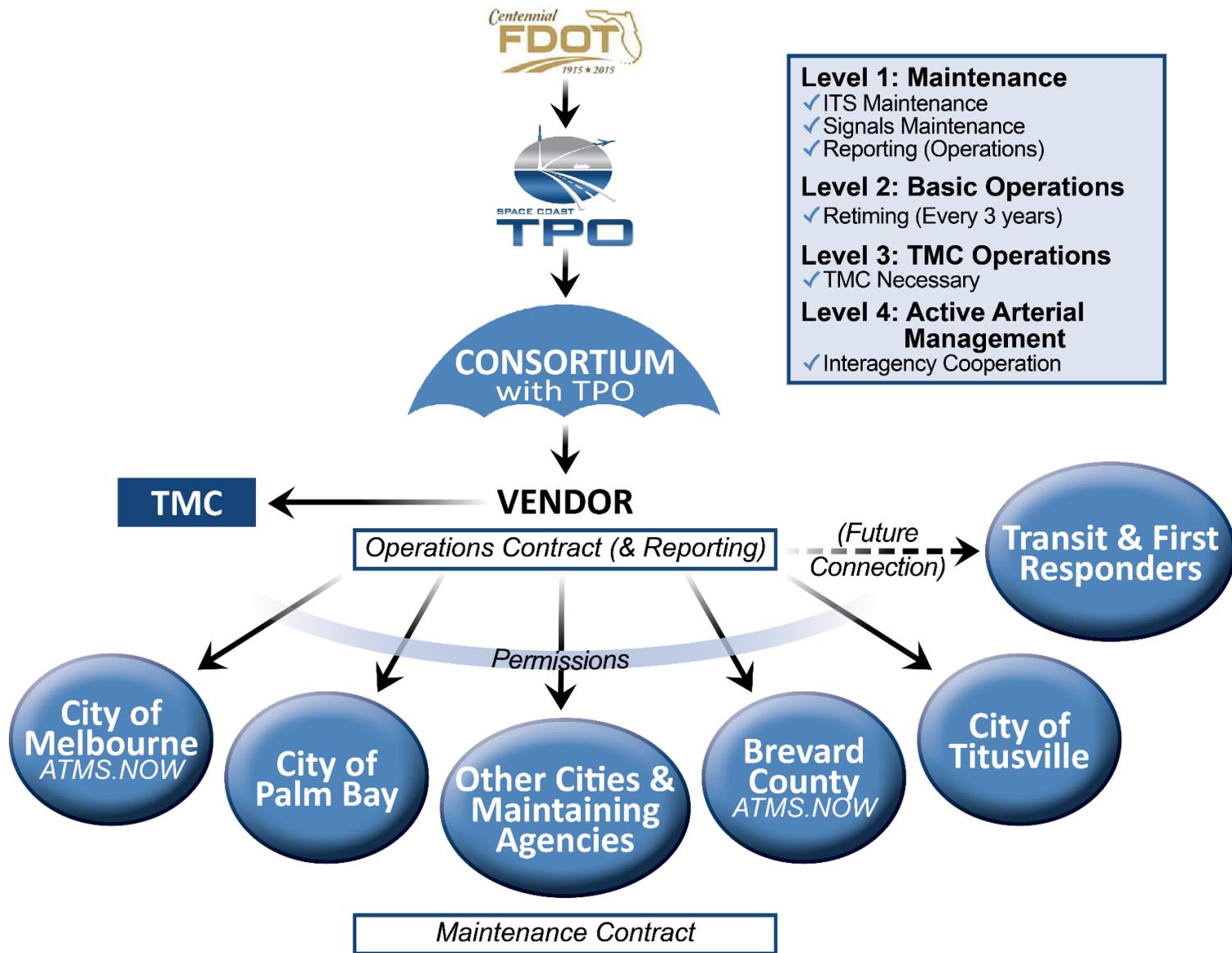
Example of a Future TMC

Task 4: Identification of Applicable ITS Strategies

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

Position	Existing Regional Staff	Recommended Regional Staff	Additional Regional Staff Needed
Traffic Engineering Operations Manager	1	1	0
Senior Traffic Signal Engineer	3	3	0
Traffic Signal Engineer	0	3	3
Traffic Signal Analysts/Technician	0	3	3
Network Engineer	0	1	1
TMC Manager/ITS Engineer	0	1	1
Traffic Signal Maintenance /ITS Fiber Technician	14	24	10
Electronics Specialist (L2 Network Tech)	1	4	3
TMC Operator (for arterial application)	1	4	3
Public Information Officer	1	1	0

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

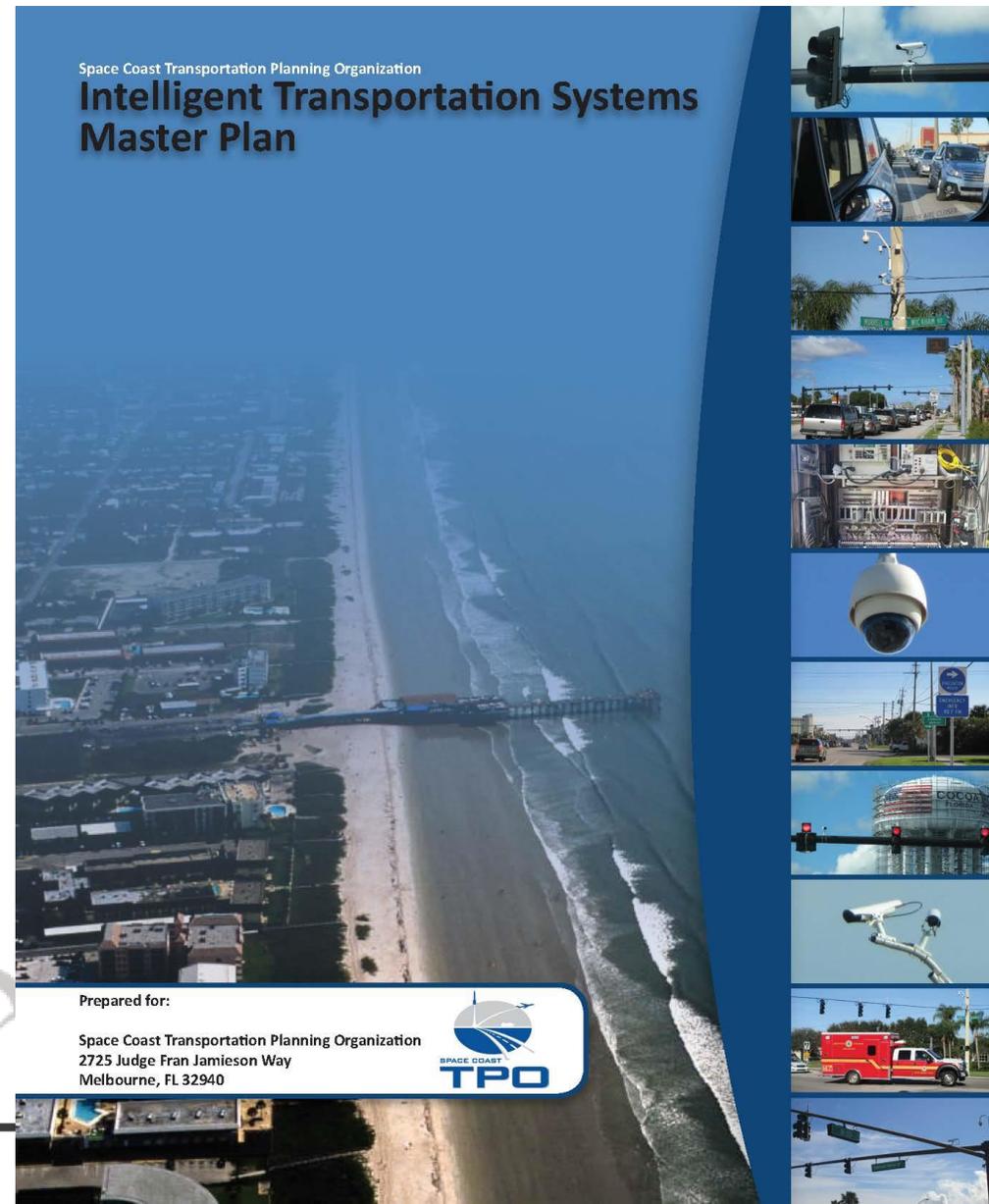
Task 6: Concept of Operations

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



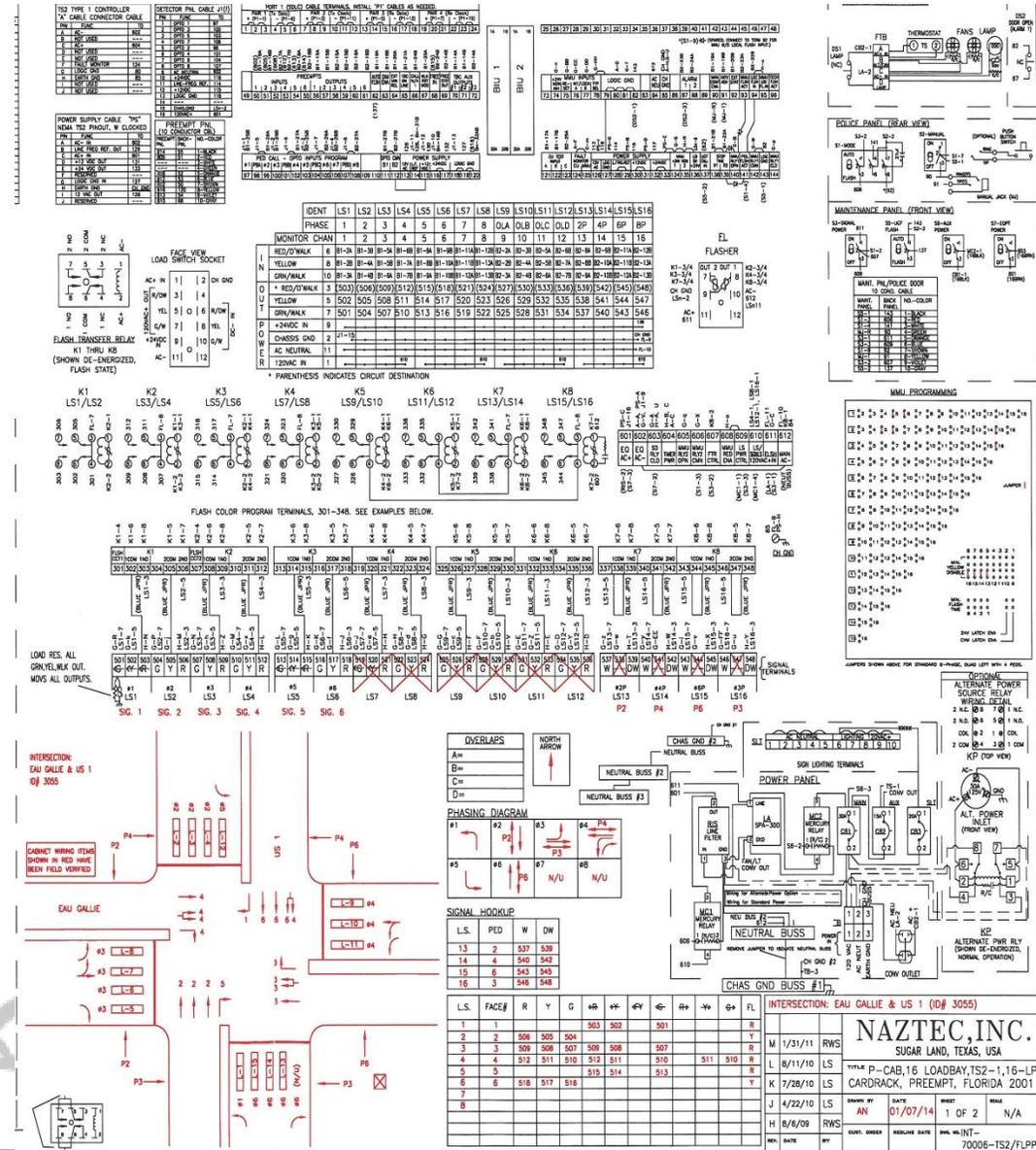


Success and Next Steps



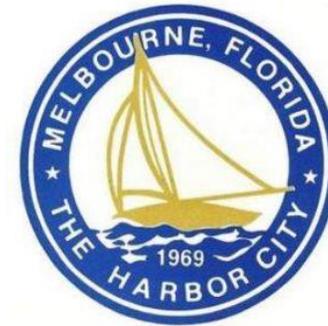
Projects Funded by TPO

- 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

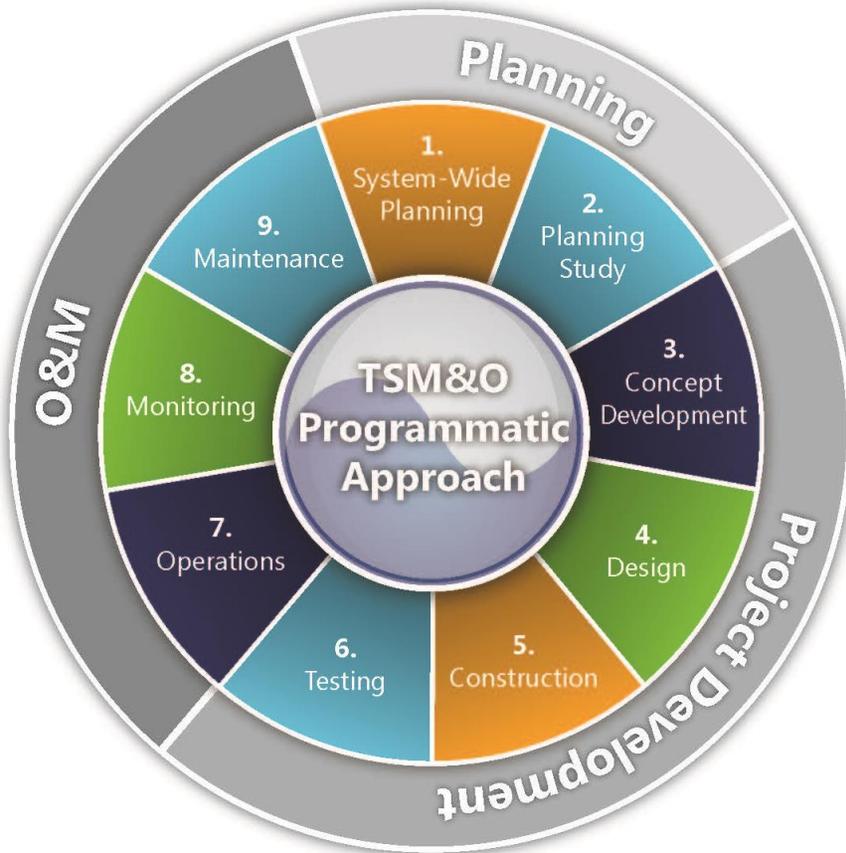


Coordination efforts

- 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



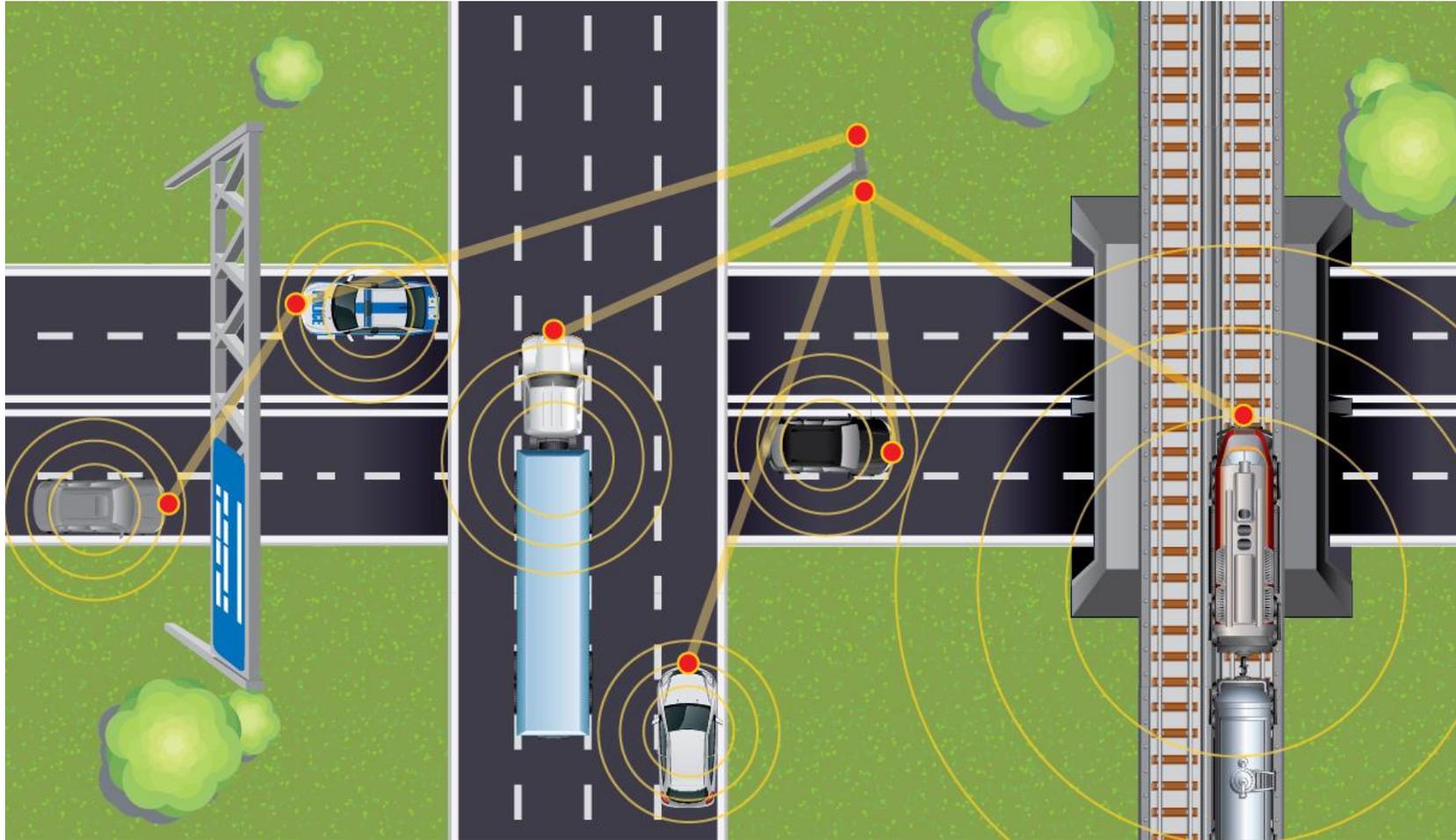
TSM&O

- More than **80%** of traffic in a typical city runs on 10% of the roads.
- Bus Rapid Transit can be built in phases and integrated with existing road systems.
- Trucks carry the **largest share of goods** by weight for distances less than 750 miles and more than 2,000 miles.
- In 2012, 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.
- Right now, there are at least **20 million ship containers** crossing the world.
- Only **20-25%** of all bicyclists wear bicycle helmets.

The Planning for **TSM&O** Guidebook

A comprehensive planning methodology
for Transportation Systems Management & Operations.

Future Preparation



T+ 00:08:17

STAGE 2 TELEMETRY

SPEED

ALTITUDE



UPCOMING

SECO

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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