

# Innovation

## rising

Transportation in the Sunshine State

## The Journey

The Florida Department of Transportation  
Design Expo – June 2016  
Brian Blanchard, P.E., Assistant Secretary





*Video Credit to Agensi Inovasi Malaysia (AIM)*

# FDOT- AN AGENCY WITH A LONG HISTORY



- 1915 The State Road Department (SRD) was created
- 1969 (SRD) became the Florida Department of Transportation
- 1987 The Florida Transportation Commission was created

# ROAD BUILDING RESOURCES

## The Men – Convict Labor

- 1,000 Convicts working the State system of roads at \$1.06 per day.
- 16 road camps house an average of 62 convicts.
- The State Road Department bears the cost of housing, feeding, clothing and guarding the prisoners.



CONVICTS LAYING BRICK PAVEMENT



1915 ROAD-BUILDING USING CONVICT LABOR

## STATE WORK FORCE

- The Department added to the organization a Veterinarian.
- He supervises the day to day care of the 514 mules owned by the SRD.
- He renders medical attention to keep all stock in good working condition.
- The stock represents a considerable investment.



# State of Florida

- Population growth robust again
- Tourism increasing
- Technology is changing Travel

*The enterprise that does not innovate inevitably ages and declines.* Peter Drucker

# Secretary's Challenge

**INNOVATIVE**

**EFFICIENT**

**EXCEPTIONAL**

EXPLORATION<sup>ST</sup>

INGENUITY<sup>ST</sup>

# Candor

In order to get ahead, you need great ideas - *lots* of great ideas. To get the best ideas, turn your business into an idea machine. Nurture a constant flow of ideas from every level of your organization - not just your top managers. The only way to foster such idea-sharing is to develop a culture of candor, where people aren't afraid to speak their minds. Reward them for their candor, even if it makes themselves and others - yes, *you* - look bad.

*Jack Welch*

# Innovation Best Practices

- High level of employee engagement
- Clear mandate for innovation
- Strategic focus that directs concentration of efforts
- Processes for creating truly innovative ideas, nurturing them and accelerating to workplace



# Innovation Best Practices

- Staffing innovation teams with right mix of people
- Training employees in innovation methodologies
- Governance that balances autonomy
- Frequent innovation communication
- Metrics for success



Highly innovative companies do not see innovation as an *end*, but rather as a *means* to achieving strategic goals. - Les McKeown

HERE'S TO THE  
**CRAZY ONES**

*the* **MISFITS** *the* **REBELS**

THE TROUBLEMAKERS

THE ROUND PEGS IN THE SQUARE HOLES

THE ONES WHO SEE THINGS  
DIFFERENTLY

..... *They're not fond of* .....

**RULES**

AND THEY HAVE NO RESPECT FOR THE

**STATUS QUO**

————— **YOU CAN** —————

QUOTE THEM    DISAGREE WITH THEM    GLORIFY OR    VILIFY THEM

ABOUT THE ONLY THING YOU CAN'T DO IS

**IGNORE THEM**

BECAUSE THEY CHANGE THINGS

THEY PUSH THE HUMAN RACE **FORWARD**

AND WHILE SOME MAY SEE THEM AS THE CRAZY ONES **WE SEE GENIUS**

..... *Because the people who are* .....

**CRAZY ENOUGH**

TO THINK THEY CAN CHANGE THE WORLD

**WHO DO**  
**ARE THE ONES**

STEVE JOBS

# Risk Adverse Culture - Blockbuster

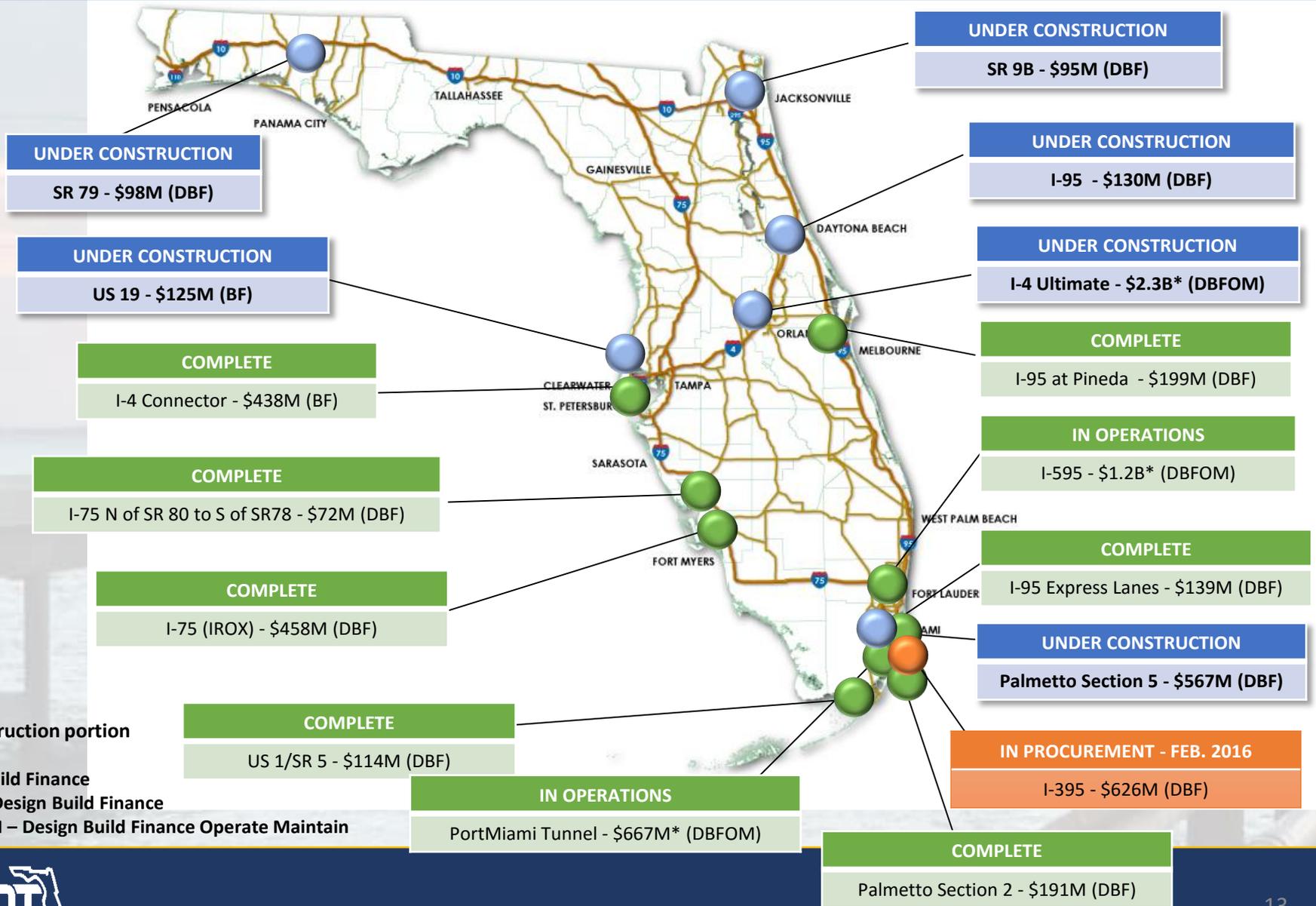


# The Innovation Journey

- Creation of the Statewide Innovators! Team
- What We're Doing to Make the Process Easier
  - District/CO Innovator! Teams
  - On-Line Submittal Form – Internal & External
  - Innovation Tools
- Examples of Bold/Innovative Ideas

**Continuous improvement is about challenging the norm!  
“Not Status Quo!”**

# Where are the P3 Projects?



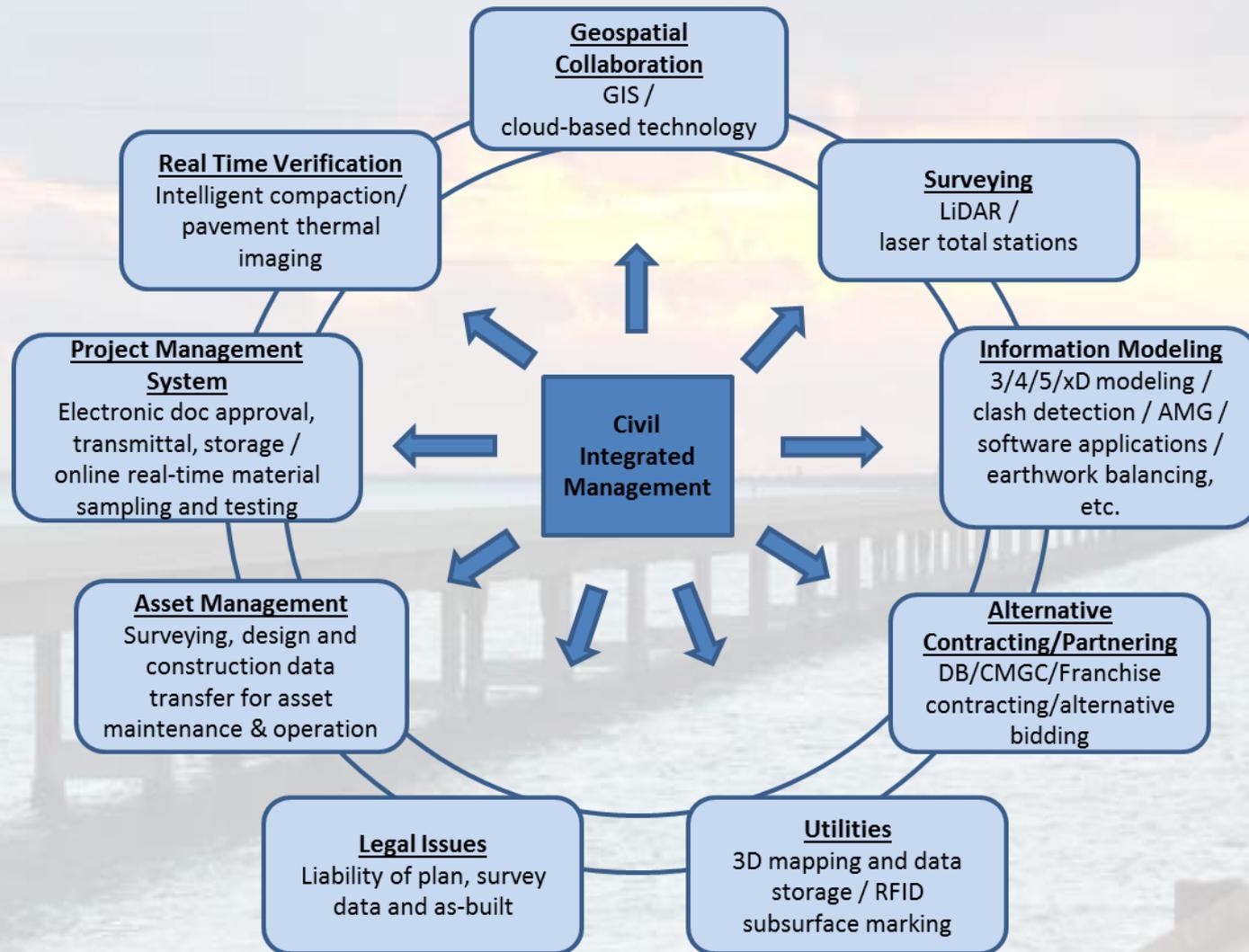
# Innovation Progress

## Cost Savings/Efficiencies/Revenue Generation \*\*

Activity	Savings/Efficiency/Revenue Generated
Statewide Sponsorship Program	1 <sup>st</sup> year over \$1 million in revenue
Pavement Only Projects	Annual Savings (\$2.3 million)
Permit Automation-Overweight/over dimensional permits	Annual Savings (\$300,000)
Removal of lights from Overhead Signs	Annual Savings (\$500,000)
Increase Use of RAP	Est. Annual Savings (\$10 to \$20 million)
Elimination of lights from Temporary MOT	Est. Annual Savings (\$17 million)
E-Construction, E-Maintenance	Est. Annual Savings (\$22 million)

\*\* Selected Examples

# What is Civil Integrated Management (CIM)



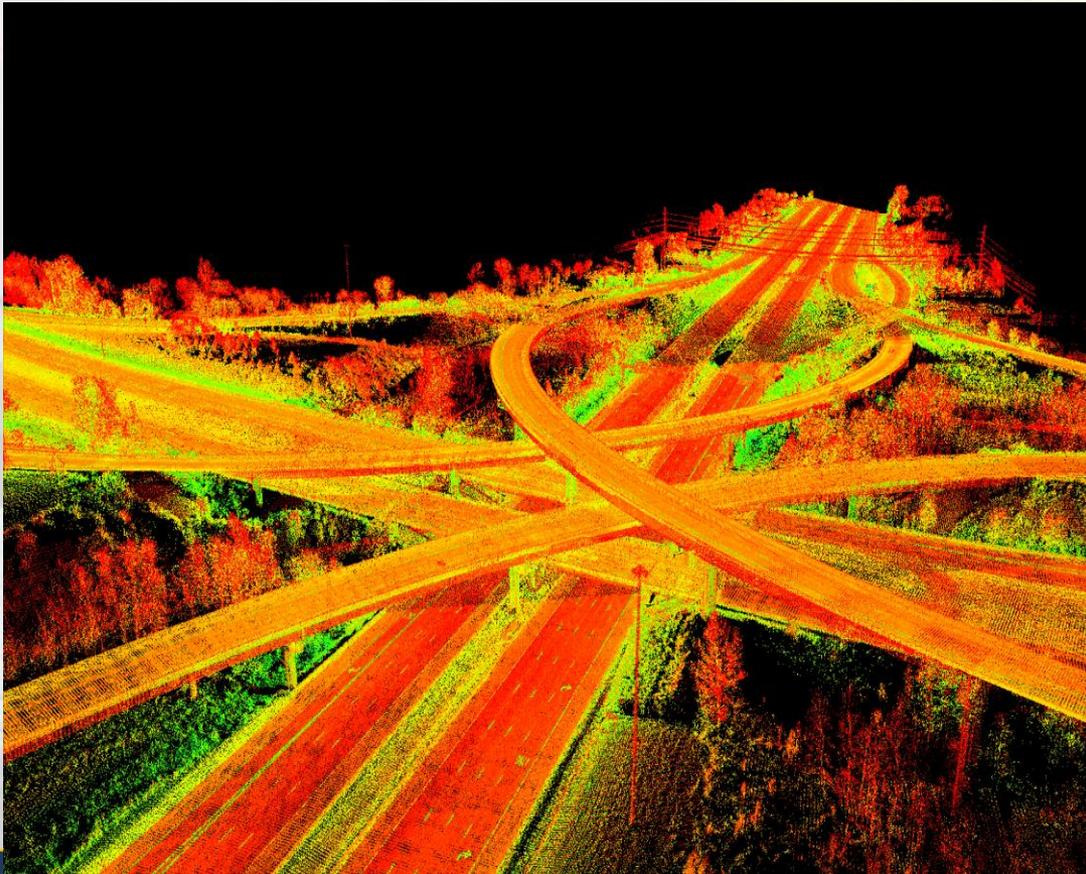
# Automated Machine Guidance

Participate on cross-functional teams investigating new technologies or new applications of current technology



# Light Detection and Ranging (LiDAR)

Participate on cross-functional teams investigating new technologies or new applications of current technology

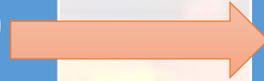


# Florida Slab Beam Superstructure Standards Package



## Florida Slab Beam (FSB)

- New FDOT Standard Beam Shape
- Off-system bridges w/ Low ADT
- Available January 2016



## FSB Superstructure Packages

- Completed Superstructure Plans Utilizing the FSB
- 5 Bridge Widths:
  - 15', 24', 28', 32', 40'
- 3 Bridge Spans: 30', 40', 50'
- Total of 15 Bridge Options



# Florida Slab Beam (FSB)

Before Replacement



FSB-Installation 1



FSB-Installation 2



Final Elevation



# Flexible Fillers- Post Tensioning Tendons

Corroded Tendon



Duct Inspection



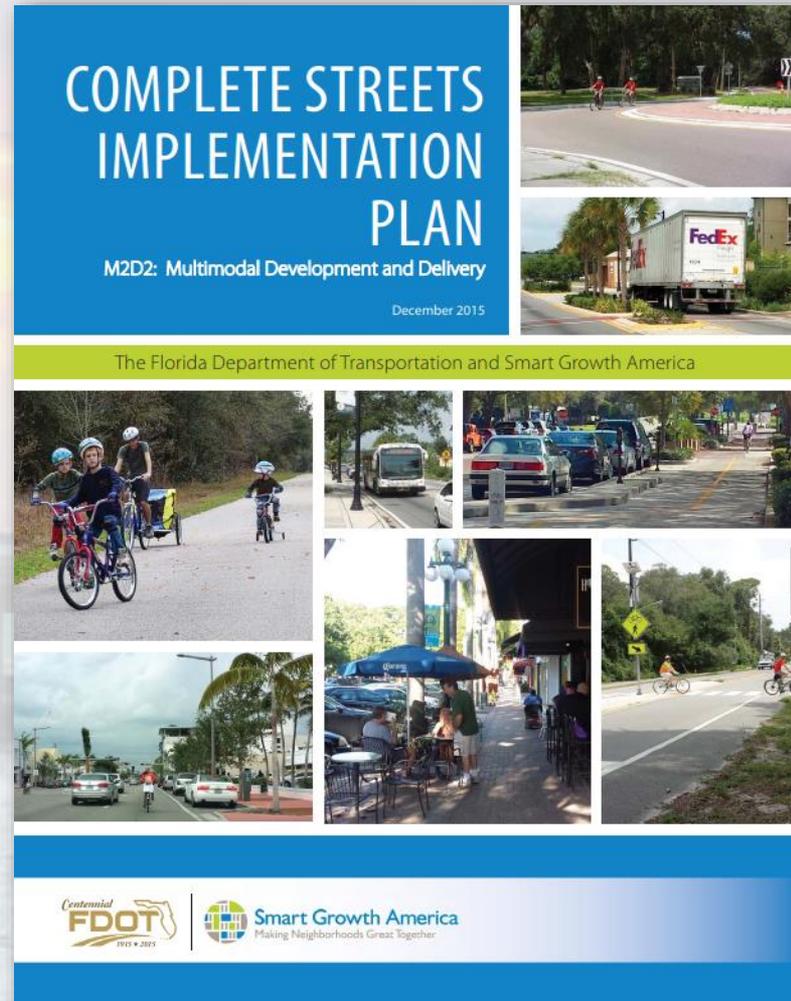
Wax on Anchorage



- Florida has a history of corrosion of post tensioning tendons.
- Corrosion leads to reduction in load carrying capacity & is expensive & time consuming to repair.
- To eliminate potential of corrosion, now mandating use of flexible fillers for most tendons.
- If corrosion occurs, replacement is much cheaper, faster & safer than replacing grouted tendons.
- Florida 1<sup>st</sup> in country to use.

# Complete Streets

- Policy adopted in Sept. 2014
- Calls for “context sensitive” system of complete streets
- Implementation Plan completed Dec. 2015
- Schedule and process for updating manuals and guidance
- Includes internal and external education and outreach



# Complete Streets Guidance and Manuals Modification – includes...



- Plans Preparation Manual (state criteria)
- Project Development & Engineering Manual
- Traffic Engineering Manual
- Also a new “Complete Streets Handbook”
- Completion Dates:
  - Handbook – March 2017
  - New FDOT Design Manual – November 2017
  - Other documents by end of 2017

[www.FLcompletestreets.com](http://www.FLcompletestreets.com)

# FDOT E-Operations

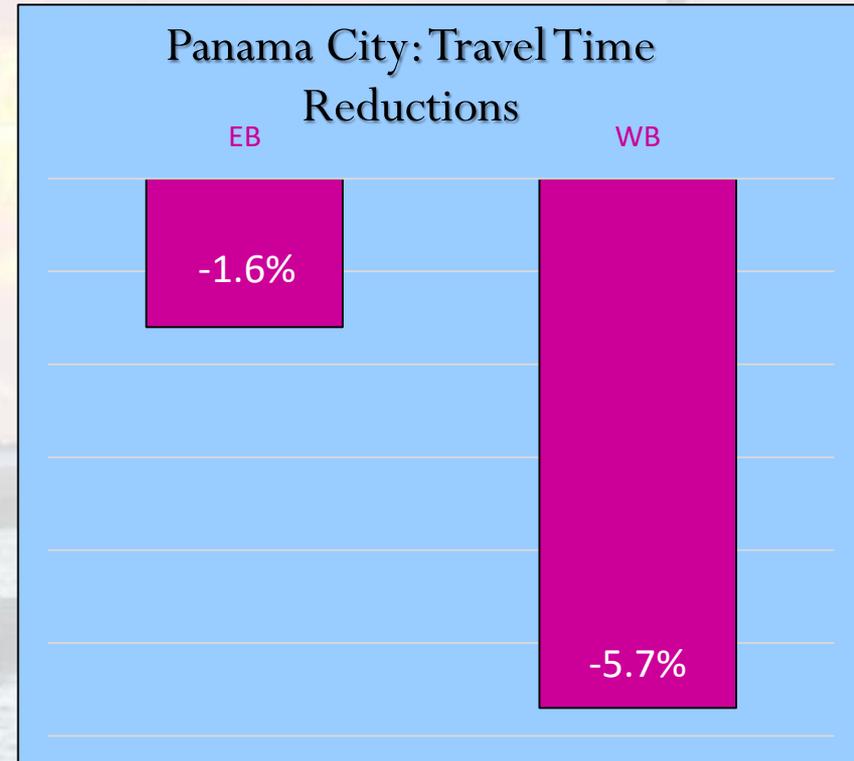
- E-Construction and E-Maintenance and possibly other areas of the department
- Paperless delivery process that includes electronic submission of documentation by the stakeholders
- E-Construction has estimated that the savings will be ~\$22M/year in the Construction area
- Maintenance is moving forward with Proof of Operations

# One Stop Permitting

- Phase 1 - Access to all permit types administered by Department
- Phase 2 – Automation of the Utility Permits
- Phase 3 – Allow the other 10 permits to be electronically submitted by the applicants and be managed by the Department staff.
- Estimated annual savings to the Department would be ~\$500,000 and expected to be completed by end of FY 16/17.

# Advanced Signal Control Technology

- ASCT Phase I: 8 corridors statewide.
  - District 3 - Bay County, SR 30A/US 98 (Panama City Beach Parkway) and SR 368 (23<sup>rd</sup> Street) from SR 79 to SR 75/US 231; 11.6 miles with 19 traffic signals.
- University of Florida is performing the before/after studies.
- ASCT Phase II – Planned for FY 2017.
- Developing GUIDANCE on adaptive technologies.



# Unmanned Surface Vessel (USV) Systems for Bridge Inspection



# Statewide Acceleration and Transformation (SWAT)

*2014 – FDOT took close look at time and cost of pre-construction activities. Found that although PD&E phase is least costly, it absorbs greatest time.*

To address, FDOT:

- Identified state only funded projects, faster project delivery process than federally funded highway projects
- Transformed existing state funded project delivery process to further increase efficiency and savings
- Developed the **Statewide Acceleration Transformation (SWAT)** Project management approach, benefits **ALL state funded and FHWA funded projects**
- Established District SWAT Teams, experienced and multidisciplinary
- Updating PD&E Manual to include the SWAT process
- Savings of an average of **2.5 years/project** to complete a State Funded PD&E

# NEPA Assignment (for highways)

- Florida would have decision making authority assuming FHWA responsibilities and liabilities
- No reduction of environmental considerations but a consolidation of all NEPA reviews under FDOT
- Eliminates one layer of governmental review
- Time and cost savings – estimated to save approximately 25% of the time to approve, which is ~\$22 million/year of employee and consultant labor costs for PD&E projects
- More efficient use of FDOT staff and consultant resources and scheduled to be complete by December of this year

# Potential of Automated Vehicles



**Vastly Improve Safety**

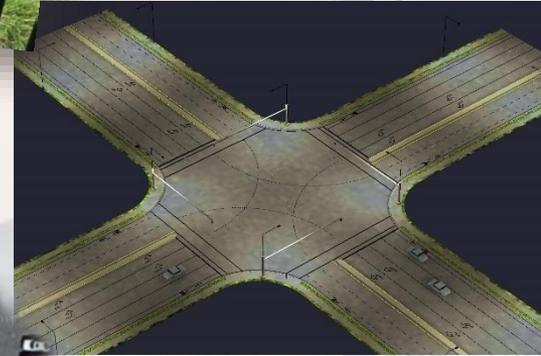


**Greatly Reduce Congestion**

*No other set of technologies have been able to offer double-percentage point reductions in congestion and/or improvements in safety*

# Other Initiatives

- Wrong-Way Driving
- Roundabouts
- Pedestrian Lighting & Channelization
- Truck Parking Availability



# FDOT Innovation Sustainability

- Set up District Innovators
- Innovative Tools
- Newsletter – Let's tell the story
- Town Hall/Webinars
- Recognition
- Feedback Loops

# Transportation Innovation Challenge



FDOT continually strives to enhance all areas of our operations. We invite you to share your thoughts on ways we can challenge ourselves to be innovative, efficient and exceptional.

More...<http://www.dot.state.fl.us/agencyresources/innovation/index.shtm>

# THANK YOU

“The Stone Age  
didn’t end  
because they ran  
out of stones”

- *Sheikh Yamani*

