SHRP2 Solutions: C19
Expediting Project Delivery
Session 2

Kate Kurgan, AASHTO
Damaris Santiago, FHWA
SHRP2 at a Glance

- **SHRP2 Solutions** – 63 products
- **Solution Development** – processes, software, testing procedures, and specifications
- **Field Testing** – refined in the field
- **Implementation** – More than 430 transportation projects; adopt as standard practice
- **SHRP2 Education Connection** – connecting next-generation professionals with next-generation innovations

430 SHRP2 projects nationwide
Focus Areas

**Safety**: fostering safer driving through analysis of driver, roadway, and vehicle factors in crashes, near crashes, and ordinary driving

**Reliability**: reducing congestion and creating more predictable travel times through better operations

**Capacity**: planning and designing a highway system that offers minimum disruption and meets the environmental and economic needs of the community

**Renewal**: rapid maintenance and repair of the deteriorating infrastructure using already-available resources, innovations, and technologies
SHRP2 Implementation Assistance Program

• **Round 7:**
  - 13 products or bundles of products
  - 1 capacity; 3 reliability; 9 renewal products
• **42 recipients** just announced in June 2016
  - 37 state DOTs
  - 4 MPOs
  - 1 Federal Lands Highway
• **79 projects** in 37 states
SHRP2 Implementation: Moving Us Forward

As of November 2015:

- **145,831** participants engaged
- **5,713** outreach activities
- **6,155** hours of technical assistance

**Save lives, money, and time**
- Bridges being built more quickly
- Smoother traffic flows and less congestion
- Reduced construction costs
- Safer roadways
- Smarter environmental reviews
Expediting Project Delivery

• *Expediting Project Delivery* identifies 24 strategies for addressing or avoiding 16 common constraints in order to speed delivery of transportation projects.

• Strategies Grouped Under Six Objectives:
  • Improve internal communication and coordination;
  • Streamline decision-making;
  • Improve resource agency involvement and collaboration;
  • Improve public involvement and support;
  • Demonstrate real commitment to the project; and
  • Coordinate work across phases of project delivery.
## Expediting Project Delivery

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Early Planning</th>
<th>Corridor Planning</th>
<th>NEPA</th>
<th>Design/ROW/Permitting</th>
<th>Construction</th>
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<td>2. Consolidated decision council</td>
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<td>8. Expedited internal review and decision-making</td>
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<td>15. Planning-level environmental screening criteria</td>
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<td>16. Programmatic agreement for Section 106</td>
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<td>22. Team co-location</td>
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<td>24. Up-front environmental commitments</td>
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For More Information

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Additional Resources:

GoSHRP2 Website:  fhwa.dot.gov/GoSHRP2
AASHTO SHRP2 Website:  http://shrp2.transportation.org
GoSHRP2 Alert Sign Up:  fhwa.dot.gov/goshrp2/contact
Email:  GoSHRP2@dot.gov
Session 2 Presentations

• Massachusetts DOT – Jose Simo: MassDOT’s Roads & Highways GIS system

• Arkansas State Highway and Transportation Department - Elisha Wright-Kehner: Development of an improved process for project delivery

• Florida DOT – Steve Braun: Implementing streamlining recommendations to improve project delivery process

• Panel: Question and Answers
MaPPS Tool What is it?

MassDOT Project Planning System is a planning phase tool with environmental and safety screening function, to improve agency project coordination and expedite project delivery.

Every Day Counts 2

- Agency & Business Process Implementation Teams

Strategic Highway Research Program 2

- Funding & FHWA Implementation Assistance
Investments that are prioritized through rigorous asset management systems, such as the bridge and pavement systems in the Highway Division, that do not make added improvements to the infrastructure will not be subject to the project priority formula.

A significant portion of MareaDOT's projects that arise from asset management systems also modify the existing system. These projects will be subject to the project priority formula.

Asset Management

Asset management activities that do not come out of a rigorous asset management system will be subject to the project priority formula, unless the current system is improved to meet this standard.

Modernization and Capacity

All projects that modernize the existing system or expand capacity will be subject to the project priority formula.
Complex Processes
Project Development Step IV: Environmental, Design ...
Why a New Approach?
Complex Processes

There's an app for that!
Location Aware Apps

Tightly integrated and designed to work together
Platform Architecture

ArcGIS Online

REST Server

ArcGIS Server

Database Server

Application Server

MaPPS Web Application
Workflow Overview

Project Planning

Create & Map Project

Spatial Analysis & Project Editing

Draft Project (private)

Draft Project (public)

Automated Geoprocessing

Project Export / Submittal

Review / Comment

PNF

PIF
Login Page

MassDOT Project Planning System

username

password

About Us

Sign in

Overview:
The MassDOT Project Planning System (MassPSS) is a Geographic Information System (GIS) and project development tool for creating project planning and design analysis, reporting and documentation. The system is designed to provide a user-friendly web-based environment for populating ProjectSheet and Project Initiation Form, mapping project limits, sharing project data internally within MassDOT and externally with resource agencies, and for planning and project commissioning. MassPSS was developed in collaboration with the Federal Highway Administration through the Strategic Highway Research Program (SHRP) project "Expanding Project Delivery (C15)" and the Every Day Counts (EDC) Initiative called "Coordinated Roadway Collaboration."
# Project Description

## MassDOT Project Planning System

### Create Project

1. Project Type
   - Project Need & Initiation

2. Project Description

3. Sketching

4. GeoProcessing

5. Project Need Form (PNF)

6. Project Initiation Form (PIF)

7. Report

### Project Description

- **Project Name:** Bridge Replacement Route 38
- **Proponent:** Tim Dexter
- **Title:** Environmental Analyst
- **Municipality/Organization:** MassDOT
- **Completed by:** Tim Dexter
- **Title:** Environmental Analyst
- **Phone:** (617) 368-4794
- **Email:** timothy.dexter@state.ma.us
- **Date:** 3/6/2015
Project Sketching
Geoprocessing: Running

Innovation Conference 2015
MassDOT - Highway Division

Project Initiation Form

Part I - General Information

Project Location: Main Street (SR 38)

Project Need: Briefly state the primary project need or goal as developed in the Project Need Form (e.g., rehabilitate a roadway, improve safety at an intersection, reduce corridor congestion, improve pedestrian facilities, or provide bicycle accommodation).

Existing bridge is structurally deficient and needs superstructure and substructure replacement.

Regional Benefit: Describe any regional benefits that would be realized should the Project Need be met.

The bridge is an important connector on Main Street (SR 38), which is an important arterial providing a connection from I-495 south to Route 128 / I-95. Replacing the bridge is essential to maintaining this important corridor.
PIF Report

MassDOT - Highway Division
Project Initiation Form

Proponent: Tim Dexter
Title: Environmental Analyst

Municipality/Organization: MassDOT
PIF completed by: Tim Dexter
Title: Environmental Analyst
Phone: (617) 358-2794
Email: timothy.dexter@state.ma.us
Date: Fri Mar 06, 2015 00:00:00 GMT-0800 (Pacific Standard Time)

Part I – General Information

Project Location: Main Street (SR 38) over Shawsheen River, Tewksbury, MA.

Project Need: Briefly restate the primary project need or goal as developed in the Project Need Form (e.g., rehabilitate a roadway, improve safety at an intersection, reduce corridor congestion, improve pedestrian facilities, or provide bike accommodation).

Existing bridge is structurally deficient and needs superstructure and substructure replacement.

Regional Benefit: Describe any regional benefits that would be realized should the Project Need be met.

The bridge is an important connect on Main Street (SR 38), which is an important arterial providing a connection from I-495 south to Route 128/I-95. Replacing the bridge is essential to maintaining this important corridor.

Part II – Project Costs and Responsibilities

Estimated Costs: Provide available cost estimates or estimated cost ranges in current year

Estimated Construction Costs: Estimated Other Costs:

- Construction Items:
- Contingencies (10%):
- Other Constr. Costs (10%):
- Total Construction Cost:

Anticipated Funding Program:
Indicate all potential sources of funding that may apply to the project
- STP
- CMAQ
- HSP
- TAP
- NHPR
- HPR
- NFA
- Other

Innovation Conference 2015
Expediting Project Delivery (C19)

July 19, 2016
Elisha Wright-Kehner, P.E.
SHRP2 Solutions
Tools for the Road Ahead

Bringing greater collaboration for better, faster decisions

Capacity Focus Area –
Expediting Project Delivery
Why Expediting Project Delivery (C19)?

Areas of interest to:

• Improve Public Involvement and Support
• Improve Resource Agency Involvement and Collaboration
• Demonstrate Real Commitment to the Project
• Improve Internal Communication and Coordination
• Streamline Decision Making
• Integrate Across all Phases of Project Delivery
• Award Date - October 17, 2013
• Awarded - $50,000
• Assessment Workshop - $20,000
Expediting Project Delivery – Assessment Workshop

• Facilitated by FHWA on July 30-31, 2014
• 30 Attendees
• Topics
  ➢ Overview of the Expediting Project Delivery and the Expediting Project Delivery Assessment Tool
  ➢ Overview of “Current State” and “Desired State” of Project Development and Delivery Processes and Practices
  ➢ Collaboration and Coordination Challenges and Opportunities
    ✓ “What works well?”
    ✓ “What needs work?”
What works well at AHTD?

- Administration Open to Change
- Recent Organizational Changes
- Creation of Preliminary Engineering Squad
- Hiring Qualified Personnel
- Open Communication
- Improved Teamwork
- Good Relationship between AHTD and FHWA
- Public Engagement
Challenges and Opportunities

- Project Development Process Documentation
  - Personnel changes and work load
  - Project Change Communication
- Early Project Decision Making:
  - Defining the Purpose and Need
  - Project Scoping
- Local Agencies Communication
  - Need for standardization and streamline process
• Developed an Action Plan in August 2014 to facilitate the activities identified in the Workshop
• Five Steps of Implementation:
  ➢ Refine Scoping Procedure
  ➢ Enhancing Purpose and Need Statements
  ➢ Improving Information and Data
  ➢ Improving Internal and External Communication and Coordination
  ➢ Evaluating Resource Allocation
Refine Scoping

- A draft project initiation form
  - Developed in coordination with internal stakeholders.
  - Expected to be complete and approved in September 2016.
- A project planning study process has been developed.
  - This documented process will help ensure consistency, accuracy, and transparency of the decision making and scoping process.
  - Planning study procedure manual. Ongoing modifications and updates.
- A data-driven, performance-based approach to better identify system needs.
  - These documented processes are being refined and updated.
- A project prioritization system has recently been implemented to assist decision makers on which projects to prioritize.
  - The methods to quantify needs and outcomes will be refined.
Refine Scoping – Project Development Form (Draft)

- Form Information - Five pages
  - Project Information
  - Partnering Information
  - Project Purpose and Need
  - Scope
  - Planning Considerations/Study Findings
  - Existing Project Information
  - Existing Bridge Information
  - Proposed Improvement
  - Access/Right-of-Way/Utility
  - Environmental
  - Cost and Funding
  - Project Responsibilities
  - Map of Area
Enhance Purpose and Need Statements

- The project planning study procedure manual will be modified and updated as needed to ensure project P&N statements are tied to the performance-based planning process.
- A data-driven, performance-based approach is being implemented to better identify system needs.
- A project prioritization system has recently been implemented to assist decision makers on which projects to prioritize.
- We conducted a NEPA and Enhanced Purpose and Need Training. Provide guide to consultants and starting communications with locals earlier in process.
**Improve Information Exchange and Data Sharing**

- **Improve Communication/Coordination (Internal and External)**
  - A comment documentation process has been recently created for planning studies.
  - This process will be modified to better document comment resolutions, thereby improving the transparency and documentation of the decision-making process.

- **Improve Resource Allocation (Internal and Consultant Staff)**
  - The Department’s consultant selection process will be updated in the near future to allow for stream-lined process for non-engineering services.
  - Enterprise Data Committee to facilitate the incorporation of Department data.
  - Purchase of server to facilitate the enterprise warehouse.
Facilitate Communication & Coordination Training

- Alternative Development, Purpose and Needs Statements – 40 Attendees
- Technical Writing – 50 Attendees
- Public Involvement – 18 Attendees
- NEPA and Enhanced Purpose and Need Training.
Facilitate Communication & Coordination

- Development of a Local Public Agency Manual
  - Completing Date of 2016-2017
- Increased the tracking and disbursement of project related information after all supplemental staff meetings.
- Still in the process of creating a line of communication for tribes, local public officials, and affected landowners to use throughout the project development process.
Evaluate resource allocation

- Utilize the Department’s Achieving Career Excellence (ACE) to assist in training on all of these new processes and procedures.
- Still developing a plan on Managing Consultant Resources.
Steps Forward

• Utilize the Project Initiation Form on a pilot project.
• Buy in from all participants.
• Develop training programs on the ACE platform.
• Update the process to allow for stream-lined process for non-engineering services.
• Create an on-line format for tribes, local public officials, and affected landowners to use throughout the project development process.
• Establish a rotational program to improve coordination between all Divisions.
• Develop and implement a plan on Managing Consultant Resources.
Value to Arkansas

Overall

• Assessment Workshop Successful

• Opportunities for Improvement Identified and started to implement these improvements

• Increased Communications
  ➢ Internal
  ➢ External
Lessons Learned

• The constant turnover of employees makes it difficult to complete tasks that are handed off each time a person changes positions.

• Employee workloads also have a large impact on task completion.

• Rome wasn’t built in a day.
Expediting Project Delivery

Steven C. Braun, PE
Florida Department of Transportation
District 4 Planning & Environmental Engineer
I. Existing Streamlining Processes

II. Value Engineering PD&E Process Review

III. SHRP-2 Project Approach and Recommendations

IV. Statewide Initiatives

V. Project Examples

*PD&E: “Project Development & Environment” = NEPA Phase
Existing System

Efficient Transportation Decision Making (ETDM)

- Established in 2006
  - MAP-21: “Environmental Streamlining”
- GIS Based Program
- Agency Coordination
  - Environmental Technical Advisory Team
- Screening Events
  - Planning
  - Programming
  - Document Reviews

The Benefits

- Early coordination with local, state, and federal partners
- Identify potential impacts within/adjacent to corridor
- Receive public comments early in the process
- Screen alternatives
- Focus on key issues
- Better define project scope
“Value Engineering” Process Review

- Evaluate **processes** rather than projects
- Multi-disciplined team structure
- “Think Tank” with buy-in from management
- Identify recommendations for implementation
- PD&E, R/W, Pond Siting, Lane Elimination Processes

**The Benefits**

- Process Improvements
- Inter-office & industry input/participation/buy-in
- Identify system constraints and develop working solutions
- PD&E Process Review: 16 recommendations developed for further consideration
V.E. Recommendation No.5: Allow more preliminary engineering

Goal

Expedite PD&E and Design projects

Objectives

• Conduct Pre-work activities in advance of the PD&E Study

• Advance Preliminary Design to overlap PD&E

• Continuity of PD&E and Design Project Manager
**D4 VE Recommendations**

**V.E. Recommendation No.7: Early identification and consideration of environmental risks**

<table>
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<th>Goal</th>
<th>Objectives</th>
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<tr>
<td>Minimize changes during the design phase</td>
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- **Objective 1** - Early identification of risk (during early stages of PD&E).
- **Objective 2** - Identify and account for potential environmental impacts during the alternative selection process.
- **Objective 3** - Standardize the environmental element of the alternative selection matrix.
- **Objective 4** - Quantify environmental impacts due to design changes.
The motivation to apply for the SHRP-2 grant?

- Continued emphasis on accelerating Project Development & Environment (PD&E) project schedules
- Support advancement of projects in the work program
- Reduce the delay in identifying environmental issues
- Strong foundation of existing streamlining initiatives
- Assist with the implementation of VE recommendations
- Identify additional strategies
Our Approach

Awarded SHRP-2 Grant from FHWA

Determine Implementation Strategies for VE Recommendations

Focus on Constraints Identified by FHWA

Held Assessment Workshops (2)
  (Internal and Resource Agencies)
SHRP-2 Transformation Strategies

- Continuity of PD&E and Design Project Managers
- Pre-work Activities
- PSEE Schedule Template Development
- Better Use of Districtwide Contracts
- Design Phase Overlap with PD&E
- Consolidation of Environmental Documents

SHRP2SOLUTIONS
Transformation Strategies

- Advancement of “Pre-work” (Survey, Traffic, Environmental)
  - Advance key activities
  - Scope Report & Scope Development Meeting
  - Improved Scope and Purpose & Need

- Streamlined schedule templates

- Developed “check-lists” for document reviews

- Consolidation of environmental documents

- Early identification of mitigation funding needs
Transformation Strategies (Pre-work)

More Efficient Work Processes

- **Pre-work**
  - Project Screening & Scoping Meeting
  - Traffic Data Collection & Projections
  - Environmental Data & Coordination
  - Survey & Aerials
  - Stakeholder Outreach

- **PD&E**
  - LDCA
  - Production

- **Design**
  - R/W
  - Production

- **PD&E**
  - LDCA
  - R/W
  - R/W Review

- **Production**
Transformation Strategies

- **Project Continuity**
  - Continuity of Project Manager
  - Overlap PD&E and Design Schedules
  - Options for single consultant contract for PD&E and Design

- **Contributed to Statewide Initiatives**
  - State-wide Acceleration Transformation (SWAT)
Statewide Initiatives

State-wide Acceleration Transformation (SWAT)

- Formed Statewide & District SWAT Teams
- SWAT Planning Meeting
  - Scopes / Schedules / Strategies / Funding
- Standard practice of conducting “pre-work”
- Standard staff hour estimates
- Interagency Agreements
  - Interchange Access Process (FHWA)
  - NEPA Assignment (FHWA)
  - Historic Resources (SHPO)
  - ETDM Updated Agreement
Statewide Initiatives

SWAT Dashboard

- Statewide Schedule Milestones
- Executive Dashboard Tracking

The dashboard is updated and reviewed regularly at Executive Meetings

The dashboard tracks time from PD&E Advertisement to Production Date

State Wide Acceleration and Transformation (SWAT) / Not Federal Eligible (NFE) Dashboard

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<td>39 / 61 / 15</td>
<td>02/25/2015</td>
<td>03/23/2015</td>
<td>03/31/2015</td>
<td>04/28/2016</td>
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<td>6</td>
<td>435611-1</td>
<td>SR 301 STATE ST N 215 ST INTERSECTION</td>
<td>Yes</td>
<td>Type II CE</td>
<td>39 / 61 / 9</td>
<td>01/10/2015</td>
<td>01/24/2016</td>
<td>10/14/2015</td>
<td>07/19/2017</td>
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<td>7</td>
<td>436027-1</td>
<td>SR 889 (UNERTON RD) FROM W OF 30TH ST NORTH TO W OF INTERSTATE 75</td>
<td>Yes</td>
<td>Type II CE</td>
<td>39 / 61 / 9</td>
<td>07/19/2015</td>
<td>09/29/2016</td>
<td>02/08/2015</td>
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<td>435750-1</td>
<td>SR 60 FROM VAURICO RD TO DOVER RD</td>
<td>Yes</td>
<td>Type II CE</td>
<td>39 / 61 / 9</td>
<td>12/25/2014</td>
<td>12/27/2014</td>
<td>01/15/2015</td>
<td>07/19/2017</td>
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<td>435750-1</td>
<td>SR 60 FROM DOVER RD TO SR 30</td>
<td>Yes</td>
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<td>39 / 61 / 9</td>
<td>12/25/2014</td>
<td>12/27/2014</td>
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<td>Current</td>
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<td>SR 60 EXTENSION FROM S OF MCICANNS RD TO S OF SR 591</td>
<td>Yes</td>
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<td>39 / 61 / 9</td>
<td>12/25/2014</td>
<td>12/27/2014</td>
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<td>07/19/2017</td>
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<td>435750-1</td>
<td>POSE WIDEN SAWGRASS EXPY S OF SR 591 TO W OF POWERLINE (MP 10-12)</td>
<td>Yes</td>
<td>Type II CE</td>
<td>39 / 61 / 9</td>
<td>01/25/2015</td>
<td>02/09/2015</td>
<td>11/09/2016</td>
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<td>435750-1</td>
<td>POSE WIDEN SAWGRASS EXPY S OF SR 441 TO W OF POWERLINE (MP 10-12)</td>
<td>Yes</td>
<td>Type II CE</td>
<td>39 / 61 / 9</td>
<td>01/25/2015</td>
<td>02/09/2015</td>
<td>11/09/2016</td>
<td>05/30/2017</td>
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Notes:
FDOT Expedited Project Delivery Timeline

<table>
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<tr>
<th>Year</th>
<th>Jan to Mar</th>
<th>Apr to Jun</th>
<th>Jul to Sep</th>
<th>Oct to Dec</th>
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<tr>
<td>2014</td>
<td>SHRP2/C-19 FHWA Kick-off Meeting and Assessment Workshops</td>
<td>SHRP2/C-19 FDOT D4 Product Development</td>
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<td>2015</td>
<td>SWAT Quick Guide</td>
<td>FDOT D4 Streamlining Schedule and Final Summary Report to FHWA</td>
<td></td>
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D4 Activities  | CO Activities  | D4 Product Development
The Problem:
Lengthy PD&E duration led to needing to re-do traffic using updated model which caused project delays.
The SR 710 Result:
A lot of time and effort wasted

New SWAT Strategies:
- Model validation & traffic done in “pre-work”
- Remove traffic projections from the critical path
- Shortened PD&E schedule
- Eliminate re-work!
US-1 Boca Raton: Public Involvement

The Problem:
Lack of public consensus and political support led to the PD&E study resulting in a No Build as the selected alternative.

Photos from the US-1 Public Hearing
Public Involvement

US-1 in Boca Raton Result:
A lot of time and effort wasted

New SWAT Strategies:
- SWAT Planning Meetings
- Earlier identification/escalation of issues
- Earlier public/stakeholder outreach
- “Consensus Building” by the MPO prior to prioritization of the PD&E study (SW 10th Street Example)
The Problem:
Pond sites were questioned by the public and design team began to consider sites outside the scope of the PD&E

Option 1-B

Parcels NOT included in original PD&E study!
Right of Way Decisions

The SR 7 Result:
A lot of time and effort WASTED

New SWAT Strategies:
- Single PM for both PD&E and Design
- Overlap Design with PD&E
- Shortened time until Design and RW acquisition
- Prepare projects for advanced Production and RW
The Problem:
Gravesites from adjacent Woodlawn Cemetery encroach into the I-95 RW. Cemetery is eligible for National Register of Historic Places designation.
Woodlawn Cemetery Result:
A lot of time and effort wasted?

No!!

SWAT Strategies Employed:
- Funded a separate study in advance of the interchange PD&E study
- Earlier environmental analyses & coordination
- Earlier community outreach
- Established constraints for the interchange project, while addressing community’s concerns
Advanced Wetland Mitigation

Developed a $4 Million Invitation to Bid Contract Package

- 104 Mitigation Credits purchased for a variety of habitat types
- Credits serve both State and Federal Impacts
- Credits are available for future projects
- Time Savings during Environmental Permitting
- Cost Savings - $5,870,686
Advanced Wetland Mitigation

West Lake Park

Snook Island
Steven C. Braun, PE
Florida Department of Transportation
District 4 Planning & Environmental Engineer
steve.braun@dot.state.fl.us
Panel: Questions and Answers
Kate Kurgan
AASHTO
kkurgan@aashto.org

Damaris Santiago
FHWA
damaris.santiago@dot.gov

Jose Simo
MassDOT
jose.simo@state.ma.us

Elisha Wright-Kehner
Arkansas HTD
Elisha.Wright-Kehner@ahtd.ar.gov

Steve Braun
Florida DOT
Steve.Braun@dot.state.fl.us
2017 Environmental Excellence Awards

2017 Categories
Organization and Process Innovation
- Accelerating Project Delivery
- Collaboration and Partnership
- Educational and Training Programs
- Environmental Leadership
- Environmental Research
- Programmatic Agreements

Natural Environment
- Air Quality and Greenhouse Gas Emissions
- Climate Change Adaptation and Resilience
- Ecosystems, Habitat, and Wildlife
- Environmental Leadership
- Roadside Resource Management and Maintenance
- Wetlands, Watersheds, and Water Quality

Human Environment
- Community Considerations in Transportation Improvements
- Nonmotorized and Multimodal Transportation
- Demonstrated Advances in Nondiscrimination, Including Environmental Justice
- Cultural and Historic Resources
- Context Sensitive Solutions

APPLICATION PERIOD OPENS AUGUST 1st, 2016!

For general questions, please email:
EEAwardsNomination@dot.gov

Organization and Process Innovation
Damaris.Santiago@dot.gov

Natural Environment
Connie.Hill@dot.gov

Human Environment
Brenda.Kragh@dot.gov
Session: Collaboration and Innovation for Project Delivery

Time: 3:15pm

Date: Tuesday, July 19, 2016
Thank you!