



# **A Framework for Collaborative Decision Making**



**Steve Andrle and Neil Pedersen  
Transportation Research Board**

# What is SHRP2?

Save lives. Save money. Save time.



- \$218 million, federally funded research program to address critical transportation challenges:

- Making highways safer
- Fixing deteriorating infrastructure
- Reducing congestion



- Collaborative effort of AASHTO, FHWA, and TRB



- Aims to advance innovative ways to plan, renew, operate, and improve safety on the Nation's highways

# SHRP 2 Focus Areas

- **Capacity:** Systematizing collaborative decision making to achieve better, faster project decisions
- **Safety:** Fielding the largest-ever naturalistic driving study to reduce crashes and save lives through understanding driver behavior
- **Renewal:** Making rapid, innovative construction possible for “ordinary” projects
- **Reliability:** Providing management and technical tools to reduce congestion through operations

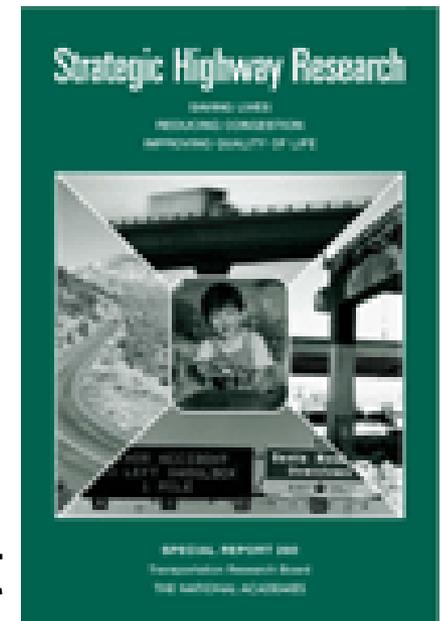
# Who will benefit?

- Motorists
- State/local transportation agencies
- Metropolitan Planning Organizations
- Highway designers, suppliers, and construction contractors
- Freight industry
- Environmental agencies
- Communities and businesses
- Emergency medical services
- Railroads



# Capacity Program Background

- Charge from Congress:  
“Develop approaches and tools for systematically integrating environmental, economic, and community requirements into the analysis, planning, and design of new highway capacity.”
- Highway expansion projects were too often being delayed or were not able to obtain the necessary approvals in the planning and environmental review process.



# Anticipated Outcomes and Value Added From Capacity Research

- Get the right people at the table at the right time with the right information
- Make decisions that “stick”
- Avoid costly and time-consuming do-loops
- Serve environmental, community, and economic needs more closely
- Expedite delivery of new capacity





# **SHRP 2 C01 Research**

Janet D'Ignazio  
ICF International

# C01 Research: Collaborative Decision Making Framework



## Charge from Congress:

“Develop approaches and tools for systematically integrating environmental, economic, and community requirements into the analysis, planning, and design of new highway capacity.”

# Research Approach

- Compile lessons learned from case studies of successful delivery of 23 large and complex capacity expansion projects from across the United States
- Validate and expand research by engaging experienced professionals in multi-agency workshops (state DOTs, MPOs, FHWA, federal resource agencies)

**Result: Systematic and collaborative approach designed by practitioners for practitioners**



# Case Studies

- 4 Comprehensive
  - Entire decision making process starting with long range or corridor plan through NEPA and permitting
- 11 Phase focused
  - 7 Long range or corridor planning studies
  - 4 NEPA/permitting
- 8 Solutions screening focused
  - Decision making related to selection of preferred option from those considered
  - Visioning, planning, NEPA

# US 285: Using CSS Approaches to Highway Capacity



## Problem

- Widening an aging rural highway connecting Denver to mountains
- Historic and natural resources and scenic beauty
- Frequent congestion and double accident rate for similar facilities

## Approach

- Commitment to environmental stewardship
- Engagement of agencies, communities and influential NGOs into collaborative decision making process
- Corridor based feasibility study explicitly linked to NEPA
- Early identification of environmental and community issues
- In-field problem solving with representatives from all key partners
- Merger of multiple regulatory processes
- Broad and inclusive value engineering process

# US 285: Using CSS Approaches to Highway Capacity

## Outcomes

- Strong support from all groups to widened 14 mile corridor from 2 to 4 lanes including adding access control
- Footprint and design maximized avoiding impacts and maintained scenic aspects
- Efficiency gained by the continuity and minimization of time gaps in the planning and project development processes
- Consensus on safety driven “break-out” project that was advanced in NEPA under CE
- Measureable cost savings of \$59 million

*“The mergers and ultimate CSS process was a definite beneficial trade-off. Time and money was saved in the NEPA process, significantly less environmental impact was achieved, [and]...CDOT got major points with the public and emerged with very favorable reputation.”*

# I-710: Community Driven Plan for Freight Corridor



*Things were not going well. The report being delivered on progress made was accurate and supportive, but no one was buying it. Sixty or seventy public involvement sessions, and he had never seen the people in this room before. The policy makers were obviously anxious; feeling unprepared for what was going to happen next. A year and a half of study activity was about to go up in flames.*

# I-710 Lessons Learned

- Strong technical analysis and thorough public involvement process does not guarantee smooth decision making
- Decision makers willingness to reassess and redirect decision making process is powerful tool to maintaining momentum
- Willingness to collaborate with stakeholders within the context of the actual decision making process makes a significant difference

# Problems Identified

1. Projects were often delayed due to key decision makers
  - becoming involved late in the process,
  - not agreeing with decisions made earlier in the process,
  - forcing decisions to be revisited.
2. Failure to agree on the decision making process and criteria (performance measures) to be used resulted in delays and challenges to decisions
3. Alternatives added late in the process due to failure to identify full range of alternatives earlier caused delays
4. The complex planning and project development process is time consuming and affords many opportunities for missteps

# Problems Identified

5. Conflicts resulting from poor integration of transportation plans with
  - land use plans,
  - environmental plans,
  - economic development plans, and
  - community plans
6. Key segments of the public became involved late in the process, forcing previous decisions to be revisited



# Problems Identified

7. Conflicting goals between transportation and environmental resource agencies resulted in intractable disagreements and failure to get approvals
8. The price for failure to work together has been endless
  - redo loops
  - lawsuits
  - delays
  - cost escalation



# Conclusions of C01 Research

1. The transportation planning and project development process as practiced and as defined in federal statutes and regulations is an elaborate and complex process that involves a series of decision points
2. Many of the key decisions that enable a project to be approved should be made before the NEPA process begins
3. Collaborative decision-making is a key to success, supported by an effective strategy for enhancing the environment, improving economic vitality, and achieving community goals
4. Decisions need to be agreed to by key decision makers at each point in the process and not revisited

# Success Factors Identified from Research

1. Collaborate with agency partners and the public
2. Use performance measures and evaluation criteria
3. Structure decision making/use a formal process
4. Integrate transportation decision making with land use and environmental issues
5. Link phases of the transportation decision-making process
6. Manage risks



# Direction of the Technical Coordinating Committee



## **To create a systematic approach to support practitioners we need to:**

- Document the decision points in a process that follows the steps used in successful capacity expansion projects
- Embed methods to integrate transportation, environmental, community, and economic planning into decision points
- Organize information on lessons learned from case studies of successful projects around the decision points in the process
- Make information easily accessible to professionals in the field

# Decision Guide



- Created the Decision Guide as framework for collaboration in transportation long range and project planning
- Organizes research on collaborative practices and supports in four phases of decision making
  - Long Range Planning
  - Programming (TIP and STIP)
  - Corridor Planning
  - Environmental Review/Permitting

# The Decision Guide

## LONG RANGE TRANSPORTATION PLANNING



<b>LRP-1</b> Approve Scope of LRTP Process	<b>LRP-2</b> Approve Vision and Goals	<b>LRP-3</b> Approve Evaluation Criteria, Methods and Measures	<b>LRP-4</b> Approve Transportation Deficiencies	<b>LRP-5</b> Approve Financial Assumptions	<b>LRP-6</b> Approve Strategies	<b>LRP-7</b> Approve Plan Scenarios	<b>LRP-8</b> Adopt Preferred Plan Scenario	<b>LRP-9</b> Adopt Finding of Conformity by MPO
<b>LRP-10</b> Adopt LRTP by MPO	<b>LRP-11</b> Approve Conformity Analysis							

## PROGRAMMING



<b>PRO-1</b> Approve Revenue Sources	<b>PRO-2</b> Approve Methodology for Identifying Project Costs and Criteria for Allocating Revenue	<b>PRO-3</b> Approve Project List drawn from Adopted Plan Scenario	<b>PRO-4</b> Approve Project Prioritization	<b>PRO-5</b> Reach Consensus on Draft TIP	<b>PRO-6</b> Adopt TIP by MPO	<b>PRO-7</b> Approve TIP by Governor and Incorporate into Draft STIP	<b>PRO-8</b> Reach Consensus on Draft STIP	<b>PRO-9</b> Approve STIP with Respect to Conformity and Fiscal Constraint
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## CORRIDOR PLANNING



<b>COR-1</b> Approve Scope of Corridor Planning Process	<b>COR-2</b> Approve Problem Statements and Opportunities	<b>COR-3</b> Approve Goals for the Corridor	<b>COR-4</b> Reach Consensus on Scope of Environmental Review & Analysis	<b>COR-5</b> Approve Evaluation Criteria, Methods and Measures	<b>COR-6</b> Approve Range of Solutions Sets	<b>COR-7</b> Adopt Preferred Solution Set	<b>COR-8</b> Approve Evaluation Criteria, Methods & Measures for Prioritization of Projects	<b>COR-9</b> Adopt Priorities for Implementation
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## ENVIRONMENTAL REVIEW / NEPA MERGED WITH PERMITTING



<b>ENV-1</b> Reach Consensus on Scope of Environmental Review	<b>ENV-2</b> Approve Notice of Intent	<b>ENV-3</b> Approve Purpose and Need / Reach Consensus on Project Purpose	<b>ENV-4</b> Reach Consensus on Study Area	<b>ENV-5</b> Approve Evaluation Criteria, Methods and Measures	<b>ENV-6</b> Approve Full Range of Alternatives	<b>ENV-7</b> Approve Alternatives to be Carried Forward	<b>ENV-8</b> Approve Draft EIS with Conceptual Mitigation	<b>ENV-9</b> Approve Resource Agency Public Notice
<b>ENV-10</b> Approve Preferred Alternative / LEDPA	<b>ENV-11</b> Approve Final Jurisdictional Determination	<b>ENV-12</b> Reach Consensus on Avoidance and Minimization for the LEDPA	<b>ENV-13</b> Approve Final EIS	<b>ENV-14</b> Approve the ROD	<b>ENV-15</b> Render Permit Decision and Approve Avoidance and Minimization			

# Key decision information

- Key policy questions or issues decision makers should consider
- Integration with other planning processes (e.g. land use, conservation)
- Outcomes or products from this decision making step
- Roles and responsibilities of the formal decision makers (state DOTs, MPOs, FHWA and federal resource agencies)
- Stakeholder or project champion roles and relationships
- Supporting data, tools and technology
- Links to relevant case studies and supporting resources (e.g. FHWA and AASHTO Center for Environmental Excellence websites)

# Dissemination Challenge

## **Challenge to make this wealth of information accessible to users:**

- There are many paths for projects to follow
- Significant benefit from linking the underlying case studies, library of resources, and external sources to specific key decisions
- Opportunity to link other Capacity Program research related to transportation decision making by mapping it to the Decision Guide

## **Solution was to create beta test version of an interactive, web-based tool**

- *Transportation for Communities – Advancing Projects Through Partnerships (TCAPP)*

# Assessment tools



- TCAPP includes three assessment tools
  - Collaborating with partners
  - Collaborating with stakeholders
  - Expediting project delivery
- Designed to help practitioners pinpoint problems and issues affecting project delivery
- Limited number of short answer questions to provide quick feedback

# Partnership and Stakeholder Collaboration Assessments

- **Partner collaboration assessment categories**
  - Process steps
  - Data and information availability
  - Organizational supports
  - Tools and technology
  - Decision making authority
  - Participant stability
  - Role clarity
  - Shared goals
  - Sense of ownership
- **Stakeholder collaboration assessment categories**
  - Stakeholder communication
  - Stakeholder understanding
  - Stakeholder commitment

# Expediting project delivery assessment

## Significant barriers to project delivery

- Conflicting resource values
- Ineffective internal communication
- Ineffective Section 106 consensus
- Lengthy review/revision cycles
- Inefficient public engagement and support
- Issue arising lack cause project change
- Negative or critical coverage from the media
- Stakeholder controversy and opposition
- Relocation process delays construction
- Unusually large and complex project or program
- Avoiding policy decisions through continual analysis
- Difficulty in getting agreement on impacts/mitigation
- Inability to maintain agreement
- Focus on a single issue
- Issues arising late in process
- Lack of dedicated staff

# Assessment Approach

## **For each of these categories the assessment:**

- Provides statements to rank from “strongly agree” to “strongly disagree”
- Uses answers to provide “effectiveness score” (strong, average, weak)
- Describes potential risks to project delivery
- Suggests strategies to mitigate risks

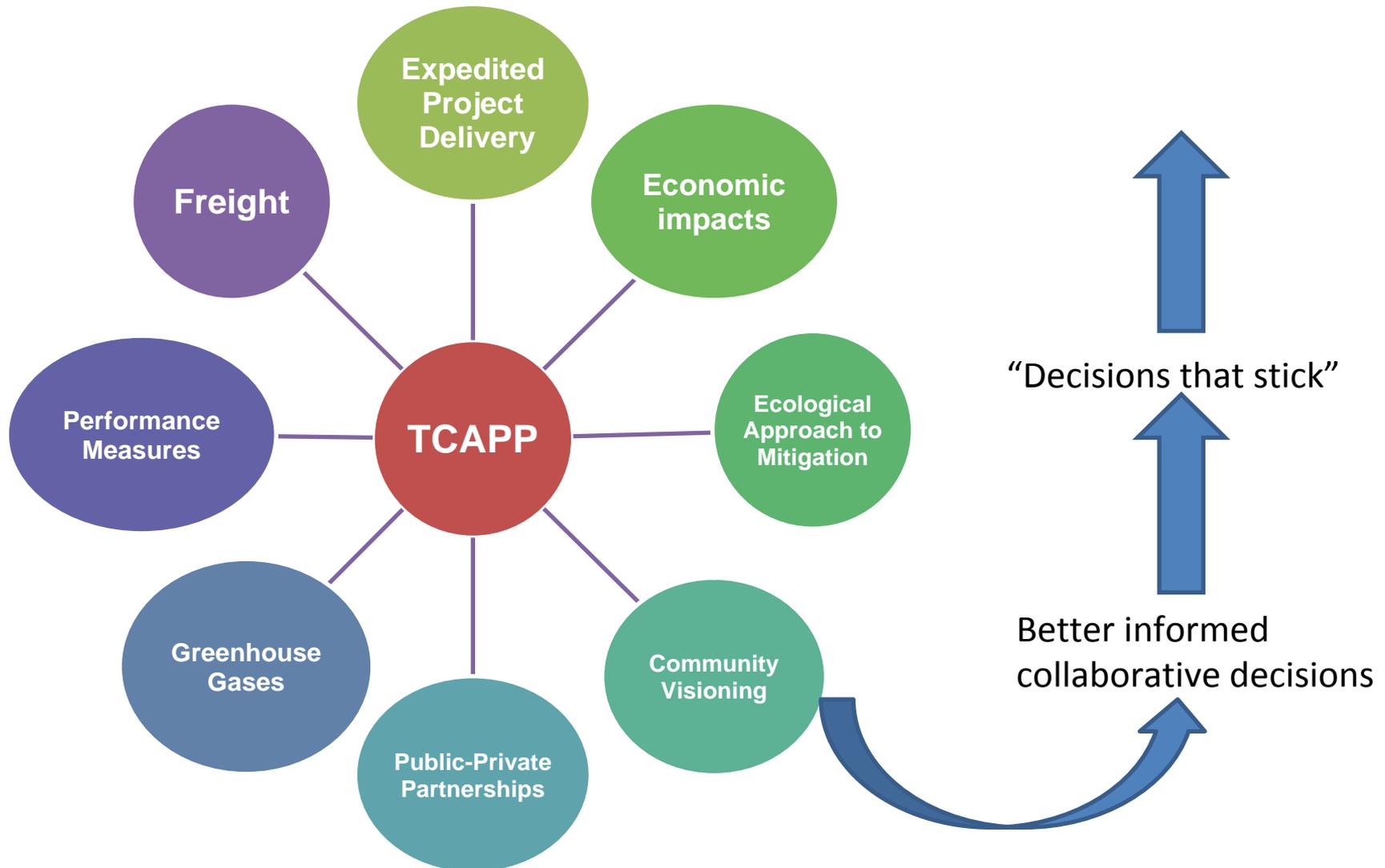
# Related Capacity Program Research



## **Unifying themes of topics covered in TCAPP:**

- Address or inform elements of transportation planning
- Require collaboration with entities outside the state DOT or MPO
- Many are relatively new planning topics or topics that are changing fast
- Each product is organized by the key decisions outlined in the Decision Guide

# TCAPP: Tool for research dissemination





# **Pilot Testing of TCAPP**

Steve Andrie

SHRP2 Capacity Program

# TCAPP Pilot Tests

- Eight competitively-selected pilot tests
  - A public agency partner was required.
- Four pilots ran from September 2010 to August 2012.
  - Agencies were instructed to test both the content of TCAPP and the functionality of the web site
  - Very early review so content was changing as pilots provided comments
- Additional four pilots ran from April 2013 to July 2014
  - Agencies were instructed to focus primarily on the usefulness of the content.
  - Some changes were made to TCAPP in this period, but it was a more mature product than in the first set of pilots

# Round 1 TCAPP Pilot Tests



- Washington State DOT
  - Corridor alternatives study, new toll freeway, SR 505
- Puget Sound Regional Council
  - Revised project selection methodology
- Minnesota DOT
  - A complete streets plan for Grand Rapids
- Peak's Peak Area Council of Governments
  - Environmental component of long range plan update

# Round 2 TCAPP Pilot Tests



- Thomas Jefferson Planning District Commission (Charlottesville) and Virginia DOT
  - Long range, performance-based planning with enhanced public involvement
- Metro Regional Government, Portland, Oregon
  - Inter-jurisdictional corridor study: Sustainable Decisions (238<sup>th</sup>/242<sup>nd</sup>/Hogan Corridor)
- South Carolina, DOT
  - Coordination (environmental) on Small Projects: Hoopstick Creek Bridge
- Policy consensus Institute and Oregon DOT
  - Community of Practice for Greenhouse Gas Scenario Planning

# Components tested

- **Self assessment of collaboration:** Gauge the strength of partner and stakeholder collaboration
- **Stakeholder portal:** Establish the definition, roles, and responsibilities of stakeholders
  - Almost all of pilots discovered that it was more difficult than expected to define roles and responsibilities of stakeholders
- **Decision Guide:** Determine its usefulness as a framework for real-world projects
- **Applications:** Determine the usefulness of special topics – frequently encountered planning and environmental review situations
- **Library:** applicability of case studies, reports, and linked sites.
- **Integrated Ecological Framework:** early collaboration with environmental agencies

# Rebranding

- In 2013 AASHTO sponsored four regional workshops to assess the value of TCAPP as a tool for practitioners resulting in rebranding TCAPP to **PlanWorks**.
- The new name is used in the following presentation on a pilot test of TCAPP
- The Federal Highway Administration and AASHTO will describe the evaluation later in this webinar.

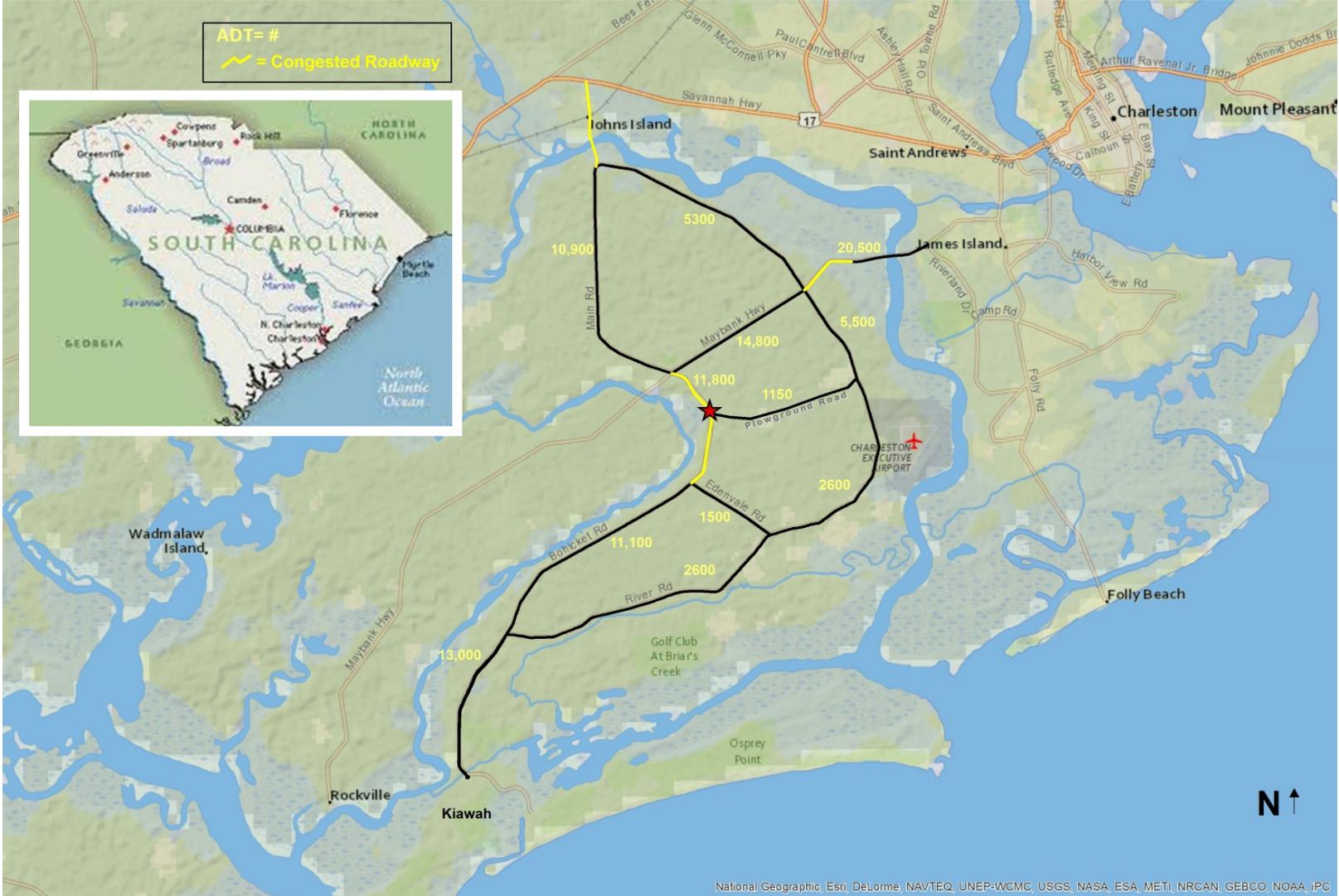


## USING PLANWORKS TO IMPROVE AGENCY COORDINATION FOR SMALL PROJECTS :

Hoopstick Creek Bridge Replacement  
Johns Island, South Carolina

Will McGoldrick, SCDOT

# Project Location: Hoopstick Creek Bridge Replacement



# Pilot Project: Hoopstick Creek Bridge Replacement



# Pilot Project: Hoopstick Creek Bridge Replacement



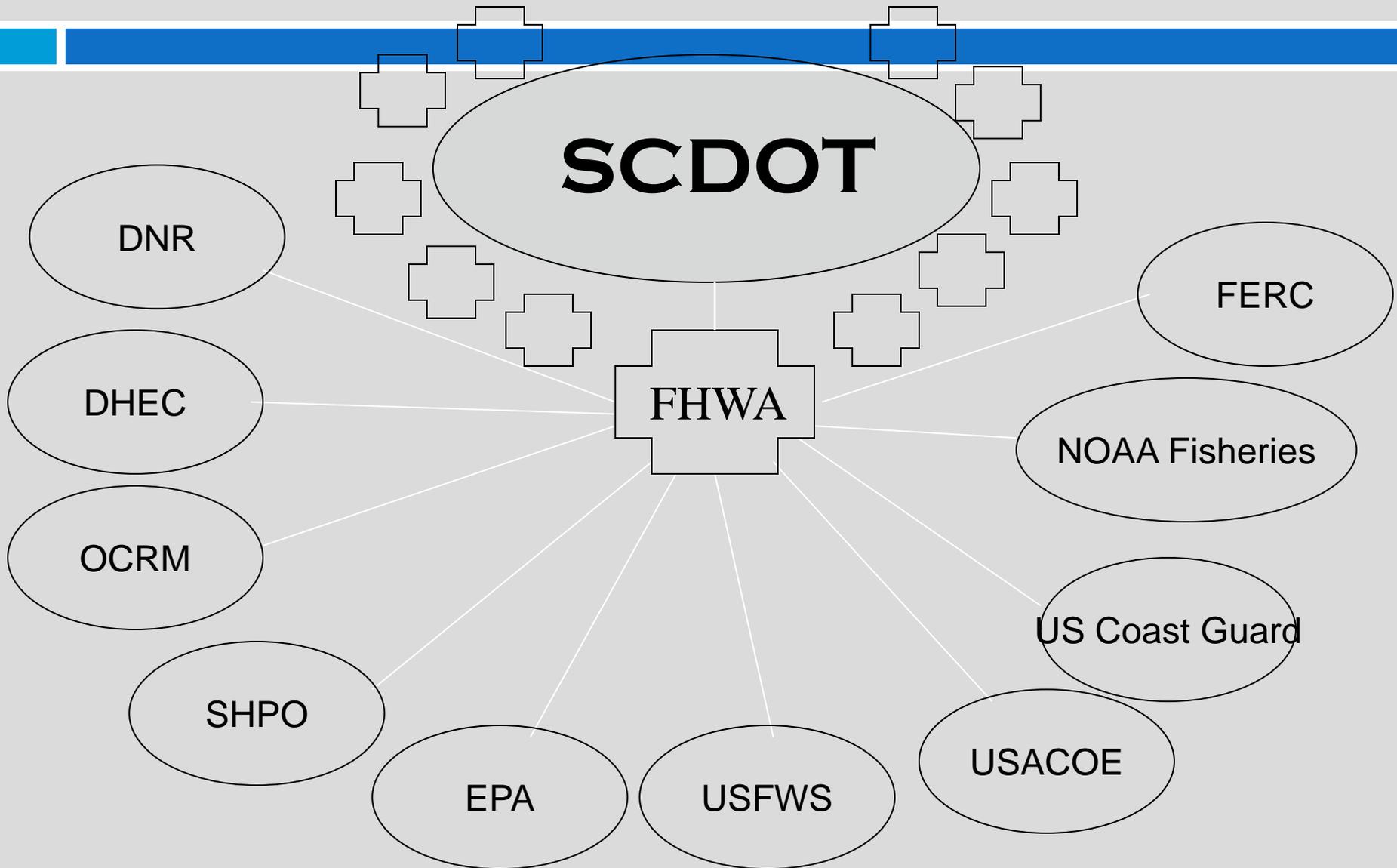
# Pilot Project: Hoopstick Creek Bridge Replacement



# Pilot Project: Hoopstick Creek Bridge Replacement

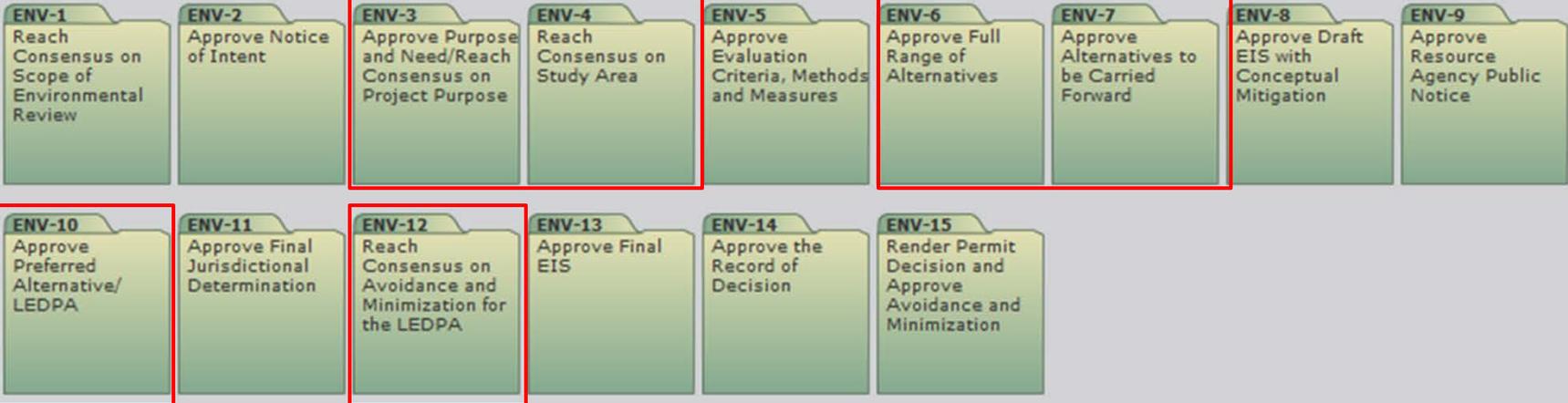


# Partners & Stakeholders

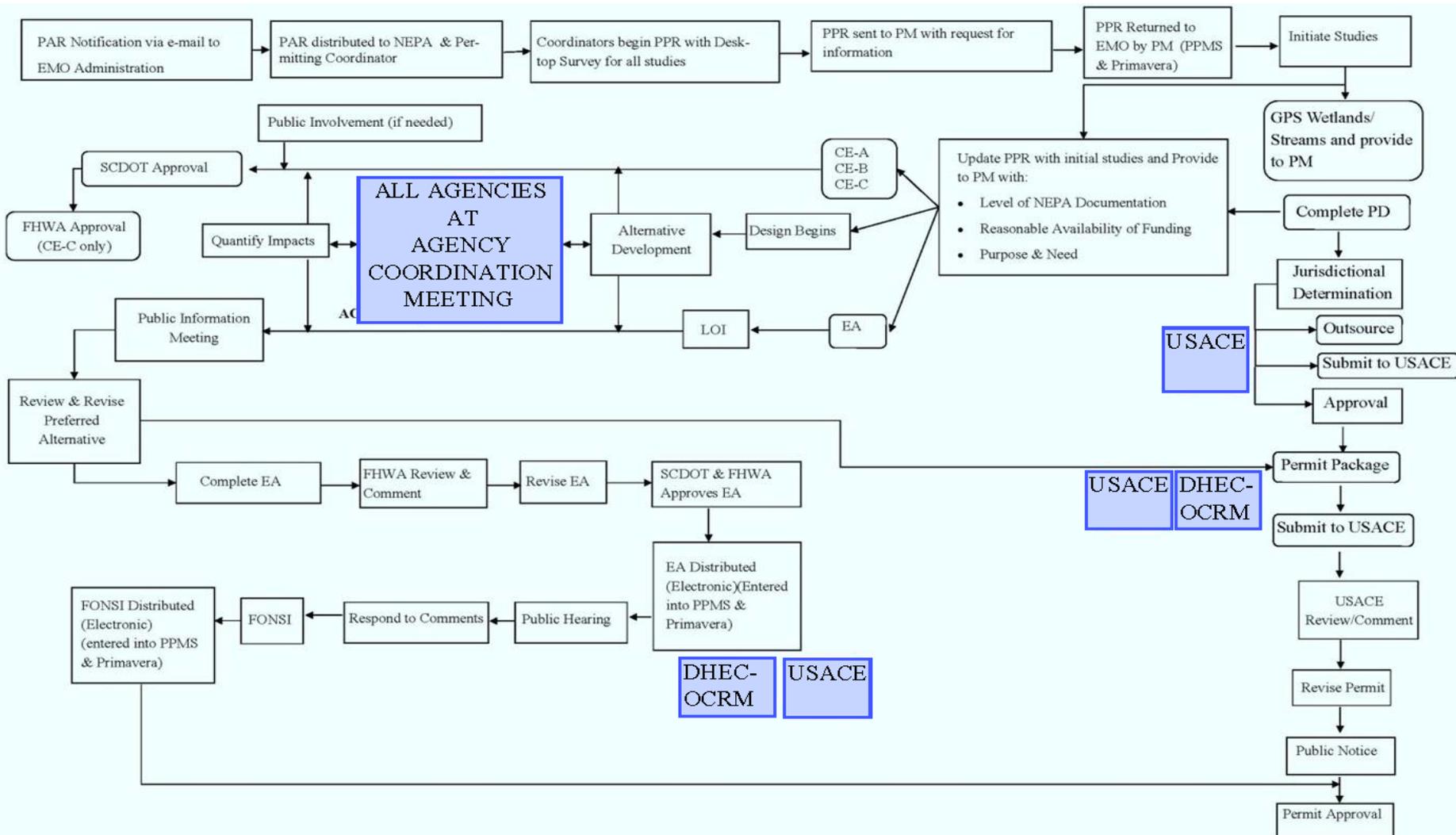


# Approach

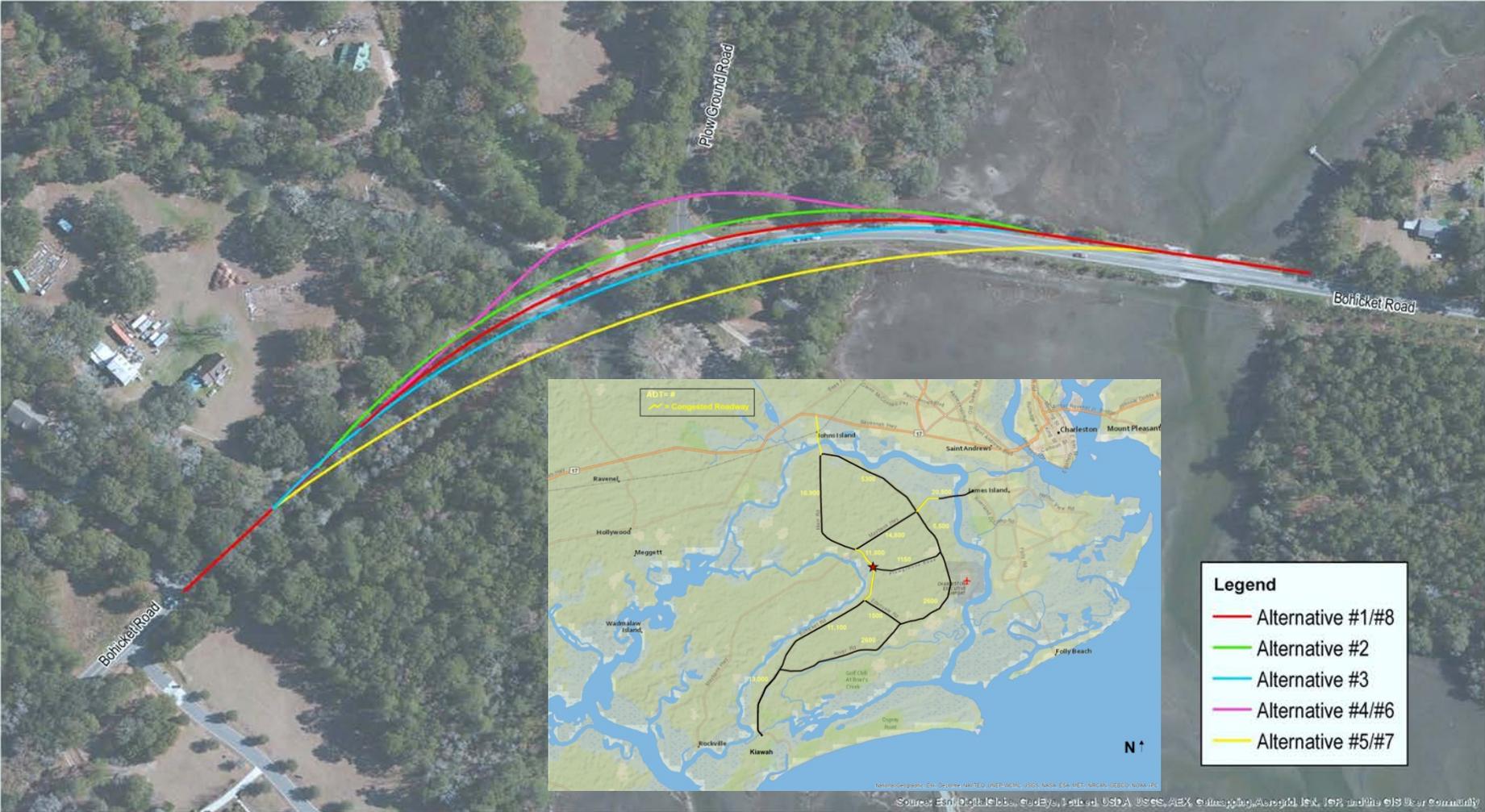
## ENVIRONMENTAL REVIEW/NEPA MERGED WITH PERMITTING



# Outcomes: EMO Permitting & NEPA Flow Chart Revised



# ENV-6: Hoopstick Creek Bridge Replacement Alternatives



Source: Esri, DigitalGlobe, GeoEye, Earthstar (USA), Airphoto, Geomatics, AeroGRID, IGN, SRTM3, and the GIS User Community

# Feedback

## What are the biggest obstacles to interagency coordination during the environmental/NEPA process?

Time for submittals

Need to have a representative from each agency at meetings

Cannot complete consultation until final plan is presented (conflicts to DOT/FHWA process)

Communicating what each agency needs

Having enough information to provide comments on

Lack of communication

Agency concerns and comments not always incorporated into project designs

Not receiving constructive comments from agencies during early coordination

Not being engaged with resource agencies early in the project development process

# Summary

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- Project Process...
- Roles...
- Participation...

**COMMUNICATION**





# PlanWorks

Better Planning, Better products

**Matt Hardy**

**Program Director for Planning and Policy**

**AASHTO**

**Gary Jensen**

**Research Implementation Team Leader**

**FHWA Office of Human Environment**

# PlanWorks



- AASHTO Assessment
- PlanWorks Branding
- Expert Task Group
- IT Development
- Next Steps for Implementation

# AASHTO Assessment



- Four regional workshops in 2013
  - 37 State DOTs
  - 21 MPOs
- Key findings:
  - Need for improved navigation/design
  - Need for long-term maintenance with continued user input
  - Need to rebrand

# Rebranding

- Branding Criteria:
  - Short & Simple
  - Understandable
  - Inspiring
  - Visual
- Market Research:
  - Select new name/tag line
  - Select new logo
  - Select color palette

# Rebranding



- **Reasoning:**
  - Simple and succinct
  - Cannot be turned into an acronym
  - Meets branding criteria

# IT Status



- Approved by FHWA for hosting
- FHWA has funded the conversion and improvement of PlanWorks
- FHWA's IT contractor has dedicated resources working on this effort
- PlanWorks design underway

# FHWA Expert Task Group

The logo graphic consists of several parallel white lines that originate from the top right corner and extend towards the left, creating a sense of motion or a stylized road.

- Forum assembled to provide individual advice
- Timely input on the development and implementation
- Provide technical and user expertise
- Guide future enhancements of PlanWorks

# PlanWorks Implementation



- Knowledge Transfer Activities
- Implementation Planning Workshop(s)
- Implementation Assistance Program

# For Additional Information

Email: [goSHRP2@dot.gov](mailto:goSHRP2@dot.gov)

SHRP2 Research:  
[www.TRB.org/SHRP2](http://www.TRB.org/SHRP2)

SHRP2 at FHWA:  
<http://www.fhwa.dot.gov/goshrp2/>

SHRP2 at AASHTO:  
<http://SHRP2.transportation.org>

TCAPP Beta Test Site  
[www.transportationforcommunities.com](http://www.transportationforcommunities.com)





**Thank you**