

**Future Interstate Study**  
**March 27-28, 2017**  
**Listening Session in Miami, Florida**  
**Panel on Environmental Impact & Sustainability Issues**

**Presentation**

**Environmental Management Ideas for Timely & Effective Project Delivery**

**Talking Points**

**Introduction & Background**

- Good morning! It is an honor and a privilege to join you here today to talk about the environmental management aspects of the delivery of a future interstate highway system. As a long-term, transportation environmental professional and user of the interstate system, I have witnessed the both its positive and negative environmental effects over decades through several lenses. In preparing for this discussion, I have used three lenses: 1) a state transportation agency environmental professional who was intimately involved in satisfying the NEPA and other environmental requirements of the Appalachian Highway System and urban interstate system in Allentown, Philadelphia, and Pittsburgh, Pennsylvania; 2) a transportation environmental streamlining and stewardship advocate with a leadership and consulting role in promoting timely and effective delivery of transportation improvement programs and projects across the country; and 3) a transportation environmental research and capacity-building advocate promoting the development and deployment of innovative environmental analysis methods, tools, training, and technical assistance.
- In thinking about how I could best inform the dialogue here today, I settled on the presentation title: “Environmental Management Ideas for Timely and Effective Project Delivery” and the presentation objective: “Strategies to expedite and enhance interstate project delivery through timely and effective environmental management.” As you can imagine, there are many important environmental aspects involved in the future interstate highway system, but, I would contend that expediting the planning, design, and construction of its improvements in an environmentally-sound way is of paramount importance. In other words, when we find the money to modernize the interstate system, the public expectation will be to get to construction and ribbon-cuttings rapidly and effectively, while protecting and enhancing the human and natural environment.
- In order to guide my imagining of new and innovative approaches for this endeavor, I synthesized this vision: “An interstate highway system which creates and maintains conditions under which humans and nature exist in productive harmony and fulfills the social, economic, and other needs of present and future generations in a sustainable society.” As we all know by now, the interstate highway system plays a highly significant role in everyone’s health, safety, prosperity, and quality of life. As we contemplate how to best approach modernizing the interstate we have the opportunity to take the lessons we learned in building, maintaining, and operating the system to work towards a sustainable society vision.
- As I look back to the early 1970’s and think about the maturation of the environmental management policies, procedures, and tools used in completing the interstate highway system, particularly its urban connections, and maintaining the system, I see it evolving from compliance to stewardship. All the State DOT’s across the country have learned how to maintain and improve the interstate in a timely and effective manner while addressing the environmental requirements and avoiding major project impacts, public controversy, delays, and costs. This is mostly in the context of the improvements being within the existing or essentially the same R/W.
- However, when a future interstate improvement program substantially ramps up the funding, scope, magnitude, and numbers of projects, I see the existing environmental management organizations and approaches being overwhelmed and significant project delays and associated costs skyrocketing.

- In order to prepare for the future interstate improvement program, I am proposing package of strategies for timely and effective project delivery. Work on these strategies would be well in advance of the future interstate improvement program launch and before project design.

## Strategies

- New environmental management provisions for Federal transportation authorizing legislation

For any unique policies or initiatives needing specific federal authorization or emphasis to ensure their implementation, provisions should be included in the Federal authoring legislation. For example, Section 1309 on Environmental Streamlining and Stewardship was included in TEA-21 to insure timely project development and promote environmental stewardship. Also, Sections 6001 and 6002 on Environmental Considerations in Statewide and Metropolitan Planning was included in SAFETEA-LU requiring increased and earlier consideration of environmental factors prior to project development environmental review.

- New U.S. DOT Order and modal regulations for environmental management

For any unique policies or initiatives needing specific policy and regulatory authorization or emphasis to ensure their implementation, provisions should be included in a U.S. DOT Order and modal regulations. For example, in February 2007, new FHWA/FTA Planning Regulations were promulgated to enable increased and earlier consideration of environmental factors prior to project development environmental review.

- More environmental analysis and documentation activities in statewide, metropolitan, and rural transportation planning

Scoping; purpose and need; environmental performance measure identification; environmental mapping and data collection; programmatic agreement; public and agency involvement; and advanced mitigation activities could occur pre-NEPA. With appropriate coordination, analysis, and documentation, the results of the planning can be fully utilized in the NEPA stage. Also, exemptions from project environmental requirements could be identified.

- Performance-based rather than impact-based analysis and decision-making

Rather than rely on negative environmental impact avoidance, minimization, and mitigation criteria for the development of corridor plans and project designs, use environmental performance measures along with traffic, safety, and transportation performance measures. For example, air quality, water quality, and noise standards and criteria strongly influence corridor plans and project designs as they are developed today. This would build environmental compliance, stewardship and sustainability into the plans and projects in a proactive more than a reactive manner.

- Interstate-wide, statewide, regional, or corridor purpose and need analysis, documentation, and concurrence

Rather than conduct project-by-project purpose and need analysis, conduct the analysis on a broader scale and use the results to satisfy the NEPA requirements for projects. I am suggesting here and in other strategies and tools that they be flexibly created to apply to the entire interstate system, a state's entire portion of the interstate system, or a portion within a region. Programmatic agreements are often used to move the analysis from project-to-project to a broader scale. Also, include the identification of

environmental and transportation performance measures with the purpose and need analysis. Obtain MPO, RPO, and environmental resource agency concurrence on the purpose, need, and measures.

- Interstate-wide, statewide, regional, or corridor environmental resource inventories, mapping, and databases

Use state-of-the art technologies to inventory and map environmental resources at large scales and to populate internal and external databases. For example: high-resolution satellite and aerial photography; video logging; computerized photo interpretation; cloud-based data storage; and GIS. For the security of impact-sensitive resources such as archaeological sites and endangered species, establish appropriate security measures. Obtain MPO, RPO, and resource agency concurrence on the mapping and data collection, storage, sharing, and use methods.

- Web-based visualization and communication tools

Use state-of-the art visualization tools to clearly show the environmental aspects of plans and projects as well as the traffic, safety, and transportation aspects. Use computer-generated graphics and strive for a virtual reality setting. The days of paper copies of plans and designs on cafeteria walls should be a thing of the past. Use web-based communication tools such as websites, Facebook, and Twitter.

- Interstate Environmental Analysis Expert System

Rather than scoping, developing, and reviewing NEPA and related documents on a project-by-project basis using WORD documents and email communications, adapt the PennDOT Categorical Exclusion Evaluation/Environmental Assessment Expert System for nationwide use. This system greatly streamlines the NEPA and Act 120 environmental analysis, documentation, and review process for thousands of highway and bridge projects a year in Pennsylvania. It has saved millions of dollars in environmental analysis, documentation, and review work and has been instrumental in making project letting schedules highly predictable and reliable. The system draws and shares information from a wide array of databases and websites, including those with all the state and federal environmental laws, regulations, policies, and guidance affecting transportation project development.

- Interstate Transportation Plan and Design Work Station Software

The development of transportation improvement plans and projects on the interstate system has an abundance of common elements which are computerized. However, the planner and engineer have to use a wide variety of software tools to develop a plan, environmental document, or project design. The development and deployment of an interstate transportation plan and design work station software offers the potential to save time and resources and ensure high quality products system-wide by integrating multiple software tools into one comprehensive tool.

- Interstate-wide cultural resource identification, effect determination, & mitigation

Rather than satisfying the cultural resource requirements (Section 106) on a project-by-project basis, interstate-wide cultural resource identification, effect determinations, and mitigation offers great potential to streamline compliance and enhance mitigation. Currently, the President's Advisory for Historic Preservation has exempted the interstate system from consideration as a historic resource, except for exceptional elements (such as historic bridges, tunnels, rest areas that are at least 50 years old,

possess national significance, and are of exceptional importance). This became effective on March 10, 2005. However, the area adjacent to the interstate which may include cultural resources (historical and archaeological) which may be affected by the interstate projects temporarily or permanently requiring new R/W must satisfy the cultural resource requirements.

- Interstate-wide wetland and riparian area permitting, restoration and banking program

For those wetland and riparian areas impacts which cannot be avoided, state and federal encroachment permits and mitigation will be required, even if these resources are partially or totally within the existing interstate R/W. Interstate-wide Section 404 Clean Water Act permitting offers great potential to streamline compliance and enhance mitigation. An accompanying statewide interstate mitigation program offers the same.

- Interstate-wide fish and wildlife connectivity study and best practices

Construction of the 46,700 miles of interstate highway system beginning in the 1950's was substantially completed and/or well underway before the environmental movement of the 1970's. Many of the federal and state laws and regulations protecting fish and wildlife and their habitats were not in effect. Although fish and wildlife impacts were undoubtedly a factor in the location and design of the existing interstate highway system, a significant amount of fish and wildlife habitat loss and fragmentation occurred. This has reduced the total amount of habitat and inhibited the easy and safe movement of aquatic and terrestrial species over, under, and along the interstate highways. This is commonly referred to as connectivity. There is potential to do work associated with the modernization of the interstate highway system offering the opportunity to substantially improve the fish and wildlife connectivity in critical habitat areas. A connectivity study would identify the critical areas for improvement and recommend best practices.

- Interstate-wide community connectivity study & best practices

The construction of the rural and urban sections of the interstate highway system created a positive longitudinal barrier to the movement of people across and parallel to the highway. Although well-thought out and strategically-placed overpasses and underpasses were included in the original interstate highway system and to a minimum extent added later, the ability for people to easily and safely cross the system in their communities is limited. Since the construction of the existing system, land use changes, traffic congestion, economic and residential development patterns, and pedestrian and bicycle use has negatively impacted the ability to move about in communities. There is to do work associated with the modernization of the interstate highway system that substantially improve community connectivity. A connectivity study would identify the critical areas for improvement and recommend best practices.

## **Keys to Successful Implementation**

- **Federal Highway Administration Interstate Project Delivery Organizational Capacity**

In view of the scope, magnitude, cost, and urgency of modernizing the interstate highway system, a Washington Headquarters and Division Office Federal Highway Administration team of planning, engineering, and environmental professionals will be needed to guide and assist the State DOT's in project delivery. Also, the advanced work to get ready for project delivery will likely require consultant teams to extend the capabilities of staff who are expected to help deliver the non-interstate projects.

- State DOT Interstate Project Delivery Organizational Capacity

The State DOT's will have the same organizational issues as the Federal Highway Administration as they are expected to deliver their non-interstate projects. Therefore, a team of State DOT central and regional office planning, engineering, and environmental professionals will be needed. They are also likely to require consultant teams to participate in the advanced work to get ready for project delivery and to deliver the non-interstate projects.

- Metropolitan and Rural Transportation Planning Organizations Capacity

As many of the most promising environmental streamlining and stewardship measures will be developed and implemented in the transportation planning phase before project delivery, the MPO's and RPO's will have to add planning and environmental professionals. For those who cannot add professionals, consultant teams will be required. The consultant teams could be assembled via MPO, RPO, or State DOT consultant agreements. Or, if the MPO or RPO cannot add in-house for consultant professionals, the State DOT Planning staff could develop and implement the environmental streamlining and stewardship measures.

- Environmental Resource Agencies Liaison Capacity

In order to engage the federal and state environmental resource agencies in the advanced work and project delivery at the level necessary to ensure timely and effective environmental review and permitting, additional environmental professionals will need to be added to the respective agencies. Hopefully, the advance-planning work will substantially reduce the number of liaison positions required.

- Advanced Interstate Project Delivery Toolkit & Capacity-Building Funding and Time

In order to create the interstate project delivery toolkit (everything I have described so far) and build the capacity for planning and project delivery, advanced funding is needed to make the necessary preparations.

Since it will likely take several years to create and deploy the project delivery toolkit, the funds need to be available as early as possible.

- Expanded National Highway and Transit Institute Training Program for Interstate Project Delivery

As part of the deployment of the project delivery toolkit, training is needed for transportation agency, MPO's, RPO's, and consultant professionals.

- Expanded AASHTO Center for Environmental Excellence Practitioner Handbook, Webinar, and Expert Technical Assistance for the Environmental Aspects of Project Delivery

As part of project delivery, technical guidance and assistance is needed for transportation agency, MPO's, RPO's, and consultant professionals.

- National Conferences on Interstate Project Delivery

One of the most effective ways to prepare for and launch a major transportation initiative is to hold national conferences. FHWA, FTA, TRB, and AASHTO are well-equipped to organize and conduct them.

- **TRB Task Forces, Standing Committees, and Subcommittees on Interstate Project Delivery**

Building and maintaining the forums for professional development, research, and technology transfer for project delivery could be a central focus of TRB Task Forces, Standing Committees and Subcommittees.

- **NCHRP and University Transportation Center Research on Tools for Interstate Project Delivery**

Already in place and ready to conduct research, NCHRP and the University Transportation Centers are likely sources for development of the toolkit for project delivery. Also, another Strategic Highway Research Program could be created to produce research results in short time frames.

### **Wrap up**

Well, I have covered a lot of ground in the last 20 minutes. Hopefully, you can imagine the project delivery and environmental management challenges and opportunities which lie ahead in the modernization of the interstate highway system. Thankfully, there are thousands of planning, engineering, and environmental professionals already engaged in environmentally sound planning and project delivery for interstate and non-interstate highway improvement projects. My wish is that we reach for new heights in respect to the environmental performance of the interstate system as we work toward a sustainable society.

Thank you. I am looking forward to your questions and the continuing dialogue on the modernization of the interstate highway system.