



NCHRP 25-25, Task 37

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Effective Organizational Structures and Management Practices for Achieving Environmental Stewardship and Streamlining in Transportation Agencies

Requested by:

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Standing Committee on the Environment

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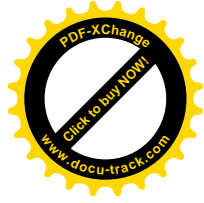
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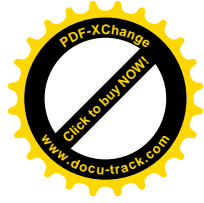


Abstract

This report describes organizational structures and management practices that contribute to achieving environmental stewardship and streamlining in state DOTs. It is based primarily on a two-phase set of interviews of state DOTs – six states in Phase 1 (Florida, Maryland, New York, Oregon, Tennessee, and Vermont) and five states in Phase 2 (Arkansas, Illinois, Minnesota, Montana, and New Mexico). From the interviews of this diverse group of state DOTs, twelve main themes emerged as important to success in environmental stewardship and streamlining:

1. Provide two levels of leadership.
2. Organize for environmental awareness and accountability throughout the DOT and assure effective communications.
3. Provide expert staffing.
4. Build an environmental culture.
5. Support improved land use.
6. Invest in environment.
7. Nurture relationships with resource agencies.
8. Invest in GIS.
9. Develop programmatic agreements.
10. Shift from projects to ecosystems.
11. Be judicious with environmental management systems (EMS) and environmental performance measures (EPMs).
12. Continually streamline environmental processes.

In addition, a literature review was conducted, yielding 27 reports that contain findings, recommendations and tools that could help state DOT efforts to advance environmental stewardship and streamlining.



Executive Summary

One of the top challenges facing state Departments of Transportation (DOTs) is environmental performance. They are challenged to comply with a lengthy list of environmental laws, meet public expectations for environmental protection and enhancement, and also expedite environmental reviews in order to deliver high quality transportation improvements that meet transportation needs.

To help state DOTs meet this challenge, this NCHRP study focused on identifying and describing effective organization structures and management practices to achieve a high level of environmental stewardship and environmental streamlining.

The study relied primarily on two phases of interviews of state DOTs, and secondarily on a literature review. First, the research team interviewed six state DOTs which had strong track records of environmental performance, based on environmental awards received, accomplishments in both stewardship and streamlining, and overall environmental credibility. State DOTs were also selected to ensure diversity in their geography and size of their programs. The six states interviewed in Phase 1 were Florida, Maryland, New York, Oregon, Tennessee, and Vermont. All interviews were conducted between December 2007 and April 2008.

The results of these six interviews were summarized for each state, and twelve dominant themes from these interviews were synthesized. The twelve dominant themes were:

1. **Provide Two Levels of Leadership:** Two forms of leadership are essential: (a) CEOs and other DOT executives, and (b) career environmental managers. CEOs, their Deputies, and Chief Engineers need to provide personal, highly visible leadership on environmental issues both within their organizations and with resource agencies. DOT executives who are personally engaged in addressing high-profile environmental issues not only lend their insights and authority, but their participation conveys a message to all parties, both within the DOT and beyond, about priorities and values. Engaged executives must be matched by capable leadership of career environmental managers within a state DOT. These career leaders must reflect the philosophy and policy direction of agency leaders. Career environmental managers need to be strong leaders in their own right, with an ability to interact effectively at all levels, including with their own executives. In the face of CEO changes every few years, career environmental managers provide needed continuity and day-to-day, year-to-year direction and decision-making.
2. **Organize for Environmental Awareness and Accountability and Assure Effective Communications throughout the DOT:** State DOTs need both: (a) a strong core environmental staff in headquarters, and (b) environmental staff and responsibilities appropriately dispersed in other parts of the organization. For maximum effectiveness, environmental responsibilities and environmental staff should reside in virtually all functions, as well as in the field,



in DOT regions and districts. The decentralized structure of large state DOTs is a major challenge, requiring greater time and effort in coordinating and maintaining consistency on environmental policies and procedures. Placement of environmental units within the state DOT hierarchy is also important. A decade or more ago, environmental units were often placed on a lower organizational tier, in engineering units where environmental scientists and experts were often given relatively little credence. In recent years, many state DOTs have moved environmental units up to a higher level within the state DOT, to the first or second tier below the CEO or chief engineer.

3. **Provide Expert Staffing:** As environmental issues have grown more important and complex, state DOTs need to make a significant investment in building strong environmental expertise among their staff. In doing so, state DOTs gain credibility with resource agencies, which is essential to resolving the wide range of issues regarding wetlands, water quality, air quality, wildlife, and other issues that can block important transportation improvements. Over time, a state's expertise on specific environmental issues can build trust and lead to breakthrough agreements. The use of expert environmental consultants is widespread and understandable to address peak workloads and technical specialties. However, each state DOT needs to maintain core environmental competency and a base of institutional knowledge to direct in-house work, to relate to resource agencies, to guide and manage outsourced activities effectively, and to perform quality assurance on those activities.
4. **Build an Environmental Culture:** To be successful in the 21st century, state DOTs need to have a strong environmental ethic shared throughout the DOT workforce, from transportation planners, to construction engineers, to maintenance staff. Creating a pervasive environmental culture doesn't happen overnight; it takes time to build and it takes constant communication with the workforce. The more the workforce sees and hears from DOT CEOs, their Deputies, and Chief Engineers about environmental values, the better. Environmental recognition and awards programs can be extremely helpful in building a strong environmental ethic. Environmental training programs are also important, to explain environmental policies and provide employees with the environmental skills and knowledge to be successful.
5. **Support Improved Land Use:** Virtually all the interviewed state DOTs saw land use as a critical issue for state DOTs. All of the state DOTs had limited or no land use authority, even those states with strong state-level land use planning. Despite their lack of authority, however, the state DOTs recognized they could and should help influence land use in ways that are good for the environment and good for transportation. For example, several state DOTs are providing technical assistance to local governments on land use planning.
6. **Invest in Environment:** Every state is faced with tight budget constraints, forcing difficult choices to be made. None of the interviewed states saw an



- “either-or” choice between funding environmental protection/enhancements and transportation improvements. Instead, they emphasized that environmental features are essential elements of transportation projects, just as safety features are essential in the design of transportation projects. All of the interviewed states had a track record of investing in environmental staff, environmental mitigation, environmental enhancement, and environmental process improvement.
7. **Nurture Relationships with Resource Agencies:** All the interviewed state DOTs emphasized the importance of building and maintaining effective relationships with resource agencies, both on the state and federal levels. Despite these efforts, results can be slow and mixed. While some states emphasized their efforts have paid off with strong, effective relationships, other states cited ongoing issues, such as a regulatory mindset, a tendency for issues to be raised late in the environmental process, having to “prove a negative,” staff turnover among resource agencies, inconsistencies among and within resource agencies, and reluctance to invest in early coordination. There were no silver bullets to address these difficulties, other than a persistent, step-by-step process of establishing relationships and building trust.
 8. **Invest in GIS:** A comprehensive Geographic Information System (GIS) database was cited repeatedly as an invaluable tool for both environmental stewardship and streamlining. DOTs in most of the interviewed states have invested and continue to invest in a high quality GIS database and expert GIS staff to make full use of the database. This earns credibility and respect from resource agencies, facilitates early coordination with resource agencies, and enables states to do better, more efficient, and more effective transportation planning and environmental mitigation planning.
 9. **Develop Programmatic Agreements:** The interviewed states cited a variety of Programmatic Agreements (PAs) that have been invaluable in improving the environmental process, both through improved stewardship and timelier project development. These successful PAs are described in the report, and AASHTO’s Center for Environmental Excellence provides a library of PAs, together with a detailed step-by-step “how to” guide to develop successful PAs.
 10. **Shift from Projects to Ecosystems:** All the interviewed state DOTs saw the need to move away from project-by-project environmental planning and mitigation, to ecosystem planning and mitigation. A valuable tool for ecosystem planning and mitigation is the handbook “Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects,” which was issued by FHWA and seven Federal resource agencies (Fish and Wildlife Service, Forest Service, Environmental Protection Agency, Bureau of Land Management, Army Corps of Engineers, National Park Service, and the National Marine Fisheries Service) in 2006. In 2007-08, FHWA supported the “eco-logical” approach through the award of 15 cooperative awarded 15 **15 cooperative agreements**



totaling approximately \$1.4 million in response to the 2007 "Integrating Transportation and Resource Planning to Develop Ecosystem Based Infrastructure Projects" grant solicitation.

The recipients represent State and local Departments of Transportation, State resource agencies, Metropolitan Planning Organizations, local governments, non governmental organizations, and one university

11. Be Judicious with Environmental Management Systems (EMS) and Environmental Performance Measures (EPMs): Most of the interviewed state DOTs saw value in Environmental Management Systems (EMS) and Environmental Performance Measures (EPMs) and were implementing them to some degree. For the most part, these states' use of EMS and EPMs is a work in progress – only partially implemented -- although most of the states intend to develop them further.

12. Continually Streamline Environmental Processes: Environmental streamlining is a work in progress in all the interviewed states, with differing levels of emphasis and differing levels of success. As one might expect, streamlining is a higher priority in high-growth states which have more major capacity expansion projects than in states with established transportation systems and relatively few capacity expansion projects. Guidelines for states seeking to streamline project delivery vary based on the variety of experiences among the interviewed states; these guidelines are described in the report. In addition, the AASHTO Center on Environmental Excellence website provides valuable case studies on environmental streamlining.

After the first round of interviews, the research team conducted a second set of interviews with an additional five state DOTs. The additional five state DOTs were selected to provide geographic and programmatic diversity. They were Arkansas, Illinois, Minnesota, Montana, and New Mexico. Several of these states also had high-level environmental track records, achievements, and credibility. In the second set of interviews, these five states were asked about the twelve themes that emerged from the first set of interviews, as well as for any additional experience and insights they could offer to achieve a high level of environmental stewardship and streamlining.

Uniformly, the five states affirmed the 12 dominant themes from the first set of interviews, augmenting the themes with additional information, insights, and examples. Surprisingly, no new themes emerged from the five states that approached the level of emphasis of the 12 themes that emerged from the first set of interviews.

Both sets of interviews were designed and conducted to serve several purposes:

- To elicit valuable information that could be summarized in this NCHRP report.



- To include senior executives (e.g., Chief Executive Officers (CEOs), Deputy CEOs, and Chief Engineers) from as many of the state DOTs as possible, together with the state DOT environmental managers.
- To provide a forum where both senior DOT executives and environmental managers could jointly reflect on their environmental performance and how their management practices and organizational structures contributed to (or perhaps limited) their environmental performance.
- To provide “cross fertilization,” by allowing the research team to share information from other states and the Literature Review that might be relevant to each state DOT. (This was particularly relevant for the second phase of interviews, which received the benefit of the dominant themes and information gained from the first phase of interviews.)

In short, the project was designed to be more than a written report, so that it could also serve as an active learning process through the way the interviews were designed and conducted.

In addition, a literature review was performed, to serve as a secondary and supplementary source of information. 27 reports were identified with useful information about management practices and organizational structures for environmental stewardship and streamlining. These reports included studies of private sector experience in elevating their environmental performance, as well as experience in the public sector and among state DOTs in particular.

One report was particularly valuable, “Promoting Environmental Sensitivity: Business Organization and Operations – Volume 1: Private Sector Companies.” The report was prepared for the Federal Highway Administration in the early 1990s, but has never been published and is not available on the internet. Although over 15 years old, many of its conclusions and recommendations mirrored the insights and recommendations from the 11 state DOT interviews. These parallels include a list of 50 recommended organization actions/activities for private sector management to achieve a high level of environmental performance. The 50 recommendations are reproduced in this NCHRP report in Section 3.3.



1.0 CHAPTER 1 BACKGROUND

Over the past 20 years, transportation agencies have faced increased expectations for environmental stewardship and have responded with significantly increased environmental stewardship. Their stewardship is reflected in environmental excellence awards; progressive approaches to wetlands, habitat, and wildlife crossings; the NCHRP Compendium of Environmental Stewardship Practices in Construction and Maintenance; commitment to Context Sensitive Solutions; and intensive partnering of state DOTs with resource agencies. While environmental stewardship has increased in all states, some states have gone farther than others and are on the cutting edge of environmental initiatives.

Transportation agencies also strive to successfully streamline environmental reviews and procedures, so they can implement timely transportation improvements that provide safe, effective, sound transportation for a growing population. Many states have worked hard to streamline the project development process, including pioneering efforts in process re-engineering (Florida's Efficient Transportation Decision Making, Oregon's Collaborative Environmental and Transportation Agreement on Streamlining, and North Carolina's Ecosystem Enhancement Program), and exemplary programmatic agreements (PAs), like the Oregon Bridges PA and the Ohio PA for Indiana bats. Unfortunately, however, the median time for highway project development continues to be long - over five years for Environmental Impact Statements (EISs).

Environmental stewardship and streamlining both present challenges. The bar seems to be constantly moving upward, as more and more stewardship is expected by resource agencies and environmental advocates. Some expectations of environmental advocates and resource agencies are difficult, if not impossible, for state DOTs to meet, such as significantly changing land use or reducing vehicle miles traveled (VMT). (While state DOT decisions influence land use and VMT, other actions and policies have much greater effect on land use and VMT – local land use decisions, broad economic conditions, and tax policies.)

Funding environmental stewardship can also be a challenge, because most state DOTs face a tightly constrained budget and a backlog of transportation needs – a situation that worsened in 2007-2009 and may be even more problematic in coming years.

The challenges to environmental streamlining are often even steeper. Despite at least six years of concentrated effort by FHWA and state DOTs, the median time for EISs remains above five years. The difficulty in achieving streamlining is manifold: over 40 Federal environmental laws, lack of resource agency staff, often-changing environmental policies and interpretations, litigation, varying court decisions, and more.

To help state DOTs meet these challenges, this NCHRP report summarizes the organizational and management approaches that are helpful in achieving environmental stewardship and streamlining.



2.0 CHAPTER 2 RESEARCH APPROACH

The research for this project was carried out in four stages:

(a) Literature Review: The research team scanned the literature for reports that identified successful organizational and managerial approaches to environmental stewardship and streamlining. This included literature within the transportation sector, as well as literature on business experience in achieving success in environmental stewardship and environmental process improvement. Because the research team placed the highest emphasis on interviews of state DOTs, the literature review was not exhaustive, but concentrated on identifying and reviewing the most relevant and important literature on organizational and management strategies for environmental success.

(b) Phase 1 Interviews of Six State DOTs: For the first phase of the study, the research team identified six state DOTs with strong track records in environmental stewardship and/or environmental streamlining, which represented a range of different DOTs in terms of size, environmental characteristics, and geographic locales. The selected states were:

- Florida Department of Transportation (FDOT)
- Maryland Department of Transportation - State Highway Administration (SHA)
- New York State Department of Transportation (NYSDOT)
- Oregon Department of Transportation (ODOT)
- Tennessee Department of Transportation (TDOT)
- Vermont Agency of Transportation (AOT)

These six states were selected in consultation with the Chair and Vice Chair of the American Association of State Highway and Transportation Officials (AASHTO) Standing Committee on Environment (SCOE) and the NCHRP Panel for Task 37. The research team then interviewed representatives of these six state DOTs, including state DOT Chief Executive Officers (CEOs) and Chief Engineers as well as environmental managers.

(c) Summary of Major Themes from Phase 1 Interviews: The research team summarized the main themes that emerged from the Phase 1 interviews, obtained feedback on these themes from the NCHRP Panel, and used the themes as a starting point for a second round of interviews.

(d) Phase 2 (“beta”) Interviews of Five State DOTs: After consulting with the NCHRP Panel, the research team identified and enlisted five additional state DOTs for interviews. (Three other states recommended for interview in Phase 2 did not respond to invitations to participate in the project, despite repeated efforts by the NCHRP research team. This lack of response may be cause for concern, as an indicator of work overload and lack of time to participate, or lack of interest.) As in Phase 1, the five



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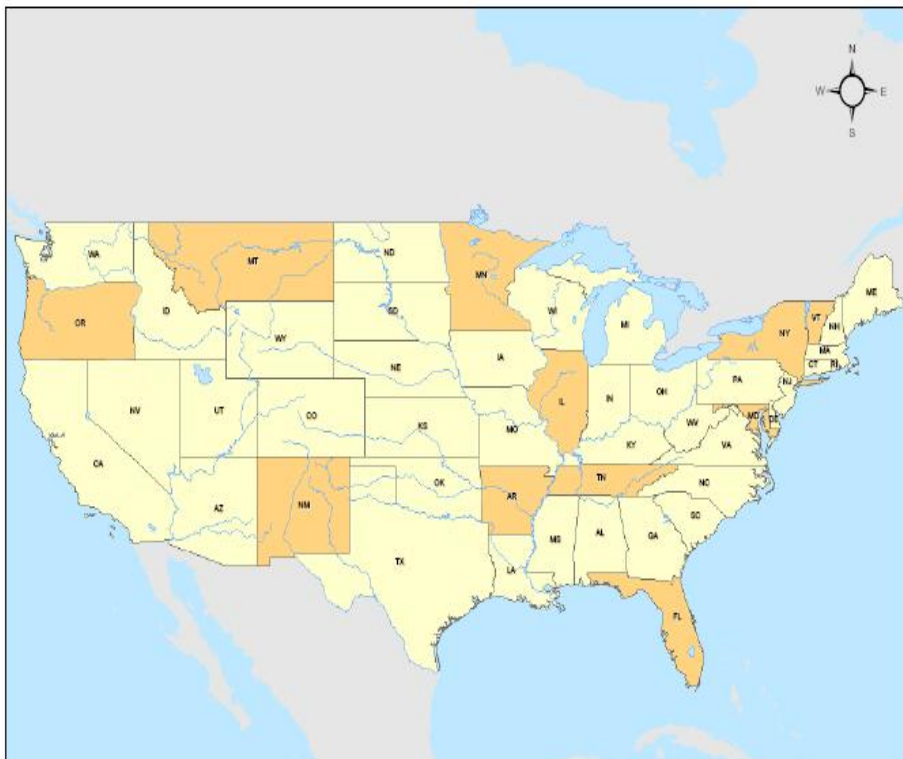
states interviewed in Phase 2 represented a variety of sizes, environmental characteristics, and geographic locales:

- Arkansas State Highway and Transportation Department (AHTD)
- Illinois Department of Transportation (IDOT)
- Minnesota Department of Transportation (MNDOT)
- Montana Department of Transportation (MDOT)
- New Mexico Department of Transportation (NMDOT)

The research team provided the Phase 2 states with a summary of 12 main themes identified in the Phase 1 interviews, and asked for feedback on these themes, based on these questions:

- Do the 12 themes ring true to you? Which of the 12 themes would you place the highest weight on?
- Have you had success or failure in implementing any of these themes?
- For each of the themes, do you have additional insights or observations?
- Which of these themes do you consider most challenging to implement?
- Are there any major themes or points you believe should be added?

Figure 1: The 11 State DOTs Interviewed for NCHRP 25-25 (37)





3.0 CHAPTER 3 FINDINGS AND APPLICATIONS

3.1 Broad Themes Common to Most or All 11 DOTs Interviewed

Based on the interviews with 11 state DOTs in Phase 1 and Phase 2, there were 12 broad themes that were emphasized by most or all the DOTs. Below is a table that identifies the 12 themes:

Table 1: 12 Themes Identified in the 11 State DOT Interviews

1. Provide Two Levels of Leadership
2. Organize for Environmental Awareness and Accountability Throughout the DOT and Assure Effective Communications
3. Provide Expert Staffing
4. Build an Environmental Culture
5. Support Improved Land Use
6. Invest in Environment
7. Nurture Relationships with Resource Agencies
8. Invest in GIS
9. Develop Programmatic Agreements
10. Shift from Projects to Ecosystems
11. Be Judicious With Environmental Management Systems (EMS) and Environmental Performance Measures (EPMs)
12. Continually Streamline Environmental Processes

Below is a more detailed description of each of the 12 themes.

1. Provide Two Levels of Leadership: Two forms of leadership are essential: (a) CEOs and other DOT executives, and (b) career environmental managers.

CEOs, their Deputies, and Chief Engineers need to provide personal, highly visible leadership on environmental issues both within their organizations and with resource agencies.

“Executive support for environment is essential – not through issuing directives, but by continuously integrating environment into the way AOT jobs are done and by keeping environment in the top tier of priorities, even in the face of tight resource constraints.”

-- Rich Tetreault, Vermont Agency on Transportation, Director of Program Development, 2007

Although these executives face many pressing demands on their time, they are well advised to devote significant attention to environmental issues, reflecting by their words and deeds a commitment to environmental stewardship and streamlining. Forward-thinking executives recognize that public support for environmental stewardship is rising and that many environmental issues warrant or require strategic, executive leadership.



DOT executives who are personally engaged in addressing high-profile environmental issues not only lend their insights and authority, but their participation conveys a message to all parties, both within the DOT and beyond, about priorities and values. This then improves the possibility that future issues can be resolved by career managers, without having to have them “bucked upstairs.”

Engaged executives must be matched by capable leadership of career environmental managers within a state DOT. These career leaders must reflect the philosophy and policy direction of agency leaders. Career environmental managers need to be strong leaders in their own right, with an ability to interact effectively at all levels, including with their own executives. Career leaders and managers at this level require:

- a thorough understanding of environmental procedures and science
- excellent communication skills
- the ability to build constructive relationships with environmental agencies and also with other units in their own state DOT, especially field managers.

In the face of CEO changes every few years, career environmental managers provide needed continuity and day-to-day, year-to-year direction and decision-making.

2. Organize for Environmental Awareness and Accountability and Assure Effective Communications throughout the DOT: State DOTs need both: (a) a strong core environmental staff in headquarters, and (b) environmental staff and responsibilities appropriately dispersed in other parts of the organization. For maximum effectiveness, environmental responsibilities and environmental staff should reside in virtually all functions, as well as in the field, in DOT regions and districts. This often takes the form of environmental liaisons within district/regional construction and maintenance units. Continuous communications and face-to-face meetings with environmental liaisons are essential, however, to stay on the same page and maintain a consistent direction. The decentralized structure of large state DOTs (like New York and Florida) is a major challenge, requiring greater time and effort in coordinating and maintaining consistency on environmental policies and procedures. The DOT's core environmental staff may need to shift their internal coordination efforts over time, based on shifting needs and priorities. For example, originally FDOT's Environmental Management Office (EMO) focused heavily on coordinating with construction staff in the FDOT districts, then EMO shifted its attention to linking to the FDOT planning function in order to create FDOT's Efficient Transportation and Environmental Decision Making (ETDM) process, and now is moving back to put more attention on coordination/communications with FDOT districts.

Placement of environmental units within the state DOT hierarchy is also important. A decade or more ago, environmental units were often placed on a lower organizational tier, in engineering units where environmental scientists and experts were often given relatively little credence. In recent years, many state DOTs have moved environmental



units up to a higher level within the state DOT, to the first or second tier below the CEO or chief engineer. Among the states interviewed, New York and Tennessee are examples of significant elevation of the environmental unit within the state DOT, in both cases as a result of CEO awareness and commitment to improving environmental stewardship and streamlining.

3. Provide Expert Staffing: As environmental issues have grown more important and complex, state DOTs need to make a significant investment in building strong environmental expertise among their staff. In doing so, state DOTs gain credibility with resource agencies, which is essential to resolving the wide range of issues regarding wetlands, water quality, air quality, wildlife, and other issues that can block important transportation improvements. Over time, a state's expertise on specific environmental issues can build trust and lead to break-through agreements. In Vermont, for example, the AOT's expertise in historic preservation led to a programmatic agreement in which the Vermont State Historic Preservation Office (SHPO) essentially has delegated its responsibilities to the AOT, reducing the time previously spent in coordination and giving the AOT greater flexibility in meeting responsibilities relating to historic preservation.

The use of expert environmental consultants is widespread and understandable to address peak workloads and technical specialties. However, each state DOT needs to maintain core environmental competency and a base of institutional knowledge to direct in-house work, to relate to resource agencies, to guide and manage outsourced activities effectively, and to perform quality assurance on those activities.

4. Build an Environmental Culture: To be successful in the 21st century, state DOTs need to have a strong environmental ethic shared throughout the DOT workforce, from transportation planners, to construction engineers, to maintenance staff. Creating a pervasive environmental culture doesn't happen overnight; it takes time to build and it takes constant communication with the workforce. The more the workforce sees and hears from DOT CEOs, their Deputies, and Chief Engineers about environmental values, the better. It may take longer in some states than in others, depending on the past culture of the organization. In addition to organizational structure and communication, environmental recognition and awards programs can be extremely helpful in building a strong environmental ethic. Environmental training programs are also important, to explain environmental policies and provide employees with the environmental skills and knowledge to be successful.

"If we can't deliver a project that is environmentally responsible, we shouldn't be building it."
Astrid Glynn, New York State DOT Commissioner, 2008

A common pitfall is the notion that environmental stewardship and streamlining are primarily the domain of environmental specialists. However, just as customer-driven



organizations empower all employees to satisfy their customers, so can environmental values and accountability be engrained among all DOT employees and reflected in their day-to-day work.

5. Support Improved Land Use: Virtually all the interviewed state DOTs saw land use as a critical issue for state DOTs. All of the state DOTs had limited or no land use authority, even those states (like Vermont, Maryland, and Oregon) with strong state-level land use planning. Despite their lack of authority, however, the state DOTs recognized they could and should help influence land use in ways that are good for the environment and good for transportation. For example, several state DOTs are providing technical assistance to local governments on land use planning. Also, some states give higher priority to transportation investments that reinforce “good” land use policy. In Tennessee, TDOT provided State Planning and Research funds to local planning organizations in central Tennessee to develop a toolkit/cookbook of regional land use tools, and has adopted a Type II noise policy that rejects requests for installing noise barriers if development occurred after a highway improvement was made. Notwithstanding these efforts, several of the states are concerned about a growing “collision” between land use and transportation, because transportation agencies don’t have adequate authority to influence land use and prevent land use changes that are adverse for both environment and transportation. Some of the DOTs cited the need for state laws to allow assessing land developers for infrastructure costs.

6. Invest in Environment: Every state is faced with tight budget constraints, forcing difficult choices to be made. None of the interviewed states saw an “either-or” choice between funding environmental protection/enhancements and transportation improvements. Instead, they emphasized that environmental features are essential

“TDOT won’t trim needed environmental work, but TDOT also won’t promise frills.”
Ed Cole, TDOT Environmental Bureau Chief, 2008

elements of transportation projects, just as safety features are essential in the design of transportation projects. All of the interviewed states had a track record of investing in environmental staff, environmental mitigation, environmental enhancement, and environmental process improvement. While

none of the states cited specific figures, and none supported levels of environmental investment beyond reasonable limits, all believed that these investments were wise, by responding to public expectations and enabling them to move the transportation program forward with fewer delays.

7. Nurture Relationships with Resource Agencies: All the interviewed state DOTs emphasized the importance of building and maintaining effective relationships with



resource agencies, both on the state and federal levels. They invest in these relationships in a variety of ways:

- Regular meetings at staff level
- Periodic executive level meetings
- Funding of positions at the resource agencies to facilitate streamlining
- Early coordination with resource agencies
- Data sharing
- Efforts to establish ecosystem/transportation planning
- Joint goal-setting

Despite these efforts, results can be slow and mixed. While some states emphasized their efforts have paid off with strong, effective relationships, other states cited ongoing issues, such as a regulatory mindset, a tendency for issues to be raised late in the environmental process, having to “prove a negative,” staff turnover among resource agencies, inconsistencies among and within resource agencies, and reluctance to invest in early coordination. None could cite a silver bullet to address these difficulties, other than a persistent, step-by-step process of establishing relationships and building trust.

“Focusing on win-win outcomes has been the key to success in working with resource agencies.”

Neil Pedersen, Maryland State Highway Administrator, 2007

8. Invest in GIS: A comprehensive Geographic Information System (GIS) database was cited repeatedly as an invaluable tool for both environmental stewardship and streamlining. DOTs in most of the interviewed states invested and continue to invest in a high quality GIS database and expert GIS staff to make full use of the database. This earns credibility and respect from resource agencies, facilitates early coordination with resource agencies, and enables states to do better, more efficient, and more effective transportation planning and environmental mitigation planning. FDOT located its GIS database at the University of Florida, which was able to develop the database fully and is seen by resource agencies as a neutral, highly credible third party repository of environmental information, including sensitive information that needs to be treated confidentially.

9. Develop Programmatic Agreements: The interviewed states cited a variety of Programmatic Agreements (PAs) that have been invaluable in improving the environmental process, both through improved stewardship and timelier project development. These successful PAs include:



- The aforementioned Vermont AOT's Memorandum of Agreement with the Vermont SHPO, which essentially delegates to the AOT the SHPO's historic preservation responsibilities for transportation projects
- ODOT's Collaborative Environmental and Transportation Agreement for Streamlining (CETAS), which is a pact among ODOT and 10 of its partners in state and federal government to collaborate on environmental and transportation planning and projects, using monthly meetings, early coordination, and four key concurrence points for decision-making
- FDOT's Efficient Transportation and Environmental Decision Making (ETDM) process, which involves 24 state and federal signatory agencies, heavy emphasis on early planning-stage coordination, a GIS database, Environmental Technical Advisory Teams within each of FDOT's seven districts, and continuous coordination through planning and project development.

"Vermont is our hero. The VT AOT – SHPO agreement is the model we want to emulate."
Hal Gard, Oregon DOT Geo-Environmental Section Manager, 2007

10. Shift from Projects to Ecosystems: All the state DOTs saw the need to move away from project-by-project environmental planning and mitigation, to ecosystem planning and mitigation. Vermont and Oregon were particularly emphatic about the need for this change, because a project-level focus limits environmental options and is

"Be innovative and try new approaches – because the old, traditional approaches just aren't working. Try to stay ahead of the regulations, instead of playing catch-up."
Matt Garrett, Commissioner of Oregon DOT, 2007

an ecosystem planning and mitigation. Tennessee and wetland banking as successful ecosystem environment and more flexible and cost-effective. A valuable tool for ecosystem planning and mitigation. An Ecosystem Approach to Developing was developed by FHWA and seven Federal resource agencies including the Environmental Protection Agency, Bureau of Reclamation, National Park Service, and the National Oceanic and Atmospheric Administration. The challenge is to get resource agency staff and

transportation agency staff to set aside the old regulatory, project-by-project approach and fully engage in ecosystem planning and mitigation, which requires a substantial change in mindset as well as additional staff time for early involvement in planning. In addition, the approach outlined in the Eco-Logical handbook may entail changing state or Federal laws, by modifying or eliminating narrow, project-focused requirements so as to maximize ecosystem benefits.

11. Be Judicious with Environmental Management Systems (EMS) and Environmental Performance Measures (EPMs): Most of the state DOTs saw value in Environmental Management Systems (EMS) and Environmental Performance Measures (EPMs) and were implementing them to some degree. For the most part,



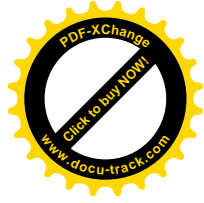
these states' use of EMS and EPMs is a work in progress – only partially implemented -- although most of the states intend to develop them further. One state (Vermont) attended a workshop on EMS and concluded that EMS would require too much bureaucratic process and would be of limited value to them, as a small state with a strong environmental program and no environmental compliance problems. Oregon understood the concern from Vermont, but felt that the basic EMS steps of “do-check-act” are valuable, without the necessity of full-blown, elaborate EMS procedures. For that reason, Oregon is implementing EMS one program or function at a time, starting with Maintenance, rather than through a full-blown, all-at-once approach. FDOT characterized its ETDM process as a type of EMS.

12. Continually Streamline Environmental Processes: Environmental streamlining is a work in progress in all the states, with differing levels of emphasis and differing levels of success. As one might expect, streamlining is a higher priority in high-growth states (like Tennessee and Florida) which have more major capacity expansion projects than in states with established transportation systems and relatively few capacity expansion projects (like Vermont and New York). Guidelines for states seeking to streamline project delivery vary based on the variety of experiences among the six states; they include:

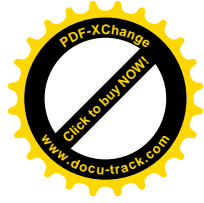
“When we created ETDM, we laid out our previous environmental process in a 36-foot-long road map that we taped to the walls. It was very enlightening for us and for the resource agencies.”

Buddy Cunill, Environmental Program Development Administrator, Florida DOT, 2007

- Start with environmental stewardship. Stewardship is the sine qua non for streamlining, because without stewardship a state will not have the credibility and expertise to be successful with streamlining.
- For the most comprehensive streamlining, plan to invest significant time and effort in mapping your current environmental process in detail.
- Build a planning/project development process that emphasizes: (a) early coordination with resource agencies, and (b) continuous coordination and communications through project development and permitting. Consider incorporating explicit concurrence points at key junctures.
- Emphasize accountability and timeliness for both environmental and transportation staff.
- For individual projects, assign a multi-functional team with responsibility and accountability for advancing the project from cradle to grave, together with a project manager to continually integrate across all the functional silos.
- Thoroughly document all procedures and decisions (always important, but especially so when there is staff turnover within the DOT or at resource agencies).



- Fund positions at key environmental agencies – positions which report to the environmental agencies and focus full-time on transportation. It is valuable for these positions to work with state DOTs at three different levels: (a) advancing individual projects; (b) coordination and screening at the planning/systems level; and (c) improving the overall environmental process. Establish performance expectations or measures for these positions; assure that the individuals who fill these positions have a thorough understanding of transportation procedures and missions; maintain constant contact and communications with those individuals, and have at least annual performance reviews by the state DOT to evaluate performance and ensure that all the components of this effort stay on track.
- Develop a project prioritization process that relies on quantification, includes environment as a weighting factor, takes input from regional/local planning commissions, and strikes a balance among competing needs.
- For potentially controversial projects, engage the attention of senior executives in the DOT and resource agencies, and arrange for joint briefings to interested elected officials and the news media.
- Utilize sound project management principles and Environmental Management Systems to track schedules, ensure commitments are documented and delivered, and measure performance in meeting critical milestones.
- Utilize the statutory time frames and procedures in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), in a constructive, problem-solving manner – not as a cudgel over environmental agencies.



3.2 Additional Specific Advice from One or More State DOTs

Other themes emerged from the initial interviews that were not quite as widespread, but which are particularly germane to the research and potentially applicable to other state DOTs. These additional themes are:

- If you have dispersed environmental functions throughout your organization, create an Environmental Council to coordinate, share information, create synergy, and foster widespread ownership. (Maryland)
- Try to understand the perspective of the resource agencies, their missions and values, and the resource constraints they face. (Oregon, New York, and Tennessee)
- In building relationships with resource agencies, be diligent and expect it to take time. In Vermont, it took 6-7 years to earn the trust of resource agencies. (Vermont)
- Participate in peer exchanges with other states to learn new ideas, good ideas, things to avoid, and to obtain multiple insights. (Tennessee)
- Focus on “a lot of little things” where a state DOT can improve the environment, such as roadside tree planting, composting dead animals, improving culverts, diesel retrofits for the DOT vehicle fleet, and incorporating bike lanes when a bridge is rehabbed. (New York)
- Over communicate and overeducate – never underestimate the need for constantly reiterating and reinforcing environmental values, policies and procedures. (Oregon)
- Practice multimodalism – multimodal programs and investments are good for the environment and earn respect and credibility with resource agencies and the public. (Maryland, Tennessee, and New York)
- Bring in an independent facilitator when you are headed towards (or have reached) an impasse with resource agencies or communities. (Maryland)
- For Global Climate Change (GCC), create a cross-cutting DOT staff team to build awareness of climate change, develop ownership of the issue, create excitement among staff, and identify a wide range of potential GCC activities. (New York)
- When taking the DOT environmental commitment to a higher level, use highly visible projects as an opportunity to send a dramatic message of change and make the change visible to everyone. (Tennessee)
- Incorporate and emphasize Context Sensitive Solutions (or Context Sensitive and Sustainable Solutions, as in Oregon) as a core business practice. See <http://www.contextsensitivesolutions.org/>. (Vermont, Oregon, Minnesota, Tennessee, New York, and Maryland)



- Update and upgrade the state Environmental Procedures Manual. Tennessee has done so, and posted it on the TDOT website, as a useful reference for other states as well as for TDOT and resource agency staff. (Tennessee)
- Give permission to DOT staff to practice environmental stewardship (i.e., go beyond engineering requirements to incorporate features that benefit the environment) and constantly reward/legitimize innovative environmental stewardship. (New York)
- Consider establishing a Stream Mitigation Program to provide in lieu fees for stream mitigation, to be paid to a nonprofit organization, instead of relying on more costly/less effective project by project mitigation of stream impacts. (Tennessee)
- Shine a spotlight on environmental successes – make them visible within the DOT, to resource agencies, and to the public. (New York)
- Consider these “12 Factors for Success” from ODOT:
 1. Secure leadership support for making big changes.
 2. Ensure that the right people are in place to make changes.
 3. Involve, understand, and support key stakeholders and help them meet their missions (collaborate).
 4. Don’t give in to “That’s nice but it won’t work here.”
 5. Understand laws and regulations AND their flexibility.
 6. Remove your internal roadblocks to streamlining.
 7. Build on your and others’ past successes.
 8. Plan for and facilitate conflict/dispute resolution. Have a structure/process in place for dealing with conflicts.
 9. Don’t let the perfect be the enemy of the good.
 10. Monitor, evaluate and improve (beta tests, end user reviews).
 11. Train and educate.
 12. Anticipate and prepare for personnel turnover.

3.3 Relationship of the Literature Review to the 12 Themes

From the outset, the research for this project relied predominantly on interviews of state DOTs, with a literature review that played a smaller, supporting role. The “References” section at the end of this report cites and describes 27 reports that contain findings, recommendations, and tools that could help state DOT efforts advance environmental stewardship and streamlining. Some of these documents are specific to the surface



transportation sector, while others are based on research and analysis of environmental stewardship in the private sector and other arenas.

Among the documents reviewed, one stood out as having particularly valuable and relevant information: “Promoting Environmental Sensitivity: Business Organization and Operations -- Volume 1: Private Sector Companies.” (1) This report was prepared by The Townsend Consulting Group, of Denver Colorado, for the Federal Highway Administration in the early 1990s. However, the report was apparently never published and was only available from the personal files of FHWA staff. It is not accessible on the internet.

Although “Promoting Environmental Sensitivity” is at least 15 years old, certain sections are particularly insightful, so key information is summarized and reproduced here, with some additional commentary from the research team for this NCHRP project (NCHRP 25-25, Task 37).

“... environmental sensitivity is not incompatible with the successful accomplishment of a company's mission. Incorporation of environmental sensitivity into the day-to-day operations of a company may in fact contribute to the company's financial well-being and long – term survival.” (1)

In the years since the above statement was written, environmental sensitivity has grown in importance. In the 21st century, environmental performance is essential to an organization's success, not only to comply with legal requirements but to meet public and customer expectations. Environmental performance is as relevant to the success of public sector agencies, such as state DOTs, as it is to the private sector. Environmental credibility and performance affect the public's willingness to support funding referenda for transportation, as well as legislative appropriation of funds for transportation agencies. Further, environmental credibility and performance affect the ability of government agencies to attract and retain a high quality workforce, and to advance needed transportation improvements through the planning and environmental review process.

“Incorporating environmental sensitivity into a company's operations is an evolutionary process that requires a corporate-wide effort at all levels of the organization to build environmental awareness into the corporate culture, and make such considerations standard operating procedure.” (1)

The above point emerges clearly from the NCHRP interviews of 11 state DOTs, as they emphasized that environmental leadership is needed at multiple levels. And environmental performance cannot be assigned to a single unit within a state DOT; it must be integrated into and embraced by the entire organization, from planning to design to construction, operations, and maintenance.



“Companies that are proactive will keep on top of the environmental wave and will be among the more profitable in an economy increasingly influenced by environmental regulation and consumer activism. Rather than being attacked by critics for being environmentally destructive, some companies are now looked to as the instiller of environmental values. Instead of the antagonistic relationship that had existed, industry, government, and consumers have joined hands in finding ways to improve.” (1)

The above point is echoed in the state DOT interviews, by DOT executives and environmental managers who have worked steadfastly not only to protect the environment, but also to find ways to enhance the environment through their projects and their planning. Minnesota DOT emphasized how their years of environmental commitment and close working relationships with state and Federal resource agencies paid high dividends when, after the collapse of the I-35W bridge in Minneapolis, environmental agencies came forward to expedite the environmental clearances and permits necessary to replace the bridge span. The above point is also echoed in the experience of the VT AOT, whose expertise and commitment to historic preservation led to a groundbreaking Programmatic Agreement in which the VT State Historic Preservation Officer (SHPO) entrusts to VT AOT the SHPO's responsibilities.

“Companies should provide systematic training related to their core environmental values. Training programs need to be increased and enhanced in areas where skills are needed to carry out the environmental mission of the company. . . Similarly, material should be incorporated related to the core values in all or most supervisory and management training programs as managers and supervisors must set the example where values are concerned. Training involves more than classroom or group activities. Executives should take every opportunity to coach employees on a one-on-one basis, sharing core values with new people, and reaffirming them with long time employees.” (1)

This point too was emphasized in the state DOT interviews, in several ways: Many of the DOTs emphasized the importance of qualified, well-trained staff, not only in the DOT environmental unit, but in other parts of the organization. Also, AHTD emphasized the role that their long-time Commissioner, Dan Flowers, has played by continually communicating and demonstrating his support for environmental policies and his willingness to provide needed funding for environmental protection and enhancement efforts.

“Promoting Environmental Sensitivity” (1) synthesized its findings in the following summary of 50 business and organizational actions/activities that management can implement to improve their organization's environmental success:

1. *Take a proactive role in driving the environmental ethic into the organization, operations, and culture.*



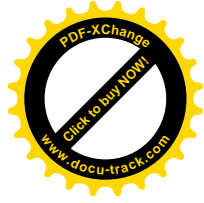
2. *Conduct a comprehensive review of operations and environmental efforts to understand the business and financial advantages of proactively addressing environmental concerns.*
3. *Establish the environment as part of the vision, mission, and core values of the organization.*
4. *Actively communicate vision, mission, and values statements to all employees.*
5. *Continually reinforce environmental awareness with employees so the environment becomes part of the organization's culture.*
6. *Ensure that management's actions and decisions are consistent with the overall environmental vision and goals set forth.*
7. *Conduct an environmental audit of all current operations to provide a baseline of the current status of the environmental and environmental concerns in the company. The audit serves as a benchmark for environmental planning purposes.*
8. *Develop environmental policies backed up by detailed, comprehensive strategies and action plans for implementation.*
9. *Develop policy statements which inform all employees of the company's commitment to act responsibly, incorporate environmental considerations into business, and hold each employee accountable for his actions.*
10. *Integrate environmental initiatives into corporate long term planning processes and business strategy.*
11. *Strive for a stretch goal mentality in which environmental goals are developed that exceed the requirements of environmental laws and regulation.*
12. *Develop goals that allow for clear measurement criteria to be applied across all phases of the operation.*
13. *Continually revise and update environmental goals and initiatives as actions are completed and new opportunities are identified.*
14. *Formulate action plans with specific timetables for implementation and designees from operating departments responsible for these actions.*
15. *Utilize Management by Objectives (MBO) processes to drive environmental goals to the lowest levels of the organization. Establish accountability and ownership for compliance to environmental regulations and company expectations to the lowest levels of the organization.*



16. *Develop planning and decision-making processes which include environmental considerations.*
17. *Establish processes for design projects that make use of organized approaches, including project summaries, design for efficiency models, or life cycle assessment.*
18. *Include environmental considerations early in a project development cycle and as an integral part of the project approval process.*
19. *Generate company specific Environmental Protection guidelines that define the performance requirements to be achieved in design, construction, operation, and maintenance of facilities.*
20. *Establish processes such as Total Quality Management (TQM) that emphasize continuous environmental improvements.*
21. *Actively keep environmental policy and environmental values in front of employees through programs, reporting, checklists, charts, and meetings.*
22. *Establish programs to drive environmental awareness into daily operations such as recognition of performance, promoting employee/customer awareness, and measurement and tracking performance.*
23. *Develop relationships with supplies and vendors who demonstrate the ability and willingness to support the company's environmental initiatives.*
24. *Include environmental considerations in the vendor selection process.*
25. *Establish an internal environmental audit process that periodically reviews and documents environmental regulation compliance of operation groups in the company. Publish audit results to all levels of management above the level being investigated. Make use of external, independent firms for environmental audits to add value to the management process and add credibility to the company's environmental reporting.*
26. *Establish senior level, internal task groups that regularly review compliance and regulatory citations of operating groups.*
27. *Establish working relationships with external environmental groups and organizations which can serve as a cutting edge resource for information, provide support in driving environmental behaviors, and provide assistance in environmental goal setting and strategic planning processes.*
28. *Recognize that institutionalization of environmental sensitivity may necessitate a cultural change in the company.*



29. *Give the same level of importance to the environment that is given to the traditional concerns of health and safety.*
30. *Create corporate environmental positions that are an officer level position reporting directly to the highest level of management.*
31. *Organize environmental positions in a matrix reporting relationship.*
32. *Create on-site field environmental positions to provide expertise and knowledge to local operations while monitoring compliance to environmental regulations.*
33. *Establish a "future oriented" issues function or group to serve as a resource on environmental information and to serve as a technical resource to anticipate and develop contingencies for anticipated environmental issues.*
34. *Make environmental organizations very flat to promote quick decision making.*
35. *Establish self directed work teams with responsibility for solving and resolving all types of environmental concerns at a team level.*
36. *Send a consistent message to employees that if you don't accept environmental compliance as a top priority, you can risk losing your job.*
37. *Incorporate changes into hiring and selection processes to make sure candidates fit in with the environmental culture of the organization.*
38. *Consider hiring managers who are from nontraditional discipline ranks who offer a different environmental perspective to the company.*
39. *Establish environmental positions as part of the management development plan for advancement to higher level positions in the organization.*
40. *Institute performance appraisals and performance based compensation at all levels of the organization which include environmental goals.*
41. *Establish mechanisms for reporting of company-wide environmental performance.*
42. *Establish a hierarchical system that captures environmental data and measures performance form the lowest operating levels consolidating to the total company. The reports should receive wide distribution and should be regularly reviewed by senior management.*
43. *Develop a process in which environmental incident reporting is a developmental, educational opportunity as opposed to a cause for punitive action.*



44. *Establish employee awards that recognize individual and team achievements for environmental actions internal and external to the company. Winners should be recognized at awards ceremonies attended by company senior executive and in company publications.*
45. *Put in place aggressive communication programs that target employees, business partners, media, students, and the general public to create awareness of the company's vision and mission and environmental policies.*
46. *Utilize a variety of media for employee communications programs, including meetings, videotape, posters, brochures, checklists, charts, and awards. Companies have to take a proactive approach in dealing with communities and the media.*
47. *Speak directly to employees through on-site visits and meetings to communicate the importance of their environmental actions.*
48. *Integrate environmental training with job training so the environment becomes part of the procedures of a job.*
49. *Print job specific environmental requirements on work orders.*
50. *Integrate environmental training as part of new employee orientation programs.*

Although this is a long list, it is valuable as it synthesizes insights gained in the private sector. Moreover, virtually all of the above recommendations also emerged from the interviews of the 11 state DOTs for this NCHRP report, directly or indirectly.

In addition to "Promoting Environmental Sensitivity," there were two dozen other reports with helpful information, which appear in the References section. For each of the 12 themes identified during the state DOT interviews, the table below cites references relevant to each theme, as well as describes how the literature review compares or contrasts to the interview results.



Table 2: Comparison of 12 Themes to Literature Review

Provide Two Levels of Leadership	The literature strongly supports the need for top management support; however, it does not mention the importance of leadership by career environmental managers, as emerged from the interviews of state DOTs. Amekudzi and Meyer (2) list top management support as the #1 institutional strategy to implement change. "Promoting Environmental Sensitivity" (1) also lists senior management commitment as its first consideration. Executive leadership was also noted as a key element in coordination with resource agencies, as FDOT was able to improve coordination with resource agencies following an "executive summit" (3).
Organize for Environmental Awareness and Accountability throughout the DOT and Assure Effective Communications throughout the DOT	While much of the literature mentions the value of communication, and specifically communication from the executive leadership (2, 4, 5, 6, and 7), the state DOT interviews provided specifics relevant to the unique needs of the DOT. Don Emerson's work on Linking Planning and NEPA (3) provides recommendations that would support that specific goal. Steve Lockwood's analysis of factors affecting future state DOTs institutionally provides a broader organizational context (8).
Provide Expert Staffing	Per the experience with the Oregon bridge streamlining efforts (5), training and education are important for streamlining, as well as stewardship. "Environmental Streamlining that involves innovative approaches to project delivery such as outcome-based (performance) standards may be vague and confusing to agency staff." NCHRP report 25-24 (9) mentions having adequate numbers of environmental staff as an important factor in environmental streamlining, but this report's finding also points to the quality of the staff. This is similar to Richard Florida's finding (7) where he looks at manufacturing plants which have successfully implemented environmentally conscious manufacturing (ECM) practices. He finds that "organizational resources – particularly specialized environmental resources – provide the embedded capacity to...implement environmental innovations."
Build an Environmental Culture	Dechant and Altman (10), in the paper about general best practices not specifically focused on transportation, found that best practices include "A mission statement and corporate values that promote environmental advocacy". This report's finding goes beyond stated mission and value statements to encompass the difficult task of changing an organization's culture to encompass environmental values.



NCHRP 25-25, Task 37 *Organizational Structures and Management Practices for Achieving Environmental Stewardship and Streamlining*

Support Improved Land Use	NCHRP 25-25-04 (11) identifies land use as a key component of sustainable design. NCHRP Report 582 (12) provides specific guidance and strategies for rural communities to link transportation and land use effectively.
Invest in Environment	Amekudzi and Meyer (2) recognize that resources are critical to ensuring that environmental stewardship, and lack of sufficient resources is the most important obstacle cited by DOT and MPO officials to achieving successful stewardship. The literature points to resources as an issue in both stewardship and streamlining (9), (5), respectively. Gaines and Lurie (5) note that this is a good investment: "Senior management must be committed to proactive environmental goals recognizing that short-term costs will probably be outweighed by long-term benefits."
Nurture Relationships with Resource Agencies	A review of FHWA Environmental Excellence Awards reveals that a primary driver of environmental excellence is successful interagency cooperation (13). AASHTO's "Accelerating Project Delivery" (14) notes that the chasm in missions, culture and work practices between transportation and resource agencies has been a significant source of delay. Since inadequate staffing in resource agencies was noted as a problem, the Transportation Equity Act for the 21 st Century (TEA-21) has allowed transportation agencies to fund positions at resource agencies. This has provided some relief but comes at a cost to the transportation agencies. As of 2005, more than 68% of DOTs funded positions in external support agencies for environmental review purposes; one third are in federal agencies and two thirds are at state resource agencies (15).
Invest in GIS	In 2007, FWHA held a Peer Exchange on GIS as a tool to link planning and the environment (16). GIS was identified as an important tool to share data that facilitates better coordination with resource agencies. NCHRP published "Management Guide for Implementation of Geographic Information Systems (GIS) in State DOTs" in 1993 (17).
Develop Programmatic Agreements	The state DOT interviews emphasized that programmatic agreements have been a major contributor to streamlining the environmental process. Excellent examples of programmatic agreements can be found in FHWA's "Successes in Stewardship" newsletters (18), Gaines and Lurie's description of the Oregon State Bridge Delivery Program (5), and AASHTO's "Programmatic Agreements Library" (19). In addition, AASHTO provides a detailed, step-by-step guide to programmatic agreements (19).



Shift from Projects to Ecosystems	Schilling and Schultz (20) provide an unprecedented approach to environmental management which involves organizing agencies by ecosystem rather than traditional agency divisions. "Eco-Logical" (21), an FHWA publication developed in collaboration with a number of other federal agencies, provides a more practical approach to ecosystem-level approach to project development. It outlines eight steps for integrated planning and effective mitigation. The report states that "No agency acting on its own can effectively implement an ecosystem approach to infrastructure development." Resource and other agencies are critical to planning in this integrated way.
Be Judicious with Environmental Management Systems (EMS) and Environmental Performance Measures (EPMs)	The literature (22 and 23) describes the benefits of an EMS and provides instructions for implementation. However, the DOTs interviewed for this report have found that they prefer to implement these concepts selectively. Similarly, the literature strongly supports environmental performance measures (4, 6, 11, and 12) but in practice, agencies are selective in applying these tools.
Continually Streamline Environmental Processes	Since much of the literature on streamlining is based on case studies of successful streamlining efforts (9, 14, 24, and 25), the focus is on the process and benefits of streamlining efforts. However, the state DOT interviews emphasized that streamlining efforts should be ongoing, consistent with the philosophy of continuous improvement. Also, reports on effective NEPA documentation (26 and 27) provide important advice relevant to streamlining, since solid NEPA documents are critical to environmental streamlining. AASHTO's Center for Environmental Excellence provides 17 valuable case studies on environmental streamlining, at http://environment.transportation.org/environmental_issues/proj_delivery_stream/case_studies.aspx (14) Also, FHWA has catalogued environmental streamlining practices, by state, at http://www.environment.fhwa.dot.gov/strmlng/es3stateprac.asp (25)



3.4 Individual Summaries of the First Phase of State DOT Interviews (FL, MD, NY, OR, TN, VT)

Below is a summary of each individual interview with the first six states – the Phase I interviews.

3.4.1 Interview with Florida DOT (FDOT)

December 18, 2007

PARTICIPANTS – Florida Department of Transportation (FDOT)

Kevin Thibault, Assistant Secretary for Engineering and Operations

Carolyn Ismart, Manager, Environmental Management Office (EMO)

Buddy Cunill, Environmental Program Development Administrator, EMO

Robert Crim II, State Environmental Programs Engineer, EMO

PARTICIPANTS – PB

Cindy Burbank

CONTEXT

Florida faces both (a) significant growth and development and (b) high expectations for environmental stewardship. FDOT must deliver a transportation program that responds to growth and development, while maintaining high environmental standards.

FDOT is a large organization, with an \$8 billion annual program and 7,450 employees, of which 1,000 are in FDOT headquarters (HQ). FDOT is highly decentralized, with eight districts (one of which is the Florida Turnpike Enterprise.)

There are 19 environmental staff in HQ and 10-12 environmental staff in each of the districts. Also, Construction has hired environmental staff, and the FDOT legal staff has dedicated environmental expertise. Through the Efficient Transportation Decision Making Process (ETDM), FDOT has entered into operating agreements with 19 federal and state resource agencies, and agreed to fund up to 36 environmental liaison positions within those agencies FDOT expects to see a significant number of environmental staff retirements in the next five years. Approximately 80% of environmental work is outsourced to consultants.

BEST PRACTICES FOR ACHIEVING ENVIRONMENTAL STEWARDSHIP AND STREAMLINING

Leadership: FDOT has been fortunate to have consistency and continuity from FDOT leadership in implementing environmental stewardship and streamlining. Environmental process improvements take years to implement and to get results. This requires continuous support and leadership from the executive level.



Documentation: FDOT believes it is essential to thoroughly document process improvements, decisions, and agreements reached both internally and with resource agencies. Documentation is important for continuity and consistency. Documentation is especially valuable when there is staff turnover at resource agencies or within FDOT. Without good documentation, the state DOT is vulnerable to whims and varied interpretations.

Partnerships: FDOT sees partnerships as essential to effective environmental stewardship and streamlining, and has strong partnerships with the Florida Department of Environmental Protection, FHWA Division, and Federal resource agencies. "Trust with resource agencies is huge." Also valuable has been FHWA support -- "FHWA has always wanted FDOT to succeed environmentally." Good relationships are especially important at the District level. One of the biggest challenges in maintaining good partnerships and trust is staff turnover, within the resource agencies and within FDOT, so relationships require constant reinforcement – and partnership arrangements and expectations need to be documented (as noted above).

Efficient Transportation Decision Making (ETDM): In mid-1999, with help from FHWA, FDOT leadership initiated a major re-engineering of the environmental process, with the goal of producing good transportation projects in an efficient manner, while simultaneously achieving both enhanced environmental stewardship and a more efficient environmental process. It took several years to hammer out the details of the process. This included mapping the then-existing process in a 36-foot long environmental process map – a map which was enlightening for everyone in its complexity and detail. In 2004, FDOT started screening projects through ETDM; for the first year, ETDM was optional. ETDM is working well, enabling FDOT to keep moving forward with transportation improvements that meet environmental goals. Features of ETDM include two major screening points (at which input is obtained from resource agencies much earlier than they have traditionally been involved); Environmental Technical Advisory Teams (ETATs) within each District, which meet at least once/year; and a statewide meeting of all participating resource agencies every few years. Transitioning a new process like ETDM into practice was a challenge, especially for projects already in the pipeline and especially in a decentralized organization like FDOT. So far, ETDM impact on project delivery time is still being evaluated. Nationally, ETDM is viewed as a groundbreaking model, and FDOT continues to be visited by other states seeking to learn from FDOT's experience in developing and implementing ETDM.

Geographic Information Systems (GIS): GIS data are critically important to ETDM – one of the most important ingredients in successful environmental stewardship and streamlining. With the help of other agencies, FDOT created a large GIS database of environmental information at the University of Florida, including a GIS Helpdesk. FHWA provided the seed money for this initially (about \$200K); now, because of its value, the FDOT Executive Board makes about \$4.5 million/year available for ETDM, including resource agency support and support for technology development for the Environmental Screening Tool (EST). By creating the GIS database at the University of Florida, FDOT



was able to facilitate the collection of a variety of environmental and land use data from other state and local sources in a database outside of the FDOT, and available to all appropriate governmental and private entities. It took a lot of time and effort to create the database, but now both FDOT and resource agencies have ready access to the data for transportation planning and project development purposes. This has significantly improved the environmental review process, as well as enhancing the long range transportation planning process. To maximize the use of the GIS database, FDOT provides training sessions for FDOT and resource agency staff (which is especially important due to the constant staff turnover).

Organizational Linkages within FDOT: FDOT environmental managers recognize the need to overcome organizational stovepipes and develop/maintain strong linkages to all FDOT functions and all FDOT districts. But it isn't possible to focus on all the organizational bases at once, so sometimes the pendulum has to swing. Two examples:

- (a) In the past 7-8 years FDOT has focused on emphasizing linkages between the Environmental process (via ETDM) and Planning functions, and the need for earlier resource agency involvement. This has been positive, but it has also meant that while FDOT environmental staff has focused on establishing ETDM as a process there has been a decreased emphasis on linkages with other parts of FDOT. Now that ETDM has been established, environmental staff is refocusing on (a) project development and other down-line production phases such as Design and Construction, and also (b) integrating input gained through the ETDM process into those functions. There have also been recent policy initiatives to reestablish Quality Assurance/Quality Control as a program.
- (b) At times in the past FDOT HQ environmental staff has been more "hands on", with a closer day-to-day working relationship with FDOT districts; but the need to devote significant resources to developing ETDM, necessitated pulling back somewhat from regular involvement in the hands-on work activities with the districts. Now that ETDM is in place and working well, the FDOT environmental staff is focusing on reestablishing closer working relationships with each district in all environmental areas.

Environmental Management Systems (EMS) and Environmental Performance Measures (EPM): FDOT sees its ETDM, QA/QC, environmental commitment tracking, and performance measures program as combining to serve as an EMS. Also, FDOT is bringing an environmental performance management system on line in 2008, in which all FDOT districts will input data. (Some environmental data are already automated in this system via the EST.)

Staff Training and Development: It is important to invest time and effort in staff training – both FDOT staff as well as resource agency staff. FDOT wants to invest more in developing and delivering good training, especially training to clarify roles, responsibilities, and expectations.



CHALLENGES TO ACHIEVING ENVIRONMENTAL STEWARDSHIP AND STREAMLINING

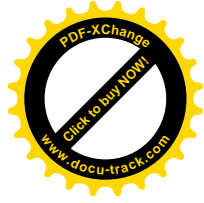
FDOT Decentralization: FDOT decentralization poses challenges in achieving continuity in environmental stewardship and streamlining. It requires a huge amount of ongoing, two-way communications. The nature of the environmental process allows little room for disconnects in carrying out environmental requirements. There was some concern among the Districts when ETDM started, especially for big projects already in the pipeline, which had to be brought into the ETDM process. To foster continuity, in addition to regular e-mail communication, phone calls and on going training, FDOT HQ environmental staff meets twice a year with district environmental staff, including permitting staff, on ETDM and NEPA.

Project by Project Mitigation: Project level mitigation is of limited value compared to the possibilities with big, regional mitigation. FDOT is moving to large-scale mitigation and would like to have more funding to invest in it. An example is the Platte Branch mitigation area, which focuses on species protection.

Time: Change takes time – time to implement change and time to see results. Although ETDM has been in place for several years, FDOT has not yet seen an overall reduction in environmental document processing time (there have been successes in this area in some districts). FDOT believes time savings may not show up in the environmental phase, but may occur downstream. If real reductions in time don't occur, there may be pressure to try something else. Also, if there are long time lapses between planning and construction, the risk rises that revenue changes will require rethinking the project. To avoid constant recycling, it is important to go quickly from environmental screening into project development and implementation.

Issues With Resource Agencies: Late Hits, Out-of-Jurisdiction Comments, Narrow Focus, Left Hand/Right Hand Disconnects: FDOT cited four challenges they face in working with resource agencies:

- “Late hits” are a huge challenge – when new issues are raised late in the process, or someone wants to revisit a decision reached earlier.
- FDOT has noticed an increase in agencies commenting on matters outside their jurisdiction, and is considering convening a meeting to discuss this.
- Narrow focus is sometimes a problem. Most resource agencies, and particularly Florida's water management districts, have not traditionally worked early within the NEPA process providing “input”. Their outlook has been more regulatory in nature. This poses challenges for them and there is still reluctance on the part of some to “get outside the box” and proactively work up front, in the NEPA process, with FDOT and other resource agencies.
- Although the ETDM process has specific procedures for coordination, sometimes the resource agencies don't do the internal coordination within their agencies that they are supposed to. The left hand doesn't always know what the right



hand is doing. This has caused problems similar to those noted in the first bullet.

FDOT acknowledged that they experience some of these same problems within their own organization.

Global Climate Change (GCC): FDOT recognizes the importance of GCC and is trying to figure out what they need to do. The Governor established a GCC task force, which is starting to focus on transportation. FDOT's Policy Planning Office has been the most involved. FDOT believes that GCC will strengthen the need for better ties between land use and transportation, to mitigate VMT increases.

3.4.2 Interview with Maryland State Highway Administration (SHA)

December 13, 2007

PARTICIPANTS – Maryland SHA

Neil Pedersen, State Highway Administrator

PARTICIPANTS – PB

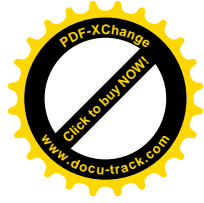
Hal Kassoff

CONTEXT

The Maryland DOT (MDOT) is perhaps the most multimodal of state Departments of Transportation, with ownership and operating responsibilities for highways, transit, aviation, and ports. The largest of the modal administrations is the SHA with over 3,000 employees and a capital program in excess of \$1 billion.

Chesapeake Bay preservation goals, air quality issues, and smart growth are reflections of Maryland's strong commitment to the environment. SHA has the largest and strongest environmental capability of any transportation organization in the state and not surprisingly has been a national leader in environmental stewardship and Context Sensitive Solutions (CSS).

Unlike most DOTs, environmental functions are intentionally dispersed throughout the agency - not geographically but functionally. For example - environmental assessment for project development is in a project planning office, permitting and mitigation design is in an environmental programs office, compliance with hazardous materials storage and removal on state highway facilities (including buildings and maintenance shops) is led by the maintenance and operations people. Responsibility for water related issues ranging from erosion and sediment control and storm water management to wetlands and water quality are dispersed in over a dozen different organizational elements.



SHA's philosophy is to infuse an environmental ethic throughout the organization by placing functions in offices that can best take responsibility for actions that can avoid or minimize harm, mitigate harmful effects, or provide environmental enhancements. This approach is seen as more effective than concentrating environmental responsibilities in a single office, which may be neither close to an environmental issue or problem nor in the best position to do address it. Therefore, the Project Planning Division, which has the lead responsibility for project development is responsible for conceptual engineering and environmental analyses and documentation required to satisfy both the National Environmental Policy Act and the Maryland Environmental Policy Act. On the other hand the Environmental Programs Division (EPD) is responsible for the preparation of plans, for wetland mitigation and stream restoration projects, including all related permitting and compliance with environmental regulations as well as ensuring that all natural, cultural and social-economic commitments made during the planning phase are met during final design of all SHA capital projects.

SHA leadership also takes a pragmatic view of organizational issues in terms of where the technical and leadership talent may be, and is prepared to make changes so that organization charts enhance and leverage rather than constrain available human resources. In a geographically compact state such as Maryland specialty areas such as structures and environmental functions are centralized in the Baltimore headquarters office. However recent challenges have arisen in terms of complying with federal and state requirements for dealing with hazardous material storage and handling and other activities in maintenance shops. SHA is leading efforts on behalf of the entire MDOT on this issue, and the desire to reinforce the agency's environmental ethic have led to consideration of environmental liaison staff in District offices.

BEST PRACTICES FOR ACHIEVING ENVIRONMENTAL STEWARDSHIP AND STREAMLINING

Leadership from the Top: The natural focus of transportation agencies is transportation – it takes a clear message from the top (from the CEO as well as other senior managers) for transportation agencies to embrace broader objectives such as environmental stewardship

Dispersed Organizational Approach: Strengths lie in a more widespread infusion of environmental responsibilities, and buy-in from those with the ability to implement positive results and solutions to problems. This kind of dispersed approach creates the need for a strong coordination role to ensure a reasonable level of consistency as well as to avoid gaps or overlapping responsibilities. At SHA this coordinating function is provided by an Environmental Council comprised of representatives of offices with significant environmental functions. They meet monthly to coordinate and quarterly with the Administrator and Deputy Administrators to ensure a well integrated approach notwithstanding the dispersion in responsibilities.



Embracing the Transformation from Mitigation to Stewardship: The key to environmental stewardship is acceptance of the idea that mitigation is a minimum requirement and stewardship requires more -- such as enhancement.

Performance Measurement: Environment has been one of SHA's six key performance areas for some time, with good results. But there is some concern about the number of measures and resources required to gather data. Examples of performance measures in the storm water management area include:

- Number of NPDES Phase I and Phase II Jurisdictions for which SHA has Valid MS 4 Permits
- Number of SWM Facilities Inventoried and Inspected
- Number of Outfalls Reported with Illicit Discharges Annually
- Percentage of NPDES Permits in Compliance
- Percentage of non-compliance findings addressed

Environmental Management System: SHA has a formal environmental management system for tracking compliance with hazardous materials storage and disposal actions. This has worked well but EMS has not yet expanded beyond that area.

Relationships with Environmental Resource Agencies and the US DOT: SHA's relationship with environmental resource agencies and with FHWA is generally very good. Focusing on 'win-win' outcomes has been the key to success. Building trust (a long, slow process) requires walking in the other person's shoes. Commitment by agency leadership to make it happen and then serving as role models has been essential. Providing funding to resource agencies for staffing that would otherwise not have been possible has been a key.

Utilizing an Independent Facilitator: The use of an independent facilitator has been invaluable when transportation and resource agency staff cannot otherwise resolve issues on major projects. Gaining acceptance from these agencies in this approach required a high degree of trust.

Green Highways: Embracing the principles and practices of the "Green Highways" movement clearly manifests environmental stewardship. This requires a more holistic view of benefiting the environment through transportation actions, recognizing that environmental effects cross jurisdictional boundaries. A good example is SHA's movement toward watershed-based mitigation looking at actions involving public and private sectors as well as government agencies at all levels. (Note: Maryland is one of the strongest participants in the FHWA/EPA sponsored Green Highways Partnership, currently focused in the Mid-Atlantic States.

CHALLENGES TO ACHIEVING ENVIRONMENTAL STEWARDSHIP AND STREAMLINING



Staff Turnover Within Environmental Resource Agencies: Turnover at the staff level of resource agencies has been particularly challenging often putting relationships back at ground zero in terms of the need to build trust. Staff members who are more accustomed to adversarial relationships are a particular concern.

Commitment Tracking: SHA's EMS does not yet include a system for tracking environmental commitments, to ensure they are carried over into construction, operations, and maintenance. There have been past problems with ensuring that all commitments by all SHA representatives – planners to designers, headquarters to field staff, all commitments regardless of size are being tracked and fulfilled. SHA has implemented an environmental commitment tracking system, but it is separate from a formal EMS.

Organizational Challenges: While the dispersed approach has been generally successful, a limitation lies in the time and attention required for coordination. Although Maryland is a relatively small state with many responsibilities centralized, there is a need for greater “field presence” when it comes to environmental issues. SHA's goal is to establish environmental presence in the districts, primarily to handle hazardous materials storage and disposal issues as well as other maintenance facility issues at the outset, but with broadened responsibility as well to ensure appropriate environmental presence in all project phases, including construction and maintenance.

There is a constant need to remind headquarters staff of their role to focus on policy, training and oversight functions while ensuring that field personnel focus on implementation in areas that lie within their responsibility and not take independent policy level actions which may be outside the realm of headquarters' guidance. There is a need to strengthen ability to implement environmental awareness and stewardship in construction and maintenance

Climate Change and Energy Conservation: SHA needs to build the capability to address energy conservation and other climate change issues such as carbon footprint - - particularly in terms of how the agency is managed. At the moment there is little or no information on how much energy is used or used needlessly in some very major areas - - for example, electric power use, unnecessary engine idling, and the like.

Role in Influencing Land Use: Tools for dealing with land use are limited even with Smart Growth legislation. A Smart Growth sub-cabinet coordinates state actions, generally limited to restricting financial support for infrastructure (roads, utilities, etc.) if Smart Growth policies are not adhered to. But beyond state funding issues, local jurisdictions retain their powers. If the State DOT is expected to address Vehicle Miles Traveled (VMT) reduction then they must have a greater ability to influence land use decisions.



3.4.3 Interview with New York State DOT (NYSDOT)

January 3, 2008

PARTICIPANTS – New York State Department of Transportation (FDOT)

Astrid Glynn, Commissioner

Stan Gee, Executive Deputy Commissioner

Mary Ivey, Director, Office of Environmental Analysis

Bob Dennison, Chief Engineer (follow-up interview on January 30)

Mark Silo, Delivery Division (follow-up interview on January 30)

Dan D'Angelo, Office of Design (follow-up interview on January 30)

PARTICIPANTS – PB

Cindy Burbank

Amy Zwas

CONTEXT

NYSDOT is a large, decentralized organization with 10,000 employees, 11 regions, and an annual program of \$1.8 billion in 2008.

There are 32 environmental professionals on the staff in NYSDOT headquarters. Within each region, there is a staff of 5-15 people, including an environmental liaison/coordinator within (a) Maintenance and (b) Construction.

75% or more of NYSDOT's program is for rehabilitating and preserving existing infrastructure. There are relatively few capacity expansions, other than modifications to ramps or interchanges to improve safety or eliminate bottlenecks.

BEST PRACTICES FOR ACHIEVING ENVIRONMENTAL STEWARDSHIP AND STREAMLINING

Leadership: At NYSDOT, environmental success hinges heavily on two forms of leadership, both of which are crucial:

- Strong, continuing career leadership, like NYSDOT's current Office of Environment Bureau director – someone who can keep a steady hand through changing times, and
- Strong commitment for environment from the executive level (Commissioner and Deputy).

NYSDOT Environmental Ethic/Culture: Starting 5-7 years ago, NYSDOT emphasized building a strong environmental ethic within the agency, something to last for the long haul, part of the organizational foundation. This includes having dedicated professionals who will "do the right thing" on a continuous basis over the years. Commissioner Glynn summed up NYSDOT's environmental ethic by stating, "If we can't deliver a project that is environmentally responsible, we shouldn't be building it."



“A Lot of Little Things”: NYSDOT’s environmental ethic recognizes that there are a lot of areas NYSDOT touches in which it can make an environmental contribution, e.g.,

- composting dead animals found along roadsides,
- diesel retrofits for NYSDOT’s vehicle fleet,
- improving culverts,
- roadside tree planting,
- fish ladders; and
- incorporating bike lanes whenever a bridge is rehabbed.

NYSDOT has captured its commitment to the wide range of environmental efforts like these in a video, “Better than Before.”

Organization: To further emphasize environment, NYSDOT elevated the environmental function by creating a new Office of Environment, which has higher placement in the organization than its previous organizational form as a Bureau. Also, the new Office will be strengthened by adding a Landscape Architecture Bureau. (Several years ago, NYSDOT’s Landscape Architecture Bureau was dissolved, with the staff re-assigned to Design at that time.) Further, NYSDOT takes pains to ensure that environment is integrated into everyone’s responsibility, throughout all the NYSDOT functions and throughout the regions, so that environment is not seen as the isolated function of a single HQ office. There are environmental liaisons in all the regions, in Maintenance and in Construction, with ties to the HQ Office of Environment. However, it is easy for liaisons in the field to feel isolated and to become cast in a role of bearer of bad news. A partial solution has been the formation of “Knowledge Teams” among the regional environmental liaisons, formed around specific needs (e.g., asbestos issues). In this way, they are less isolated and they can pool their expertise to provide the best advice and assistance across multiple NYSDOT regions.

Relationships with Resource Agencies: NYSDOT starts by recognizing/accepting that resource agencies have a regulatory mission, and that NYSDOT needs to be in compliance with environmental requirements. (To understand resource agencies, it is important to mentally switch to their perspective.) The NYSDOT administration has put a lot of emphasis on good agency-to-agency coordination. Three examples:

- NYSDOT formed a working group with 2 Army Corps of Engineers (ACOE) districts and FHWA to synchronize NEPA, the 404 permitting process, and the NYSDOT Project Development Manual. The ACOE headquarters has committed to making this work.
- “INTERACT” is a partnership to work on culvert issues with ACOE, NY Department of Environmental Conservation (DEC), NY Parks and Recreation, and NYSDOT’s Design, Structures, and Environmental units. This is in response to a newly instituted ACOE requirement that will have a huge impact on NYSDOT. Fortunately, the partners are working together, sharing perspectives, and coming to agreements.



- NYSDOT has executive-level meetings with the NY Department of Environmental Conservation on a regular, monthly basis.

In building relationships with resource agencies, NYSDOT has also found it valuable to be creative with mitigation opportunities, especially by building mitigation partnerships with local stakeholders and resource agencies.

Despite NYSDOT's strong environmental stewardship over the past 5-7 years, NYSDOT engineers feel there is a lack of recognition for their progress and trust on the part of some resource agencies, which has impeded environmental streamlining efforts. Relationships vary among staff and offices within the NY DEC and with Federal resource agencies. It has been challenging to move resource agencies away from a regulatory mindset, to a collaborative relationship.

At the time of the interview, NYSDOT was not funding positions within resource agencies (as other states are), because of a major mis-step with a funded position at the State Historic Preservation Office about 15 years ago. In that case, there were no performance measures established for the position and NYSDOT's needs were not being served. So NYSDOT and OPRHP mutually agreed to terminate the arrangement, but it took over a year and it left a lot of bad feelings. Funding positions with the U.S. Army Corps of Engineer (ACOE) district offices in NY may be considered if NYSDOT and ACOE are successful with a new partnering agreement then being negotiated.

Geographic Information Systems (GIS): NYSDOT considers GIS very important to being successful with both environmental streamlining and stewardship. NYSDOT has invested in an excellent GIS database, for which it gets high marks from others, and has also invested in having GIS coordinators in each of its regions. NYSDOT is always willing to share its GIS data with partners, and regulatory agencies do find the data useful and draw on it. Looking to the future, NYSDOT is working on a better managed GPS program to gather data for GIS. NYSDOT has lots of GPS equipment, but needs better processes for inputting and using data consistently.

Environmental Streamlining: NYSDOT hopes that the Section 6002 streamlining process in SAFETEA-LU will be valuable in advancing a couple of projects in New York. This is important because (a) many NYSDOT projects involve both FHWA and FTA, which is an added layer of complexity; and (b) if issues are discovered late in the environmental process, the resulting delay causes cost increases which can be substantial, which may force the project to be reprogrammed in a later year, which can cause further cost increases, in a vicious cycle. So NYSDOT hopes the Section 6002 process will lead to more predictable schedules – but is less optimistic about Section 6002 leading to faster project delivery.

Global Climate Change (GCC): NYSDOT sees GCC as a major challenge and already analyzes carbon emissions in environmental documents (which puts NYSDOT in front of other states). In addition, NYSDOT has formed a Climate Change/Energy Efficiency Team, drawing on a cross-section of the agency, to develop ideas for reducing greenhouse gas emissions and energy consumption. This has created a lot of energy among the staff within NYSDOT. The team is looking at a wide variety of measures – policy changes in support of telework, the need for adapting the transportation



infrastructure to withstand climate change (as underscored by three major storms that led to flooding in the New York City subway system), etc. It has high level executive support from Commissioner Glynn and Executive Deputy Commissioner Gee. The emphasis is on cross-agency collaboration to generate a wide variety of good initiatives.

Environmental Management Systems (EMS) and Environmental Performance Measures (EPM): NYSDOT definitely supports performance measures, but doesn't really have an EMS and EPMs in place yet. There are some environmental performance measures, but NYSDOT hasn't really focused on using them to manage the program. An IT project is underway to enable NYSDOT to put an environmental tracking system in place and connect EPMs to strategic goals.

Ecosystem Management: NYSDOT believes that shifting from project-by-project mitigation to ecosystem management will lead to environmental improvements as well as better transportation projects. One tool for moving in this direction is encouraging resource agencies to manage mitigation properties, by taking the handoff from NYSDOT.

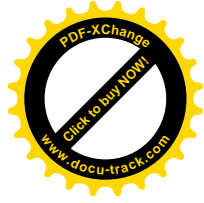
Land Use: The Governor issued an Executive Order on Smart Growth, and NYSDOT is looking at how they can support good land use. Because NY is a "home rule" state, NYSDOT has to defer to local governments on land use, so NYSDOT is looking at providing technical assistance to local governments and also making good land use policies a factor in the competition for state transportation funding. NYSDOT sees good land use planning by local governments as the first step, with supportive transportation investments as the second step. NYSDOT is radically enlarging its Planning and Policy Division staff focusing on land use – from 1 to 15 people – and has someone in each NYSDOT region working on land use. Another part of NYSDOT's response to land use concerns is to give a lot of emphasis to maintaining the existing system.

Strategic View: Commissioner Glynn emphasized that it is important to take a strategic view of environment and transportation, because new issues arise constantly, roles shift among Federal vs. state. vs. local governments, etc.. Taking a strategic view provides the flexibility to adapt and respond to new issues.

CHALLENGES TO ACHIEVING ENVIRONMENTAL STEWARDSHIP AND STREAMLINING

Decentralized Organization: Decentralization should be a source of strength, due to the importance of environmental protection at the local level, where it is real and tangible, not just a concept. But a decentralized organization comes with many challenges:

- There is much unevenness across regions.
- Some regions "read" their environmental partners better than others.
- Some regional staff is reluctant to bring in NYSDOT headquarters as issues arise in developing EISs.
- It is easy for a HQ office to overestimate the regions understanding of environmental issues and policies.



To strengthen environmental capabilities and performance in the regions, NYSDOT has an environmental staff of 5-15 people in each region, including an environmental liaison in the Construction function and an environmental liaison in the Maintenance function. These liaisons can play a critical role in spotting potential problems early, so NYSDOT HQ can assist and advise. However, over time, there has been a tendency of these liaisons to lose touch with their regional Environmental/Landscape Architecture Units and with the Headquarters Environmental Office, so NYSDOT is taking steps to strengthen that linkage (e.g., through more frequent participation of liaisons in environmental meetings with the Environmental Office).

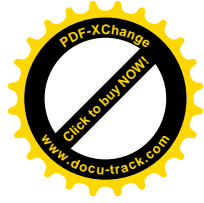
In addition, NYSDOT has formed a "Delivery Division" to improve coordination with and across the NYSDOT regions, and to provide a network to talk through problems. Finally, the Adirondacks Park Agency (APA) has had a unifying effect on three of NYSDOT's Regions, because all of the Adirondack Park lies within portions of these Regions and they work closely with APA to meet the special environmental needs of the Adirondacks. The Department has appointed an Adirondack Park/Catskill Park Coordinator to facilitate these efforts.

Resource Agencies: Although NYSDOT has made a strong commitment to environment and is carrying it out in many different ways, there are still issues in working with resource agencies. For example, problems arise when a transportation improvement is needed but the available science is insufficient to establish an environmental standard (as occurred in an issue over bridge height impacts on migratory birds) or when an agency appears to be on board with a project, only to raise issues late in the process. Or a resource agency staffer retires and NYSDOT has to spend time catching that individual up so the project can move forward. The resulting delays have real consequences when inflation is 10% a year and the budget is very tight. It can become a vicious cycle as you have to reprogram, delay other projects, etc. NYSDOT, ACOE and FHWA efforts to synchronize processes and the implementation of SAFETEA-LU 6002 for major projects should help with these issues.

Funding Silos: Different funding streams stand in the way of integrating the environmental mission of NYSDOT and the environmental regulatory agencies. There are a lot of funding silos to overcome.

Staffing: When NYSDOT needs new environmental skills, it faces many hurdles in the civil service process. It can take a lot of time to vault over those hurdles, to hire staff with the kinds of skills that are needed. On the other hand, when success occurs in recruiting the needed skills, the results help diversify the range of professional skills in the workforce, which makes it stronger. This is an issue that cuts across the entire NYSDOT organization.

Environmental Competency: High-end competency in the environmental process is critically needed at state DOTs, but there are relatively few who have the experience base to see how it all comes together. NYSDOT sees this as an issue for consultants as well as for NYSDOT staff.



Publicizing Success: Commissioner Glynn observed that NYSDOT should probably do more to publicize its environmental achievements to resource agencies, as this could improve trust and working relationships.

3.4.4 Interview with Oregon DOT (ODOT)

December 13, 2007

PARTICIPANTS – Oregon Department of Transportation (ODOT)

Matthew Garrett, Director

Hal Gard, Geo-Environmental Section Manager

Frannie Brindle, Natural Resources Unit Manager, Geo-Environmental Section

Bill Ryan, Program Support Manager, Geo-Environmental Section

Jim Norman, Environmental Planning Unit Manager, Geo-Environmental Section

PARTICIPANTS – PB

Cindy Burbank

Hal Kassoff

CONTEXT

Oregon is a very environmentally oriented state overall, with strong public support for environment and smart growth policies.

ODOT has about 4,600 employees in total, with about 70 environmental staff.

In 2004, ODOT reorganized, shifting to increased reliance on outsourcing and increased delegation of work and staff to the five ODOT regions. Under this structure, there are about 20 environmental staff in HQ. Each of the five ODOT regions has a technical center for environment, with about 10 environmental professionals in each technical center. Each region has a leadership team that is linked to ODOT HQ. Environmental staffing is robust in the functions of Project Development and in Operations & Maintenance. Within the Planning function, environment doesn't get as much emphasis, but ODOT is working towards a stronger environmental emphasis in Planning.

ODOT relies on Project Development Teams (PDT) to develop and advance projects. Senior environmental staff are key members of the PDT. These environmental project managers participate in shaping Purpose and Need and Alternatives, vet the project with resource agencies, oversee the preparation of environmental documents (which is done by consultants), and stay with the project, cradle to grave. (The latter was instituted in 2007.)



ODOT has an environmental policy statement. They view stewardship (sustainability) as key to streamlining. They won't let streamlining "lower the bar."

BEST PRACTICES FOR ACHIEVING ENVIRONMENTAL STEWARDSHIP AND STREAMLINING

Twelve Factors for Success: Prior to the interview, Hal Gard provided the following list of 12 factors for success, all of which were amplified during the interview:

- Secure leadership support for making big changes.
- Ensure that the right people are in place to make changes.
- Involve, understand, and support key stakeholders and help them meet their missions (collaborate).
- Don't give in to "That's nice but it won't work here."
- Understand laws and regulations AND their flexibility.
- Remove your internal roadblocks to streamlining.
- Build on your and others' past successes.
- Plan for and facilitate conflict/dispute resolution. Have a structure/process in place for dealing with conflicts.
- Don't let the perfect be the enemy of the good.
- Monitor, evaluate and improve (beta tests, end user reviews).
- Train and educate.
- Anticipate and prepare for personnel turnover.

Innovation: ODOT Commissioner Matt Garrett emphasized that traditional approaches just aren't working, and that all the easy fixes have either been implemented or were taken off the table a long time ago. Now, it is necessary to be innovative and try new things in order to succeed with environmental stewardship and streamlining. To get new ideas, ODOT looks regularly to AASHTO and to other DOTs for specific good examples to learn and apply in Oregon. ODOT also looks for regional trends, especially in the adjacent states of Washington and California, seeking good ideas and opportunities that can be applied in Oregon.

Relationships with Resource Agencies: ODOT understands and values the missions of their resource agency partners. ODOT has invested in resource agency relationships and it has been a good investment. Every partnering effort has exceeded expectations. ODOT's message to resource agencies is that environment is embedded throughout ODOT's mission and work.

Programmatic Approaches -- CETAS (Collaborative Environmental Transportation Agreement for Streamlining): Programmatic Agreements (PA)



have led to tremendous efficiencies. The Collaborative Environmental Transportation Agreement for Streamlining (CETAS) was chartered in 2002 and has been instrumental in ODOT's approach to environmental stewardship and streamlining. ODOT owns it, and resource agencies are integral players – Environmental Protection Agency, ACOE, Fish and Wildlife Service, National Marine Fisheries Service, Oregon Department of Environmental Quality, Oregon SHPO, FHWA, and the state land agency. Under CETAS, the participants meet monthly at the technical level, to work on: (a) project triage and (b) overall process streamlining. There is a Project Agreement Reporting and Implementation Team which reviews all projects. CETAS also provides for quarterly meetings at the management level, conducted individually with resource agencies, as well as development of an Annual Work Plan through joint efforts.

Staff Training: Once you have developed new approaches, it is absolutely essential to do face-to-face classroom training. You have to do it every year, repeatedly, not just a one-time shot. Keep sharing what you are doing and get everyone on board, and reinforce it constantly. "Over-outreach and over-educate."

Liaison Positions: ODOT funds 17 liaison positions across state and Federal resource agencies. These positions are critical to success. The individuals in these 17 positions sit in resource agencies and help those agencies understand ODOT's mission and procedures. They focus on both (a) avoiding and resolving project-level problems and (b) developing new/improved procedures.

Mapping Environmental Resources: ODOT is putting a lot of energy into upgrading its environmental spatial information and integrating the use of that information into the way ODOT does business. The ODOT GIS group provides three staff to this effort. An approach was pioneered under ODOT's statewide bridge program in which environmental resources were identified and assessed before design started, so design can place as much weight on environmental data as on engineering data. The mapped data are saved in a GIS database for future use on other projects. Full integration hasn't yet been achieved, but is a work in progress.

"Context Sensitive and Sustainable Solutions" (CSSS): ODOT fully supports CSS – and takes it one step further by emphasizing sustainable CSS. Context Sensitive and Sustainable Solutions (CSSS) is an agency-wide approach, with a systems focus (as opposed to the project focus of CSS in many other states). CSSS focuses on five goals: (a) economic development; (b) community involvement; (c) sustainability; (d) mobility; and (e) environment. Within ODOT, CSSS has had the most traction in the Bridge Program and also in Region 4. There has, however, been some pushback, e.g., when the FHWA Division questioned spending federal funds on non-regulated features such as protection for bats, a non-ESA species.

Environmental Management Systems: ODOT believes EMS is valuable, especially the "do – check – act" steps of EMS. Procedures for measuring, checking in, learning from mistakes, and feeding that knowledge back into improved approaches are valuable.



However, ODOT is not focused on detailed-level, ISO-type EMS. Currently, ODOT has an EMS in place for Maintenance, which provides detailed guidelines for storing, handling, and disposing of materials used at maintenance yards. (For more information, see <http://egov.oregon.gov/ODOT/HWY/OOM/EMS.shtml>.) ODOT also has benchmarks for specific Programmatic Agreements and the Fish Passage program, but EMS is not yet in place for other functions. ODOT is advancing EMS stepwise, a program or piece at a time, rather than trying to do it all at once.

CHALLENGES TO ACHIEVING ENVIRONMENTAL STEWARDSHIP AND STREAMLINING

The Current Process: ODOT is very frustrated with the current environmental process, which emphasizes process over outcomes, is full of “Mother, may I?” controls, and focuses too much at the individual project level. This is frustrating and stifling. It is not helpful to environment or transportation. They cited recent changes at the FHWA Division, which has challenged long established agreements, programs, and processes. ODOT is committed to moving to a focus on good outcomes, ecosystem-level planning, and increased delegation of authority to ODOT. “Conserve energy on process, invest energy in outcomes.” ODOT admires and would like to emulate the Vermont AOT agreement under which the SHPO entrusts its historic preservation responsibilities to the Vermont AOT. The ODOT Bridges Program is a very successful example of moving to a programmatic level, with a single set of terms and conditions negotiated ahead of time with all the resource agencies.

Staff Turnover: ODOT has experienced a large amount of staff turnover in recent years. In addition, there is turnover among the resource agency staff. As a result, there has been some loss of shared vision. New staff doesn’t readily embrace the processes that were jointly developed to meet the needs of environmental stewardship and streamlining. “A new kid on the block can be very disruptive.” This requires more frequent check-ins with staff, constant outreach among staff, and well-documented formal agreements. ODOT may need to mentor new staff more. All too often, when a new person comes on board, ODOT has to re-hash agreements and decisions reached previously. There have been multiple cases of disconnect, and the weakest link has been in middle management. When new people join the DOT, it is important to lead them to “own” the environmental processes and commitments you have developed. It is important for them to see environment as not only the right thing to do but also good business for the agency. Expect and plan for staff turnover, and plan on the efforts necessary to train new staff in your environmental procedures and goals.

ODOT Staff and Organizational Culture: ODOT is a conservative organization, with a long oral history and embedded culture. Some staff haven’t caught up to ODOT’s environmental commitment. ODOT managers have to work with this and inculcate environmental values, especially among the maintenance staff. In the end, environmental success comes down to individuals. Environmental champions are needed.



Environmental Commitment Tracking: This is an on-going challenge within ODOT. Within the agency, there are five different approaches in five different ODOT districts. FHWA did a statewide scan on environmental commitment tracking. ODOT Region 3 has one of the best commitment tracking systems.

Global Climate Change: This is a “terrifying” issue; it will require major efforts by everyone, including DOTs; and it is coming at us fast. It has major policy implications and investment impacts. (An example played out on Highway 101, where heavy storms forced road closures and caused heavy erosion.) ODOT doesn’t have the staff or the expertise to respond to GCC. There is currently only 1 air quality specialist within ODOT, and that person is not a GCC expert. On the other hand, Oregon Department of Environmental Quality has staffed up with 30 personnel focusing on GCC. GCC is fraught with tough political issues, and some of the debate has already begun within the Oregon Transportation Commission.

Land Use and VMT: ODOT supports the state’s strong approach to land use and smart growth, with a goal of getting people to live close to where they work and worship. However, Oregon is facing “a collision between land use and transportation.” Even in Oregon, the DOT has little authority over land use, which is vested in local governments. Oregon’s approach to land use has “leapfrogged” over transportation issues. What are the implications of local land use decisions for Oregon’s multi-billion highway asset? If new development has no direct access to a state highway, who will ensure appropriate mitigation? The state needs to be able to secure appropriate reimbursement from developers for costs. ODOT’s charge is to protect the multi-billion highway asset and also protect quality of life. To do that, ODOT needs mechanisms for value capture, maybe a statewide system development charge to help pay for the system and needed improvements to serve development.

3.4.5 Interview with Tennessee Department of Transportation (TDOT)

January 4, 2008

PARTICIPANTS – TENNESSEE DEPARTMENT OF TRANSPORTATION (TDOT)

Gerald Nicely, Commissioner

Ed Cole, Environment and Planning Bureau Chief

Doug Delaney, Assistant Chief of Environmental Bureau

PARTICIPANTS – PB

Cindy Burbank

Nancy Skinner

CONTEXT



TDOT is a medium-size DOT, with 4,700 employees, 4 regions, and an annual program of over \$700 million in 2007.

At TDOT, Environment is a centralized function, managed from HQ, even though other TDOT functions (Maintenance, Construction, and Design) are decentralized to the 4 regions.

TDOT's environmental staff numbers approximately 100, most of whom are located in TDOT headquarters in Nashville.

TDOT underwent a major change in 2003, when a new Governor and new TDOT administration took office and began to transform TDOT into an organization that placed high emphasis on environment and planning.

BEST PRACTICES FOR ACHIEVING ENVIRONMENTAL STEWARDSHIP AND STREAMLINING

Status of Environment within TDOT: Historically, the Environment and Planning functions within TDOT had low stature and significant morale problems. In 2002-03, TDOT put environment on equal status with other TDOT functions, by elevating Environment from a subordinate function under Engineering to equal status in a new Bureau of Environment and Planning. When the new Bureau was created, a new manager was brought in (Ed Cole) to strengthen TDOT's environmental processes and performance and raise morale. TDOT management emphasized that everyone is on the same team, and that the environmental staff are there to help and avoid problems. To help convey that message, Commissioner Nicely traveled to TDOT facilities throughout the state, including maintenance garages, to speak to TDOT staff. TDOT is committed to making and keeping Environment as a priority, raising its prominence within the agency, mainstreaming the environmental process, and holding Environment to the same standards as other areas of the organization.

Highly Visible Policy Shift: At the time the new Bureau was created, it had to deal with a very contentious project (E-40 South). The Bureau worked through issues in a very visible way, renegotiating terms, dramatically changing environmental mitigation, and working closely with environmental agencies. This change sent a big, highly visible signal of change within and outside TDOT.

Project Management System: TDOT had a "pretty good" project management system, but has mounted a major effort to strengthen it and increase accountability. Key features of the new system:

- Expands and elevates the TDOT Project Management Office.
- Assigns one project manager to be accountable for overseeing the scope, schedule, and budget of a project, from inception to completion.
- Increases number of project managers from 20-25 now to about 40 in the future



NCHRP 25-25, Task 37 *Organizational Structures and Management Practices for Achieving Environmental Stewardship and Streamlining*

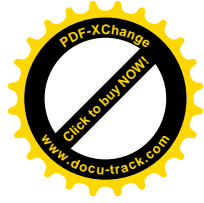
- Relies on “Project Accountability Teams,” with cradle-to-grave staffing that cuts across Bureau lines
- Covers all projects above a certain size (probably 50-60 projects)
- Establishes a schedule for each project, with “red flag reports” for those that fall behind
- Emphasizes staying on schedule, but also allows for schedule adjustments as projects progress.
- Reports to Commissioner Nicely

In designing the environmental phase of the Project Management System, TDOT did a lot of research on how to improve the environmental process and eliminate delays. They participated in a peer exchange with other states to understand different approaches (the other states included Florida, North Carolina, Ohio, Washington, Texas, and Kentucky). TDOT was particularly interested in Florida’s Efficient Transportation Decision Making (ETDM) process, and visited Florida to understand how ETDM works. TDOT’s approach emphasizes accountability in the environmental process – for both sides (transportation and environment).

Tennessee Environmental Procedures Manual (TEPM): In 2007, after five years of work, TDOT issued TEPM. TEPM embodies a major overhaul of TDOT’s environmental philosophy and procedures, and provides a handy reference for navigating the NEPA process, implementing the SAFETEA-LU environmental review requirements, and standardizing technical analysis and documentation. TDOT believes TEPM, now available on the TDOT website, will be useful to other states looking to update older manuals or create new manuals to meet the requirements of SAFETEA-LU.

Relationships with Resource Agencies: TDOT has historically had good working relationships with the various federal and state environmental resource agencies. In recent years, a greater effort has been placed on improving the coordination and communication process to ensure the agencies understand the purpose and need for particular projects and are involved from the very beginning stages of a project. It has been important to educate the agencies about TDOT’s recent changes to improve the environmental process. It has also been important to help the agencies understand that as TDOT changes its process, they need to change their process as well. The new Governor made it clear he expects the agencies to work together, and TDOT has worked hard to improve relations. TDOT provides half the funding for eight new positions in the Tennessee Department of Environmental Conservation (TN DEC). Several years ago, TDOT funded three positions at TN DEC, but their role wasn’t at the right point in the process (they were too far downstream) so they weren’t that effective. Having strengthened relations with state resource agencies, TDOT is now working on building better relations with Federal resource agencies through new agreements.

Geographic Information Systems (GIS): TDOT sees GIS as key to an accountable, timely environmental process and is building a GIS database and procedures over



several years. Meanwhile, TDOT has put interim GIS tools in place and will expand on them. TDOT studied FDOT's GIS closely and learned a great deal from Florida about how to build and use GIS.

Context Sensitive Solutions (CSS): CSS is a very important policy and process within TDOT. It is especially important as a tool to foster discussion with local governments about land use and smart growth.

Mitigation Programs: There is one wetlands bank in Tennessee, which TDOT has used successfully for mitigating wetland impacts. In addition, TDOT has created a Stream Mitigation Program (SMP) to provide in lieu fees of \$200/linear foot for stream mitigation, to be paid to a nonprofit organization which administers the revenue for stream protection and restoration. This has been very successful. (However, TN DEC's new antidegradation rule is driving more on-site mitigation within relatively narrowly drawn Hydrologic Unit Codes, which is causing conflict with the SMP.)

Long Range, Multimodal Planning: For future success, TDOT is committed to implementing the goals of the Department's Long range Multimodal Transportation Plan to ensure there is a truly multi-modal approach to addressing transportation needs throughout the state.

Environmental Management System: TDOT is developing an environmental management system, in concert with the Tennessee Environmental Streamlining Agreement.

Leading Change with Experience Rather than Ideas: In Tennessee, the best way to lead change in a positive direction is through direct, on the ground experience, rather than trying to communicate ideas. For example, when commuter rail was instituted in a small town east of Nashville, there was a positive response to putting new retail shops near the train station – which will lead to more transit-oriented development (TOD) through the positive experience, not through promulgating TOD as a concept.

Reward System: TDOT believes a reward system is important, to recognize and reinforce positive environmental contributions – especially from within the engineering culture. It can be as simple as an awards program. Constantly legitimizing desired behavior is important.

Peer Exchanges: TDOT has found peer exchanges with other state DOTs to be extremely valuable, and recommends them to other states. Peer exchanges are an excellent example of effective adult learning. They provide a low-stress atmosphere, with highly credible sources of advice and information. TDOT has learned a great deal from peer exchanges with other states, and now is in a position to share its successes through peer exchanges with other states.



CHALLENGES TO ACHIEVING ENVIRONMENTAL STEWARDSHIP AND STREAMLINING

Land Use: Land use is a major issue in Tennessee. Some TDOT staff has tended to respond by saying “We don’t do land use. We do transportation.” But TDOT executives and environmental managers recognize that highways impact land use. “Highways are either impacting or chasing land use.” TDOT has made progress in forging an understanding with Metropolitan Planning Organizations (MPOs) and Rural Planning Organizations (RPOs) that TDOT will work with and support local communities on land use issues. (For example, TDOT provided SPR funds to Middle Tennessee to develop a toolkit/cookbook of regional land use tools. Another example occurred in the planning process for a new road south of Nashville; during the CSS process, the Citizen Resource Team recognized potential land use changes that could result from the new road, so land use recommendations were put forth to be considered by the community.) One of TN DOT’s seven guiding principles is to take account of local goals, including land use goals, and being a positive factor in communities. In recent public meetings across the state on I-40/81, much of the discussion focused on the need for driving less, and how TDOT can deal with land use so as to reduce driving. TDOT recognizes that land use is heavily influenced by decisions on location of housing and schools (over which TDOT has little influence), but TDOT can help people understand the transportation consequences of different land use decisions, and vice versa. Also, TDOT is instituting a new Type II noise wall program – if development occurs after the roads are built, TDOT will not pay for noise walls. Instead, TDOT encourages local governments to adopt noise-compatible land use policies to avoid this problem.

Funding Resources: As in most states, Tennessee faces a resource challenge – how to stretch a constrained budget to meet all the needs. TDOT refuses to make it an “either-or” choice between environment and transportation. It is essential to have both good transportation and a high quality environment. On the one hand, TDOT won’t trim needed environmental work, but TDOT also won’t promise frills. Projects have to focus more on the most critical needs.

Global Climate Change (GCC): TDOT recognizes GCC as a major issue, and feels a need to focus more heavily on GCC. However, there is not a lot of awareness of GCC among the public in Tennessee, and there is no state policy on GCC. TDOT believes it has a responsibility to help change this, through educating the public and stimulating discussions about GCC and how it relates to transportation. This will fit well with TDOT’s efforts to shift from being project focused to focusing on big, systemic policy issues. TDOT has moved out on one GCC initiative – “Green Islands” -- by establishing a policy that anyone driving on TN’s Interstate system should always be within 100 miles of E-85 or biodiesel fueling. TDOT is using Congestion Mitigation and Air Quality (CMAQ) funds to help implement this within nonattainment areas, by helping retailers install or replace tanks and creating a logo program to alert travelers to E-85 and biodiesel fueling stations. TDOT will be seeking support of other DOTs to expand this program throughout the Southeast.



3.4.6 Interview with Vermont Agency of Transportation (AOT)

December 5, 2007

PARTICIPANTS – Vermont Agency of Transportation (AOT)

Rich Tetreault, Director of Program Development Division (comparable to Chief Engineer)

Mel Adams, Director of Policy and Planning Division

Gina Campoli, Environmental Policy Manager

John Narowski, Environmental Services Engineer

Bill Ahearn, Materials and Research Engineer

James McCarthy, Engineering Services Engineer

PARTICIPANTS – PB

Cindy Burbank

Amy Zwas

Alan Lubliner

CONTEXT

Vermont is a very environmentally-oriented state overall, a culture which carries over to the AOT staff.

Vermont is not adding transportation capacity; rather, most projects are reconstruction with more subtle environmental challenges.

Vermont is a small state and AOT is small – about 1,300 employees – making communication and coordination easier than in large states.

AOT's main priority is to keep the transportation system functioning, in face of tight funding.

AOT has nine districts, with small staffs in each. Districts carry out projects.

In the past 15 years, AOT has been cited for only 1 environmental violation.

BEST PRACTICES FOR ACHIEVING ENVIRONMENTAL STEWARDSHIP AND STREAMLINING



Executive Commitment: Executive commitment to environment is key – not in the form of issuing directives, but by continuously integrating environment into the way AOT jobs are done and by keeping environment in the top tier of priorities, even in the face of tight resource constraints. Executives have to show they give environment as much weight as structures, have to show parity of environment with other functions, especially in the face of tight budgets.

Example: About 15 years ago, an AOT executive “stepped up” AOT’s environmental commitment significantly -- brought in environmental expertise, revised policies, and built trust with resource agencies.

Staff Expertise and Capacity: Strong environmental staff expertise is key to gaining trust of resource agencies and meeting environmental challenges. AOT started building up environmental staff capability about 15 years ago, and has continued to build it up since then. Three years ago, AOT added an environmental position in Construction, to ensure that field environmental work is done right; second and third positions have been added for this purpose. AOT’s capabilities in historic preservation became so strong that the SHPO essentially delegated its role to the AOT, relying totally on AOT to fulfill historic preservation requirements for transportation. (Note: In subsequent PB interview, Oregon DOT cited Vermont AOT as their “hero,” for AOT’s historic preservation model).

Relationships with Resource Agencies: Earning the trust of resource agencies is essential. If you have their trust, you can be more creative, have more options, and move decisions along more efficiently, with better results. Essential ingredients for trusting relationships with resource agencies are:

- Strong environmental staff expertise: to the point that AOT can legitimately question resource agencies on their turf, and suggest alternatives. In one case (SHPO), AOT expertise has been so successful that the SHPO has essentially delegated its responsibility to AOT. SHPO realized that AOT could be counted on to carry out historic preservation responsibilities and that if the SHPO relied on AOT, it would free up SHPO resources to devote to other areas needing attention.
- Regular meetings with resource agencies: Regular meetings with resource agencies are extremely valuable. Two different kinds of meetings are needed – one at technical level and one at management level, both occurring regularly. 15 years ago, ACOE initiated every-other-month meetings with AOT and with state and Federal resource agencies, focusing on ACOE process and requirements. AOT uses the meetings to present concept level projects and get feedback, which is very helpful. Participation of resource agencies ebbs and flows. Participation by Vermont Agency on Natural Resources (ANR) is spotty. AOT has considered alternative forums, but this serves the purpose for now. Also, AOT holds separate quarterly meeting with ANR, which is helpful.



- Early coordination: It is very important to start coordination with resource agencies up-stream, at the conceptual stage, not after the project is already in design.
- Field mapping of environmental resources: Resource agencies really appreciate AOT's pre-project process of going into the field and mapping potentially sensitive resources on the survey plan before any project design is done.
- Common goal setting: AOT has successfully achieved common goal setting with SHPO, and is working to achieve it with other resource agencies. AOT believes common goal setting is key, could be the major break-through to successful relationships.
- FHWA Division support: FHWA Division has been very supportive and helpful in environment generally, and in helping coordinate with resource agencies.

Organizational Structure: AOT integrates environmental responsibilities across the organization – doesn't concentrate them all in one organization unit. Environmental staff and responsibilities reside in both (a) Policy and Planning Division and (b) Program Development Division. Policy and Planning focuses on big picture process, planning, and policy issues, while Program Development focuses at the project level. These two units and the respective staff clearly coordinate closely, on an ongoing basis. Also, AOT has increased the environmental responsibilities and staffing in the nine AOT districts. Three years ago, AOT created an environmental performance engineering position in Construction, specifically to ensure that field environmental work was done right. Further, within each district, one staff person is specifically responsible for meeting environmental requirements and commitments – and HQ Program Development has three staff dedicated to working with the district staff closely. AOT contemplates increasing cross-agency environmental coordination, through regular meetings and creating feedback loops.

Programmatic Agreements (PA) and Memoranda of Understanding (MOA): AOT's PA with the SHPO has made a huge difference; enjoys unique top level support; is articulated within both agencies; and includes "executing to reasonable standards." For air quality, AOT has an MOA with ANR, reinforced by quarterly meetings with DNR, which creates a framework for prevention of air quality deterioration. Also, AOT has a MOA with ANR Fish & Wildlife Department. AOT still has problems with stormwater, with two offices at Vermont's Department of Natural Resources (DNR) and an ACOE office, each pulling toward extremes.

Holistic, Ecosystem Approach: AOT wants to move away from project-by-project mitigation to a holistic ecosystem approach. In mid-December 2008, AOT participated in a meeting with northern New England states DOTs, FHWA, and state and federal resource agencies, convened by Defenders of Wildlife, to develop a more ecological, holistic approach to transportation and environment. The meeting focused on the approach laid out in "Eco-Logical," a 2006 guidebook from FHWA and Federal resource agencies on ecosystem approaches. AOT sees this as a major opportunity to move from project "pinpricks" to a new level in environment and transportation.



Mapping of Environmental Resources: The biggest change in the last 10 years was when AOT environmental staff starting going into the field before design commenced, in order to map environmental resources first. The data are entered electronically on the survey plan before the designers start design and this has made a huge difference. This information is key to early coordination with resource agencies and to good project design. AOT now has compiled a significant GIS-based map of environmental resources, and is continuing to add to it.

Project Prioritization Process: In recent years, AOT developed a quantitative process for prioritizing among projects which is systematic, documented, takes input from regional planning commissions and Vermont's sole MPO, and gives weight to environment. Since AOT adopted this process, the Vermont legislature has stepped back from detailed involvement in project selection, deferring to the prioritization process. Judging by its acceptance, the process seems to strike a good balance among competing needs, including environment.

CHALLENGES TO ACHIEVING ENVIRONMENTAL STEWARDSHIP AND STREAMLINING

Limited Resources: AOT funding is tightly limited, and the future outlook is even more constrained. Should a state DOT advance 10 projects with strong environmental stewardship – or 15 with compromises? Limited funding requires compromises, balancing environmental needs with other needs, especially the constant need to maintain and rehabilitate Vermont's aging bridges and roads. AOT is constantly challenged to figure out what their tight transportation budget can afford and must negotiate with resource agencies and others on the environmental features that the state can afford. What are the high-value environmental investments, vs. amenities?

Environmental laws, regulatory culture, and lawsuits: There are multiple, interconnected issues:

- Federal and state environmental laws present a “Rube Goldberg” challenge in their complexity and detail.
- Resource agency staff tends to have a regulatory mindset, bogged down in project details, focused on their individual mission, reluctant to shift to more holistic, creative approaches.
- Resource agencies have conflicting views and goals, both within individual agencies and across agencies. (For example, ANR and ACOE have some conflicting views that create problems for AOT.)
- Coordination and communications among and within resource agencies need improvement.
- Resource agency regulators are not planners and don't have the resources to focus on systems-level planning.



- Resource agencies need to give AOT more credit for expertise and being environmentally conscientious. In some cases, AOT has more data than ACOE, but ACOE's strict procedures thwart the use of this data in permitting.
- AOT needs more flexibility from Federal and state requirements, more delegation of authority, more ability to focus on environmental outcomes as opposed to procedural requirements.
- Lawsuits come from mindset of "controlling" project, rather than getting good projects done to meet both environmental and transportation needs of the state.

To overcome some of the above challenges, AOT wants to get to the point where it is entrusted with doing its own permitting – comparable to the AOT being entrusted with the SHPO role.

Timeframes and Diligence: It takes significant time and diligence to make progress, build relationships, and earn trust. After AOT staffed up in environment, it took 6-7 years to earn trust of environmental agencies and improve the environmental clearance process. For the AOT, environmental stewardship requires:

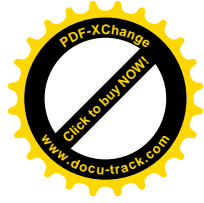
- constantly navigating complicated set of procedures and requirements;
- getting individual design engineers within AOT to understand connection of environmental stewardship to their work; and
- continuous efforts to break down organizational silos, within AOT as well as with resource agencies.

Project-by-Project Permitting: AOT is determined to get away from project-by-project micro-design. Is determined to move to managing the network, planning on a system level will have much higher payoff, for environment and for transportation – especially in an era of limited resources for both. But this will require the support and cooperation of resource agencies – a big change for them. And it will require dedicated staff and dollar resources to move to systems approach.

ADDITIONAL NOTES:

Environmental Management System: AOT does not have a formal EMS. AOT staff attended a workshop on EMS for highway agencies a few years ago; AOT concluded it wouldn't serve them well, as it was too convoluted, too bureaucratic for a small state which has a strong environmental track record. (AOT had only 1 environmental violation in the past 15 years.) AOT can see how EMS could be valuable for larger states and for states that have significant environmental compliance issues.

Energy and Climate Change: Vermont has a state mandate to write an energy plan, reduce energy consumption, and meet greenhouse gas reduction goals. AOT is working with operations staff, looking at AOT garages, reducing idling, computer use, copy machines, etc.. Global Climate Change (GCC) will require AOT to do more travel



demand management and regional land use planning. GCC will also require more systems-level analysis; AOT is thinking about doing more corridor-level analysis. Fuel availability may become an issue in Vermont.

Land Use and VMT: Vermont has progressive state laws on land use, although local governments still have land use authority. Few Vermont towns have professional planners. AOT has done some land use studies. Vermont is looking at a system of allocating costs to developers, and wants to ensure the last developer doesn't have to pick up the entire cost.

Design Standards: AOT doesn't go by the AASHTO "Green Book" on highway design standards. In the late 1990's, AOT wrote its own highway design standards. ANR was integrally involved in doing this, and FHWA endorsed the result. AOT's approach provides flexibility for community needs, which makes a big difference in the impact of projects on communities. AOT won an award for its design standards.



3.5 Individual Summaries of the Second (“beta”) Phase of State DOT Interviews (AR, IL, MN, MT, NM)

3.5.1 Interview with Arkansas State Highway and Transportation Department (AHTD)

April 23, 2008

PARTICIPANTS – Arkansas State Highway and Transportation Department (AHTD)

Lynn P. Malbrough, Division Head, Environmental Division

Scott Bennett, Assistant Chief Engineer for Planning

Randall Looney, FHWA Division in Arkansas

PARTICIPANTS – PB

Cindy Burbank

CONTEXT

AHTD is a small-medium size DOT, with 3,700 employees, 16,000 miles of state-administered highways, 10 districts, and a program of approximately \$340 million in FY07.

AHTD has been headed by Dan Flowers since 1994, which is the greatest longevity of any state DOT head in the U.S., enabling substantial continuity and stability for AHTD policies and programs.

At AHTD, Environment is a centralized function, managed from HQ, even though other AHTD functions are decentralized to the 10 districts.

AHTD has 55 environmental staff, all located in HQ. There has been no downsizing of environmental staff – in fact the number of staff has increased from 10 years ago.

AHTD FEEDBACK ON THE 12 MAJOR THEMES IDENTIFIED IN PHASE 1 OF THE STUDY

1. Provide Two Levels of Leadership: AHTD strongly concurs with the importance of two levels of leadership. AHTD has been extremely fortunate to have consistent and supportive leadership from Director Dan Flowers, who has held the position of Director since 1994. From the beginning, Flowers supported the environmental function, emphasizing to all staff “We have to do what’s right for the environment.” He also gave full support, trust, and responsibility to AHTD’s environmental managers, and promoted greater openness to tackling environmental issues. Flowers also supported environmental workshops for AHTD staff, saying it is important for staff to understand and be trained to carry out environmental responsibilities. This type of CEO leadership has enabled the



- career environmental managers to build a strong staff, develop excellent relationships with resource agencies, carry out strong environmental programs and policies, and achieve a reliable, appropriate environmental process.
2. **Organize for Environmental Awareness and Accountability Throughout the DOT and Assure Effective Communications:** AHTD has a centralized environmental function, with 55 staff in HQ, who have the benefit of strong training and skills. Within the 10 districts, there are no environmental liaisons per se. Instead, AHTD has a very strong ongoing environmental training program for AHTD staff (stormwater, archeology, etc.) that enables all the district staff to serve as environmental liaisons. The district staff are the eyes and ears of the HQ environmental unit.
 3. **Provide Expert Staffing:** AHTD believes expert staffing is very important. AHTD has been able to hire very capable wetland specialists, archeologists, stream specialists, freshwater mussel experts (including one Ph.D. level scientist with expertise in mussels). The expertise is so high that resource agencies actually call on AHTD for expertise on specific environmental matters. This is not a recent phenomenon in AHTD. The agency has a long history of having expert in-house staff. Only by exception does AHTD turn to environmental consultants. Among many other advantages, this internal expertise allows the AHTD environmental staff to have a close working relationship with roadway design and right-of-way staff in avoiding and resolving environmental issues during design and property acquisition.
 4. **Build an Environmental Culture:** AHTD has had a strong environmental culture for many years. It is well-engrained and has helped make AHTD more effective in both environmental stewardship and streamlining. This environmental culture is embedded in other AHTD functions (EEO, R&D, design, maintenance, etc.), enabling very positive interdisciplinary staff work. This is especially valuable in developing the preferred alternative for projects, because all the necessary information comes together to enable a consensus decision.
 5. **Support Improved Land Use:** Land use planning is definitely a local prerogative in Arkansas and is largely limited to metropolitan areas. There is little to no long range land use planning at the state level. AHTD has a limited role and a small influence on land use, through MPO plans. Land use impacts rarely arise as an issue in projects, except occasionally for new EIS-level projects in areas where land use is rapidly changing.
 6. **Invest in Environment:** Costs of environmental mitigation and stewardship haven't been an issue for AHTD. Environmental costs are considered just part of normal project needs. In a few cases, resource agencies have proposed environmental elements that were high in cost, but AHTD has always been able to work it out with them. AHTD projects haven't been held up due to unreasonable environmental demands. When warranted, AHTD is willing to delay a project in order to do environmental studies – e.g., potential project impacts on the hot water recharge area for Hot Springs. In that case, AHTD



agreed with the need for more information and agreed to a three-year study, for which the National Park Service was very appreciative.

7. Nurture Relationships with Resource Agencies: AHTD has very positive relationships with resource agencies, and they are longstanding in duration. AHTD funds positions at resource agencies – 1 at the Corps of Engineers (COE), 1 with Fish and Wildlife Service, and 1 with the State Historic Preservation Office. The individuals occupying these positions regularly attend AHTD's Monday morning environmental meetings, which enables strong communications and prevents surprises. In addition, AHTD is able to take these individuals out to field sites as needed, which is very helpful in reaching agreement. The position at the COE is especially valuable, as there are three COE districts for Arkansas and this position is the single point of contact for all AHTD coordination with COE. This has been enormously valuable as it provides for consistency across the three COE districts and AHTD knows what to expect. AHTD also took the initiative to promote better coordination between Arkansas's seven MPOs and a comparable number of resource agencies, by hosting a special event for MPOs to meet and talk with resource agencies.
8. Invest in GIS: AHTD considers GIS a very valuable environmental tool and has been an early leader in its use. AHTD created a GIS section within the AHTD Environmental Division in 2000 (fully operational by 2001) and have also increased GIS environmental staffing. In addition to the value of GIS for internal planning and coordination with resource agencies, AHTD believes GIS visualization tools can be vital to public involvement and AHTD is increasing its development of GIS visualization tools for the public. AHTD is also updating and expanding their archeological database, working closely with the Arkansas Archeological Survey. AHTD is also trying to work with the Arkansas Department of Heritage to map historic and archeological resources, but this has a long way to go due to limited funding for the Arkansas Department of Heritage to digitize its information. FHWA's newsletter "Successes in Stewardship" featured AHTD's use of GIS mapping to streamline the transportation decision-making and permitting process for the I-69 SE-Connector in 2000-2001. GIS helped project sponsors and reviewers consolidate environmental and engineering data, refine the study area in order to focus review efforts, and screen project alternatives efficiently. Participating agencies and affected communities were able to select an alternative with minimal impacts to wetlands, farmland soils, archaeological resources, businesses, churches, and other community properties and natural and cultural resources, which were also mapped. The newsletter quoted AHTD's Lynn Malbrough, "The GIS process allowed for alternatives to be effectively and efficiently evaluated in response to public or agency comments." The subtle differences in the study corridors and project alignments were consistently compared and evaluated. The public and resource agencies were well informed with both the graphical and tabular presentations of the environmental constraints and how the proposed alignments related to these constraints. (See <http://environment.fhwa.dot.gov/strmlng/newsletters/mar02nl.asp>) .



9. Develop Programmatic Agreements: AHTD has several types of programmatic agreements in place, including a Memorandum of Agreement with several resource agencies on streamlining and several specialized agreements with the Arkansas SHPO (relating to resurfacing or signalization projects and notification requirements). Overall, however, AHTD's solid relationships with resource agencies and AHTD's respected environmental expertise appears to have reduced the need for programmatic agreements.
10. Shift from Projects to Ecosystems: AHTD sees the value of ecosystem planning and practices it in several areas. For wetlands, AHTD has relied on an ecosystem approach for many years, and has seven or eight ecosystem banks in place – essentially one wetland bank for each of the seven or eight ecosystem regions in Arkansas. AHTD is also moving to an ecosystem approach to stream mitigation, working with the Fish and Wildlife Service (F&WS) and the Corps of Engineers (COE). AHTD would like to create stream mitigation banks, because they feel they can do more effective stream mitigation than through mitigation limited to the project boundaries. Fortunately, F&WS and COE are supportive.
11. Be Judicious with Environmental Management Systems (EMS) and Environmental Performance Measures (EPMs): AHTD does not have an EMS per se. Instead of a formal EMS, AHTD relies on a sound project delivery process. AHTD has stayed away from performance measures in general, including EPMs. They report on some performance measures but don't set targets, because they have little control over performance.
12. Continually Streamline Environmental Processes: To achieve timely environmental reviews, AHTD focuses on concurrent work as much as possible, a high level of staff environmental expertise, and solid relationships with resource agencies. Also, AHTD Division heads and the Chief Engineer have a staff meeting every Monday morning with emphasis on project delivery. For a handful of capacity-expanding projects, AHTD has used multi-disciplinary project teams, with a tracking system, but makes limited use of this because they want all projects to stay on schedule, which could be undermined by selectively focusing on a few projects. AHTD is satisfied that they are moving projects forward as expeditiously as possible.

Additional Environmental Success Themes: AHTD did not have any additional suggestions for major themes to achieve success in environmental stewardship and streamlining.



3.5.2 Interview with Illinois Department of Transportation (IDOT)

April 22, 2008

PARTICIPANTS - Illinois Department of Transportation (IDOT)

Kathy Ames, Deputy Director, Planning and Programming

Barbara Stevens, Chief, Environment Section

PARTICIPANTS - Federal Highway Administration (FHWA)

Matt Fuller, FHWA Division in Illinois

J.D. Stevenson, FHWA Division in Illinois

PARTICIPANTS - PB

Cindy Burbank

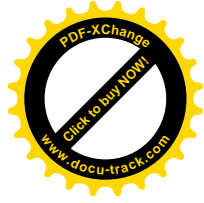
Amy Zwas

CONTEXT

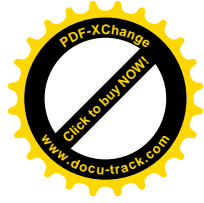
IDOT is a large state DOT, with approximately 5,400 employees, a multimodal annual program of approximately \$5 billion, nine district offices, and a state highway system of 17,000 miles, within a larger network of approximately 140,000 miles of state, county, municipal and toll roads – the third largest system in the nation.

IDOT FEEDBACK ON THE 12 MAJOR THEMES IDENTIFIED IN PHASE 1 OF THE STUDY

1. Provide Two Levels of Leadership: IDOT concurs that two levels of leadership on environment are valuable. Executive leadership sets the tone for the organization. However, environmental staff believes they have little impact on the decisions made by upper management.
2. Organize for Environmental Awareness and Accountability Throughout the DOT and Ensure Effective Communications: IDOT's organizational approach relies on centralized specialists in headquarters, linked with environmental generalists in the nine districts (usually at least two environmental staff in each district). The HQ staff numbers 14, with outsourced cultural, geologic and natural resource statewide survey crews of approximately 100. The HQ staff is located in the Environment Section, within the Bureau of Design and Environment, in the Division of Highways. IDOT districts identify the highway projects. Consultants are selected to complete the Phase I work, including the preparation of NEPA documents. HQ environmental staff reviews all EISs and most EAs and coordinate these documents with FHWA. District office environmental managers may opt to coordinate EAs directly with FHWA if they have been certified to do so. Decentralization is not a significant challenge at IDOT, due largely to the Bureau of Design and Environment Manual, which is



- now being updated. Because this manual contains detailed procedures as to the HQ and district roles, it is a valuable resource to ensure consistency.
3. **Provide Expert Staffing:** Environmental expertise is essential, but IDOT's environmental expertise is at a less than desirable level due to recent agency-wide downsizing and a hiring freeze. Any further downsizing of IDOT environmental staff may result in significant damage. IDOT environmental staff would like to do more environmental research and pursue new angles to carrying out environmental responsibilities but are unable to do so because of staff limitations.
 4. **Build an Environmental Culture:** IDOT is building an environmental culture among the workforce largely through training programs, including FHWA environmental training. In recent years, after the Illinois legislature passed a law in support of Context Sensitive Solutions (CSS), IDOT has particularly emphasized CSS training, with 3-day classes on CSS for project managers and for maintenance and construction staff. IDOT also conducts a CSS awareness class for upper-level managers, which is a half-day in length. IDOT sponsors CSS training for local agencies, and on-line training in CSS is currently being developed. IDOT believes the CSS classes have been effective in getting the environmental message out to IDOT employees as well as to local agencies. Despite the demands on their time, IDOT's environmental staff made a conscious decision that CSS training be conducted by IDOT staff rather than by consultants or others outside the agency.
 5. **Support Improved Land Use:** While recognizing that there are very strong private property rights in the United States, IDOT staff have been dealing with land use issues for as long as they can remember. IDOT particularly tries to involve local governments in dealing with land use changes that may occur as a result of highway improvements. One example is the Prairie Parkway EIS project southwest of Chicago that affects farmland. Residents are concerned about the development the highway could bring. Because it is the local governments that have the authority to adopt land use policies that deal with the citizen concerns, IDOT formed a citizens' advisory group with planners from local governments. A few Illinois MPOs are funding local land use studies, but this is relatively limited. IDOT has been funding MPO GIS work, which may lead to more involvement of MPOs in influencing local land use policies.
 6. **Invest in Environment:** IDOT has not had to make any major sacrifices in environmental funding due to budget cuts. However, lack of funds for out-of-state travel has precluded IDOT environmental staff from participating in AASHTO and TRB events, which limits their ability to gain insights and learn environmental approaches that could be helpful in Illinois. When resource agencies ask for more mitigation or costly design changes, IDOT staff do what they can to accommodate the requests.
 7. **Nurture Relationships with Resource Agencies:** IDOT has made it a priority to have good relationships with resource agencies and believes their



- relationships are excellent. IDOT meets with resource agencies three times a year under the NEPA-404 merger agreement, and these regular meetings (and the agreement itself) have been particularly valuable. When problems arise, it is often due to understaffing at the resource agencies, e.g., when the Corps of Engineers had just one person handling wetland permits for two states. There have also been some issues with the Illinois Department of Natural Resources (IDNR), but these have not strained the relationships. IDOT invites resource agencies to participate in IDOT's CSS training and to participate in IDOT's statewide planning discussions, but resource agency staffing constraints have limited participation.
8. **Invest in GIS:** IDOT's environmental staff believes GIS is an important tool but have not had much success in developing it. GIS staffing is located in a different Bureau (Information Processing) which is strong in GIS technology but does not really understand environmental science and needs. As a result, the IDOT environmental unit pays to use other agencies' GIS databases (e.g., those of IDNR and the Illinois State Geological Survey).
 9. **Develop Programmatic Agreements (PAs):** PAs are very helpful, and IDOT has five different PAs for Section 106, as well as an Interagency Agreement with IDNR, and an agreement with the Illinois Department of Agriculture that outlines coordination thresholds.
 10. **Shift from Projects to Ecosystems:** IDOT would like to move in this direction if more resources were available to do so. A representative of the National Wildlife Council suggested integrating the state wildlife plan and state transportation plan, which IDOT environmental staff would like to be able to do.
 11. **Be Judicious with Environmental Management Systems (EMS) and Environmental Performance Measures (EPMs):** IDOT has a limited EMS, focused on roadway maintenance facilities, and would like to develop more widespread EMS coverage. Currently IDOT has no EPMs but is trying to develop performance measures.
 12. **Continually Streamline Environmental Processes:** IDOT understands and embraces the goal of environmental streamlining. They want to reduce unnecessary steps while taking care not to cut corners. The changes in federal regulations and guidance on 4(f) have been helpful. However, the Section 6002 environmental process in SAFETEA-LU is not necessarily helpful as it brought changes and some new requirements. There are concerns within IDOT that Context Sensitive Solutions (CSS) is not helpful to streamlining the process, but even so, IDOT has been proactive in training and promoting CSS after the Illinois legislature mandated CSS into law four years ago. In 2007, the Illinois legislature established new requirements in support of "complete streets." With the constant changes in requirements and procedures, it is always challenging to make progress with streamlining.

Additional Environmental Success Themes: IDOT staff identified peer exchanges as a particularly valuable way for state DOTs to learn new approaches to advancing



environmental stewardship and environmental streamlining. Despite all the limitations on environmental staff time, peer exchanges can be a good investment to learn from other states what works and what does not work.

3.5.3 Interview with Minnesota Department of Transportation Department (MNDOT)

April 17, 2008

PARTICIPANTS – Minnesota Department of Transportation (MNDOT)

Frank Pafko, Director, Office of Environmental Services

Jennie Ross, Environmental Assessment Unit

Gerry Larson, Environmental Analysis Section

Tim Henkel, Director, Planning, Modal and Data Management Division

PARTICIPANTS – PB

Cindy Burbank

Hal Kassoff

CONTEXT

MNDOT has eight districts, and a highway program of \$1.2 billion in FY08.

MNDOT's environmental functions are centralized in Headquarters, with a staff of 36 in the Office of Environmental Services and about a dozen other staff in other units – down from a high of 75-80 staff at one time).

MNDOT FEEDBACK ON THE 12 MAJOR THEMES IDENTIFIED IN PHASE 1 OF THE STUDY

1. Provide Two Levels of Leadership: Two strong levels of leadership are important and useful – but not essential. Career leadership can still achieve a lot in the environmental area without strong executive support, as long as there is neutrality. It is easier with top level support, but it is possible to work from the middle out, rather than top down.
2. Organize for Environmental Awareness and Accountability Throughout the DOT and Assure Effective Communications: MNDOT's environmental staff is concentrated in headquarters, while project management is always in the districts. Each of the eight districts has only about 1 environmental specialist (except the Minneapolis-St. Paul Metro District, with 2-3 environmental staff). However, there are many "environmental contacts" within the districts (e.g., contacts in the district maintenance units who help get the word out when needed). Having environmental staff in districts is useful, but not essential. Jennie Ross indicated that "Environmental education of project managers is as important as having environmental staff in the field." The HQ staff have also



- found that carrying out a role as problem solvers for field staff, rather than problem causers, builds trust and cooperation among district staff.
3. **Provide Expert Staffing:** Environmental technical expertise is extremely important. MNDOT's environmental staff adhere to the philosophy of former environmental manager Larry Foote – “Know the science and know the regulations better than the regulators.” MNDOT has seen other DOTs have to cut environmental staff, to the point they don't have technically sound staff able to adequately oversee consultants' environmental work. Frank Pafko emphasized that “Environment is the same as the core engineering function of a DOT – you need that expertise on board.” As a result of MNDOT belt tightening, MNDOT is relying on a smaller environmental staff, but “we have an office of aging baby boomers” and there is no succession planning. There is significant concern about future environmental staffing as experienced staff are lost to retirement.
 4. **Build an Environmental Culture:** MNDOT agrees that a strong environmental culture throughout the workforce is important, and achieves it primarily through a well-established environmental training program. For 20-25 years, MNDOT has had an environmental training road show. Originally a one-day training curriculum, it is now typically two days. These environmental workshops are open to district staff, consultants, and counties. MNDOT also offers training in key individual environmental topics, e.g., erosion control training that is carried out in partnership with the UMN Extension Service. Other training includes lead paint removal for bridges and salt storage.
 5. **Support Improved Land Use:** Land use planning in Minnesota is definitely a local function – land use authority resides at the lowest level of government. MNDOT's role is limited to influence land use decisions. For example, MNDOT districts can review and comment on local land use plans. Another tool for MNDOT to influence land use is its access management manual, which provides guidelines on how local developments and roads can connect to the Minnesota state highway system. By withholding access approvals or highway funding, MNDOT has some influence on land use. Tim Henkel observed, “I don't want this Department to be responsible for land use.” Land use is best handled at the local level of government. MNDOT doesn't have land use planning expertise and doesn't want to have land use authority or responsibility. Unfortunately, however, “local governments are approaching land use from a tax base perspective, not from a transportation or environmental perspective.”
 6. **Invest in Environment:** MNDOT is seeing the need for increased investment in water quality and erosion control in particular, as a result of increasing water regulations and requirements. These costs are rising to 5-10% of construction costs. However, you don't always have to spend a lot of money to be a good steward of the environment. An example is using native species plantings instead of ornamentals. That is environmentally preferable and also costs less.
 7. **Nurture Relationships with Resource Agencies:** Frank Pafko emphasized that “Positive relationships with resource agencies are key – and everything else



- will follow from that. All our good relationships paid off in 1 week after the I-35W bridge collapse. We had permits and environmental signoffs nine days after the bridge went down. The Fish and Wildlife Service even contacted us first, to initiate informal consultation. We had the Corps of Engineers' permit within seven days after the collapse (even though it turned out we didn't need a permit, because the design had no piers in the water."
8. Invest in GIS: GIS is important. MNDOT has been using GIS for environmental functions on a topic-by-topic basis, but wants to merge the GIS databases, so "they talk to each other." Unfortunately, the GIS databases and applications have been developed in isolation and they need to be integrated.
 9. Develop Programmatic Agreements (PAs): MNDOT places great emphasis on PAs and finds them very valuable, particularly historic PAs, such as a MNDOT PA on historic bridges with the State Historic Preservation Office, the Advisory Council on Historic Preservation, and FHWA. Another valuable PA is with the Fish and Wildlife Service, establishing an agreement as to when formal consultation is necessary under the Endangered Species Act. MNDOT finds the value of PAs is much increased when the formal words on paper are supplemented with trust and informal understandings that enhance the use of the PA.
 10. Shift from Projects to Ecosystems: MNDOT has been shifting to an ecosystem/programmatic approach, e.g., for wetlands, bridge work, and endangered species. "Let's try to site wetlands mitigation where they will most effectively support ecosystems" instead of project-bounded mitigation. Unfortunately, resource agencies have a regulatory project-based mindset, and few have come around to a holistic approach. MNDOT has been trying to get state resource agencies to work with them on wildlife corridor planning, instead of individual species planning. More work is needed to explain ecosystems to the layman and to persuade resource agencies to embrace it in practice.
 11. Be Judicious with Environmental Management Systems (EMS) and Environmental Performance Measures (EPMs): MNDOT doesn't have much experience with EMS. There are some isolated examples of topical EMS (e.g., cultural resources). For transportation performance measures in general, MNDOT has been a leader in their development and use, but the environmental staff hasn't been satisfied with EPMS. The problem with EPMS is they are a series of topic-specific, isolated indicators, forcing a DOT to measure the negatives – the environmental damage you don't do, rather than something positive.
 12. Continually Streamline Environmental Processes: There are no magic bullets in streamlining. Instead, streamlining is a lot of little things:
 - Concurrent reviews are a big help.
 - Solid relationships with resource agencies pay off big – as amply demonstrated in the aftermath of the I-35W bridge collapse.



- A strong, stable environmental staff is one of the most important ingredients in streamlining. Conversely, staff turnover and loss of experienced staff can be a major setback.
- The best streamlining percolates from the bottom up – not through a top-down process.
- “The environmental process can get done as fast as you need, as long as you can make decisions quickly” -- something that was observed in the aftermath of the I-35W bridge collapse, when project development decisions were made in hours rather than days or weeks or months.

Additional Environmental Success Themes: MNDOT did not have any additional suggestions for major themes to achieve success in environmental stewardship and streamlining.

3.5.4 Interview with Montana Department of Transportation (MDT)

May 5, 2008

PARTICIPANTS –Montana Department Of Transportation (MDT)

Tom Martin, Chief, Environmental Services Bureau

Heidy Bruner, Supervisor, Engineering Section, Environmental Services Bureau

Bonnie Steg, Supervisor, Resources Section, Environmental Services Bureau

PARTICIPANTS – PB

Cindy Burbank

Alan Lubliner

CONTEXT

MDT has approximately 2,000 employees and is responsible for 25,000 lane miles of highways, with an annual federal aid construction program of approximately \$300 million.

At MDT, Environment is a centralized function, managed from HQ, housed within the Preconstruction Engineering section of the Highways and Engineering Division.

MDT has 29 environmental staff in HQ, plus at least one environmental staff in each of the five MDT district offices.

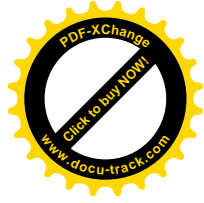
MDT FEEDBACK ON THE 12 MAJOR THEMES IDENTIFIED IN PHASE 1 OF THE STUDY

1. Provide Two Levels of Leadership: MDT environmental staff wholeheartedly agrees with the value of 2 levels of environmental leaders, at the executive level



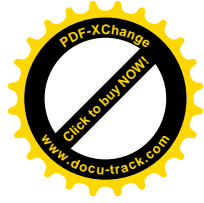
and through career environmental managers. In recent years MDT senior managers have shown increased interest in environment, which has been very helpful. MDT's project development team includes both environmental and civil engineers. Although environmental management is several levels below executive level management in the organization, influence has been filtering up to the Chief Engineer level.

2. **Organize for Environmental Awareness and Accountability Throughout the DOT and Assure Effective Communications:** At MDT, environment is a centralized HQ responsibility (as are project delivery functions in general), with 29 staff in the Environmental Services Bureau (ESB). Several years ago, as a result of concerns raised by resource agencies about the environmental aspects of some projects, the head of the environment function had reported to the MDT Director. This changed six years ago, when the function was moved to the Environmental Services Bureau within the Preconstruction Program of the Highways and Engineering Division – an organizational arrangement which is somewhat misleading because ESB provides a full range of environmental services, not just preconstruction activities. Its organizational location tends to dictate the primary metric for judging its performance. Because many other changes were happening at the same time, it really isn't possible to say whether the organizational change was adverse or beneficial. ESB strives for an effective working relationship with MDT's five districts, and found it generally beneficial when a few environmental staff members were added to the districts a few years ago. However, as in most state DOTs, the ESB finds it is a challenge to ensure that HQ and district staff are working from the same page and maintaining consistency; also, day-to-day priorities can be switched and not always well communicated between HQ and District staff. ESB is working to strengthen its organizational ties to the Planning function, trying to find a way through to linking planning and NEPA. It has been challenging, but they have done a couple of projects where a lot has been learned along the way.
3. **Provide Expert Staffing:** MDT concurs with the importance of this and is confident that it has a high level of environmental expertise among its staff. The top levels of MDT are very much in favor of developing core skills in house, rather than contracting out to consultants. MDT does rely on consultants for EAs and EISs and also for some hazardous waste work, due to current staffing levels in MDT. MDT believes its environmental staff has as much expertise or more than their counterparts at resource agencies, which creates some challenges, especially with resource agency permitting staff, in which case MDT relies on coaching.
4. **Build an Environmental Culture:** MDT believes it has come a long way in the last 10 years in building an environmental culture throughout the department, although there are still some holdouts. Now, ESB can usually find support for what it is needed by working through the issues. To build that culture, MDT has conducted a great deal of environmental training for construction staff, maintenance staff, and others – and conferences. As



managers turned over in MDT, key new managers have been increasingly supportive of environment, having learned from ESB and seen the issues MDT has with resource agencies, and support a new direction in what MDT needs to do to foster good environmental practices and projects. Another factor in heightening environmental awareness and good environmental practices has been some negative incidents (e.g., where wetlands were filled that shouldn't have been, leading to litigation) and some other violations, which received high visibility and caused the workforce to be more diligent in environmental matters.

5. **Support Improved Land Use:** MDT environmental staff is largely in agreement with this theme, although MDT has little control. It is difficult to predict land use impacts when a highway is built or expanded. Given that lack of control, MDT is modifying its approach to noise management. This involves increased communication with cities and counties about MDT's projection of noise levels associated with new or expanded highways and local government responsibility to guide development so as to minimize impacts. Montana is seeing tremendous population growth, with a lot of new subdivisions being developed next to the highways. MDT is doing a good job in its upfront projections and sharing that information, so that others can work with the roadway as/where it is, making this information available to developers, as an important factor in the location and design of new developments.
6. **Invest in Environment:** "Sensitivity to the environment" is part of MDT's mission statement, and environmental stewardship is part of what MDT does. As in many other states, MDT considers environmental impact avoidance, minimization, and mitigation part of the core cost of carrying out transportation improvements. But it is sometimes tough to discern when environmental costs are an "extra" above and beyond the Department's core environmental responsibilities. MDT programs off-site wetland mitigation projects separately (unless the wetland is directly in the project right-of-way) and has had success in receiving funding approval from the Transportation Commission for all nominated wetland mitigation projects. Most funding for construction comes from federal aid, and not enough of that limited source trickles down to all areas of MDT where it is needed. One area where environmental funding has been tight is internal environmental staffing and related costs. GIS is an area of keen interest to MDT right now, albeit one with limited resources. MDT's Information Services Division (ISD) provides good internal training, but if more funds were available, MDT environmental staff would very much like to hire a GIS expert to take advantage of this "awesome tool," develop its GIS environmental capabilities and use GIS to a greater extent in environmental planning and coordination.
7. **Nurture Relationships with Resource Agencies:** MDT agrees that good relationships with resource agencies are extremely important, but finds this area uneven, depending on the particular resource agency and the people involved. ESB sees the value of developing these relationships, and is pursuing this as an important endeavor, but can't say that MDT is completely successful with this right now. For the most part MDT has good relationships with resource



agencies. Relationships run the gamut, with MDT developing very positive relationships with some and making strides with others, but there is one difficult relationship, wherein MDT encounters baffling and unnerving behavior by resource agency staff. MDT participated in a 3-day training course offered by USGS on “negotiating with regulators,” and it was extremely valuable. MDT has Memoranda of Agreement and Memoranda of Understanding; it is now funding 1 position at a federal resource agency and previously funded another position. Year-by-year, it looks at the tools available to further these relationships and adjusts its approach. ESB is looking for advice and insights to be more successful. To improve relationships, MDT has regular meetings (Corps of Engineers, state Fish, Wildlife and Parks) and periodic meetings with others, as well as project-specific meetings. One of the major issues in relationships with resource agencies is lack of resource agency staff. This is exacerbated by the number of new environmental policies, regulations, and interpretations that create more work for understaffed agencies and set back efforts to get needed permits or other environmental decisions in a timely manner.

8. Invest in GIS: As noted above in section 5 on “Invest in Environment,” MDT sees high potential value in using GIS for environmental planning and coordination, but hasn’t been able to invest in hiring a GIS staffer for the environmental unit. Although MDT has capable ITS people, such an investment in GIS would help MDT move forward in several environmental issue areas.
9. Develop Programmatic Agreements (PAs): MDT considers PAs helpful, but not a panacea, and hasn’t placed high emphasis on developing PAs. MDT has a couple of PAs or MOUs with other state agencies, including an MOU with the Montana Department of Environmental Quality, which is quite beneficial. Personal relationships may be more important than the terms of these agreements.
10. Shift from Projects to Ecosystems: MDT sees the value of shifting from project level environmental planning and mitigation to an ecosystem approach, and has been moving in that direction. In 2007, MDT initiated a pilot project to work with resource agencies to apply the principles and tools from the Federal “Eco-logical” handbook to the Highway 83 project in western Montana. The name of the initiative is “Integrated Transportation and Ecological Enhancements for Montana” or ITEEM.
11. Be Judicious with Environmental Management Systems (EMS) and Environmental Performance Measures (EPMs): ESB is very much in favor of EMS and hopes to develop an EMS, but it will require a lot of discussion. It would be especially valuable to help ensure that project-level environmental commitments are carried forward and fulfilled, which is a challenging area for MDT. MDT currently has 4 EPMs within an FHWA Partnering agreement signed 5-20-08. They are:
 - Deliver FONSI in 24 months from beginning of environmental documentation process. *Tracked by FHWA.*



- FHWA will prepare *de minimus* letter to SHPO within two weeks. *Tracked by FHWA.*
- For environmental documents with negotiated timelines, FHWA and MDT will meet all timeframes barring unanticipated events. *Jointly tracked by FHWA and MDT.*
- Deliver all Records of Decision (RODs) within 48 months from Notice of Intent. *Tracked by FHWA.*

12. Continually Streamline Environmental Processes: The environmental process is shaped by regulations and litigation, which are constantly changing, so it is difficult to make progress with streamlining the environmental process. MDT has made some improvement in the EA process, which is now much quicker than 10 years ago. Streamlining and increasing the speed of the process has caused some consternation. Department staff can only handle so many EAs and EISs at a time, and streamlining often requires increased focus from busy MDT executives. While MDT has had some successes with streamlining, ESB is concerned about making it happen every time.

Additional Environmental Success Themes: ESB believes the above 12 themes are thorough and does not have any additions to suggest.

3.5.5 Interview with New Mexico Department of Transportation (NMDOT)

May 8, 2008

PARTICIPANTS – NEW MEXICO DEPARTMENT OF TRANSPORTATION (NMDOT)

Rochelle Byars, Director, Environmental Design Division

Blake Roxlau, Cultural Resources & Archaeology Program Manager

Steve Reed, Environmental Programs Manager, Human and Natural Resources Staff

Colleen Vaughn, Environmental Analyst, Human and Natural Resources Staff

PARTICIPANTS – Parsons Brinckerhoff

Cindy Burbank

Amy Zwas

CONTEXT

NMDOT is a large state DOT, with a multimodal program and six district offices.

NMDOT FEEDBACK ON THE 12 MAJOR THEMES IDENTIFIED IN PHASE 1 OF THE STUDY



1. **Provide Two Levels of Leadership:** Over the years, NMDOT has experienced many different executives and different levels of interest about environment. It is not always possible to rely on executive level support. When that is the case, it is important to have effective written environmental policies and procedures.
2. **Organize for Environmental Awareness and Accountability Throughout the DOT and Assure Effective Communications:** In NMDOT, environment is a centralized function, with approximately 21 staff in the Environmental Design Division, which is part of the Office of Programs. The Division is made up of the Human and Natural Resources Bureau (human and natural environmental analysis), the Cultural Resources Bureau, and the Environmental Geology Bureau (hazardous material investigations). To maintain communications and consistency with NMDOT's six districts, each of the districts has a human and natural resources liaison assigned. There is a well-established handbook, "Location Study Procedures," which includes all project development procedures, including environmental. The handbook is particularly valuable for larger projects. There are challenges, however, with helping district staff understand what is needed for smaller district maintenance projects. In addition, there is a handbook, Hazardous Material Assessment Handbook, for Environmental Geology.
3. **Provide Expert Staffing:** NMDOT agrees that expert staffing is important, and describes its current environmental expertise as "remarkable." NMDOT notes that their environmental staff are able to hold their own in discussions with resource agencies, even though gaining the respect of resource agencies is an ongoing challenge due to turnover at the resource agencies, which requires reestablishing credibility. NMDOT credits an exceptional environmental training program (in wetlands, NEPA, Endangered Species Act, etc.) with developing and retaining high quality environmental expertise. It took years to build up the current level of expertise and there were times over the past 13 years when the expertise was uneven. Maintaining a high level of expertise is precarious, in part because the pay for NMDOT employees is low and retention of staff is a challenge, but living and working in New Mexico is a draw for people that help offset the low pay.
4. **Build an Environmental Culture:** Establishing and maintaining a strong environmental culture in the NMDOT workforce boils down to communications and meeting with individual personnel. Environmental staff tries to attend project manager meetings regularly and uses them to explain environmental requirements and needs. In the field, there is respect for environmental legal requirements, but beyond that the presence of an environmental ethic is mixed. The current Chief Engineer has respect for the Environmental Design Division and supports them as issues arise.
5. **Support Improved Land Use:** NMDOT is not drawn into land use issues often, and there is a reluctance to get involved in land use. However, land use issues do arise on large, complicated projects. Also, the New Mexico state



climate change plan expects to achieve significant reductions in greenhouse gas emissions from transit-oriented development and smart growth associated with the “Rail Runner,” a new commuter rail system serving the metropolitan areas of Albuquerque and Santa Fe.

6. **Invest in Environment:** The ability to fund environmental mitigation has not been a significant issue for NMDOT and to date NMDOT has been able to satisfy resource agencies. However, there are a couple of pending projects in which the environmental mitigation costs are expected to be so high that NMDOT may not proceed with the projects. Recently, the most high-profile environmental expenditures have been in historic resources (especially data recovery). If additional funds were available internally, the environmental staff would like to do more training and be able to fund out-of-state travel.
7. **Nurture Relationships with Resource Agencies:** NMDOT has excellent relations with land management agencies. Relations with other resource agencies are also excellent in general, although there are specific issues with specific people. The biggest challenge is with the State Historic Preservation Officer, a challenge which is shared by other state agencies and which relates to how the SHPO views its role. Overall, NMDOT believes that good communications and early coordination are the key to good relations and has emphasized that in working with resource agencies. NMDOT funds (or partially funds) positions at the NM Environment Department, the SHPO, and the NM Archeological Records Management Section. NMDOT believes funding liaison positions is a good idea, but it has been a challenge to get the right person or personality into these positions. Also, effectiveness may be limited by lack of a detailed scope of duties and the fact that NMDOT does not participate in annual performance reviews, for both of which NMDOT is considering making changes.
8. **Invest in GIS:** NMDOT uses GIS extensively in environmental applications and NMDOT’s environmental staff believes that GIS has “definitely” helped with both environmental stewardship and streamlining. Many of the NMDOT environmental staff are proficient in GIS, as a result of taking advantage of ample GIS training that is available. As a result of new planning requirements in SAFETEA-LU, NMDOT’s Planning Bureau is looking into GIS applications in planning which will strengthen environmental elements of planning.
9. **Develop Programmatic Agreements (PAs):** PAs with the SHPO have been a major timesaver for NMDOT – notably PAs with the SHPO for negative findings and for bridge repair and replacement. The NMDOT Human and Natural Resources staff do not rely on any PAs (except for some programmatic Categorical Exclusions), because the positive relations with the resource agencies have not precipitated the need for PAs.
10. **Shift from Projects to Ecosystems:** NMDOT has looked into shifting from a project-by-project focus to planning and mitigating impacts at an ecosystems level, but hasn’t moved in that direction because project level mitigation has been effective in NM. NMDOT does not participate in wetland banking and until



recently, wetland mitigation had to be achieved in the same drainage area for each project, but the resource agencies are now permitting mitigation within the affected watershed. The resource agencies appear to be interested in ecosystem planning and mitigation, including wetland banking that would provide advance credit for later projects.

11. Be Judicious with Environmental Management Systems (EMS) and Environmental Performance Measures (EPMs): For EMS, NMDOT is starting to work with FHWA to track environmental commitments to make sure they are followed in design and construction (and subsequently, when needed). Otherwise, NMDOT is not that familiar with EMS. For EPS, NMDOT has a database to track wetlands, including 5-year performance of wetlands, but this is still in its infancy. In general, however, NMDOT noted that it is difficult to come up with meaningful environmental measures and EPMs are limited by the fact they usually measure the negative – i.e., environmental damages avoided.
12. Continually Streamline Environmental Processes: There isn't a strong feeling that the environmental process takes too long. NMDOT goes through the process as quickly as it can while meeting all the requirements. NMDOT environmental staff emphasizes good communications with the public and with resource agencies, and recognizes that the environmental process hinges on individual resource agencies and individual reviewers and their personalities. The NMDOT Secretary had experience in the trenches as a project development engineer, so she understands the environmental process and has reasonable expectations. The public in New Mexico is often vocal about protecting the environment, which can generate controversy and cause delays – and NMDOT recognizes it will take time to work through the process when there is public controversy. There is one area that NMDOT is now actively seeking to change: the STIP process hadn't been working well, so NMDOT is moving to do more environmental review of projects before putting them in the STIP – following the concepts of "Linking Planning and NEPA."

Additional Environmental Success Themes: Above all, NMDOT environmental staff felt that the keys to environmental stewardship and streamlining are

- (a) effective communications with the public and resource agencies;
- (b) a strong, expert environmental staff; and
- (c) a strong environmental training program.

Finally, the NMDOT environmental staff stated that a common saying in New Mexico is "Whatever works anywhere else doesn't always work in New Mexico."



4.0 CHAPTER 4 CONCLUSIONS

At both the national and state level, the American public expects a high level of environmental quality and a safe, sound, and efficient transportation system. The relative level of emphasis varies from state to state, and varies over time.

To meet these high expectations, state DOTs must be successful with both environmental stewardship and environmental streamlining, must deliver projects that are good for the environment and improve transportation, and must overcome perceptions that transportation agencies sacrifice the environment to make transportation improvements.

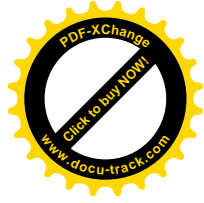
Many state DOTs have made significant progress in their environmental accomplishments, in streamlining, in delivering projects that are good for the environment and transportation, and in building credibility with resource agencies and the public. Their insights are documented in this report in the 12 major themes about management practices and organizational structures that contribute to environmental success. While all 12 themes are important, several merit special attention here:

Leadership (theme 1) is particularly important. Indeed, leadership is absolutely essential, not only at the state DOT executive level but also through the leadership of environmental unit managers. From New York to Oregon to Arkansas to Vermont to Florida and many other states, the message was clear that sustained environmental leadership at both levels plays a major role in strong, continuous improvement in environmental stewardship and streamlining. It is a form of leadership that projects a strong environmental message, “walks the talk,” and invests time in relationships with resource agencies and in building environmental support and competency throughout the state DOT.

State DOT organizational structure (theme 2) is also critical, in two ways:

- (1) Placing the state DOT environmental unit relatively high in the organization sends a message about the DOT’s commitment to environment and ensures that environmental experts have a voice in key policies and decisions at a level commensurate with public expectations.
- (2) It is essential to have strong organizational linkages between the environmental unit and other major functions of the state DOT: planning, design, construction, maintenance, and operations. This can be achieved through a variety of organizational linkages (e.g., designated liaisons and internal management councils that cut across functions).

From the interviews and other evidence, it is clear that more progress is occurring on environmental stewardship, while progress on environmental streamlining (theme 12) is slower, more challenging, and anecdotal or sporadic. None of the interviewed states pointed to measureable, systemic, reductions in the time required for the environmental process, although there were many examples of Programmatic Agreements and improved relationships with resource agencies. (MN DOT’s experience



with replacing the I-35W bridge after the structure collapsed is a notable project exception, in which resource agencies bent over backwards to expedite the environmental permits and clearances needed to rebuild the collapsed structure. This streamlining success probably was due in equal parts to MN DOT's efforts over the years to maintain good relationships with resource agencies and to the extraordinary circumstances of the project.)

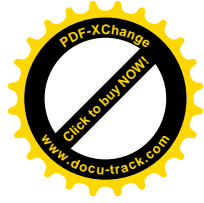
The lack of systemic evidence of reduced time in completing environmental reviews is likely because streamlining is inherently more difficult, due to the large number of laws and agencies on which streamlining depends, and because public expectations and environmental advocacy and litigation over the environmental process continue to rise.

State DOTs need to be proactive on environment, especially in responding to new issues and changes in expectations for the state DOT role. As hockey superstar Wayne Gretzky said when asked how he became the greatest hockey player of his era, "I skate to where the puck will be." State DOTs need to "skate to where the [environmental] puck will be" – not just where the puck was yesterday or is today.

There are three areas where being proactive on environment is particularly important:

- Land Use – Transportation Linkages (theme 5): Many of the state DOTs interviewed for this project emphasized their efforts to work with local governments to encourage better land use planning and to provide transportation support to those efforts. These state DOTs emphasized that they did not have the authority to change land use, but they can play a supportive role in improving land use – especially in ways that avoid or minimize or mitigate the adverse transportation effects of poor land use.
- Ecosystems/Planning Emphasis (theme 10): There are many limitations to the traditional, long-standing emphasis on project-level avoidance, minimization, and mitigation of environmental impacts. There is a growing need to build environmental policies and practices in at the planning stage, with a focus on ecosystems-level avoidance, minimization, and mitigation. It will require a sustained effort to be successful at this level and to make it pay off in better and more streamlined project decisions.
- Global Climate Change: While this did not emerge as a dominant theme, it is a rising issue of public concern and potential for legislative requirements. As noted in some of the interviews, state DOTs need to understand the issue, develop policies and plans to respond to climate change, and adjust their organization to be proactive on both greenhouse gas reductions and climate adaptation for transportation infrastructure. Moreover, state DOT CEOs need to actively engage in state climate action planning, to be a voice in state climate policies, and to educate their workforce and the public.

The interviews brought home how different every state DOT is. While all state DOTs would benefit from focusing on all 12 themes from this study, the specific management practices and organizational structures that will best advance stewardship and streamlining depend greatly on different state circumstances and opportunities, as well



as the expectations of the citizenry of each state. There is no “cookbook” for success, but there are many useful insights, case studies, and lessons learned that can help state DOTs that are seeking to elevate their environmental stewardship and streamlining.

Several other points are noteworthy:

- Smaller and small/medium states can be environmental leaders, and can provide examples and tools that are worthy of recognition on a national level. In this regard, Vermont, Arkansas and Maryland had impressive stories and accomplishments in environmental stewardship.
- The greater the overall public support for environment in a state, the greater the need for the state DOT to be at the high end on environmental stewardship. Thus, Oregon DOT, Minnesota DOT, Maryland DOT, Florida DOT, and Vermont DOT have faced and met the challenge to have some of the strongest environmental track records.

Suggestions:

Based on the interviews, the literature review, and the research team’s overall experience, these suggestions are offered:

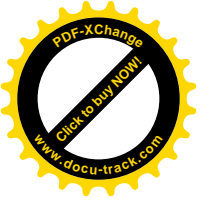
- Every state DOT could evaluate itself against the 12 themes that emerged from this study. This evaluation would be best as a joint effort of the state DOT executives and the environmental unit leaders. Each state could ask itself: How is it performing in each of the 12 themes? Based on the information in the study, what could it do to improve its organizational structure and management practices to achieve a higher level of environmental stewardship and streamlining?
- AASHTO, FHWA, and TRB could conduct workshops, conferences, domestic scans, and peer exchanges to promote cross-fertilization of experience among state DOTs on the management practices and organizational structures that contribute to environmental stewardship and streamlining. These cross-fertilization opportunities could be provided at multiple levels – for state DOT executives (CEOs, Deputy CEOs, and Chief Engineers), for project managers, for leaders of environmental units, and for environmental staff.
- For other state DOT functions, such as planning, design, construction, maintenance, and operations, AASHTO, FHWA, and TRB could support research to document success stories and achievements in environmental performance specific to those functions. The results could be highlighted in conferences, workshops, and other events that are attended by leaders and staff of those other DOT functions, including AASHTO Standing Committees and Subcommittees.
- When a state DOT has a criticism or frustrating experience with an environmental resource agency or FHWA, it can be an opportunity to make positive change. If a state carefully analyzes the specific problem, it may be



able to develop specific and constructive recommendations for change, to avoid a recurrence. Some issues and recommendations may warrant elevation to a higher level, to gain a broader perspective and possibly a broader solution.

Additional Research:

- Given the lack of evidence of improved environmental review times, it would be helpful to conduct follow-up work (possibly through intensive focus groups) on these questions: To what extent have state DOTs made a significant effort to integrate environmental budgets, scheduling, resource allocation, performance, and information management within the corporate project delivery process? Have these efforts reduced project delivery time? What has worked? What has not worked?
- How are state DOTs funding higher levels of environmental stewardship, including environmental mitigation, environmental enhancements, and improved internal environmental databases, training, and staffing? While this question was posed during the 11 state interviews, the responses were rather general. Further research would be valuable on the costs of environmental stewardship over time and viz a viz the total DOT budget, and on the sources of funding for these costs. This would probably need to be a fairly significant research project.
- How were state DOT environmental functions affected by the economic recession of 2008-2009 (and perhaps beyond)? Were environmental budgets and staff curtailed? How was environmental stewardship and streamlining affected? If there were fewer new capacity projects entailing NEPA work during this period, were environmental staff redirected to other environmental work? Were efforts made to preserve the environmental competencies that many DOTs have worked hard to build?
- What are some best practices in providing environmental training – both for state DOT environmental staff and also for other staff in the state DOT (planners, designers, project managers, executives, maintenance staff, etc.)? What is the nature of the training? How many hours per year? How frequent is it? How does a state know if its environmental training program is effective? How many employees are trained? On what subjects? Is any of the training conducted jointly or in cooperation with resource agency staff?



NCHRP 25-25, Task 37 Organizational Structures and Management Practices for Achieving Environmental Stewardship and Streamlining





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