Executive Order 13274
Integrated Planning Work Group

Information Resource Case Studies

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Introduction

Transportation planning is more efficient with input from natural resource agencies early in the regional or statewide planning process, allowing transportation planners to design projects that avoid or minimize impacts that result in costly changes or time delays. As used here, "integrated planning" typically refers to interaction and coordination between transportation planners and the full range of government and nongovernment stakeholders who can help transportation agencies identify important community values, such as social, economic, or environmental considerations, that can otherwise delay project delivery. State and Federal natural resources agencies, historic preservation agencies, and others can improve transportation outcomes through integrated planning on several scales, including the long-range planning stage for transportation plans or during tiering, corridor, and subarea studies.

On September 18, 2002, President George W. Bush signed Executive Order (EO) 13274, Environmental Stewardship and Transportation Infrastructure Project Reviews. This move was intended to advance current U.S. Department of Transportation and interagency environmental stewardship and streamlining efforts by coordinating expedited decision making related to transportation projects across Federal agencies. Integrated planning offers the opportunity for better protection of natural and cultural resources, and to maximize efficient use of scarce staff and financial resources by flagging potential problems before the narrowing of options and completion of detailed design work. Integrated planning can also enable agencies to examine the resource impacts of multiple projects, thereby providing opportunities to develop more effective environmental mitigation measures.

While many resource and transportation agencies recognize a fully integrated transportation planning process as ideal, some challenges remain, such as:

- Conflicting priorities and scales of analysis among agencies or field offices, or national, regional, and local concerns
- Inconsistent terminology and incompatible data and performance measures across agencies
- Conflicting geographic, ecological, and political boundaries across agencies
- Funding procedures (whereby short-term objectives are often funded before long-term goals)

This information resource will provide planners the background, contact information, and resources they need to implement an integrated planning framework into their own activities.

Choice of Case Studies

Six case studies were chosen due to the depth and breadth of the integrated planning process being used in the States. Each case study meets a basic definition of an integrated planning process, based on both the substantive and process-oriented integration of resource and other agencies into transportation planning. The primary characteristics of the six case studies are that they:

- Incorporate resource consideration in the planning process
- Provide a catalyst for early interagency consultation and conflict resolution

- Have a transferable technical approach or process
- Integrate resource agencies with data, staff time, and stakeholder interactions

The reports focus on the "who" and "how" of integrating environmental, cultural, and other resource concerns early in transportation planning by highlighting the following three areas.

Data and Tools: Most of the processes described in this information resource make use of a geographic information system (GIS) to overlay transportation plans with resource, habitat, and land use information. The data included in the GIS and the tools the agencies use vary in their complexity and in how they are used. Some processes use GIS as a part of public outreach; others operationalize the information through visioning tools to be used by an interagency group; others use the data internally. Each case study contains a section highlighting the innovative uses of data and tools in the State.

Interactive Process: In addition to using tools that graphically show the interaction between transportation and other systems, most of the case study States have a way to bring resource agencies, other transportation agencies, and land use planning agencies into the transportation planning process. In the case study locations, this occurs at regular meetings, in established interagency groups, through targeted outreach, or in special staff positions at resource agencies funded by State departments of transportation (DOTs) or metropolitan planning organizations (MPOs).

Leadership Role: Innovative institutional mechanisms are often most successful when grounded on strong and effective leadership, particularly across multiple agencies. This allows participating agencies to define clear priorities and goals while maintaining interaction on multiple points of interest. Many of the processes described in this information resource required strong leadership to ensure the formulation of early and sustained legal commitments, such as memoranda of understanding (MOUs) or concurrence points that must be agreed to before moving forward with projects.

Case Study Highlights

California: Riverside County

The Riverside County Integrated Project (RCIP) incorporates three formerly distinct plans: a General Plan for land use and housing, a Multiple Species Habitat Conservation Plan (MSHCP) to determine which land should be set aside as open space and maintained for plant and animal conservation, and the Community and Environmental Transportation Acceptability Process (CETAP) identifying improvements for highways and transit systems. CETAP focuses on two internal corridors and two intercounty corridors, and was identified as a priority project in EO 13274, the Environmental Streamlining EO.

Colorado: North Front Range MPO

Colorado's Strategic Transportation, Environmental, and Planning Process for Urban Places (STEP-UP) improves project evaluation on environmental issues in the regional planning processes, engages full and early participation of all relevant agencies, improves the National Environmental Policy Act (NEPA) decision making process, and informs the local project prioritization process.

Florida: Efficient Transportation Decision Making (ETDM) Process

The ETDM process is composed of three phases—planning, programming, and project development—to create a process for early and continuous resource agency input into

the Florida Department of Transportation (FDOT) environmental review, decision making, and permitting processes. Throughout the ETDM process, the Environmental Screening Tool (EST), an Internet-accessible interactive database tool, is used to document project changes, evaluate impacts, and communicate project details to agencies and the public.

North Carolina: Environmental Stewardship Policy

The Environmental Stewardship Policy is an integrated planning strategy of the North Carolina Department of Transportation (NCDOT) to increase the collaboration and consideration of natural resource agency issues into the planning process.

Oregon: Collaborative Environmental and Transportation Agreement for Streamlining (CETAS)

CETAS establishes a formal working committee with representatives from the Oregon Department of Transportation (ODOT) and 10 Federal and State transportation, natural resource, cultural resource, and land-use planning agencies to coordinate and review ODOT plans.

Texas: Texas Environmental Resource Stewards (TERS) and Texas Ecological Assessment Protocol (TEAP)

TERS is a group of executive-level staff from Federal, State, and local agencies. TERS provides the oversight vision and a team of technical specialists to develop an ecological assessment tool for resources in the State of Texas. The resulting TEAP is a shared model using data and mapping of locations that TERS member agencies considered “ecologically important.”

California: Riverside County Integrated Project

Agencies and Organizations

- Federal Highway Administration (FHWA)
- U.S. Army Corps of Engineers (USACE)
- U.S. Environmental Protection Agency (EPA)
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Forest Service (USFS)
- California Department of Transportation (Caltrans)
- California Resources Agency (CRA)
- California Business, Transportation, and Housing Agency
- Governor's Office of Planning and Research
- Santa Ana Regional Water Control Board
- Riverside County Government
- Natural Resources Conservation Service (NRCS)

For additional information, please contact Cathy Bechtel, Project Delivery Director, CETAP, Riverside County Transportation Commission, at (951) 787-7934 or cbechtel@rctc.org.

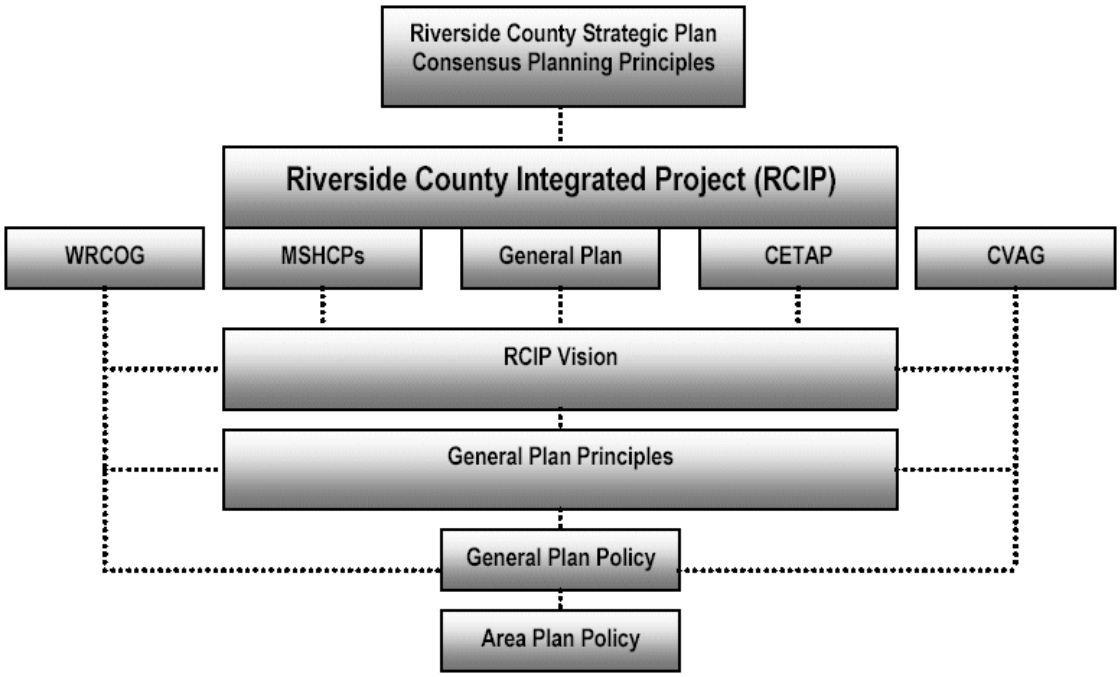
Section 1: Overview

Riverside County is part of the Los Angeles metropolitan area, located north of Orange County and east of Los Angeles County. The county has experienced rapid population and economic growth; its population was approximately 1.5 million in 1999 and is expected to double to 3.0 million by 2020. The county is also one of the largest in the Nation, with 7,300 square miles of urban, rural, and undeveloped land. To improve the quality of life for current and future residents, the Riverside County government and the Riverside County Transportation Commission began a comprehensive planning process to ensure transportation, land use, and environmental planning are coherent and consistent.

The Riverside County Integrated Project (RCIP) incorporates three formerly distinct plans that affect the placement of buildings, roads, and open spaces in the county. The project includes a General Plan for land use and housing, a Multiple Species Habitat Conservation Plan (MSHCP) to determine which land should be set aside as open space and maintained for plant and animal conservation, and the Community and Environmental Transportation Acceptability Process (CETAP) identifying improvements for highways and transit systems.

In 1999, the Riverside County Board of Supervisors endorsed 15 planning principles that would guide the RCIP planning process. The first step was to create a vision statement that captured how county residents perceived their current quality of life and the future they desired for their communities. This document established goals for each of the three component plans (see figure 1).

Figure 1. The overall RCIP model shows that input from the Western Riverside Council of Governments (WRCOG) and Coachella Valley Association of Governments (CVAG) was also included.



The public and other community stakeholders participating in advisory committees developed an accurate and useful Vision Statement. Several members of each advisory committee then formed a Steering Committee to coordinate implementation of the Vision Statement in each of the three planning processes and make recommendations to the County Board of Supervisors. While each of the component plans could be implemented individually, the Steering Committee coordination ensured that if any combination of the three were passed, they would be integrated and harmonized. An example of this inter-relationship is the Circulation Element of the General Plan for land use. The highway portion is almost completely based on the priority transportation corridors laid out in CETAP.

CETAP, the transportation component of RCIP, focuses on two internal corridors and two intercounty corridors. Congestion in western Riverside County, along with predicted levels of population growth, makes the investment in new transportation corridors critical to the future of the county. Riverside County chose a tiered National Environmental Policy Act (NEPA) approach to identify the transportation corridors in long-range plans, while incorporating the long-range land-use and environmental planning being outlined in the RCIP. The CETAP transportation corridor planning project was identified as a priority project in EO 13274, which has led to increased support and scrutiny of the corridor planning by Federal agencies, including FHWA, EPA, and others. Additional funding and staff support was also provided through this identification.

The Tier 1 document for each corridor addresses impacts and alternative rights-of-way, leaving details of the design, mitigation, and permitting information to the Tier 2 analysis. The north/south Winchester to Temecula corridor completed a Final Environmental Impact Statement (FEIS) and Record of Decision (ROD) on the Tier 1 analysis in 2003.The north/south corridor is undergoing a Tier 2 NEPA evaluation in 2007. Due to

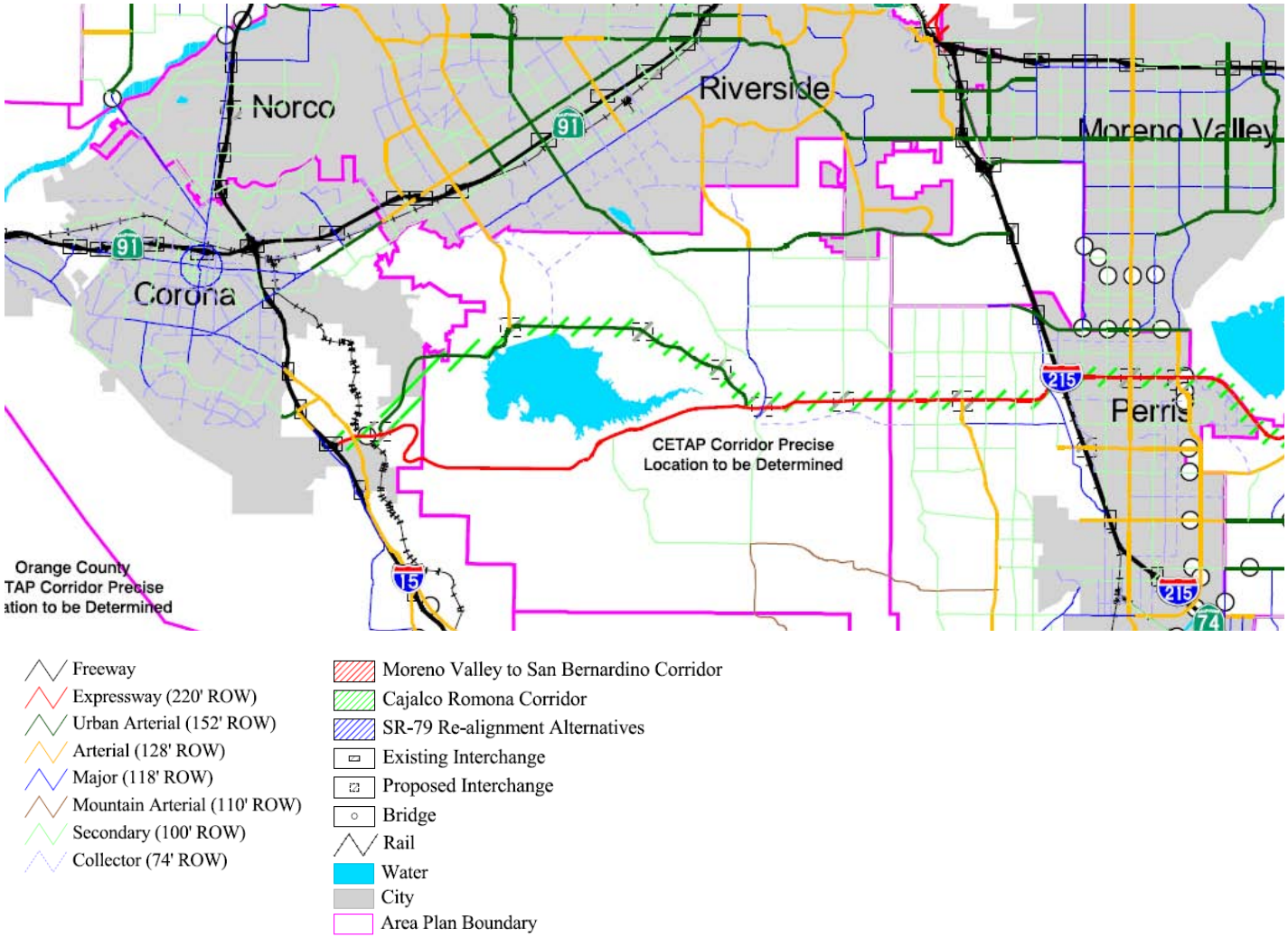
more complicated concerns over the east/west Hemet to Corona corridor alignment, CETAP abandoned the Tier 1 study and is currently completing a project-level EIS.

Section 2: Data and Tools

Maps from CETAP, the General Plan for land use, and MSHCP were overlaid to ensure consistency between the various elements of the RCIP. Figure 2 shows how the transportation and conservation elements of CETAP and MSHCP are shown in the General Plan. Consultants used geographic information systems (GIS) to create data layers and overlays for each component plan.

However, the GIS department of the Riverside County Transportation and Land Management Agency is responsible for keeping the data up to date going forward. During the development of RCIP, residents could view, through an online mapping program, how planned projects from the RCIP might affect their areas. This mapping program was available to any member of the general public and generated sustained interest from the community in the planning process.

Figure 2. A zoom view of the General Plan circulation map showing the Cajalco Romona Corridor



Section 3: Scheduled Cooperation and Interaction Processes

CETAP agency representatives from EPA, FHWA, USACE, and USFWS worked together to narrow the list of possible corridor alternatives from 14 down to 2 corridors. The north/south Winchester to Temecula corridor and the east/west Hemet to Corona corridor were selected by eliminating the most environmentally harmful alternatives. This early coordination between agencies fostered important relationships between agency representatives that would prove critical in the subsequent tiered NEPA approach. Many of these delegates continued to work on the project from beginning to end.

Resource agency project committees had frequent face-to-face meetings and conference calls at the beginning of the project, and continue to meet at least monthly. The level of effort from resource agencies was reported to be high overall for the project, which created some strain on the other functions of the agencies. At one point, there was a weekly call with all resource agencies to review the status of the project.

CETAP meetings were originally facilitated by the RCIP headquarters office. Later in the process, a third-party facilitator was introduced. This facilitator assisted the CETAP corridor project teams in synthesizing ideas, targeting discussions, and reaching conclusions. Participants found that environmental laws and streamlining practices, such as integrating NEPA and section 404 of the Clean Water Act, were not conducive to tiered levels of study due to lack of guidance. Resource agencies found it difficult to agree on the level of detail that would be presented in a Tier 1 analysis.

In addition to resource agency involvement, each of the three component plans had a 30-member stakeholder committee made up of representatives from environmental groups, the building industry, community leaders, and property owners. These groups met regularly. Staff working on the process felt that the extensive public outreach and government relations work showed its worth as the community coalesced around the plan elements.

Section 4: Legal Framework

Only the land use portion of the RCIP is required under California State law (Government Code Section 65300), and an update was due to the existing plan, which was adopted in 1984.

A Partnership Action Plan was signed in September 2000 prior to development of the RCIP plan. The agreement was important in cementing the commitment of several critical Federal, State, and local agencies to working cooperatively on all three components of the RCIP. Federal partners included EPA, USACE, USFS, USFWS, and NRCS. At the State and regional levels, Caltrans; CRA; the California Business, Transportation, and Housing Agency; the Governor's Office of Planning and Research; and the Santa Ana Regional Water Control Board signed the agreement.

The RCIP Logo

In addition, the Riverside Transportation Commission, EPA, USFWS, USACE, and FHWA signed a memorandum of understanding (MOU) to establish and record the information necessary to proceed with a final Tier 1 NEPA document. Concurrent reviews were also a key component of completing the CETAS. Federal, State, and local agencies received

all NEPA review documents at the same time rather than going from one agency to the next with potentially conflicting comments.

Section 5: Leadership Role

Changing the planning process is difficult for agency staff without guidance documents and input from supervisors. EO 13274 brought national attention to the transportation portion of the RCIP and placed increased pressure on the transportation planners and resource agencies at work. As a result, one of the critical elements to RCIP success was staff's ability to elevate the issues to a supervisory level within each agency. This was especially important in the Tier 1 NEPA documents for the transportation component since resource staff did not have experience with this type of review. Staff needed ongoing support from their supervisors to deviate from their standard procedures and support a Tier 1 process. Having high-level Federal agency staff available, particularly at FHWA, also helped clarify issues for field offices and provide early feedback.

Strong leadership was also provided by the county supervisor, who was instrumental in securing the Federal and State support for RCIP. His leadership maintained political and financial support even when RCIP overran initial cost and time estimates. Leadership was also provided by FHWA, particularly with regard to identification and development of the transportation corridors. This role proved critical once EO 13274 designated the project as one of the national priority projects.

Section 6: Funding Sources and Liaisons

Participating agencies completed work on RCIP with existing staff, which often required shifting responsibilities and priorities to accommodate the project planning work. Consultants were also hired to coordinate efforts between agencies on a daily basis and to do public and government relations and outreach.

Riverside County provided a major share of the funding for the RCIP process from State funds set aside for updating the General Plan for land use.

The Transportation, Community, and System Preservation (TCSP) program provided additional grant funding for RCIP. The TCSP program was created under the Transportation Equity Act for the 21st Century (TEA-21). Section 1309 of the act calls for coordinated environmental review with FHWA and other Federal agencies. Caltrans used these Federal funds to provide additional staff and resources to resource agencies in order to meet deadlines for environmental review.

Section 7: Performance Measures and Outcomes

The transportation corridor planning portion of the study has progressed through Tier 1 review for the north/south Winchester to Temecula corridor, reaching an ROD by FHWA in 2003. However, there was some dispute over whether the Tier 1 document included enough detail since tiered environmental documents are still somewhat unusual and there was limited Federal guidance on the level of information necessary. After slight delay, the alternative corridor that was eventually chosen was agreed upon by FHWA, Caltrans, and the Federal resource agencies. The corridor is currently undergoing Tier 2 analyses.

The tiered approach was dropped on the east/west Hemet to Corona corridor, in part because the environmentally superior alternative was shown to have little transportation benefit. The project has moved from the transportation planning process to the project-

level EIS process, with a different east/west corridor, the Mid-County Parkway from the San Jacinto area to the Corona area.

Although the tiered approach for the two CETAP corridors has encountered delays, CETAP participants believe the early involvement of stakeholders and integration with the General Plan and MSHCP will ensure that project permits are moved ahead quickly. A significant cause of the early delay were the number of major issues that Federal and State agencies identified for early discussion. In the long-term project development, the tiered approach requires all parties to agree to the level of analysis early on in the Tier 1 process in order to avoid delays later in the planning process. Another benefit of involving resource agencies in the early planning of both corridors was that the frequent meetings have improved relationships between the Federal and State agencies.

Section 8: Lessons Learned

- *Third-party facilitation*. Partway through the RCIP and CETAP development process, a third-party facilitator was contracted to mediate meetings. Staff at the Riverside County Transportation Commission noted that this was a major benefit to the group, which was composed of staff from a wide variety of backgrounds and disciplines.
- *Political and supervisory support.* Political pressure on the process was helpful in keeping the ball rolling toward success. Staff at participating agencies were kept motivated to achieve decisions with the political support of the County Board of Supervisors and the impetus of the EO on environmental streamlining. The support that leadership provided to staff involved in streamlining the review process increased the likelihood that potential issues and concerns were elevated as soon as they were identified. By involving high-level decision makers early in the process, they were sometimes able to avoid lengthy delays.
- *Motivating procedural changes.* During the transportation planning process, resource agencies were asked to change their internal review procedures and adopt faster processes for reviewing materials. To agencies already short on resources, the time and effort required to do so were unanticipated. Political pressure from Riverside County and the Federal Government was helpful here.
- *Funding challenges.* The RCIP process required significant additional funding for costs such as the third-party facilitation, general consultant support, and staff time at the agencies. The RCIP office was funded through a variety of sources, including the TCSP as well as general county funds. The county funded the project up front, covering costs of the project until grant funds were delivered. The county was challenged to maintain its funding support throughout the project's lifespan.
- *Setting ground rules.* RCIP staff said that working out some agreements ahead of time would have been helpful, such as the level of information needed for different parts of the planning process. Up-front agreements on how to go through each process would have made it easier for the different agencies to move forward.

Colorado: Strategic Transportation, Environmental, and Planning Process for Urban Places

Agencies and Organizations Involved

- Federal Highway Administration (FHWA)
- U.S. Environmental Protection Agency (EPA)
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Army Corps of Engineers (USACE)
- U.S. Department of Transportation (USDOT)
- North Front Range Metropolitan Planning Organization (NFRMPO)
- Colorado Department of Transportation (CDOT)
- Colorado State Historic Preservation Office
- Colorado Division of Wildlife

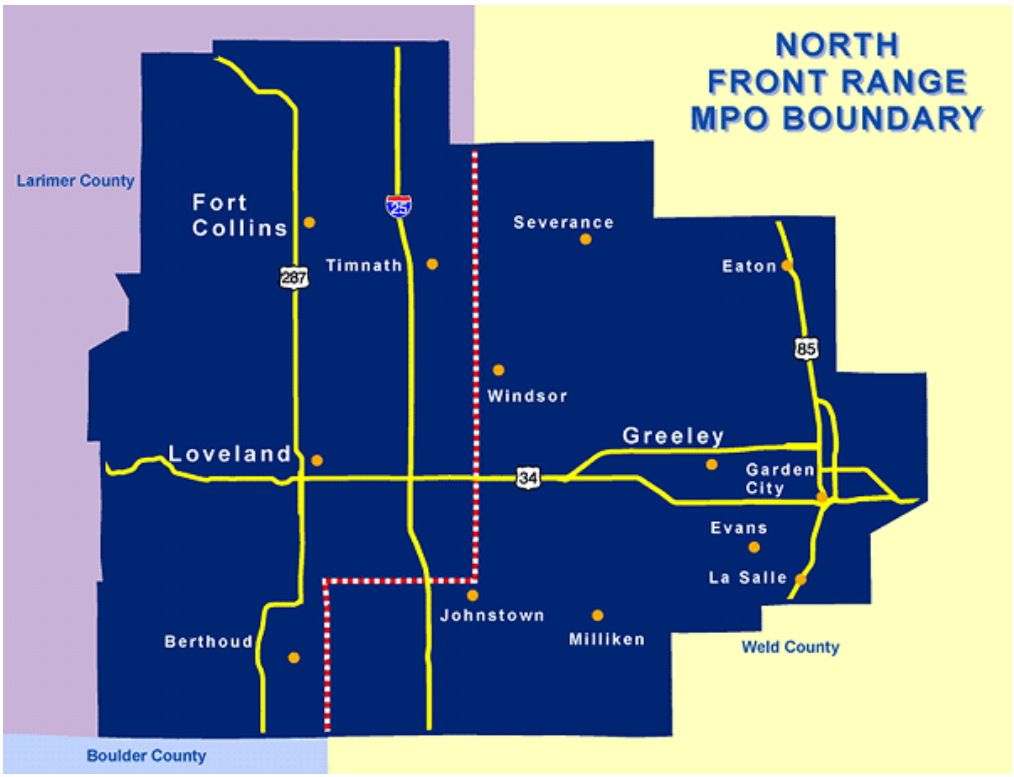
For additional information, please contact Suzette Mallette, NFRMPO Regional Planning Manager, at (970) 416-2257 or SMallette@nfrmpo.org.

Section 1: Overview

Colorado's Strategic Transportation, Environmental, and Planning Process for Urban Places (STEP-UP) is an environmental streamlining pilot project aimed at integrating environmental considerations into transportation planning. STEP-UP is a partnership of CDOT, FHWA, EPA Region 8, and NFRMPO. The STEP-UP process applies to the NFRMPO planning region, covering 1,600 square miles and approximately 380,000 residents.[1] The NFRMPO area spans north of Denver to the Fort Collins metropolitan area, up the I–25 corridor (see figure 1).

[1] http://www.nfrmpo.org/about/faq.asp

Figure 1: Map of NFRMPO and surrounding areas



STEP-UP responds to section 139 of the Transportation Equity Act of the 21st Century (TEA-21), promoting expedited and integrated environmental review processes for transportation projects.[2] The State of Colorado was interested in linking planning and NEPA projects more tightly under its own directives.[3] In response, NFRMPO, CDOT, and FHWA's Colorado Division office began discussing ways to identify and address environmental considerations earlier in the planning process. Geographically, the North Front Range area was a good choice, due to its moderate size and rapidly growing urbanized areas.[4] In addition, NFRMPO was a perfect candidate because of its interest in these linkages, technical capabilities, and data resources. The MPO had very good relationships with its local jurisdictions and pursued guidance from FHWA and CDOT for better integrated planning processes. Technically, the MPO had established in-house travel demand and land use modeling capabilities as of 2000. Supplementing its technical tools, CDOT had recently completed an extensive EIS for the North I–25

[2] Section 139 of TEA-21 called for a coordinated environmental review process by which USDOT would work with other Federal agencies to ensure that major highway and transit projects are advanced according to cooperatively determined timeframes. In addition, section 139 emphasized concurrent reviews, mandated creation of a dispute resolution process between USDOT and other Federal agencies, allowed States the option of including their environmental reviews in the coordinated environmental review process, and authorized the USDOT Secretary to approve requests to reimburse Federal agencies for expenses associated with meeting expedited timeframes.

[3] Linking Planning and NEPA report. See guidance at http://www.dot.state.co.us/environmental/Training/NEPA_index.asp.

[4] MacDonald, T. and P. Lidov. May 2005. STEP-UP Phase I Report. Report No. CDOT–DTD–2005–03. Available online at http://www.dot.state.co.us/Publications/PDFFiles/stepup.pdf.

project, covering most of NFRMPO's jurisdictional corridors, meaning data availability would be less of an issue.

STEP-UP improves evaluation of a project's environmental issues in the regional planning process, engages full and early participation of all relevant agencies, improves the NEPA decision making process, and informs the local project prioritization process. The pilot project had three phases.

Phase 1 was completed in early 2005. It identified the STEP-UP project goal and its implementation process, including:

- An improved process and methodology for addressing environmental impacts related to transportation projects at the earliest possible stage
- GIS-based tools for identifying the impacts of transportation projects and plans early on
- A Regional Cumulative Effects Assessment process for NFRMPO's Regional Transportation Plan to help understand the effects of transportation development on land use and the environment.[5]

Phase II involved creation of an environmental GIS Web-based application, including data gathering and pilot testing from November 2006 to April 2007. CDOT planned to use this pilot to prepare for eventual statewide implementation. NFRMPO also prepared to use this environmental screening in its transportation planning process to begin in 2007.[6]

In Phase III, NFRMPO is presently using STEP-UP in its transportation planning process, due at the end of 2007.

STEP-UP ultimately will result in a model planning process for identifying environmental issues early in development of the long-range regional transportation plan; ensuring early and continued involvement by resource agencies; creating a better link between transportation, environmental, and land use planning; and implementing transportation improvements that protect the environment, enhance quality of life, and promote community values.[7] STEP-UP's additional/supplemental goals include improving the local project prioritization process and initiating the regional cumulative environmental assessment framework.

Integrated Planning Applications

Colorado's statewide transportation planning is the overarching structure in which STEP-UP, the modified process, operates. In 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) revised titles 23 and 49 to require States to prepare a Statewide

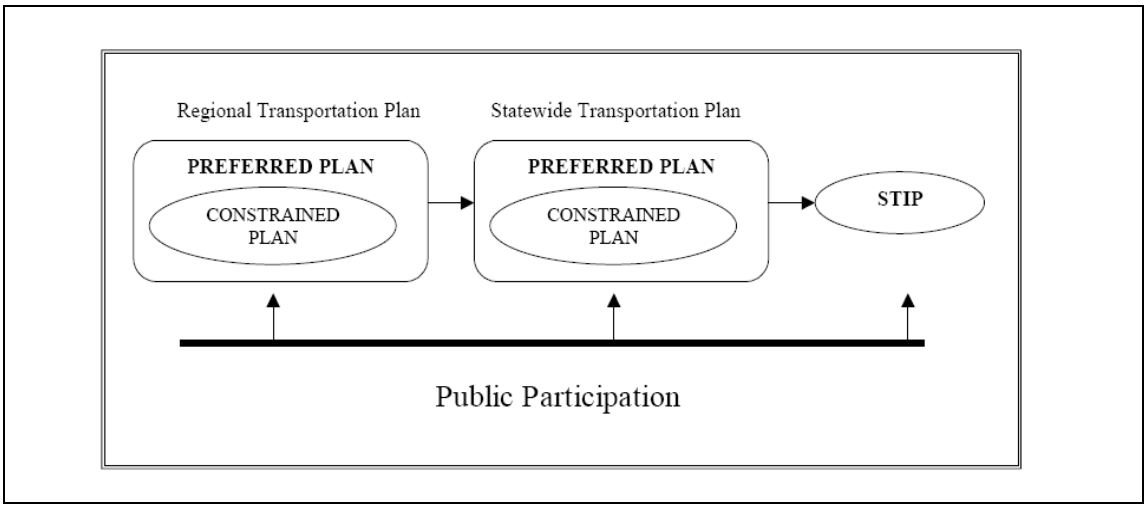
[5] MacDonald

[6] "STEP-UP Phase II: Final Report for Input to NFRMPO 2035 Regional Transportation Plan." Prepared for NFRMPO, CDOT, and FHWA by Carter Burgess. April 2007.

[7] MacDonald

Transportation Plan (STP) and Statewide Transportation Improvement Program (STIP). State legislation designated CDOT as the agency to address all modes of transportation in Colorado at the State, regional, and local levels. CDOT has 15 Transportation Planning Regions (TPRs), one of which is NFRMPO. The TPRs now develop their own Regional Transportation Plans (RTPs), which require attention to multimodalism and greater public participation during plan development.[8] CDOT and the statewide Transportation Advisory Committee review the RTPs and integrate them to create Colorado's STP for the 20-year horizon. Each TPR/MPO is on the same cycle, meaning all RTPs are created and submitted to CDOT concurrently approximately every 4–5 years.[9] Using the STP and RTPs, CDOT and NFRMPO prepare the STIP, which contains a list of specific, near-term (4–6 years) transportation improvement projects. Though not a Federal requirement, the STIP contains each MPO's Transportation Improvement Program (TIP), which is a list of fiscally constrained, near-term projects prioritized by the MPO. After the MPO funds specific projects they are listed on the TIP, and CDOT moves to bidding and construction (see figure 2).

Figure 2: A process flow chart showing Colorado's STP process[10]



Within this statewide structure, NFRMPO has its own process, generally consisting of the following steps:

- *Call for Projects:* Local governments and CDOT submit projects for consideration in the RTP.

[8] MacDonald

[9] Depends on air quality attainment. Federal regulations require 4-year updates for those in nonattainment, 5 years for others. However, Colorado tries to keep all TPRs and MPOs on the same schedule, so these TPRs are encouraged to update at the same time as the nonattaiment areas.

[10] Opperman, Yates. Linking Planning and the National Environmental Policy Act. March 2007. Available through CDOT.

- *Project Prioritization Process:* Projects submitted are reviewed for eligibility, including regional significance, and are then categorized, evaluated, and ranked. Previously, no environmental criteria were included as part of this process.

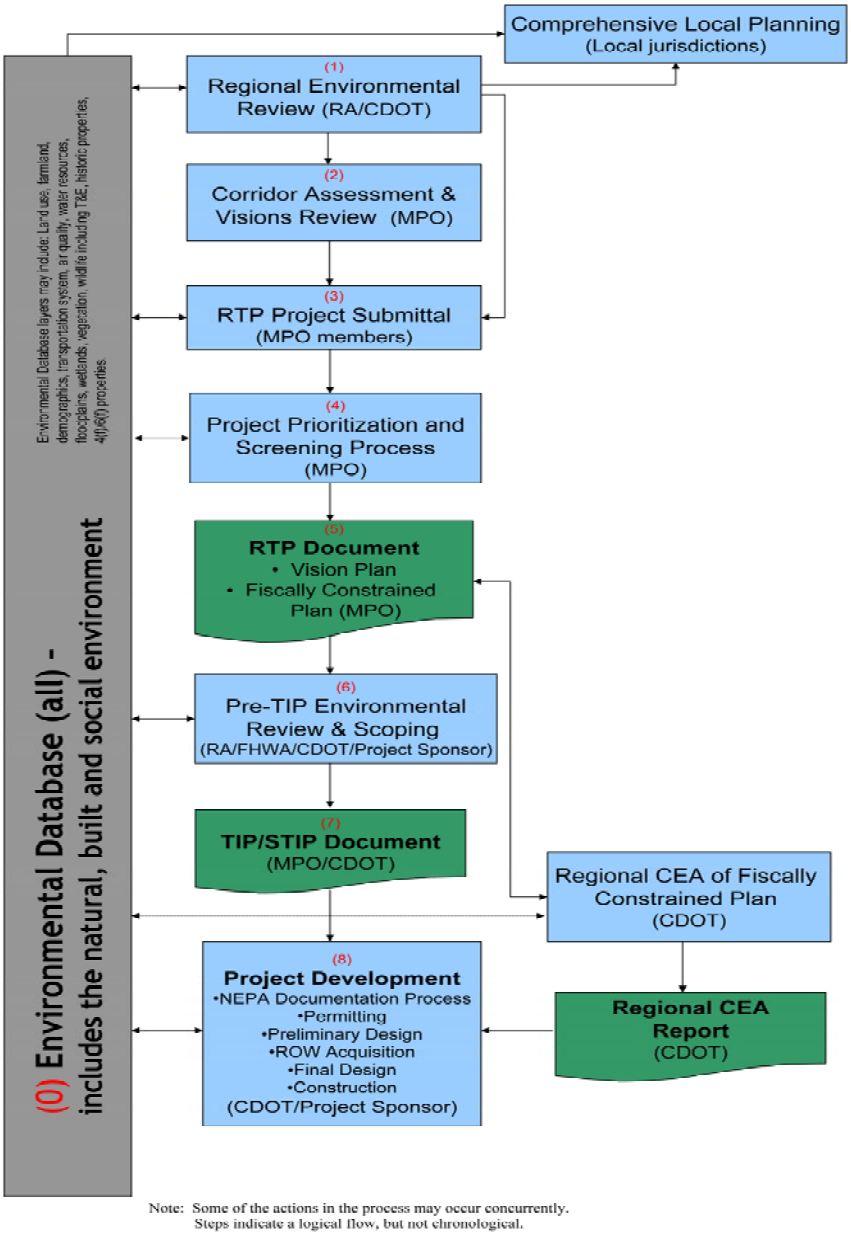
- *RTP Development:* If a project is eligible, the Planning Council approves it for inclusion in the RTP. The RTP consists of a Vision Plan and Fiscally Constrained Plan. Ultimately, NFRMPO's RTP is incorporated into the STP. The RTP is updated every 4 years and includes a vision and goals, an opportunity for public component, inventory of the existing transportation system, socio-economic and demographic profile, travel demand model, mobility demand analysis, corridor visioning, project identification, preferred or vision plan, and the final adopted plan.

- *Prepare TIP:* The TIP presents a 6-year schedule of multimodal projects from the fiscally constrained portion of the RTP. The TIP is updated at least every 4 years and must show conformity with the Colorado State Implementation Plan for air quality. The TIP is incorporated into the STIP. A project included in the STIP is eligible for State and Federal funds and, based on its priority, moves into project development and implementation.[11]

Within both the State structure and the steps immediately above, STEP-UP is the environmental modification to the current planning process discussed above. The new integrated and modified process is highlighted below (see figure 3):

[11] MacDonald

Figure 3: Modified planning process showing STEP-UP and environmental elements[12]



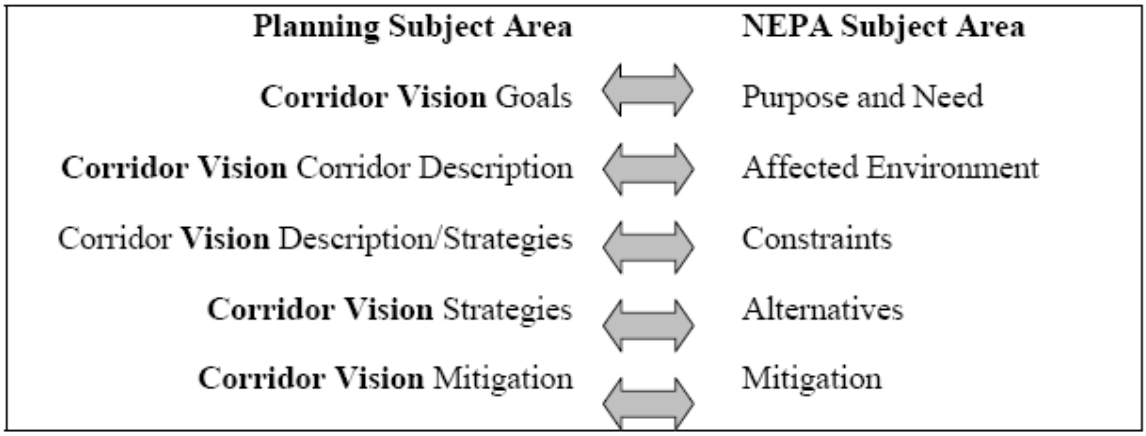
Step 1 – Regional environmental review. Under STEP-UP, NFRMPO developed specific environmental metrics and engaged resource agencies during preparation of the long-range transportation plan. Resource agencies review environmental data via an online, GIS-based tool and assist NFRMPO in identifying environmental issues associated with wide transportation corridors rather than looking at specific projects.

[12] Phase II Report p.2

Early involvement of the resource agencies allows early identification of critical environmental issues and avoidance of issues that can become fatal flaws at the project level. Participation of resource agencies in development of corridors and corridor visions also helps them to better prioritize projects for more detailed or targeted review. For example, if the agencies know in advance that a large project is located in an environmentally sensitive corridor, and they know the potential environmental issues within that corridor, they can plan accordingly and become involved at the corridor stage. Overall, the resource agencies were very pleased with the STEP-UP process.

Step 2 – Corridor assessment and visions review. Each region must identify significant transportation corridors and determine the visions, goals, and strategies for each corridor. A corridor is a transportation system that includes all modes and facilities within a geographic area described by length and width. NFRMPO developed visions for each of its proposed corridors that included environmental goals and objectives, in addition to transportation needs and strategies. The corridors are I–25, US 287, and US 34 (see figure 1). NFRMPO intentionally designed the environmental goals and objectives to be consistent with the goals, strategies, and missions of the resource agencies with major roles in transportation project development and the environmental review process. Environmental criteria are also used quantitatively as one of several metrics to prioritize corridors, determining which corridors should be advanced to the next phase of planning and project development. Figure 4 shows the parallel nature of corridor planning and the NEPA process.

Figure 4: Similarities in corridor planning and the NEPA process[13]



Step 3 – RTP project submittal. Local jurisdictions within NFRMPO develop projects for inclusion in the RTP. The local jurisdictions use the environmental database to determine alignments and preview environmental clearances that may be required. Jurisdictions can also more accurately determine project costs by avoiding environmentally sensitive areas or limiting impact.

Step 4 – Project prioritization and screening process. Projects submitted by the local jurisdictions are reviewed and scored using a GIS tool developed by STEP-UP to include environmental layers. The previously identified environmental issues are used by CDOT

[13] Opperman

to develop specific projects in a more environmentally sensitive manner, given the environmental context in the corridor.

Step 5 – RTP document. NFRMPO prepares the RTP document every 4 years. The RTP contains a list of long-term, multimodal transportation needs and a list of shorter term, high-priority projects. Projects must be consistent with the vision of the corridor where they are located. Prior to STEP-UP, the planning process did not provide a quantitative means of considering environmental data, nor did it provide a venue for resource agency input. However, now STEP-UP provides member governments with evaluative environmental data for both transportation and land use planning.

Step 6 – Pre-TIP environmental review and scoping. CDOT, FHWA, resource agencies, and project sponsors conduct a more detailed environmental review of the top projects on the RTP prior to moving them onto the TIP. The review includes determination of the appropriate NEPA class of action for each project, identification of resource agencies, development of purpose and need, and determination of environmental/NEPA cost considerations. Many of these decisions are informed both by the public processes in the previous steps and the STEP-UP database.

Step 7 – TIP/STIP document. NFRMPO prepares a list of projects for the next 6 years, updating the list at least every 4 years. TIP projects are integrated into the STIP to be eligible for State and Federal funding.

Step 8 – Project Development. Specific projects are scheduled for bid letting and construction. For each selected project, the NEPA process is completed and the project is designed.

Section 2: Data and Tools

The STEP-UP program itself is an innovative tool. The GIS tool/database is a nonproprietary, interactive, online GIS database application, populated with many different data resources to support the modified planning process. The entire planning process is captured through STEP-UP.

> The STEP-UP process resulted in a good understanding of the various roles and responsibilities of all involved. – *Rena Brand, USACE*

Through several meetings in October–December 2004, the STEP-UP Steering Committee and its workgroups created the GIS STEP-UP platform design. Participants in these meetings included staff from the consultant, representatives of the agencies on the Steering Committee (CDOT, FHWA, EPA Region 8, and NFRMPO) and volunteers from other agencies that might be involved in STEP-UP's future initiatives. The Steering Committee agreed on three design objectives for the STEP-UP GIS program. The program should:

- Represent each step in the modified planning process in figure 3, with one or more user-friendly application interfaces. The interfaces must be accessible by Steering Committee members and applicable resource agencies.

- Provide dynamic mapping of environmental issues, proposed projects, and transportation planning corridors.

- Produce a reusable database of projects and environmental data to ensure that the data produced through this application will be available across planning efforts or planning cycles.[14]

The STEP-UP GIS program maximized this user-friendliness and accessibility.

From a technical standpoint, the Steering Committee made several decisions regarding the primary delivery platform, specific development standards enforced by CDOT, and data management. CDOT standards were used in the design of the application and were the initial host of the GIS program. The only requirements of use were a standard Web browser, such as Microsoft Explorer, and Internet connectivity. Later, the pilot application was created using Microsoft.NET. All of the GIS components are hosted in the CDOT system, and thus do not require individual user licensing or additional elements.[15] The program also uses an Oracle database, folding that relational database capability into the GIS component (ArcSDE – Spatial Database Engine). All environmental data are GIS-based or Oracle-based for data standardization. This structure allowed for the greatest ease of use.

Two important factors must be considered when constructing a GIS database for an integrated planning initiative like STEP-UP:

1. *Data quality and level of detail* – Using data from many different sources means substantial variations in quality and resolution of the data. The level of detail covered by different data sets varies considerably. For example, National Wetland Inventory mapping data is sufficient for constraint mapping, but not for NEPA permits.

2. *Data security and access* – Some data sets used to integrate planning and environmental considerations are considered sensitive and are subject to security measures and access rights. Data related to location and content of archaeological sites falls into this category. Archaeological sites are often vandalized and looted, so spatial data related to their locations must be limited.

The Steering Committee wanted to include these different layers in the GISdatabase:

- Floodplains
- Watersheds and hydrologic units, including impaired waters
- Wetlands
- Waters of the United States
- Dams and impoundments
- Threatened and endangered species
- Critical habitat and migration corridors
- Game species habitat
- Hazardous waste sites
- Abandoned mines

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[14] Phase I Report p. 34

[15] GIS mapping for Web-based applications is based on ESRI's Arc Internet Mapping Server (ArcIMS). ArcIMS provides extensions to the Web server so that maps can be included in Web pages provided to end users.

- Oil/gas wells
- Section 4(f) resources including parks, recreation areas, and wildlife refuges (no historic resources)
- Existing land use
- Existing zoning
- Future land use
- Urban growth boundaries
- Regional roadway network
- Air quality status
- Socio-economic census data
- Farmland

Much of this data was collected during the North I–25 Environmental Impact Statement (EIS).[16] However, some of these mapping layers were incomplete, including:

- Historic resources
- Additional hazardous materials data
- North Front Range land use layer
- Soil data for identification of farmlands
- Wildlife data in addition to threatened or endangered species

Additional sources included the different resource agencies and the University of Colorado. To facilitate expansion of the GIS database, CDOT requires consultants working on transportation projects to provide electronic data sets of environmental information collected during Environmental Assessments (EAs), EISs, and other environmental studies.

After a pilot version of the GIS database was created on the Internet, the Steering Committee tested its functionality for use, and then its informational resources. Following the kickoff meeting for the pilot, participants were given 3.5 weeks in December 2006 to submit electronic comments on the environmental data layers and the NFR corridors (I–25, US 287, and US 34).[17] One example of the database's strong interface was given in the Phase II report:

> A user could create a comment that indicates that all wetlands of a certain type should be classified at a certain level of constraint (low, medium, or high). An exception to this rule could be created through an additional comment that selects one or more features from the wetland layer and indicates that the level of constraint should be higher than indicated by the first comment. The resource agency user will be able to track the data administrator's progress in resolving these comments through the same interface. Each user would only be able to provide this type of comment and direction on layers assigned to their agency.[18]

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[16] Phase II Report p. 3

[17] Phase II Report p. 3

[18] Phase II Report p. 3

Most of the comments and issues were resolved. Overall, participants were pleased with the STEP-UP product. Any remaining issues revolved around the missing data layers. These layers were not included in Phase III testing of the GIS program for the NFRMPO test, presently occurring for its RTP 2035. Outside of the initial $250,000 Federal grant, there are no plans to maintain the STEP-UP database. In fact, CDOT has switched from a .NET-based system to a java-based system, meaning STEP-UP will not be replicated in its current form. CDOT has a similar parallel effort called GeoMap under this system. GeoMap can use the STEP GIS data but has a different user interface. The STEP-UP GIS program will not continue past this current RTP cycle for NFRMPO.

Section 3: Scheduled Cooperation and Interaction Processes

Development of STEP-UP took place from 2003 to 2007. Initially, meetings with all participating agencies were held at least once per month. Once the process was underway, meetings occurred once every 6 months. Communication also took place informally through phone calls and e-mails. A steering committee composed of staff-level representatives from NFRMPO, CDOT, EPA, FHWA, USACE, and USFWS attended these meetings.

Interagency cooperation and participation is a critical aspect of STEP-UP. Recognizing some of the benefits of STEP-UP and participating in the long-range transportation planning process, each resource agency voluntarily dedicated a staff member who could participate in the STEP-UP meetings and provide input on the initiative.

At the outset of the STEP-UP meetings, few members of the planning group were well versed in both the NEPA and transportation planning processes. However, regular meetings and communication laid the groundwork for increased understanding of both processes and responsibilities.

Section 4: Legal Framework

STEP-UP is a completely voluntary process. NFRMPO and other STEP-UP participants discussed the possibility of developing memoranda of understanding (MOU), but decided it was not necessary due to the small, regional scale of the STEP-UP pilot project. A formal interagency agreement such as an MOU will be needed if STEP-UP is adopted at a statewide level.

Section 5: Leadership Role

CDOT and NFRMPO took strong leadership roles in working with resource agencies and arranging meetings. Both these agencies were also supported by consultants for project development of STEP-UP, funded through the FHWA grant. Interested resource agencies were involved in a steering committee that helped to guide the process and methodology. The steering committee was composed of representatives from CDOT, EPA, FHWA, and NFRMPO. The committee also formed workgroups to address specific areas related to development of STEP-UP: Cumulative Effects, Planning, Data Repository, and Tools. Members of the steering committee, the consultants, and staff from other stakeholder agencies participated in these workgroups.

Section 6: Funding Sources and Liaisons

In July 2003, FHWA's Colorado Division office distributed $250,000 in FHWA funding for the STEP-UP pilot project.[19] NFRMPO used a phased approach for the STEP-UP project, completing Phase I (Project Development) and Phase II (Project Testing) with the funding provided. Phases II and III would have been integrated as part of NFRMPO's long-range transportation planning if additional funding had been available in the future.

While NFRMPO hired consultants using the FHWA funds, no additional hires were made by any of the participating agencies. Agency staff voluntarily shifted workloads to participate in the STEP-UP process.

Section 7: Performance Measures and Outcomes

STEP-UP does not have a standard/formalized performance measurement system in place. None of the Steering Committee agencies are using performance measures related to this pilot project as well.

Section 8: Lessons Learned

- *Data management.* Data management is a critical component of an information-based decision making process such as STEP-UP. This management includes standardizing, storing, and updating data. This issue would have been especially difficult for Phase III of STEP-UP since it expands the scope of the data management effort and involves greater commitment to making data available.

- *Understanding agency roles and responsibilities*. Understanding agency roles and responsibilities is important for managing expectations, ensuring process predictability, and ensuring inclusion of the most accurate data. A USACE representative found that group discussions were helpful for educating participating organizations about each other. Prior to the STEP-UP process, some of the organizations had seldom worked with each other. USFWS representatives commented that STEP-UP was proactive and cooperative, and could be easily transferred to other jurisdictions.

- *Creative methods.* Innovative methods can be used to obtain missing data. For example, data from an ongoing EIS were used in conjunction with other environmental data available from resource agencies and entities, such as the University of Colorado. To facilitate expansion of the GIS database, CDOT is requiring consultants to provide electronic data sets of all environmental information collected during transportation EAs, EISs, and other environmental studies.

- *Early and in-depth agency participation.* Early agency participation has been key to STEP-UP's success. Resource agencies review environmental data via an online, GIS-based tool, and help NFRMPO identify environmental issues related to wide transportation corridors rather than look at specific projects.

[19] Phase I Report p. 1

Florida: Efficient Transportation Decision-making Process

Agencies and Organizations Involved

Federal

- Advisory Council on Historic Preservation*
- Federal Highway Administration (FHWA)*
- Federal Transit Administration (FTA)*
- National Marine Fisheries Service (NMFS)*
- National Park Service (NPS)*
- National Resources Conservation Service (NRCS)*
- U.S. Army Corps of Engineers (USACE)*
- U.S. Coast Guard (USCG)*
- U.S. Environmental Protection Agency (EPA)*
- U.S. Fish and Wildlife Service (USFWS)*
- U.S. Forest Service (USFS)*

State

- Florida Department of Agriculture and Consumer Services*
- Florida Department of Community Affairs*
- Florida Department of Environmental Protection*
- Florida Department of State*
- Florida Department of Transportation (FDOT)*
- Florida Fish and Wildlife Conservation Commission*
- Florida Metropolitan Planning Organization Advisory Council*
- State Historical Preservation Officer*

Local

- Northwest Florida Water Management District (NWFWMD)*
- South Florida Water Management District*
- Southwest Florida Water Management District*
- St. Johns River Water Management District*
- Suwannee River Water Management District*

Tribal

- The Seminole Tribe of Florida
- The Miccosukee Tribe of Indians of Florida

* Signatory on the original MOU

For additional information, please contact Buddy Cunill, Environmental Program Development Administrator at the Florida Department of Transportation at (850) 414-5280 or buddy.cunill@dot.state.fl.us.

Section 1: Overview

In response to the Transportation Equity Act for the 21st Century (TEA-21) of 1998, FDOT initiated the Efficient Transportation Decision-making Process (ETDM), a system designed to streamline the transportation planning and project development process without compromising the quality of Florida's human and natural environments. The goal of the project was to develop a process for early and continuous resource agency input into the FDOT environmental review, decision making, and permitting process to make project delivery more efficient and less costly. As in many States, prior to development of ETDM, Florida's transportation planning and project development process could take 10–15 years due to long periods between process steps and late agency involvement.

In February 2000, FDOT convened Federal, State, and local agency representatives at an executive summit to request their support in reexamining the entire transportation planning and project development process, including environmental review and permitting cycles. The vision statement developed at the summit called for "a systematic approach that integrates land use, social, economic, environmental, and transportation considerations" and "lead[s] to decisions that provide the highest quality of life and an optimal level of mobility for the public we serve."

> "Let's get everyone at the table and find out what we can do" was the initial attitude and approach to the development of ETDM. *– Buddy Cunill, FDOT*

Participating resource agencies and metropolitan planning organizations (MPOs) were asked to designate one point of contact to serve on multiagency workgroups. These workgroups were designed to address specific components of transportation planning and project development, including socio-cultural effects, public involvement, indirect and cumulative effects, and performance management. Many of the initial workgroup meetings involved information sharing among the participants. These meetings gave all parties a better understanding of Florida's mobility needs and the associated issues for the environment and local communities. Later in the process, agency representatives were asked to examine which changes would make their environmental review process easier and more streamlined. Much of ETDM's development was based on feedback from individual agencies about what would be the most beneficial information for their daily activities. Many of the agencies had already been through internal review processes for transportation plans, and much of the resulting information was incorporated into the overall ETDM process.

In all, 24 Federal, State, and regional agencies participated in development of the ETDM process and associated technology. They signed a memorandum of understanding (MOU) committing them to continued development and implementation of the ETDM process. The MOU outlined how the ETDM process would involve agencies and ensure continuous agency participation. It also provided agreement on which agencies required access to project and resource data in order to provide input into project development and planning. The goal of the ETDM process was to provide an improved method of issuing environmental permits. The MOU was initially supported by a Master Agreement and Agency Operating Agreements as addenda.

The ETDM process is composed of three phases: Planning, Programming, and Project Development (see figure 2). The Planning and Programming phases are screening processes, which engage resource agencies early. The Planning Screen is completed during development of long-range transportation plans by MPOs. Agency participants review the Purpose and Need Statement, and provide comments on potential impacts to

environmental and community resources. This allows planners to adjust project concepts to avoid or minimize impacts, develop alternatives, and produce accurate cost estimates by examining land use issues, ecosystem management, community insight, and mobility concerns.

The Programming Screen results in a report that summarizes the project details, including the project description, summary of public and agency comments, and project purpose and need. The screen provides information on the history of identified alternatives and the Environmental Technical Advisory Team's (ETAT) reviews of direct, indirect, and cumulative effects.

> The ETDM screening phases allow FDOT to focus on issues that warrant further evaluation during project design and development. The phases have also minimized the number of project alternatives that are considered in detail during the environmental review.

As a result of the two screening phases, FDOT is able to focus efforts on issues that warrant further evaluation during project design and development, rather than on proving that issues do not exist. The phases also minimize the number of project alternatives that are considered in detail during the environmental review.

Throughout the ETDM process, the Environmental Screening Tool (EST), an Internet-accessible interactive database, is used to document project changes, evaluate impacts, and communicate project details to agencies and the public. MPOs, FDOT, and the Florida Geographic Data Library enter information, which is translated into geographic information system (GIS) data layers, and made available to the public.

Figure 1. Illustration of EST process from input to user interface

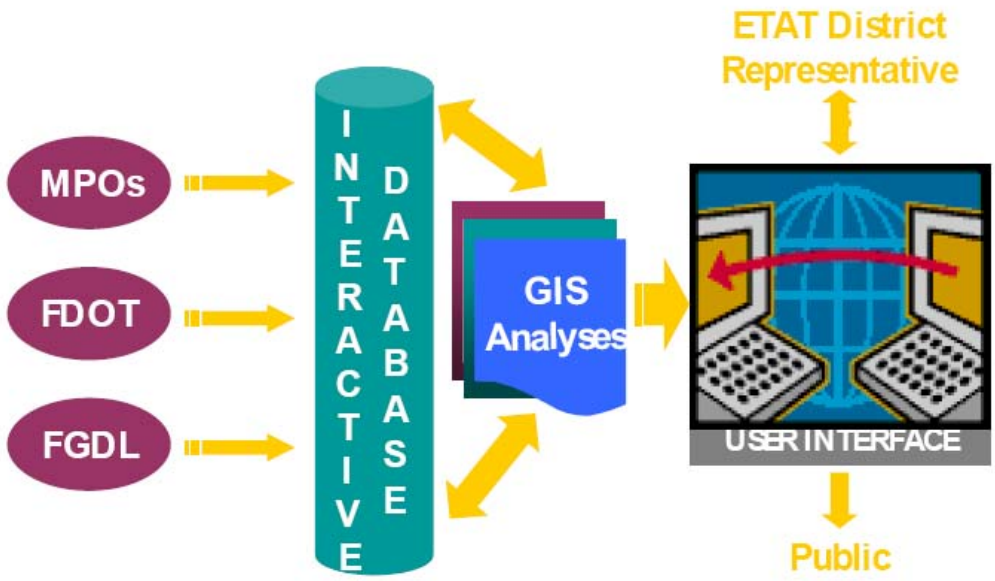
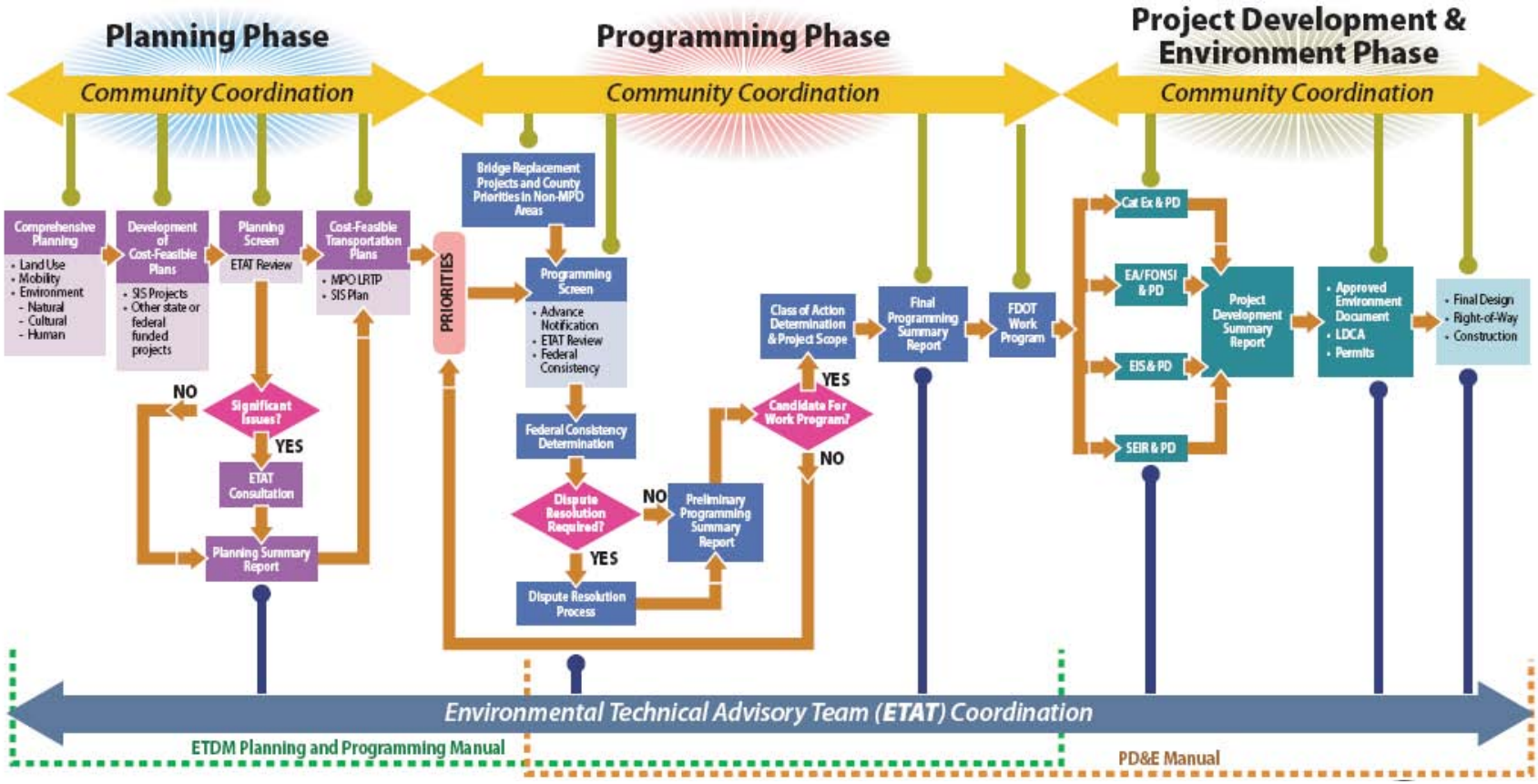


Figure 2. The ETDM process from Planning to Programming and Project Development



Once priority projects have been selected for inclusion in FDOT's Five-Year Work Program, they enter the Programming Screen. This phase allows the agency to identify potential problems and issues that might arise in the environmental review and permitting process through public and agency scoping, including compliance with Federal and State environmental laws. If issues cannot be resolved, they enter the dispute resolution process. USFWS has found the process helpful in flagging potentially problematic projects.

Agency interaction throughout the planning and project development process is extremely important to the ETDM process. This interaction is facilitated through ETAT groups that have been developed in each of the seven FDOT districts to include one representative from each of the planning, regulatory, and resource agencies in the district. Each ETAT provides a forum for public and agency scoping, field reviews, support, technical studies, and environmental document review.

Integrated Planning Applications

The EST brings together information and project plans from MPOs and FDOT. The EST provides standardized analysis of proposed projects using resources developed by ETAT, giving commenting agencies the opportunity to compare projects and potential impacts. Summary reports are developed by ETDM Coordinators and contain key recommendations and conclusions for the potential impacts identified by ETAT. These recommendations serve to guide planners in determining transportation priorities and provide feedback to participating agencies and the general public. Environmental concerns are integrated to the project development process from an early stage through use of the EST.

Currently the EST database houses information on 1,158 projects. ETDM coordinators send out e-mail notification of proposed projects to agencies for comment. Some agencies review upwards of 35 projects per year, depending on their jurisdiction and interest. Since 2003, more than 274 projects have successfully completed the ETDM process.

Section 2: Data and Tools

FDOT's EST is integral to the ETDM process. Data for this Internet-accessible interactive database tool is collected from all of the resource agencies involved in transportation planning and review, then fed into the Florida Geographic Data Library's comprehensive digital information database. In addition, FDOT and local MPOs can enter project-related data into the system, which is integrated and disseminated to resource agencies and the public. FDOT developed an Internet-accessible interface that allows users to conduct GIS queries and analysis.

The EST was developed in a collaborative environment to accurately reflect the needs of each participating agency. Joint application development sessions featuring evolutionary prototyping were used to develop priorities that fit user needs. The tool was also designed to allow for cross-agency coordination and information sharing.

EST users can view the affected area of a project and complete basic GIS analysis automatically to highlight areas of concern. For example, most analyses include National Register sites that lie within 1 mile of the project, wetland acreage and type affected by the project, and contaminated sites located within 1 mile of the project (figure 3). Based on this information, agency representatives can coordinate internally and form a position on the proposed project.

Figure 3. Screen capture of the EST GIS analysis

The application has two user interfaces: a read-only site available to the public and a secure-entry site available to contributing resource agencies. Each agency is required to submit digital information at no cost about the resources it protects. Each data source is on a different update cycle, ranging from biweekly to annual updates. Reminder e-mails are sent to contributing agencies when their datasets are due. In addition, each agency's ETAT representative is responsible for sending new information about agency plans, initiatives, biological assessments, research projects, and field reviews within 90 days of completion. Once this information has been received, a quality assurance/quality check (QA/QC) is completed on all data before it is published. In addition, before a new data layer can be published in the system, it must pass through an internal review, including a final review by the submitting agency. Once new data has been uploaded, the system distributes an automated electronic notice to registered users.

Currently, EST features approximately 500 data layers, most of which are available for public review. Data layers that fall into one of the following categories are generally not available to the public:

1. Data sets that are exempt from public records (e.g., archeological sites)
2. Licensed data sets

Agencies often submit overlapping data sets. Rather than prioritizing one agency's data set over another, EST presents each agency's information as a different set of GIS layers. This allows the user to decide which information is most useful.

The EST user community is made up of approximately 500 representatives from 24 resource agencies, 26 MPOs, 6 FDOT districts, 2 tribal governments, and the public. The number of individuals accessing EST was too large for the data to be housed on a firewalled server within FDOT, so it was housed on servers provided by the University of Florida's GeoPlan Center. GeoPlan also handles much of the database administration,

including developing online project reviews, generating reports, and archiving the data. However, agency representatives are responsible for ensuring that their data is current.

In addition to a user's guide and training syllabus that is available online, support and training staff are in place to assist EST users. Help Desk staff provide user support during regular business hours, and training is available upon request.

Section 3: Scheduled Cooperation and Interaction Processes

The ETDM process is coordinated by local ETAT Representatives and ETDM Coordinators. This organizational structure was outlined in the MOU. ETAT representatives are responsible for ensuring that the actions carried out by the ETAT teams satisfy the statutory obligations of their agencies. Therefore, it has proven important that these representatives are knowledgeable of their internal agency approval processes and have access to key leaders within their respective agencies. It has also been important that this Representative accurately present the concerns and preferred alternatives of the agency on project-related matters. The ETDM coordinator is the ETAT member representing the FDOT district. This person is in charge of coordination outside the ETAT with district management, project managers, MPOs, and consultants. At the local level, community liaison coordinators are responsible for informing communities of potential project-related impacts, including conducting public outreach, identifying socio-cultural effects, and making summary reports available to the public. These Coordinators are expected to reflect community opinions when meeting with ETAT members.

To affirm the cooperative environment, all written agreements were set and renewed with certain timeframes. In addition, all decisions were made through the mutual agreement of everyone at the table. As previously discussed, an automated conflict and dispute resolution process starting with the Planning Screen and ending with the Programming Screen was developed to ensure that all future disagreements were appropriately resolved and documented. These conflicts often revolve around projects that are contrary to goals and policies set out by the State of Florida or the Federal Government, are unable to be permitted, have a purpose and need disputed, or involve a very high cost to the agency. If conflict arises during the Planning Screen, ETAT Representatives and the ETDM Coordinator work to resolve the issue. If the problem persists, the project is flagged as it goes into the Programming Screen. If the issue cannot be resolved at the local level, it is passed along to statewide or regional agency leads, who review the project information and associated technical studies. The project can be modified to resolve issues, advanced, rejected, or deferred to the governor to make the final decision.

Section 4: Legal Framework

In addition to the MOU signed in December 2001 stating the goals and principles of the project, participating agencies are responsible for signing three additional agreements with FDOT and FHWA: the Master Agreement, Agency Operating Agreement, and Funding Agreement. The Master Agreement notes an agency's acceptance of the overall ETDM process and associated performance standards, dispute resolution process, and regulatory authority. Originally, the Master Agreement was renewed every 2–5 years. Currently, signed Master Agreements are for a period of 5 years. The Agency Operating Agreement presents the specific responsibilities of the signing agency, including formal concurrence points and required permits. Last, the Funding Agreement presents the interagency funding requirements necessary for an agency to participate in

the ETDM process, including full-time equivalent positions, travel, training, and equipment. Quarterly status reports, review forms, annual reports, and semiannual feedback reports are associated with the Funding Agreement.

Any agreement modifications must be agreed upon by the same agency officials who executed and approved the original document. In addition, any agency can terminate its agreement if 60 days notice is given to the ETDM Coordinator.

Section 5: Leadership Role

Initial collaboration between FDOT and FHWA staff allowed for the preliminary information gathering that eventually led to the first interagency summit. Together, staff from these agencies worked to bring leaders from key agencies together to discuss issues and lay out a vision for what would become ETDM.

While ETDM began as a top-down executive leadership effort, it has continued through bottom-up agency coordination and leadership. Leaders from 23 Federal, State, and local transportation and resource agencies met at a summit meeting in February 2000. This meeting garnered high-level agency support to ensure continued momentum.

Section 6: Funding Sources and Liaisons

Prior to ETDM, there were no positions at resource agencies fully devoted to FDOT work. Since the project's inception, 35 positions have been funded through ETDM for work starting in the project planning phases and continuing through the construction phase. Each agency was different in which resources it could devote to the effort, and the program was able to fund a wide variety of hiring situations. Some agencies were able to hire temporary or full-time equivalent employees, while others outsourced the work to consultants. All funded positions were designed to work solely on FDOT projects, which allows for more open communication between agencies and full involvement of agencies throughout the transportation planning, programming, National Environmental Policy Act (NEPA), design, and construction processes. Having a point of contact at each agency has been very helpful to maintain continuity and institutional knowledge.

For Fiscal Year 2006–2007, $4.7 million in encumbered funds was designated by 17 agencies. Of that amount, $480,794 was spent by those agencies in that fiscal year. Unspent funds are reinvested into the program and utilized in future years.

FDOT, FHWA, and the resource agencies meet annually to review the funding program and discuss process issues and program accomplishments. Funding agreements are renewed for another year if all parties agree.

Section 7: Performance Measures and Outcomes

Early in the development of ETDM, FDOT determined that collecting, evaluating, and reporting on the performance of the program was integral to the success of the project. The ETDM Performance Measures Task Work Group was formed in February 2004 and met for two 2-day workshops and three teleconferences. Members of the Work Group included representatives of FDOT, FHWA, USCG, USFWS, USACE, and NWFWMD.

To evaluate existing performance measures, the Task Work Group conducted literature reviews, identified possible challenges, and established three preliminary goals:

1. Integrate ETDM into project delivery

2. Improve interagency coordination and dispute resolution
3. Develop environmental stewardship through protection of environmental resources

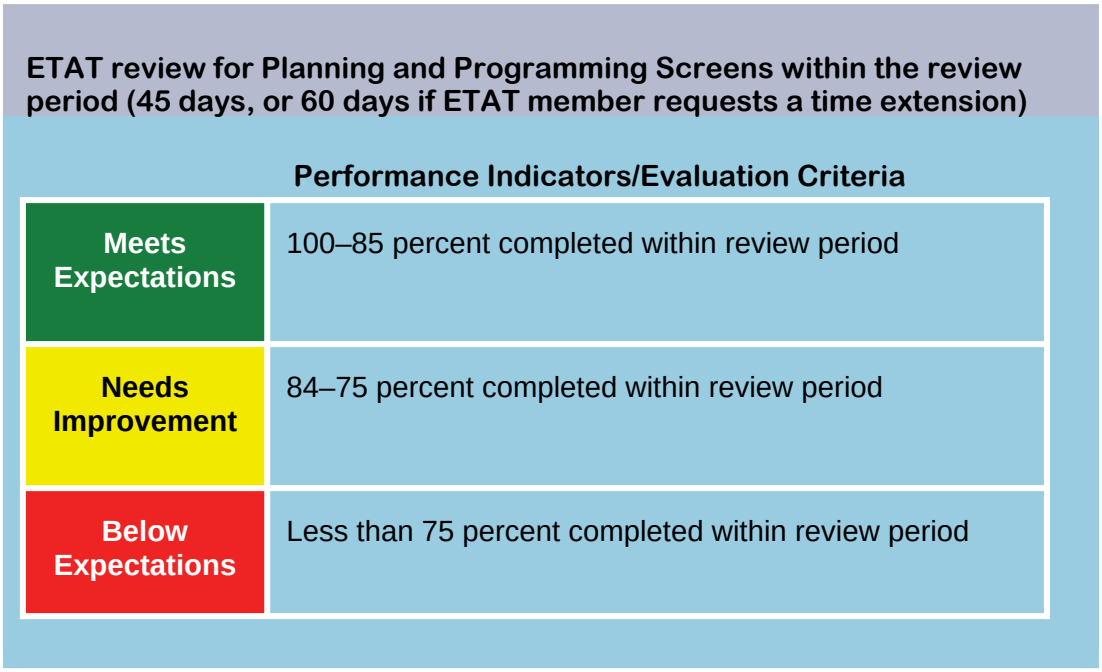
In its 2005 ETDM Performance Management Plan, the Task Work Group published 18 preliminary qualitative and quantitative measures that could be used to monitor each of these goals during the planning, programming, and project development stages.

Shortly after the 2005 report was published, the FDOT Central Environmental Management Office (CEMO) began to collect information about the environmental review process of previous FDOT transportation projects (e.g., project schedule, funding, and agency interaction). This information, combined with extensive discussions between the agencies, is being used to develop the final performance goals and expectations for each agency. The performance measures that are already in place include:

- Agency response received within the agreed-upon review period;
- Percent and number of projects in dispute;
- Percent of disputes resolved within 120 days;
- Percent of projects for which a review extension was requested;
- Percent of summary reports published within 60 days; and
- Number of projects with a Class of Action resulting in an Environmental Impact Statement (EIS), Environmental Assessment (EA), or Type 2 Categorical Exclusions.

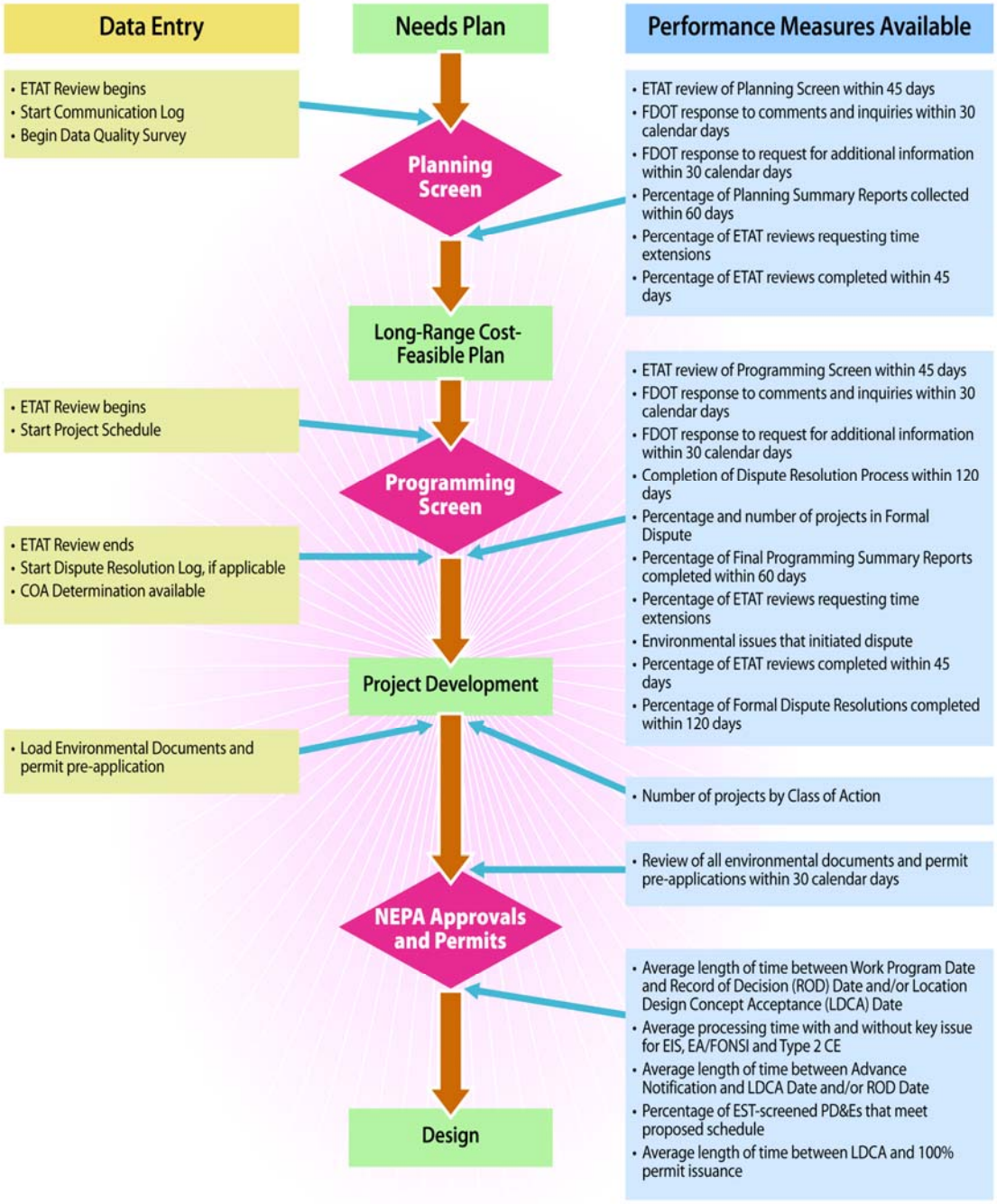
Each performance measure is developed with a set of targets and ranges using a tricolored indicator system. Green indicates efficient operation, yellow is a warning of potential problems, and red identifies a problem requiring corrective action (figure 4). The cut-offs for each level of performance are developed based on goals set by FDOT and FHWA, as well as discussions with the specific agencies. The final list of performance measures is currently under development and should be finalized in late 2007 or early 2008.

Figure 4. The ETAT performance measure indicator system showing the number of projects completed within the review period



Much of the information used to assess performance, expectations, accountability, and accomplishments is already being collected from each agency via online surveys; paper surveys; annual reports; one-on-one discussions and interviews; annual peer review meetings in each district; and workshops, seminars, and annual meetings hosted by FDOT. Most importantly, each agency is required to submit frequent updates based on the project schedule to the EST. FDOT has found the information already in the EST to be extremely helpful, as agencies and districts already submit this data as part of their regular work flow. The EST can be queried to develop an evaluation scorecard for each agency using the tricolored indicator system. If an agency receives a red or yellow classification, FDOT and FHWA work with it to determine the challenges and barriers that are causing the problem, then help develop a solution. The overall success of the ETDM performance management system is based on this ability to catch problems early and open lines of communication between agencies and districts.

Figure 5. The ETAT performance measurement process



Section 8: Lessons Learned

More than 274 projects have successfully completed the ETDM process, and have done so in a less costly and time-consuming manner than would have occurred without the process. Throughout the development stages, changes have been made to the process to address roadblocks and reflect lessons learned. Some of these key lessons are listed below:

- *Performance Management.* A method of measuring agency performance was developed to monitor the time needed to complete document review, turnaround, and processing. Qualitative and value-added measures, such as type of comments submitted, are included in the performance management program. In addition, FDOT is currently working with its districts to develop an automated online performance tracking system with a two-way feedback tool so that the districts can monitor the performance of FDOT headquarters, and vice versa.
- *Involvement.* Early involvement across all agencies allows key players to invest in the process and take pride in the outcome. It also creates an atmosphere where change is acceptable and expectations can be managed early on.
- *Trust Between Agencies.* Interagency agreements and open communication are crucial to maintaining trust throughout the process. Regularly held meetings were documented and made available to all participants. Communication among agency points of contact and within agencies was very important for success.
- *Conflict Resolution Process.* An automated conflict resolution process was developed to document conflicts at any point in transportation plan development. This process gives resource agencies an opportunity to flag issues in proposed projects.
- *Early Involvement of Agency Managers and Attorneys.* All decisions must go through agency supervisors and their attorneys. These players should be brought to the table early on so that decision making can be a smoother process.
- *Documentation.* Common program issues and decisions should be documented in program reference manuals in case similar problems arise later.
- *Mutual Development of Agreement Language.* All representatives should be involved in crafting the language of agreements. A forum should be developed so all agencies can remain involved through a Web site, e-mails, or teleconferences.

North Carolina: Environmental Stewardship Policy

Agencies and Organizations Involved

- Federal Highway Administration (FHWA)
- National Marine Fisheries Service (NMFS)
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Environmental Protection Agency (EPA), Region 4
- U.S. Army Corps of Engineers (USACE)
- North Carolina Department of Transportation (NCDOT)
- North Carolina Department of Environment and Natural Resources (DENR), Division of Water Quality
- North Carolina DENR, Division of Coastal Management
- North Carolina Department of Cultural Resources
- North Carolina Wildlife Resources Commission

For additional information on integrated planning initiatives and environmental stewardship and streamlining efforts at NCDOT, please contact Julie Hunkins at jhunkins@dot.state.nc.us or (919) 733-1175.

Section 1: Overview

The Environmental Stewardship Policy signed by North Carolina's Secretary of Transportation in 2002 is an integrated planning strategy for NCDOT. The policy supports North Carolina's goal to plan, design, construct, maintain, and manage an interconnected transportation system while striving to preserve and enhance the State's natural and cultural resources.

The policy refocuses NCDOT's mission to provide an integrated transportation system that enhances the State's overall well-being by encouraging all employees to practice environmental stewardship in their day-to-day activities. Championed by NCDOT leadership and incorporated into all facets of the agency, the policy has resulted in three particularly successful integrated planning applications. Merger01, the Ecosystem Enhancement Program, and the Integrated Transportation Planning and Project Development Process continue to change the way NCDOT is doing business in North Carolina.

Integrated Planning Applications

The first integrated planning application, the Merger01 process, was developed in two phases. Since 1997, North Carolina has applied a Section 404-NEPA [National Environmental Policy Act] Merger Process to its surface transportation projects. However, the overall process and original agreements were reevaluated in 2001 by multiple State and Federal agencies using experience gained since the 1997 agreements. These interim developments included guidance from a multiagency permit

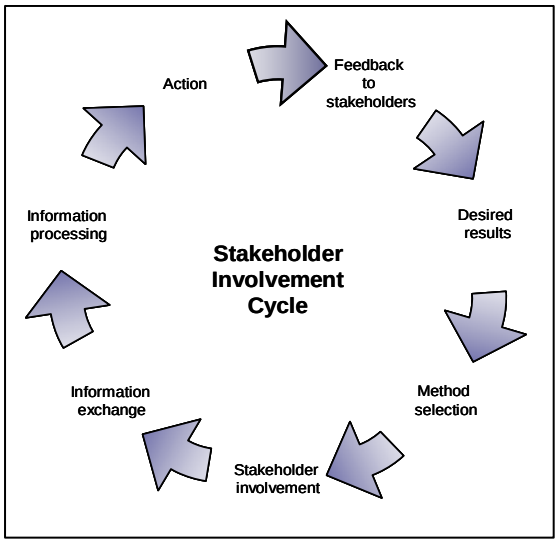
process improvement workshop and incorporation of the Federal environmental streamlining provisions of the Transportation Equity Act for the 21st Century (TEA-21).

The resulting process improvement initiatives, commonly known as Merger 01, streamlined the project development and permitting processes necessary to meet the regulatory requirements of section 404 of the Clean Water Act. Formal agency sponsors include USACE, DENR, FHWA, and NCDOT, while the process is supported by other stakeholder agencies and local units of government. As an early integrated planning effort, the Merger 01 process provided a forum for agency representatives to discuss and reach consensus on key project milestones during the NEPA and State Environmental Policy Act (SEPA) decision making phase of transportation projects.

Growing from the interactions and coordination of the Merger 01 process, the Ecosystem Enhancement Program (EEP) represents a key application of NCDOT's Environmental Stewardship Policy. Using a systems approach, EEP integrates watershed and transportation planning, expediting delivery of transportation infrastructure projects while conserving, restoring, and enhancing North Carolina's water resources. The program is a partnership between DENR and USACE for wetlands protection, mitigation, and enhancement programs. The purpose of EEP is to provide a comprehensive natural resource enhancement program that identifies ecosystem needs at the local watershed level and preserves, enhances, and restores ecological functions within the target watersheds while addressing impacts from anticipated transportation projects.[20] Through coordination with EEP, NCDOT is able to identify wetland conflicts and opportunities early in the long-range planning process by using watershed plans.

The EEP concept is based on four fundamental goals: (1) mitigation is in place and meets established mitigation success criteria *before* transportation construction begins; (2) mitigation is linked to watershed planning, representing a programmatic approach rather than a project-by-project approach; (3) a single State agency is responsible for providing mitigation; and (4) mitigation is based on functional replacement rather than acres or feet of impact.[21] While focusing on the first three goals, program participants are able to assess secondary and cumulative impacts on a given watershed and provide appropriate mitigation guidance. EEP has not devoted much attention to the fourth item, an initial goal that has not yet been addressed.

Figure 1. The stakeholder involvement cycle is never ending.



In North Carolina, the long-range planning process is called Comprehensive Transportation Planning (CTP). NCDOT is currently working on a process improvement project that will include each of FHWA's

[20] Ross Jr., William G., Lyndo Tippett, and Charles R. Alexander, Jr. Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources, Carolina Department of Transportation, and United States Army Corps of Engineers, Wilmington District. July 2003.

[21] D'Ignazio, J., B. Gilmore, C. Russo, K. McDermott. North Carolina's Ecosystem Enhancement Program: Mitigation for the Future. Energy and Environmental Concerns 2005. Transportation Research Board, Washington, DC, 2005.

3-C planning principles (comprehensive, cooperative, and continuous), entitled the Integrated Transportation Planning and Project Development Processes. The purpose of this project is to develop a well-documented, integrated planning process that enables a seamless transfer of information about transportation needs and environmental and community considerations, allows appropriate decisions to be upheld, meets legal requirements, and is consistent with the Merger-01 process.[22]

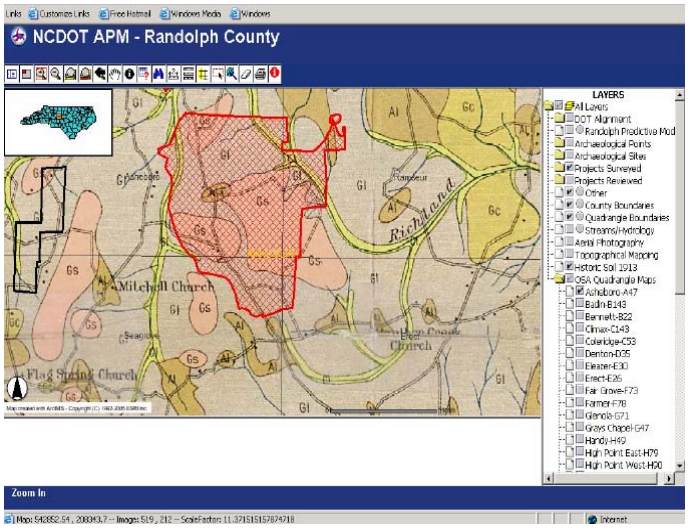
A critical component of the integration project is development of a stakeholder involvement toolkit. The toolkit provides information related to different approaches for involving stakeholders, and guides users through the selection and implementation of a particular stakeholder involvement technique to achieve a desired result. Building from FHWA's environmental review toolkit, the stakeholder involvement toolkit would allow users to know at which points in the long-range planning and NEPA processes to consider stakeholder involvement and which methods are best suited for the desired outcome of their involvement. The toolkit identifies the NEPA steps where stakeholder opinions should be considered. It addresses the complete communication cycle by indicating which outreach method to use, how to pass on information to stakeholders and receive feedback, and how to show stakeholders their input is used in making decisions.

The Integrated Transportation Planning and Project Development Process will result in completion of a new long-range, multimodal transportation plan; electronically accessible procedures manual; systems-level purpose and need framework; process to identify fatally flawed alternatives; and measurable performance goals.

Section 2: Data and Tools

As a part of the increased emphasis throughout NCDOT to look for innovative tools and data-sharing methods, the geographic information system (GIS) unit within NCDOT began a project in 2001 to develop a GIS-based archeological predictive model to assess a project's potential impacts to archeological resources very early in the planning process. Further, the tool allows project teams to quickly adapt reports to changes that occur throughout the life of a given project, including the addition of new corridors and/or alternatives for study. Aside from the NEPA-driven rationale for using the archaeological predictive model, NCDOT benefits from a more realistic understanding of the scope, cost, and timeframe associated with the range of alternatives very early in the project planning process.

Figure 2. Screen shot of the archeological predictive model user interface showing data layers



[22] NCDOT Office of Environmental Quality. Comprehensive Transportation Planning Workshop Presentation. March 15–19, 2004.

The data and inputs into the system resulted from a collaboration between NCDOT and the Office of State Archaeology (OSA) to digitize OSA historic records. The information and mapping capabilities contained in the GIS system will be available to other resource agencies, local planning agencies, and local governments as well.

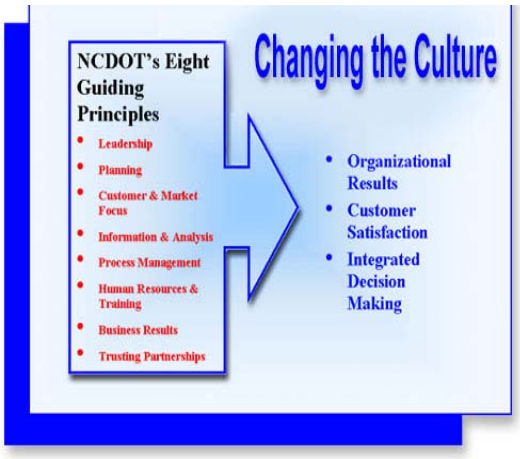
Finally, NCDOT uses and contributes to the statewide GIS resource known as OneMap. This tool provides ready access to best available data, shares data across agencies using the best available technologies, and ultimately supports decision making at all levels of government in North Carolina.[23] This mapping tool provides resource agencies, NCDOT, and particularly the general public with baseline data sets that can be used and continually updated throughout the project planning process.

Figure 3. Screen shot of the NC OneMap user interface

Section 3: Scheduled Cooperation and Interaction Processes

Building on momentum created by the Environmental Stewardship Policy, NCDOT created the Office of Environmental Quality (OEQ) in early 2003 to coordinate all activities related to environmental review for the Department. The office also serves as an internal environmental consultant providing advice for staff throughout the agency, and communicates information about environmental stewardship and streamlining efforts externally with resource agencies and the public.

Figure 4. Process flow showing NCDOT's guiding principles for changing the culture



Through internal training and education, OEQ has tried to build incrementally on current efforts that are sensitive to existing practices rather than introducing new and drastically different ideas and approaches. North Carolina has found that this approach minimizes resistance to change and leverages in-house experience and resources. OEQ developed and promoted a new training seminar, Context Sensitive Solutions: A Better Way,

[23] Transportation Research Board of the National Academies. Environmental Geospatial Information for Transportation. Transportation Research Circular Number E-C106. November 2006.

available to NCDOT employees involved in planning, project development, construction, operations, and maintenance. The sessions provide NCDOT staff with a systems-wide understanding of the integrated planning process within the transportation project life cycle. The course also focuses on helping employees better address environmental and community concerns while completing their day-to-day tasks.

An OEQ representative participates on North Carolina's Interagency Leadership Team (ILT). The team includes representatives from 10 Federal and State environmental resource agencies and focuses on finding innovative ways to balance mobility, economic vitality, and environmental protection. By meeting regularly at least once each month, the ILT has improved interagency communication, strengthened relationships, and increased trust between agencies at the senior level. The ILT helps each agency to better understand the goals and missions of the other agencies and identify issues as they arise.

Through a series of work sessions, the ILT has identified the top concerns and issues facing transportation, the environment, and economy in North Carolina. Those discussions helped form the mission and team goals.

- Goal 1: Develop a comprehensive, shared GIS database
- Goal 2: Local land use and long-range transportation planning result in projects that meet mobility, economic, and environmental goals
- Goal 3: Improve the Merger 01 process

Figure 5. Photo of North Carolina's ILT

Section 4: Legal Framework

In June 2001, the NCDOT Secretary and DENR Secretary signed an agreement signifying a shared responsibility to meet the State's transportation needs while protecting its environment. The agreement outlines specific efforts that will strengthen the relationship between the two State agencies, including:

- Establishment of an elevation process to quickly resolve problems;
- Development of joint business plans;
- Monthly NCDOT/DENR senior staff meetings to address policy issues; and
- Sponsorship of process improvement workshops to improve the effectiveness and efficiency of NCDOT, DENR, and USACE permit development, coordination and issuance.

In concert with establishment of the Environmental Stewardship Policy, this agreement signified willingness by NCDOT to collaborate with other agencies to integrate transportation planning and environmental stewardship.

Two very important memoranda of understanding (MOU) established the legal and working framework for EEP. The first was a triparty agreement among the Wilmington USACE office, NCDOT, and DENR that established the legal standing for moving from project-specific mitigation to watershed-based, or programmatic, mitigation. The legal

document also described the regulatory framework that would allow NCDOT to transition from construction of mitigation concurrent with or following road construction impacts to mitigation in the ground and fully functioning before road construction begins. This first MOU is the only one of the many signed that had actual binding requirements and legal standing in the EEP. The second MOU was a biparty agreement between DENR and NCDOT establishing the operational aspects of EEP. The MOU outlines the financial and operational responsibilities of the two agencies, ensuring DENR has the resources to provide mitigation and NCDOT has the mitigation needed to meet permitting requirements.

As part of streamlining the NEPA and section 404 permitting processes, NCDOT entered into a formal memorandum of agreement (MOA) with DENR in 1997. After several years of experience under the agreement, multiple State and Federal agencies joined together in 2001 to improve the merged NEPA/404 process established under the original agreement. The effort resulted in a new MOA and creation of the Merger 01 process.

Among other things, Merger 01 includes concurrence points, which are key milestones in the Merger 01 process. Concurrence is sequential and must be achieved in a set order to ensure that each project team member and the agency he or she represents agree to every decision made as the project develops. The seven concurrence points in the Merger 01 process are: Purpose and Need and Study Area Defined, Detailed Study Alternatives Carried Forward, Bridging Decisions and Alignment Review, Preferred Alternative Selection, Avoidance and Minimization, 30 Percent Hydraulic Review (a review of the development of the drainage design), and Permit Drawings Review.

Section 5: Leadership Role

Recognizing the value and importance of environmental conservation and sustainability, NCDOT made environmental stewardship a top priority by infusing it into the culture of the organization from the top down. Strong executive support for integrated planning in North Carolina provided the mandate needed to change the way NCDOT planned projects, avoided and minimized impacts, and undertook the permitting process.

> Critical to our success was forging relationships at the upper-mid level and very senior leadership of our partner agencies. – *Julie Hunkins, NCDOT*

Using a top-down approach, NCDOT began to impart an environmental stewardship ethic into the organization by creating and filling the executive-level Deputy Secretary for Environment, Planning and Local Governmental Affairs position. Shortly thereafter, creation of the North Carolina Board of Transportation included the first Environmental, Planning, and Policy Committee to provide leadership, direction, and support for incorporating an environmental ethic at NCDOT. Finally, OEQ was charged with coordinating, facilitating, and promoting environmental stewardship and streamlining within the organization. Establishment of these positions demonstrated a commitment to environmental stewardship at the highest levels of NCDOT.

Leadership outside NCDOT has been assumed by the ILT, which meets to ensure that previously agreed-upon environmental strategies are being implemented effectively at each agency. ILT members also act as liaisons with their respective agencies, relaying information and upcoming meetings to other agency staff.

Section 6: Funding Sources and Liaisons

NCDOT, particularly OEQ, invests significant staff time and financial resources in environmental stewardship and streamlining efforts. Currently NCDOT funds 31

positions at other agencies in the State. These liaisons have proven necessary to ensuring continued interagency collaboration and the expediency that integrated planning requires. The positions cost NCDOT approximately $2.5 million per year.

In addition, NCDOT estimates that the process of developing an up-to-date and comprehensive 171-layer GIS system necessary for integrated statewide planning including land use, commerce, transportation, conservation, and other planning initiatives will cost roughly $45 million. Maintenance of the OneMap GIS system is estimated to cost an additional $4–5 million per year.

Mitigation efforts conducted under EEP also require NCDOT funding. These costs are not new, however, because prior to EEP they were reported within each project budget. As a result, the EEP funding process is the first comprehensive look at the overall cost of transportation project mitigation efforts.[24] For fiscal years 2004–2005 and 2005–2006, NCDOT reported the total cost of EEP mitigation efforts to be more than $189 million.[5] By separating mitigation costs incurred through EEP from overall project budgets, NCDOT estimates that it has saved money due to fewer project delays and greater financial accountability in project design.

Section 7: Performance Measures and Outcomes

OEQ publishes an annual work plan listing specific goals and targets for the upcoming year. These targets are grouped into overall office goals. The 2005–2006 and 2007–2008 Work Plans commit the office to targeting environmental stewardship and environmental streamlining efforts in tangible, attainable ways.

Since its founding in 2004, the ILT prepares and presents annual reports documenting progress toward its three key goals. The ILT also uses a Strategic Plan to guide development of solutions and outcomes. The document is available electronically to the public, and meetings minutes are posted to document performance measure status.

Section 8: Lessons Learned

North Carolina has focused much of its time and resources on creating a culture of change both within NCDOT and State resource agencies. This approach to integrated planning relies heavily on building trust and relationships between agencies and focusing on training the day-to-day practitioners within them. The agencies involved have only recently begun to use formal agreements and MOUs to document the informal understandings that have become part of doing business in the State. This legal framework is not yet in place, and will become increasingly important as staff turn over, agency leadership changes, and momentum slows.

Recently OEQ has begun to implement a system of performance standards to see whether the integrated planning approach in North Carolina has achieved the desired outcomes. There is also a need for data to assess the success of existing strategies and see how they can be improved. Performance measures could also result in a refocusing of NCDOT on newly identified problems and concerns as the integration process in North Carolina evolves.

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[24] D'Ignazio, J., B. Gilmore, C. Russo, K. McDermott. North Carolina's Ecosystem Enhancement Program: Mitigation for the Future. Energy and Environmental Concerns 2005. TRB, Washington, DC, 2005.

Oregon: Collaborative Environmental and Transportation Agreement for Streamlining

Agencies and Organizations Involved

- Federal Highway Administration (FHWA)
- National Marine Fisheries Service (NMFS)
- U.S. Fish and Wildlife Service (USFWS)
- U.S. Environmental Protection Agency (EPA)
- U.S. Army Corps of Engineers (USACE)
- Oregon State Historic Preservation Office
- Oregon Department of Environmental Quality
- Oregon Department of Fish and Wildlife
- Oregon Department of Land Conservation and Development
- Oregon Department of Transportation (ODOT)
- Oregon Division of State Lands

For additional information, contact Susan Haupt at Susan.Haupt@odot.state.or.us or call (541) 388-6021.

Section 1: Overview

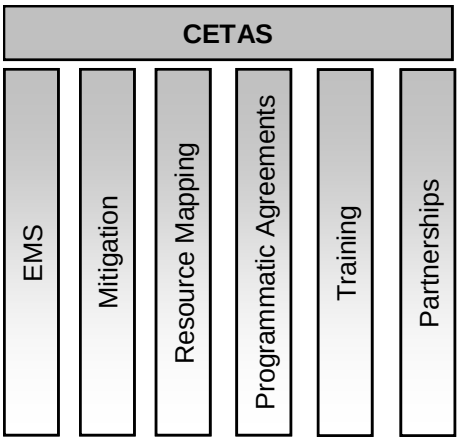
ODOT implemented a coordinated review process for highway construction projects in 2000. This responded to directives included in the Transportation Equity Act for the 21st Century (TEA-21), ineffectiveness ODOT observed in the Section 404 Merger process, and a greater sense of public urgency to address environmental issues in the State. This process, the Collaborative Environmental and Transportation Agreement on Streamlining (CETAS), establishes a formal working committee with representatives from ODOT and 10 Federal and State transportation, natural resource, cultural resource, and land use planning agencies. CETAS's goal is to identify and implement collaborative opportunities to help participating agencies realize their missions through sound environmental stewardship, while providing a safe and efficient transportation system.[25]

Integrated Planning Applications

[25] ODOT. CETAS Charter Agreement. June 16, 2005. Available online at http://www.oregon.gov/ODOT/HWY/GEOENVIRONMENTAL/docs/CETAS_Booklet.pdf.

CETAS is organized around six fundamental areas, or "pillars" (see figure 1). By focusing on six areas of improvement, CETAS team members strive to foster a collaborative, trusting environment at their respective agencies by understanding each participating agency's mission. Each of the pillars is important to CETAS, and taken together represent, the foundations of the organization. The CETAS technical team meets monthly and is comprised of technical specialists representing each of the signatory (member) agencies. Member agencies commit team members to regular participation at meetings and entrust these representatives with the ability to make decisions that reflect each agency's mission, rather than an individual opinion or preference.

Figure 1. The six pillars of CETAS



CETAS focuses on communication, participation, and early involvement in Environmental Assessments (EAs) and Environmental Impact Statements (EISs) for ODOT. Once involved, the CETAS technical team is required to reach consensus on a set of NEPA project milestones, including purpose and need, the range of alternatives to be studied, criteria for evaluating alternatives, and selection of the preferred alternative. Formal concurrence procedures, including resolution steps, have been formally adopted by CETAS agencies to facilitate this process.

While providing input to project teams at major decision making milestones is the primary focus of CETAS, the committee also helps ODOT develop and implement statewide environmental initiatives, and is sometimes asked to provide input on transportation system plans, regional transportation plans, corridor plans, and refinement plans. CETAS does not include a formal process for participation in planning processes, such as location EISs, which are conducted outside of the NEPA process. In these situations, the planning body voluntarily presents elements of the proposed plans to CETAS for discussion. The intent of these discussions is to help planning teams make environmentally informed decisions that are less likely to be revisited during project development.

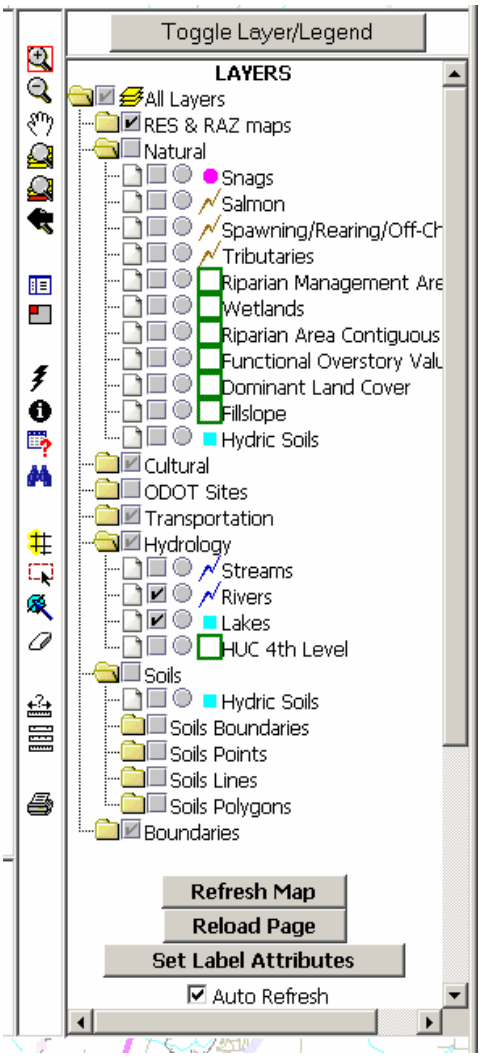
CETAS team members are actively involved in the successful integration of environmental stewardship and streamlining into major transportation projects by participating or facilitating other committees and programs, including Linking Planning and NEPA, the Project Agreement Reporting and Implementation Team (PARIT), Mitigation and Conservation Banking Review Team (MCBRT), and a Stormwater Management Team. These efforts support both stewardship and streamlining, and their success depends on the meaningful interagency coordination that is facilitated by CETAS.

Section 2: Data and Tools

CETAS has developed a series of PowerPoint templates and guidance documents to assist project teams from ODOT to prepare materials that meet the data quality expectations of the resource agencies. These resource materials are available to help project teams effectively and efficiently prepare for concurrence presentations and provide consistent expectations for participating CETAS agencies. A "Level of Data

Expected" guidance document is used to ensure that project teams have achieved an appropriate level of data collection and analysis to effectively support the decision milestone they are presenting to CETAS for concurrence. These materials help reduce the time project teams spend preparing concurrence presentations, assist project teams in bringing the right information to CETAS at the right time, and help ensure sufficiently supported decisions that will not need to be revisited. The CETAS concurrence forms also include specific questions to be answered by the member agencies at each concurrence point. These questions ensure that project teams receive early notice of potential issues that could result in project delays later in the project development or permitting process.

Figure 2. Screen shot of Web TransGIS environmental data layers



ODOT has a well-established geographic information system (GIS) and mapping unit. The unit is responsible for mapping, maintaining, and disseminating transportation, land-use, and environmental data. Building on working relationships and data-sharing discussions at CETAS, ODOT began to add data layers important to resource agencies, such as land use, to its existing transportation system geospatial data.

The resulting TransGIS system is a comprehensive Web-mapping tool designed to present many levels of complex data in an interactive map format. A more limited data set, called Web TransGIS, is also available to the public on the Internet. Both the internal and external TransGIS systems offer multilevel views of Oregon's transportation system, including statewide transportation management data, Statewide Transportation Improvement Program (STIP) projects, and environmental data. With comprehensive information about the area surrounding elements of the transportation network, planners, project designers, and maintenance crews have data accessible for their analysis, planning, and research needs.

TransGIS is actively used by ODOT. Recently the system was used by the Oregon Bridge Replacement Program to support Baseline Environmental Reports for proposed project sites. The information included in this front-end data analysis supplied bridge engineers with sufficient information to avoid and minimize environmental impacts during project planning and design. Providing environmental information and analysis on the front ends of the projects also helped ODOT develop more accurate cost estimates and schedules to avoid project delays.

One of the largest environmental mapping initiatives undertaken by ODOT is the Salmon Resources and Sensitive Area Mapping (SR-SAM) project. This project was developed to provide accurate mapping data to ensure that ODOT roadway maintenance was performed with minimal disturbance to sensitive areas and threatened and endangered resources. As part of the data collection effort, an inventory of selected environmental

resources and sensitive areas was conducted along nearly 6,000 miles of State highway. The project is funded by a Federal grant with a biennial budget of approximately $1 million.

ODOT is applying lessons learned from the SR-SAM process to the Environmental Data Management System (EDMS). EDMS is a collection of environmental data projects that will provide environmental spatial data to ODOT staff working on system- and project-level planning. The GIS team is working on three levels with natural and cultural resource agencies:

- Establishing direct links with data maintained by CETAS member agencies
- Incorporating CETAS member agency data into the EDMS system
- Providing CETAS member agencies with technical support to develop or upgrade existing data

Since 2006, development of an integrated EDMS has made significant progress. CETAS presented the first annual work plan for the EDMS to the ODOT GIS Steering Committee, while leadership at ODOT committed to distributing Resource and Restricted Activity Zone maps to all its regional offices. Additional work continues on the Statewide Cultural Resources Inventory in response to a review by the Oregon State Museum of Anthropology, and CETAS continues work developing a wetlands tool prototype for field data collection.

CETAS also facilitated development of a programmatic Biological Assessment and Biological Opinion to fulfill the requirements of the Endangered Species Act as part of Oregon's Bridge Replacement Program. The effects analysis was streamlined by screening for potential effects to multiple species using GIS data layers, grouping species into functional groups (e.g. anadromous salmonids) rather than individual salmon species, and using a performance standards approach for design elements.[26]

Section 3: Scheduled Cooperation and Interaction Processes

ODOT has established an internal committee, Linking Planning and Environmental Process (LPEP), which is working on linking the long-range transportation and environmental planning processes. Committee members from all departments within ODOT meet on a regular, semimonthly basis, and with input from CETAS have prioritized the following initiatives and activities:[27]

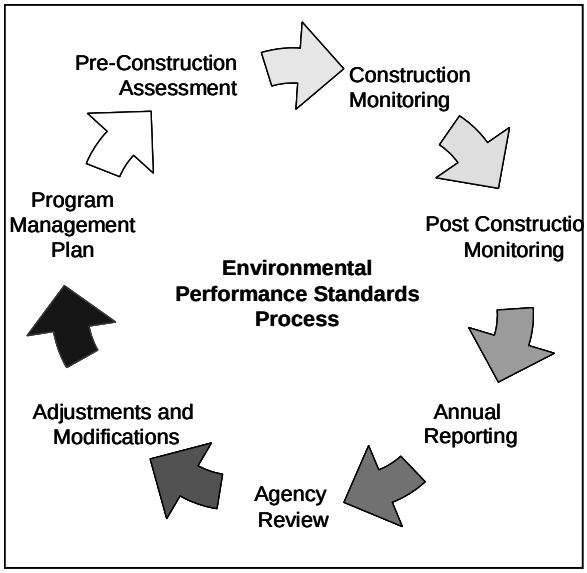
- Cross-training environmental and planning staff;
- Involving environmental staff in planning activities;
- Developing a comprehensive EDMS;
- Identifying potential pilot/demonstration efforts for linking systems planning with the environmental process;
- Developing a list of available environmental databases and other information sources to inform planning efforts;

[26] Excerpt from CETAS Progress Report for 2003 provided by ODOT via e-mail.

[27] Linking Planning and Environmental Process list of priorities provided via e-mail by ODOT.

- Updating Transportation System Planning (TSP) guidelines to better address environmental issues and refinement planning;
- Creating standard work order contract templates for environmental tasks done during planning;
- Developing National Environmental Policy Act (NEPA)-like problem statements for appropriate projects during Regional Transportation Planning (RTP) and TSP processes;
- Establishing resource agencies' roles in efforts to link planning and environmental processes; and
- Creating feedback loops to improve planning and environmental process integration.

Figure 3. Illustration of the environmental performance standards continuum



Of particular importance to the LPEP committee and CETAS is improving the tracking of commitments made during the project planning and NEPA phases through the permitting and construction phases. ODOT improves its credibility with partner resource agencies when it can ensure that all of its environmental commitments are accurately reflected throughout project development and implementation. The commitment tracking system will also improve the timeliness of project delivery by preventing agencies from revisiting settled issues and avoiding re-creating project specifications to comply. The commitment tracking system continues to be developed in 2007, using a recent FHWA review of the current environmental commitment tracking process as a baseline. Once LPEP develops the framework, CETAS will provide input and guidance on the draft to ensure it meets the standards of all participating agencies.

PARIT has been fundamental to the success of Oregon's Bridge Replacement Program and ensures consistent regulatory agency engagement and environmental compliance.[28] Figure 3 shows a process flow of the environmental performance standards process that was developed by PARIT and is currently part of the bridge program. PARIT meets on a biweekly basis to evaluate and refine the programmatic tools and procedures developed for the bridge program. Frequent meetings have also helped the group play a key role in identifying and resolving project-specific issues.

Section 4: Legal Framework

The CETAS team operates under two agreements, the CETAS Charter Agreement and Major Transportation Projects Agreement.

The CETAS Charter Agreement is an interagency agreement signed by all member agencies and outlines the goals of CETAS and responsibilities of its members. Eleven

[28] Oregon Transportation Investment Act (OTIA) III Environmental Program and Performance Assessment Paper provided by ODOT via e-mail.

agencies including ODOT signed the agreement in 2001. The CETAS charter establishes the framework for the initiative and describes a shared vision for aspects of the agreement including:

- An integrated/coordinated decision making process;
- Exchange of information and perspectives;
- Establishment of formal and informal consultation and review schedules;
- A process for resolving conflicts or disputes;
- Adoption of performance objectives; and
- Development of mitigation strategies.

The Major Transportation Projects Agreement ensures early interagency communication, participation, and involvement in EA and EIS processes for ODOT. The agreement establishes formal concurrence points and a commenting process for the refinement and project development stages of a highway project. ODOT seeks concurrence and comments from participating agencies regarding the following phases of project development: (1) purpose and need statement; (2) the range of alternatives being considered for full analysis in an EA or EIS; (3) appropriateness of the criteria for evaluating alternatives and selecting a preferred alternative; and (4) selection of the preferred alternative. Each signatory agency is expected to provide a signed response within 30 days of a concurrence presentation. After 45 days, non-responding agencies are considered nonparticipating on the current concurrence point. A nonparticipating agency can become a participating agency at any time during the refinement or project development process. However, the agency cannot revisit past concurrence points.

According to the Major Transportation Projects Agreement, ODOT cannot proceed with steps following concurrence points until each participating agency concurs. Likewise, FHWA will not sign a Record of Decision (ROD) or a Finding of No Significant Impact (FONSI) until there is concurrence among the participating agencies. In cases of nonconcurrence, CETAS identifies an elevation sequence in which decisions are made at increasingly high levels within the agencies until the issue is resolved. CETAS member agencies with outstanding or emerging issues are expected to initiate the issue resolution process whenever it appears their agency might not be able to concur. Elevation has four levels. The first is the normal CETAS representative, then continues to higher agency staff up to the fourth level, where decisions are made by regional/ district administrators and directors. The issue resolution and elevation process has been formally adopted by CETAS and is part of its legally binding framework.

Concurrence points have proven critical to continued resource agency participation in the process because ODOT and FHWA have demonstrated a firm commitment to achieving concurrence before moving forward with any project.

Section 5: Leadership Role

The CETAS process grew from concern by State elected officials regarding the timeliness and effectiveness of the environmental reviews of ODOT projects, the most public of which was instruction by the Oregon House of Representatives in House Bill 2680 to improve the efficiency and effectiveness of ODOT projects. The consequent House Bill 2680 Committee identified critical concerns and two recommended solutions:

1. Explore the options for funding dedicated staff at regulatory agencies and staff exchanges or loans
2. Develop a method to ensure regulatory agencies, when requested by ODOT or local government, become involved in the appropriate planning stages, where systematic, comprehensive planning is taking place.

ODOT's leadership was also supportive and convened a high-level committee of agency heads to advise the streamlining process. Creation of CETAS under an executive-level Environmental Manager sent a strong message to the public, elected officials, and resource agencies that ODOT was taking its environmental mandate seriously. By having vocal champions both inside and outside ODOT, the agency sent a strong message that institutional changes were required from all areas.

Section 6: Funding Sources and Liaisons

ODOT uses intergovernmental agreements and agency liaisons to ensure that transportation projects receive resource agency permitting reviews in a timely manner. While liaisons participating in CETAS are dedicated to transportation projects, staff report to their respective resource agencies and work through their regulatory review processes with an understanding of the nature and extent of the environmental impacts of transportation projects. In 2006, ODOT funded 14 liaison positions at other agencies at an estimated cost of $60,000 per position. The total cost of the liaison positions is approximately $840,000.

A major benefit of the liaisons for ODOT is their familiarity with transportation projects and understanding of the cultural nuances of the agency. Partnering between ODOT and the liaison staff familiar with ODOT projects, processes, and staff members translates into fewer projects delays and streamlined permitting. Similarly, a liaison's exclusive dedication to and involvement with transportation projects helps ODOT staff better understand the missions and processes of resource agencies.

Section 7: Performance Measures and Outcomes

Each year the CETAS team completes a Progress Report and Work Plan. The purpose of this document is to highlight the achievements of the CETAS team over the past year and identify initiatives to further advance environmental stewardship and streamlining.[29] The document maps next steps for the group and lays the ground work for future CETAS activities and initiatives. CETAS also undergoes periodic performance evaluations by an independent third party. The performance evaluations identify specific areas for improvement and highlight CETAS successes. Much like the Progress Report and Work Plan, the performance assessment aims at continuous improvement of CETAS, identifying achievements and detailing steps for the upcoming 2-year Work Plan.

CETAS also helped establish Environmental Performance Standards, a set of environmental measures and criteria that all bridge projects must satisfy as part of the Bridge Replacement Program. The performance standards include establishment of impact thresholds, design standards, and best management practices, and are the basis for terms and conditions of environmental permits. The CETAS team helped establish a mitigation program addressing wetlands and wildlife on a scale that provides improved

[29] CETAS Progress Report – 2005 to 2006, and Recommended Work Plan – July 2006 to June 2008. ODOT. 2006.

environmental function, allows for innovative design and construction methods, and facilitates compliance monitoring and adaptive management.[30] Using a systems-based, programmatic, and integrated approach, CETAS provided a mechanism for strategic decision making during planning, programming, and development of projects for the State Bridge Delivery Program as part of the Oregon Transportation Investment Act III.

Section 8: Lessons Learned

- *Targeted team focus.* The CETAS team was asked to participate in work that strengthens linkages between the project development and NEPA review processes. By focusing member agencies on this well-defined goal, the team achieved early successes and developed a level of trust between its members. However, limiting involvement to NEPA-related project development has resulted in less attention to the long-range planning process and instituting programmatic approaches to permitting. In response to consultation requirements under section 6001 of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) CETAS in 2007 was asked to comment on plans from each metropolitan planning organization (MPO) in the State of Oregon.
- *Balancing the mission for resource agencies*. Concurrence points give resource agencies and other reviewing agencies leverage in the project planning process, helping to motivate their participation. Indeed, resource agencies involved in CETAS have benefited from increased openness with ODOT upfront concerning its mission, goals, and concerns. Staff from ODOT and resource agencies now have a greater understanding of the expertise and expectations that each brings to the project planning process.
- *Process time.* Resource agencies and other nontransportation organizations involved in CETAS require time and training to fully understand nuances of the transportation planning and project development processes. Taking the time to build relationships between ODOT and resource agency staff increases both parties' understanding of the process, ultimately improving project timeliness and budget. ODOT has found funding liaison positions at CETAS member agencies to be a worthwhile investment of time and training.

[30] Excerpt from CETAS Progress Report for 2003 provided by ODOT via e-mail.

Texas: Texas Environmental Resource Stewards and Texas Ecological Assessment Protocol

Agencies and Organizations Involved

- Federal Highway Administration (FHWA)
- U.S. Environmental Protection Agency (EPA), Region 6
- U.S. Army Corps of Engineers (USACE), Southwestern Division
- U.S. Fish and Wildlife Service (USFWS)
- Texas Governor's Office
- Texas Commission on Environmental Quality (TCEQ)
- Texas Parks and Wildlife Department (TPWD)
- Texas Department of Transportation (TXDOT)
- The Nature Conservancy

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Section 1: Overview

In July 2002, Texas Environmental Resource Stewards (TERS) was established by the State of Texas in response to the Federal Transportation Equity Act for the 21st Century (TEA-21) and Governor Rick Perry's State initiative to create the Trans-Texas Corridor, which includes the I–69 corridor. TERS is a two-tiered agency partnership between EPA Region 6, FHWA, USACE, USFWS, the Texas Governor's Office, TCEQ, TPWD, TXDOT, and The Nature Conservancy. The first tier is an executive-level team that provides oversight and vision. The second tier consists of a team of technical specialists from various organizations. This team was responsible for the development of an ecological assessment tool that maps resources in the State of Texas. This tool, the Texas Ecological Assessment Protocol (TEAP), is a model for interagency collaboration and streamlining using data and mapping of locations that TERS member agencies considered "ecologically important."

Integrated Planning Applications

The initial goals of TERS were to identify ecologically important areas, identify potential mitigation areas, and streamline regulatory processes. Several transportation projects were in the planning stages (e.g., I–69, the Trans-Texas corridor) in 2001 and 2002, the size of which highlighted the need to identify and protect areas of high ecological sensitivity from disturbance. TERS members wished to begin collaboration between organizations earlier for these and other transportation projects and developed a vision to improve mutual understanding between organizations, using collective knowledge to support transportation decision making and create a long-lasting synergy.

Leaders from participating agencies began by identifying common environmental interests and target activities that would benefit each agency. Common interests

included identification of ecologically important natural resource areas (wetland, aquatic, and terrestrial) for avoidance or potential compensatory mitigation, preservation, or restoration; streamlining regulatory processes; early identification of some National Environmental Policy Act (NEPA) requirements in project planning; and analysis of cumulative impacts. While the TERS leadership team continues to meet on a biannual basis, TERS also established a separate team of technical specialists from seven member agencies to identify ecologically important areas, identify potential mitigation areas, and streamline regulatory processes.

TEAP was created cooperatively by Federal, State, and local agencies in response to the first TERS goal, to assess and identify ecologically important resources in the State. TEAP is based on an ”ecoregion” scale to account for the size of the State along with many diverse ecosystems. The ecoregion approach allows for large-scale analysis and preliminary screening to expedite overall analysis processes. TEAP is not an all-inclusive predictive model; rather, it identifies the top 1 percent of ecologically important areas in 18 ecoregions using three criteria: the diversity, rarity, and sustainability of resources in each.

With this data, TEAP can be used to assess the entire State of Texas using a statewide geographic information system (GIS) grid. As a supplemental tool, TEAP can be used to identify NEPA requirements during project planning to reduce large corridors into more manageable areas for detailed investigation and flag potentially sensitive areas within each ecoregion. Identifying ecologically important areas allows planners to recognize, avoid, and minimize impacts to sensitive resources early in the planning process.

The results of TEAP are intended to be used for the following activities to support the NEPA planning process (scoping, alternatives development, etc.) and ecological assessment:

- Assist with planning, scoping, and analysis associated with meeting the requirements of NEPA.
- Streamline the authorization process of large projects by narrowing the study corridors necessary for further field investigation.
- Support mitigation discussions to avoid ecologically important areas, minimize impacts, and compensate for unavoidable impacts.

TEAP is limited in that it is not intended to be used for determining site-specific ecosystem characteristics or producing exhaustive lists of environmental concerns for all locations. Recognizing these limitations is important in order to accurately market TEAP and its functions. Similarly, TEAP does not include integration with local land use decision processes. Opportunities and incentives for local land use planning agencies to participate in the system would create a more integrated planning framework. Nonetheless, TEAP effectively serves as a planning tool that allows for a more comprehensive review process through early screening of areas that might need additional analysis for ecological sensitivity.

> TEAP and TERS demonstrated the importance and benefits of interagency teamwork, as well as the importance of keeping a stable team throughout the process.
> *– John Machol, USACE*

Section 2: Data and Tools

The goal in developing TEAP was to demonstrate measurable results about ecologically sensitive areas in Texas that could be used effectively in conjunction with agency-specific information to support decisions. The model is designed to assess the State by ecoregion and identify the optimum ecological areas for protection and mitigation based on ecological theories, without consideration of political boundaries or existing regulatory programs.

EPA took on a significant role in development of TEAP, offering to adapt an ecological model that had been successfully implemented in Region 5 to conditions in Texas. That model, the Critical Ecosystem Assessment Model (CrEAM), is a prioritization tool that, given several options, selects the one option that has the least potential impact or is least vulnerable. TERS executives agreed with this approach and renamed the application the Texas Ecological Assessment Protocol. The results of TEAP were envisioned to be part of FHWA's analysis and the modeling incorporated into existing GIS systems as new criteria.

To determine the best framework for the assessment tool, EPA reviewed existing data, studies, and methodologies. Given time, funding, and data constraints, TERS executives chose to focus solely on environmental and ecological conditions, and excluded historical and cultural resources. TERS identified three existing resources that would prove helpful in developing a framework for TEAP:

1. An ecoregion analysis conducted by TPWD for its Land and Water Resources Conservation and Recreation Plan
2. GIS-based analysis and portfolio assessments from The Nature Conservancy's Eco-region Planning Process
3. State Superfund data from TCEQ

These existing data sets were processed and analyzed jointly by EPA Region 6 and TPWD staff, while The Nature Conservancy verified the data against its own portfolio sites identified in the eco-regional planning process. The comparison showed that the areas ranked as highly important by TEAP corresponded closely to areas identified by The Nature Conservancy. Specifically, the assessment confirmed that the top 1 percent of ecologically important areas in the State were recognized by both TEAP's process and The Nature Conservancy's process.

Again, TEAP is comprised of three main layers: diversity, rarity, and sustainability, which are then separated into sub-layers. The diversity layer consists of land cover continuity and diversity and consists of four sub-layers: (1) appropriateness of land cover, (2) contiguous size of undeveloped area, (3) Shannon land cover diversity index[31], and (4) ecologically significant stream segments. The rarity layer focuses on the scarcity of species and land cover and consists of four sub-layers: (1) vegetation rarity, (2) natural heritage rank, (3) taxonomic richness, and (4) rare species richness. Finally, the sustainability layer has two sub-layers: (1) resistance and (2) resilience, which describe the environment's stability in terms of maintenance without human management. The layers were applied and averaged over 30 mega-pixels in each 1 km^2 grid cell.

[31] The Shannon land index is a common measure of the complexity of the land cover on the countryside, sometimes also called edge density.

While TEAP is focused on ecological impacts, the results can be used in conjunction with other databases to show where public lands, transportation corridors, or watershed boundaries are located in relation to the ecologically important areas identified by TEAP. TERS agencies, local planning agencies, and the general public can request and use the TEAP data while overlaying other GIS layers of interest.

Figure 1 is a composite map of Texas that illustrates locations of the top 1 percent of the State's ecologically important areas.

Figure 1. Composite map of diversity, rarity, and sustainability layers in the entire State of Texas

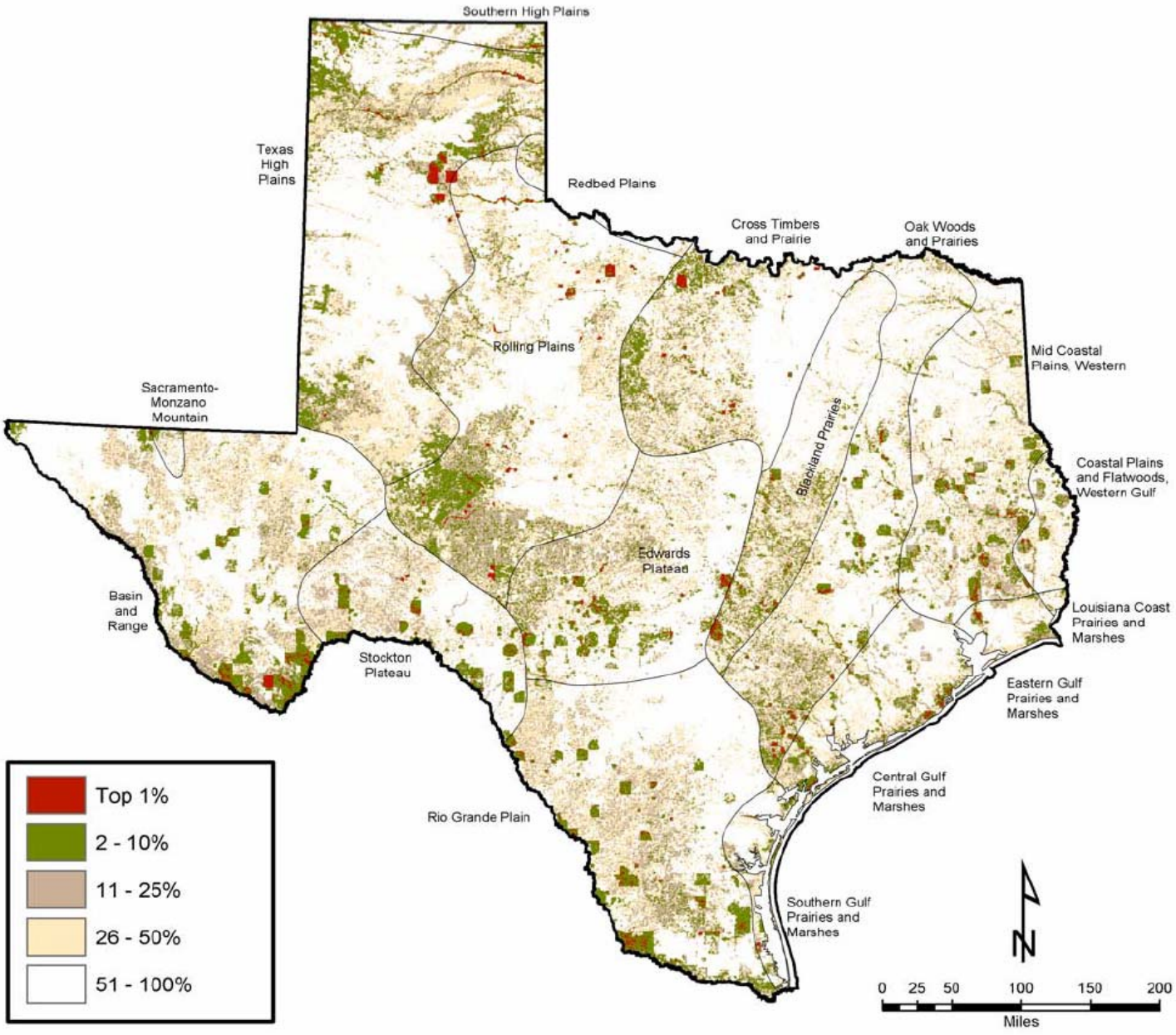


Figure 2. Composite map of the of diversity, rarity, and sustainability layers in the Texas High Plains

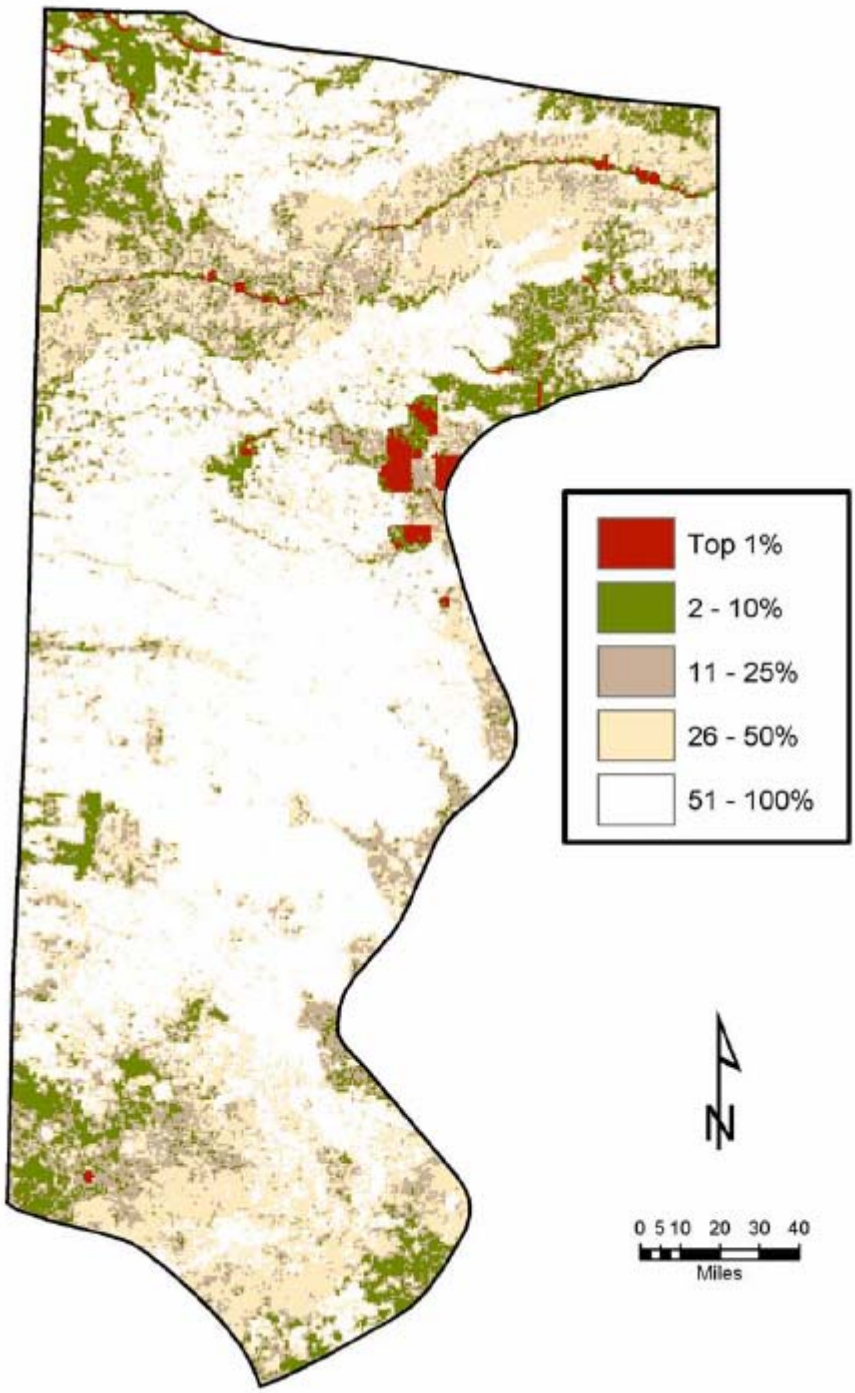


Figure 2 (above) provides a close-up of the Texas High Plains, showing the diversity, rarity, and sustainability layers. The red areas of this composite map represent higher ecological importance and the white areas represent lower ecological importance. For example, the Canadian River is highlighted at the 1 percent and 10 percent levels, and there is a larger riparian buffer at the 25 percent level. The northwest corner and an area southeast of the river are also highlighted and may have a high degree of rarity.

When developing TEAP, the major technical challenges were identified by the participating agencies as:

- *Identifying a method that can appeal to all agencies involved.* Once the method was agreed upon, finding appropriate data, determining calculations, and committing to the results became challenges.
- *Acquiring and maintaining consistent and updated data.* TPWD, the State agency responsible for the diversity and rarity modeling, found that acquiring sufficient input data was the most difficult task, especially for the diversity model. Decisions also had to be made about where and how the data should be stored.
- *Addressing the sensitive nature of some of the endangered species data and determining how to best share sensitive data.* In previous ecosystem database tools, TPWD was able to use password-protected sites for the endangered species data to protect its sensitivity. TEAP had to address similar concerns about the sensitive endangered species data that would be related to the diversity modeling.
- *Maintaining awareness of the limitations associated with the data.* The Nature Conservancy recognized there were limitations associated with the accuracy assessment that had to be properly addressed to have a full understanding of the scope of TEAP's functions. TPWD also explained that limited access to private lands in Texas should be considered when screening any areas for ecologically important regions. Recognizing these limitations is important to grasp the utility of the tool.

At the time of its development, TEAP was expected to be reevaluated every 2 to 3 years, as new land cover and other data became available. These updates have not yet occurred due to funding restraints, but remain a goal for the program. Continually updating the data will allow for optimal utility of the tool. Other databases, including pipelines and oil and gas wells, may be incorporated in subsequent iterations of TEAP. At the time of its development, TEAP also determined that as soon as 2002 land cover data was available in GIS format, the updated analyses can be performed, providing a more up-to-date assessment tool. While these pending updates will be helpful for full utilization of TEAP, they had not occurred by 2007.

EPA plans to create protocols similar to TEAP in other States. However, since TEAP's development was completed in 2005, there have been no other updates due to staff and executive turnover, in addition to a lack of additional funding.

Section 3: Scheduled Cooperation and Interaction Processes

TERS meetings were held every 6 months to provide general updates on the progress of TEAP and maintain executive-level interest in the initiative. These meetings were supplemented by regular telephone and e-mail exchanges at the staff level. As TEAP development began, EPA and TPWD were in contact weekly to perform calculations for the assessment tool. TPWD was critical for data collection development of the tool's GIS component, and held several TEAP meetings at its GIS lab. Most participating agencies had a regulatory interest in the project and had the opportunity to be involved in the decision making.

All participating agencies involved in the development of TEAP were invited to submit comments on the draft pilot report. This opportunity for participating agencies to review and provide guidance on the project built a level of cooperative trust and strengthened existing relationships.

Section 4: Legal Framework

No legal framework was associated with either participation in the TERS regularly scheduled meetings or development of TEAP. The participation of each agency was entirely voluntary and based solely on agency executives' resolve to work together to identify common solutions to planning transportation projects around ecologically sensitive areas. At the time of TEAP's development, the participants in TERS were asked to identify possible opportunities and barriers for using the tool in each of their agencies. However, no formal, legal commitments, such as memoranda of understanding (MOUs), resulted from the analysis. Participation in TERS and use of TEAP remain voluntary and informal.

Section 5: Leadership Role

Development of TEAP was driven by both top-down and bottom-up leadership. The former is where TERS meetings brought an executive-level consensus to the project and provided necessary agency resources. The latter is where technical specialists, involved in development of TEAP, brought a perspective from the day-to-day workings of different agencies. Working relationships at these two levels helped identify common interests and target activities for collaborative ecosystem management more broadly.

Both TERS and TEAP benefited from the presence of a strong leader and project champion as a critical element of the project's successful completion. EPA provided the forward-thinking leadership and technical approach that encouraged the team to consider innovative ideas to address the TERS vision. However, this reliance on a leader to stimulate ownership of TERS goals also hampered the growth of long-term interagency cooperative relationships and establishment of formal agreements. Indeed, further implementation of the streamlining efforts begun with development of TEAP have stalled since staff turnover and agency focuses have shifted.

Section 6: Funding Sources and Liaisons

EPA, and FHWA indirectly, provided funding for TEAP development. FHWA provided funding to EPA for another geospatial mapping project, the Geographic Information System Screening Tool (GISST), which was leveraged for TEAP. EPA provided $100,000 toward development of TEAP and the associated GISST work, some of which was provided to TPWD for its data analysis and integration efforts.

TXDOT funded liaison positions at two resource agencies, which strengthened commitment to TERS and technical committee meetings. There are one and a half positions funded annually at TCEQ and one position at TPWD. Though these positions have been recognized since 1999, during the TERS development these liaisons assisted resource agencies with meeting their responsibilities as members of the team. The agency was able to apply staff knowledge of transportation projects, TXDOT operating procedures, and the NEPA process to TERS development.

Most participating agencies rearranged staff resources to contribute to the development of TEAP. TPWD indicated that high-level management expedited the staff reprioritization

required to complete the data analysis. The team also availed itself of the existing resources within participating agencies, such as GIS labs, to save costs and overall development time. USACE also reported reallocating staff time from other projects in Texas to participate in TERS and development of TEAP. The Nature Conservancy delayed approximately 6 months of work so it could fulfill its responsibilities to conduct accuracy assessments of the TEAP data.

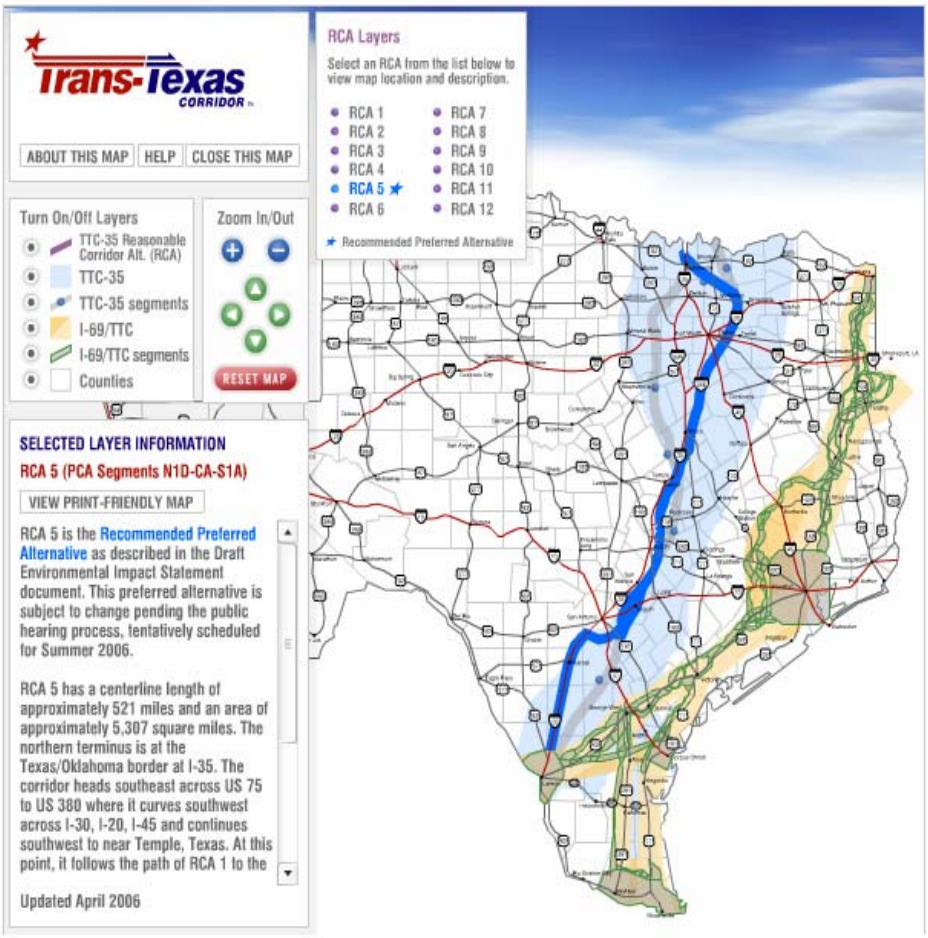
Section 7. Performance Measures and Outcomes

TEAP has proven to be a successful protocol and has already been used for several applications in Texas, including sections of the Trans-Texas Corridor (TTC). Large projects such as TTC challenge agency staffing, funding, and the ability to provide timely decisions if conducted in a "business-as-usual" manner. TTC is a statewide transportation network more than 4,000 miles in length (1,000 of which will be I–69).

Upon its completion, TEAP's data was incorporated into GISST. GISST allows for high-level corridor planning, which has been used to scope the TTC project. TXDOT is using GISST for Tier 1 analysis and planning of I–69.

TEAP's design allows it to reduce large corridors to more manageable areas for detailed investigation. As shown in figure 3, TXDOT used TEAP to assist in determining the preferred alternative, ultimately avoiding 80 percent of the ecological concerns identified by TPWD. The assessment tool allows for a high-level analysis of potential ecological areas of concern. This assessment approach improves agency ability to avoid ecologically sensitive areas instead of compensating for ecological and wetlands mitigation. While further field investigation is required following the high-level analysis, the tool nonetheless contributes to streamlined project planning and transportation decision making processes.

Figure 3. Screen shot of the Trans-Texas Corridor online tool with the preferred alternative shown



Section 8. Lessons Learned

Development of TEAP is an example of a synergistic project. The approach focused on combining knowledge and existing resources across agencies to support a larger initiative that might not be accomplished as successfully at a smaller scale. The interagency collaboration providing resources and data proved to be an effective use of agency resources and time. The subsequent tool provides measurable results that can improve the quality of agency decision making related to ecologically sensitive areas and transportation planning processes.

The team identified the following lessons learned from development of TEAP:

- *A strong champion can help maintain momentum on large projects.* An EPA representative was recognized as a champion who energized team members with her forward-thinking, proactive, and collaborative approach.
- *Careful planning, timing, and consideration of each agency's mission are critical for a multiagency technical project of such a large magnitude.* Coordination is key when consensus must be reached on a variety of

decisions. There must also be enough time allotted for comment and review from all agencies involved. Interagency consensus can only be achieved with careful planning that allows time for review and discussion.

- *Basing a tool on existing models and methodology can expedite the process for assessment tool development.* Building on existing data, resources, and collective knowledge is an efficient way to develop a multiagency assessment tool that can lend to productive decision making about ecologically sensitive areas.
- *A high-level executive group can effectively guide staff-level process and buy-in*. A representative from USACE explained that the high-level executive group TERS was able to provide the focus and guidance necessary to maintain a steady pace on development of the TEAP tool. The top-down approach guaranteed buy-in from agency management that proved to be helpful for staff-level participation.
- *It is difficult but important to maintain continuity in order to follow up on necessary updates for an assessment tool.* Without continuity, the goals may not be reached to continue to update the tool for its maximum potential as a project planning aid. A tool that is updated more frequently will likely be utilized to its full potential and function.
- *Partnerships can extend from across agencies to other organizations.* TERS included not only Federal and State agencies but the Director of Science and Stewardship at The Nature Conservancy. The Nature Conservancy utilized its Ecoregion Planning Process to provide preliminary accuracy assessments of TEAP results.