

**NORTH CAROLINA'S ECOSYSTEM ENHANCEMENT PROGRAM:
MITIGATION FOR THE FUTURE**

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ABSTRACT

Even before Federal Highway Administration's focus on ecosystem conservation as part of its vital few goals, the North Carolina Department of Transportation (NCDOT) had begun to examine how and where compensatory mitigation was being implemented in North Carolina. Over the last four years, NCDOT, the North Carolina Department of Environment and Natural Resources (NCDENR), and the United States Army Corps of Engineers - Wilmington District (USACE) have partnered to redesign the mitigation process with one goal in mind: to create a compensatory mitigation program that delivers guaranteed environmental benefits. The result of these efforts is the Ecosystem Enhancement Program (EEP). Rather than focusing on individual highway project impacts, the EEP concept revolves around watershed plans and considers cumulative impacts associated with a given watershed. Accordingly, the EEP provides *cumulative mitigation for cumulative impacts*. It was clear from the start that EEP was going to change fundamentally the goals, approach, and structure of providing mitigation in North Carolina. While the mitigation experts knew how the mitigation process needed to change, they lacked expertise in how to manage that change. Not surprisingly, this has presented several hurdles that the sponsoring agencies are still trying to scale today. As implementation moves forward, many valuable lessons are being learned, which are laying the groundwork for successful change. This paper describes the origins of the EEP concept, outlines the implementation processes, discusses "change barriers" experienced and lessons learned, and provides an EEP progress report two years into the program's implementation.

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BACKGROUND

Over the last ten years the transportation industry has recognized that it must balance mobility goals with the preservation and enhancement of environmental resources. At the national level this is reflected in the Federal Highway Administration's vital few goals, which identify three major environmental objectives. One of these three is "to increase ecosystem and habitat conservation."⁽¹⁾ Under this objective FHWA provides its reasons for using ecosystem and habitat conservation as a measure for environmental stewardship. Two of these reasons follow:

- It allows highway agencies to mitigate project impacts with flexible, regional approaches, rather than site-specific mitigation plans that are often more costly and less environmentally valuable.
- It is a particularly high and growing priority for environmental agencies, environmental interest groups, and the public.⁽¹⁾

Even before FHWA's focus on ecosystem conservation, the North Carolina Department of Transportation (NCDOT) had begun to examine how and where compensatory mitigation was being implemented in North Carolina. Over the last four years, NCDOT, the North Carolina Department of Environment and Natural Resources (NCDENR), and the United States Army Corps of Engineers - Wilmington District (USACE) have partnered to redesign the mitigation process with one goal in mind: to create a compensatory mitigation program that delivers guaranteed environmental benefits. The result of these efforts has been the creation of the Ecosystem Enhancement Program (EEP).

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 NCDOT transportation projects."⁽²⁾ EEP is one of the most significant and sweeping examples of a best practice ecosystem conservation program. The challenges and the lessons learned from EEP's implementation can help other state DOTs that are considering an ecosystem conservation program as a part of their environmental stewardship and streamlining initiatives. This paper describes the origins of the EEP concept, outlines the strategic and operational implementation process, discusses barriers and lessons learned, and provides an EEP progress report two years into the program's implementation.

The Case for Change

From a national perspective the North Carolina transportation system and NCDOT's programs are somewhat unique. NCDOT owns 78,000 miles (nearly 80%) of the total road network in the state. In addition, North Carolina has a state highway trust fund that provides funding for eight urban loops and widening 1,700 miles of existing roads into an intrastate highway system. This combination of ownership and funding gives North Carolina one of the most aggressive new road construction programs in the nation. It is also one of the most environmentally-impactive programs. Based on mitigation site construction estimates and payments into the Wetland Restoration Fund, NCDOT spent \$40-\$60 million per year on mitigation over the past four years.

NCDOT is a national leader for environmental stewardship. Partnering with resource agencies is a critical component of NCDOT's stewardship activities. Over the last eight years NCDOT has partnered with resource agencies to implement a substantial number of new process improvements and related initiatives within the department. One of the most substantial has been the redesign of the transportation decision-making process to create a formal joint decision-making process that integrates the requirements of the National Environmental Policy Act (NEPA) with all state and federal permitting processes. The

goal of the joint decision-making process is to achieve timely delivery of transportation projects with environmental excellence.

Information collected during the first process improvement showed that mitigation was the primary cause of project delays for projects within 18 months of their scheduled letting dates. The staff team, including members from the partnering agencies, recommended that the partners co-sponsor a second process improvement initiative to address issues associated specifically with mitigation.

The executive sponsors from NCDOT, NCDENR, and USACE charged a mitigation process improvement team with finding a new approach to mitigation that would address the following problems:

- Unacceptable number of letting delays caused by lack of appropriate or adequate mitigation
- Mitigation failure based on monitoring data
- Poor environmental results of implemented mitigation
- Lack of consistent mitigation guidance or policy among regulatory agencies

NCDOT provided a team of process improvement specialists to design and facilitate the workshop. Using a process improvement methodology called TransTIP, these facilitators walked the team through the process analysis, redesign, and implementation planning steps needed to present the sponsors with the recommended concept for the new approach. The formation of the Ecosystem Enhancement Program (EEP) was the overarching recommendation of this team.

Defining the Concept

EEP is a fundamentally different way of providing mitigation for transportation infrastructure projects. The EEP concept is based on four fundamental goals:

- Mitigation is in place and meets established mitigation success criteria *before* transportation construction begins.
- Mitigation is linked to watershed planning, representing a programmatic approach, rather than a project-by-project approach.
- A single state agency is responsible for providing mitigation.
- Mitigation is based on functional replacement, rather than acres or feet of impact.

While the workshop resulted in the EEP concept, it took 18 months of implementation planning and detailed negotiation before EEP was officially established in July 2003.

Formalizing the Agreements

EEP was formally established in July 2003 with the signing of a tri-party memorandum of agreement (MOA) by the secretaries of NCDOT and NCDENR and the colonel of the Wilmington District of the USACE. The final MOA is entirely consistent with the original team's recommendations for EEP. It states the following key goal:

The goal of the EEP is to provide effective protection of the natural resources of the state by assessing, prioritizing, restoring, enhancing, and preserving ecosystem functions and providing compensatory mitigation for development impacts by addressing watershed or basin needs and developing enhancement projects where the most benefits would be experienced. An additional goal of the EEP is to advance environmental stewardship through the identification of unique enhancement opportunities that, if implemented, would provide substantial benefit and protection to the natural resources of the State of North Carolina.(2)

The MOA addresses all four of the initial EEP goals outlined by the original mitigation process improvement team. It establishes the timetable for developing the program that will provide mitigation in ground and fully functioning *before* environmental impacts occur; it authorizes and details the watershed planning process that is the basis for identification of “best bang for the buck” mitigation; it establishes EEP as the single state agency in charge of providing mitigation; and the MOA acknowledges the goal of moving to a functional replacement system for mitigation, and provides a mechanism to transition the MOA to functional replacement accounting if and when a scientifically acceptable method is developed by the three agencies.

CHANGE MANAGEMENT – TRANSITIONING FROM CONCEPT TO IMPLEMENTATION

From the moment the concept was first presented to the executive sponsors it was clear that the EEP would change fundamentally the goals, the approach, and the structure of providing mitigation in North Carolina. While the mitigation experts knew how the mitigation process needed to change, they possessed neither the understanding nor the expertise in change management principles to get EEP successfully implemented. Not surprisingly, this has presented several hurdles that the sponsoring agencies are still trying to scale today. But as the implementation process moves forward, many valuable lessons are being learned, which are ultimately laying the groundwork for successful change. The next section of the paper provides a summary of the change management support for the EEP implementation, along with a discussion of the challenges faced and lessons learned.

The Reality of Change

EEP was based on an entirely new concept of mitigation; therefore, the design of the change management infrastructure had to reflect that essential fact. Specifically, the EEP would be required to:

- Change the whole context of work (i.e., key tasks, responsibilities, and business practices) in three departments, while still effectively engaging a multitude of other stakeholder agencies (e.g., EPA, FHWA, USFWS, NGOs, etc.) in the process.
- Change from a project-focused mitigation system (meeting a 2:1 impact replacement ratio) to a systemic mitigation approach that improves and enhances the ecosystem and its functions, while still meeting replacement requirements.

The magnitude of change that has emerged from the EEP implementation, based on these two essential characteristics alone, presents an incredibly complex new “work reality” that, even today, the participating organizations are still trying to fathom. A key challenge of the three agency sponsors has been to minimize the amount of *disequilibrium* that the changes would inevitably create within and between their organizations.

Tripartite Implementation

Establishing the EEP was dependent upon synchronized and simultaneous actions being taken by the three core agencies: NCDENR, NCDOT, and USACE. Teamwork and trust were critical to successful implementation of the EEP. Each agency had to view the others in terms of a new context of work involving mitigation. The change went beyond just simply meeting the terms of the tripartite MOA and the NCDENR–NCDOT MOAs that were established. A change in the context of work demanded changes in each organization’s roles, responsibilities, relationships, and processes, internally and externally. Perhaps the most dramatic change included NCDOT no longer being responsible for mitigation, but rather becoming a *customer* (i.e., identifying mitigation requirements to meet projected environmental impacts). NCDENR became the principal mitigation provider in meeting permit requirements established by the regulators within the NCDENR structure, USACE, and other permitting agencies. Finally, USACE became responsible for ensuring permit requirements were met while supporting processes that enhanced ecosystems but did not primarily focus on project-by-project mitigation.

The agreement to implement the EEP concept and the requisite changes in the focus of work created a situation where all three organizations would succeed, or fail, based on their common ability, and willingness, to seamlessly and simultaneously implement the program. A situation of equal risk existed among all parties. Failure by one would result in the failure of each organization's mission.

Criteria for Success

Meeting the requirements of the MOAs was a fundamental criterion for the successful transitioning to the EEP model, as well as for basic operations success. However, three additional success criteria required priority:

First, developing clear roles and responsibilities for each element of the EEP implementation was essential. In fact, all three signatory organizations needed to review their respective business processes and clarify changes in the ways of doing business created by the establishment of the EEP. Successful implementation and the continued operational success of the EEP depended upon the establishment of congruent rules, roles, responsibilities, relationships, and results among the three partners.

Second, the successful management of on-going production requirements, to occur simultaneously with the management of future mitigation, was an essential priority throughout the entire implementation process. Production management included fully integrating planning activities, mitigation activities previously controlled by NCDOT and NCDENR's Wetlands Restoration Program (WRP), as well as future EEP advanced mitigation projects (10-12 years in the future), and preservation.

A final key criterion involved the establishment of a continuous communication/information system that incorporated executive and mid-level management, and extended to all levels of DENR, DOT, and USACE. Effective, ongoing communications with other associated organizations, including environmental stakeholders, was also a requirement.

Change Management Infrastructure

Once the business construct and criteria for success were established for the EEP, managing and controlling the outputs of change had to be dealt with. Change drives an organization, its practices, and its processes from an existing state that is familiar to a future state that is different. The change itself is not what needs to be managed. Rather, the *disequilibrium* in business practices, in organizational behavior, and even in the political environment – all initial outputs of change – is what needs to be managed. In effect, a change system, or infrastructure, must be established to minimize the amount of time and the degree to which the organization experiences disequilibrium before it can experience the future, or new, state of equilibrium (see figure1).

An infrastructure to manage the disequilibrium created by implementing the EEP model was established. Change management was controlled by three elements: a Policy Group, a Coordination Group (mid-level management), and the EEP Liaison Council.

The executive leadership (at the secretary and command levels) of NCDENR, NCDOT, and USACE formed the Policy Group. This group was responsible for determining the requirements to communicate the implementation plan. More importantly, the Policy Group was responsible for ensuring that the implementation was perceived as a performance priority for all employees of their respective organizations. The desired outcome sought by the change management group was for the alignment of the implementation plan with the organizations in order to produce all the required outputs specified by the EEP business plan, related MOAs, and the implementation plan itself. Finally, the group was responsible for incorporating implementation resource requirements (e.g., people, time, money equipment, and technology) in the budget process to support the implementation schedule.

The Coordination Group represented middle management and the EEP leadership. The Coordination Group comprised representatives from middle management within NCDENR, NCDOT, and USACE. The group also had representatives from Federal Highway Administration, EPA, and other

stakeholders who participated. The principal purpose of the group was to integrate actions in supporting the transition plan, and turning the business strategy and change strategy into actions for supporting the EEP. Specifically, the goal was to communicate progress to the inner-most core of each organization and to adjust work practices as needed to ensure congruence of EEP processes and responsibilities. Finally, the Coordination Group was responsible for ensuring that the transition of the EEP concept to a working program was a priority and aligned with current work activities.

The final change management element was the EEP Liaison Council. The council consisted of non-governmental mitigation stakeholders. The council's purpose was to provide progress and functional information about the implementation of the EEP. Most importantly, the council represented the stakeholders and presented recommendations relevant to EEP design, mission, and operations.

There were also common responsibilities of the three change management entities that crossed the functional levels they were individually focused on. Specifically, all were responsible for ensuring accountability for performance, or lack of it, in supporting the implementation of the EEP. All were accountable for continuous information relating to progress and focusing on the systemic implications on current work practices rather than task accomplishment. Furthermore, all were responsible for answering common questions:

- What is change?
- How to establish oversight and accountability?
- How does business practice and structure link to EEP implementation?
- What lower-level plans are required?
- What is success?
- How do I support change?
- What if I don't support change?
- What are new roles?

EEP Implementation Planning

The EEP implementation plan was developed and used as the basis for establishing the EEP. The plan was based on three phases: Organizing and Committing, Integration of Business Processes, and Implementing and Providing Resources.

Organizing and Committing

The Organizing and Committing phase announced the intent to design and implement the EEP in accordance with the specifics of both the tripartite MOA and the agreement of a more operational and mutual support agreement between NCDENR and NCDOT. This phase also chartered the change management infrastructure, and publicized and explained, internally and externally, the intent of the EEP as well as the priority of establishing it both as a program and as an organization. Finally, this phase also identified potential areas of support for (and resistance to) the EEP's full implementation.

Integration of Business Processes

The Integration of Business Processes phase defined the EEP as both a program and an organization. The purpose of this phase was to integrate the EEP and its processes with other activities related to its mission. Further, this phase was designed to eliminate existing organizational units, structures, and processes no longer needed with the advent of the EEP concept. Barriers (i.e., processes, systems, policies, procedures, structures, as well as organizational and individual resistance to change) were defined. The integrating phase was used to eliminate process overlap, identify and define the role of stakeholders (normally

internal to the organizations), and most importantly deal with resistance to change. The integration phase played an essential role in accelerating the rate of change to the future EEP state.

There are four stages through which an organization deals with change:

- Denial of the change occurring
- Direct resistance to moving to the future state
- Exploration of new roles in the future state
- Commitment to change to the future state

Integration of business processes is the foundation of the change management infrastructure. The duration of the first three stages of change acceptance needed to be shortened as much as possible to limit the amount of disorientation, or disequilibrium, experienced within NCDENR, NCDOT, USACE, and the EEP itself.

The principle product produced during the integration phase was the definition of core processes and methods. Relationships among all players (including customers and suppliers) were developed. The relationships were defined in terms of rules (what can or cannot be done by each), roles, responsibilities, and results (products and success measures).

Finally, the structure of the EEP was designed. The structure was designed to optimally support the defined processes and relationships of the EEP. Further, all participating parties, particularly NCDOT and NCDENR, were expected to make adjustments in their structures and processes to coincide with the design of the EEP. At that point in the change management process, the implementation of the EEP was ready to take place.

Implementing and Providing Resources

The EEP implementation phase is currently being conducted. This phase marks the disengagement from the former approach to mitigation and the adoption of the new (future) processes and activities within all three signatory agencies. It also involves the elimination/retasking of offices whose missions and responsibilities have been transferred to the EEP.

Implementation provides full resources (i.e., people, money, technology, and machinery) supporting the EEP mission, responsibilities, and processes. The implementation phase is focused on cross leveling personnel and task responsibilities from the old structure within NCDOT and the Wetlands Restoration Program (WRP) to the new EEP structure. All phases of mitigation, as well as mitigation assets, were transferred from NCDOT's Project Development and Environmental Analysis Branch to EEP. NCDOT provided personnel positions to meet those responsibilities. The WRP staff were merged into the new EEP structure as well as all watershed planning, restoration, and preservation activities previously conducted by the former organization.

A budget was developed to fund the organizational overhead as well as projected mitigation on a biennial basis. The budget process and procedures were established through the NCDENR and NCDOT EEP memorandum of understanding that supplemented the original EEP tri-party MOA and provided management-, administrative-, and production-based requirements for EEP's day-to-day management.

The EEP also formalized its core processes and procedures based on the rules, roles, responsibilities, relationships, and results established during the integration phase. It integrated strategic objectives and performance measures into the NCDENR Strategic Plan to ensure total organizational continuity by linking EEP results to the departments' mission, vision, and strategic directions.

Finally, an information management and decision support system is currently being developed to integrate seven-year impact projections into EEP planning and project execution. A core component of that system is the ability to account for all permit mitigation requirements as well as mitigation credits for

projects or for preservation accomplished. The new accounting system is a significant challenge. The system must be designed to support ecosystem enhancement at the watershed level yet meet federal (EPA and USACE) requirements for attaining credits on a project-by-project basis. The agencies continue to investigate scientifically acceptable approaches that all parties agree will provide a solid basis for the new accounting system.

Lessons Learned

Though the transition to the EEP concept is still underway, important lessons are already emerging. The desired outcome of any change management strategy is a reduction in the time in which the participating organizations are in disequilibrium between the current state and the future state (figure 1). Given this outcome, it is perhaps best to view the lessons learned from North Carolina's experience in the context of root causes for not reducing disequilibrium to the desired degree. These can be observed by revisiting the applicable phases of the change management plan and the criteria for success.

There were two principle lessons learned in the *Organizing and Committing* phase:

- The level of executive action in establishing the priority of making the change to the EEP concept.
- The level of interchange between the executive and mid-level management to ensure consistency in the explanations provided to the organizations regarding what constituted the change as well as to ensure uniform and thorough answers to basic change questions posed by the workforces of NCDENR, NCDOT, and USACE.

The EEP was announced, and the executive management of the tri-parties stated the priorities. However, they stopped short of setting standards for success and products required within the respective organizations. There was a basic assumption that middle management would ensure the implementation. However, interactions between the executive and middle management levels were not sufficient for such a large change. Although, the concept was explained to all, the implications were not. In retrospect, this led to the EEP being viewed by the workforce as a project, not as a systemic change affecting all elements of each organization. This resulted in a belief held by much of the workforce that the EEP was an "extra requirement," or an additional layer of an existing organization. The fact that some vital responsibilities were changing and that a key business area, i.e., mitigation, was being transferred from NCDOT to NCDENR was not fully recognized.

There were three principle lessons learned in the *Integrating Business Processes* phase:

- Synchronizing and effecting the integration of staff and business processes must be carefully executed in a timely manner.
- Approaches to dealing with the resistance to change need to be multi-faceted.
- New roles and procedures must be tied to new products within the respective organizations.

Many individual lessons were learned about integrating the change. However, the most important one was that executing the change process was viewed more as the responsibility of one organization (i.e., NCDENR) than of the other two organizations involved in the same process. This perception generated several problems. For example, NCDOT did not at first recognize that fundamental changes in planning, programming, project management, and determining impacts must come from them and that this information was vital to EEP's programming and delivery systems (i.e., poor data equal poor products). In effect, NCDOT was transitioning from a mitigation provider to a customer who supplies, and pays for, mitigation requirements provided by the EEP. As a result, NCDOT neither conducted a concise review of its planning, operations, and project execution processes early on, nor made adjustments to them to make them congruent with the EEP's needs. Furthermore, the mitigation-related staff of NCDOT did not at first recognize they were changing and that their role in mitigation was essentially being eliminated. This

naturally bred a resistance to personnel mergers, which ultimately required the hiring of new staff for the EEP. Moreover, for some time mitigation-related staff of NCDOT continued to operate under the old system, with the disengagement and realignment of roles and responsibilities being adjusted one at a time during implementation.

At the same time, the USACE did not anticipate fully the impacts of the EEP on its regulatory procedures. For example, the Corps discovered late in the process that it needed to develop clearer legal positions on crediting and preservation. Furthermore, the Corps continued to function from the conventional project-by-project view, while simultaneously supporting the ecosystem/watershed-focused system, without defining internally how to meet requirements for permitting and accounting for credits during EEP implementation. This resulted in a disconnect of the fundamental rules that should be applied. To date, development of the new rules is ongoing.

NCDENR also experienced change integration dilemmas. First, the enforcement divisions of DENR, principally Water Quality and Coastal Management, did not fully understand the changes in their roles as permitters. Instead of providing oversight, enforcement, and permits to an external organization (i.e., NCDOT), they were suddenly faced with the task of executing these responsibilities internally. Moreover, NCDENR needed to establish mechanisms to ensure that permitting requirements were met at the programmatic level, as well as at the project level. In fact, the auditing processes required to prove that permit requirements are being met at all levels continues to be a major implementation issue. Second, NCDENR faced another intra-cultural struggle with the merger of the WRP and EEP programs. The merger was delayed primarily due to a lack of awareness among staff about their respective roles and responsibilities. However, another factor affected the merger process. The two programs operated according to entirely different approaches to mitigation; accordingly, their structures, processes, and procedures required careful modification to ensure EEP's full functionality.

Because change management is an iterative process, the timely implementation of the EEP was affected by the degree to which all the phases of change management worked in sync with each other. As a result of the challenges just described, the implementation phase duration increased by one year (about one-third more than desired). Although implementation is still well underway, the organizations continue to deal with many "tasks" that ideally should have been completed in earlier phases.

All of the above examples represent areas that sustain disequilibrium and ultimately hinder the participating organizations from achieving equilibrium (i.e., EEP as being fully functional, effective, and efficient). However, by proactively identifying and addressing these areas of disequilibrium, rather than becoming paralyzed by them, the participating organizations are moving slowly but steadily toward the shared goal of achieving the full benefits of the EEP implementation.

PROGRAM IMPLEMENTATION – AN EEP PROGRESS REPORT

Today EEP is up and running. It is an operating division within NCDENR with a two-year budget of \$190 million and an authorized staffing level of 60 positions (51 to service NCDOT through the MOA and 9 to service the general public through the in-lieu fee program). It has been in place officially since July 2003, but the actual merging of the mitigation processes at NCDENR and NCDOT to create EEP began in late 2002. The most important measure of success for EEP is whether or not it is implementing ecosystem-based mitigation consistent with the environmental and project delivery goals and the commitments of the tri-party MOA.(3)

Production Functions

EEP has two primary production functions under the tri-party MOA: First, EEP must "review and revise the watershed restoration plans for each of the 17 river basins on a five-year planning cycle," and second, EEP must "manage or perform all planning, acquisition, construction, monitoring, remedial action, and

preservation necessary to provide compensatory mitigation to waters and wetlands” anticipated to be needed for NCDOT project impacts.”(2)

The outcome of EEP’s watershed planning process is to identify specific actions necessary to achieve local watershed goals AND to identify specific mitigation projects that can be used to offset anticipated impacts from NCDOT projects. This planning is done in conjunction with a broad range of stakeholders. At present, watershed plans at the river basin scale are current for the entire state. Detailed watershed studies and planning (called Local Watershed Planning) is complete or underway in 22 areas of the state. Current and acceptable watershed plans are essential to the EEP process. Without these plans, there is no clear method to identify watershed-based mitigation projects for NCDOT projects.

Delivering the Business Plan – Mitigation Mechanisms

As critical as the planning is to the overall goals of EEP, it is the challenge of *getting mitigation implemented* that is driving EEP’s business plan today. The workload and priorities for EEP’s compensatory mitigation development program are established by projections of NCDOT’s anticipated short- and long-term environmental impacts. The most current projections indicate that over the next eight years EEP will need to restore over 1,000,000 linear feet (305,000m) of streams and 4,700 acres (1903.5m²) of wetlands. In addition to offsetting projected impacts from NCDOT’s current program, these projections include mitigation that must be implemented under the tri-party MOA time schedule to achieve the goal of functioning mitigation being “in ground” prior to impacts.

Public/Private Sector Suppliers

Meeting this compensatory mitigation need is a major challenge. EEP relies on both public and private sector suppliers to implement mitigation projects. The primary role of the EEP staff is to provide project management and quality control through internal (state agencies) and external (private sector) suppliers. EEP tries to partner with other state programs and agencies for implementation projects when those projects are consistent with the watershed plans and demonstrate mutually acceptable goals. Potential partners include Soil and Water Management Districts, the Wildlife Resources Commission, and certain partnerships with the Coastal Federation of North Carolina.

The bulk of mitigation, however, is produced by external, non-governmental sources. Approximately 25 professional firms have been qualified to provide design-bid-build mitigation site services. These firms produce detailed biological engineering plans and specifications. Land acquisition and construction contracting are handled by state government agencies. Construction inspection services are provided by the designer of record.

Full Delivery Mitigation

A second and somewhat unique mitigation delivery system is EEP’s design-build contracting process, called *full delivery*. This is a two-step process that begins with a technical proposal followed by a sealed cost proposal. The firms find the sites, acquire the land, hire the designers, contractors, oversee construction, and provide the completed projects to EEP. EEP compensates with progress payments on a scheduled release system. The management firm is responsible for producing assets that meet regulatory specifications. Final payment is a function of produced assets, not the associated costs for land acquisition, design, and construction; therefore, the management firm is assuming the risk of project success. At present the contracting volume is about equally split between design-bid-build and design-build.

Adopting A High-Quality Preservation (HQP) Strategy

As discussed earlier, all three partners (NCDOT, NCDENR, and USACE) recognized very early that the ability to get EEP “off the ground” was threatened by the tremendous volume of mitigation required to achieve EEP’s “in-ground-prior-to-impact” goal. As a result, the MOA includes provisions for an

aggressive use of HQP during the first two years of the MOA. The preservation strategy has enabled EEP to play a major role in protecting some of the state's most pristine natural land and water areas from tremendous development pressures in high-growth regions of the state. The strategy also allowed EEP to advance other important environmental programs, such as North Carolina's "Million Acres Initiative," which has the goal of preserving an additional one million acres of open space in the state. The EEP framers agreed that the use of high-quality preservation, if properly controlled and managed, could be used to complement the restoration program.

This extensive use of preservation mitigation is a unique feature of the EEP program. It has been controversial among environmental advocacy groups concerned that the no-net-loss standards would be compromised. To address these concerns EEP developed strict criteria for the preservation initiative. These criteria require that any site under consideration must meet high standards for environmental quality, and/or contribute to broader environmental goals, AND be under "demonstrable threat." HQP could not satisfy the mitigation requirements as stand alone. A minimum restoration provision of 1:1 was required to augment HQP acquisitions; however, the restoration could be delayed until the end of the two-year transition period. The provisions of the MOA broaden the applicability of preservation credits to *eco-regions*, eight environmentally cohesive regions throughout North Carolina. This facilitates the purchase of larger and more environmentally important tracts of land that meet the criteria. EEP's extensive use of preservation is limited to a two-year transition period under the MOA. EEP is making every effort to coordinate purchases with state and local government agencies and with private/non-profit environmental and conservation groups to achieve the maximum public benefit from this unique opportunity.

Another unique feature of the preservation program is the partnership that has been established with the Conservation Trust of North Carolina (CTNC). CTNC is under contract to EEP to serve as the program manager for the preservation program. This requires CTNC to work with the 23 land trusts throughout North Carolina to identify, assess, and document the natural significance of potential sites and to work with land owners to secure conservation easements where applicable. In this capacity CTNC (through the trusts), locates sites, makes land owner contact, develops initial agreements, at times finds supplemental funding, prepares site documentation, and provides the information to an EEP program contract manager. CTNC is being paid \$5-\$7 million over a three-year period for its services. The actual land acquisitions budget for the preservation program is \$121 million for a three-year period. Continuance of the HQP program will be subject to negotiation after the transition period. To date, the HQP program has provided 4,000 acres (1,620m²) of wetlands and 650,000 feet (198,250m) of stream preservation.

Using these various mitigation delivery mechanisms EEP has been able to meet its production goals. In addition, EEP is on schedule to meet the NCDOT mitigation needs in all watersheds.

Funding

Like many state DOTs, NCDOT had no real idea of the cost of mitigation prior to the mitigation process improvement. Mitigation costs were considered a "cost of doing business" when building any project and, therefore, were buried within the overall project costs. As a result, the EEP funding process is the first comprehensive look at the overall cost of transportation project mitigation. Table 1 shows EEP's current biennial budget.

A two-party MOA was executed between NCDOT and NCDENR with specifications that a two-year budget would be produced. Under the MOA, NCDOT provides full funding for EEP's watershed planning and all costs associated with mitigation for NCDOT projects. NCDOT covers the initial budget transfer from cash flow funds, and the cost of actual mitigation is charged to projects as project mitigation site decisions are made.

A total two-year estimated expenditure of \$247,600,000 was budgeted from funds within the Transportation Improvement Program (TIP). Cash flow from NCDOT to EEP is made in quarterly installments. At the end of the first year of cash transfers and based on updated impact forecasts, a revised

budget would be presented and reprogrammed into the TIP. The process would be repeated all subsequent years. Four major funding sources were identified: administration, planning, restoration, and high quality preservation. For administration costs, staff loading, salaries, supplies, furniture, outside support services, special consultants, and space plans were developed and represented about six percent of the program at an estimated cost of \$15 million. Two-year restoration costs were developed with consideration of new mitigation starts to supplement work presently in progress under the NCDOT and WRP projects that were being absorbed into EEP. At a cost projection of \$90 million, the restoration program represented approximately 36 percent of the budget. Supplementing restoration, high quality preservation acquisition at a cost of \$137 million represented 56 percent of the budget. Watershed plans and associated studies totaling \$6 million represented the remaining two percent of the budget.

The up-front funding for EEP is considerable. With the “functioning in-ground-before-impact” goal, it can be several years between the cost of initial mitigation development and the ability to charge to an authorized project.

Regulatory Accountability

In addition to meeting mitigation requirements for NCDOT projects, EEP must meet its environmental mission. These goals are two-fold. First, at a minimum, EEP must meet state and federal regulatory requirements. In addition, to be successful the program must achieve the vision outlined in the original set of EEP recommendations.

A great deal of time was spent during the 18-month implementation planning phase, creating a clear and common understanding among NCDOT, NCDENR, and USACE regarding how state and federal regulations should be applied. Some of these discussions, such as the use of a preservation strategy, are codified in the MOA. However, all three agencies understood that unanticipated actions or issues would emerge. To address this need, the MOA creates a regulatory review board, called the Program Assessment and Consistency Group (PACG). The PACG, chaired by a USACE representative, provides a forum for the regulatory agencies to consult and coordinate on EEP-related issues. Included on the PACG are the Water Quality Division and the Division of Coastal Management, regulatory organizations within NCDENR. The USACE and these two NCDENR divisions control the federal and state water quality regulations and the interpretation of mitigation under their respective rules and regulations. In addition, these controlling partners consult with other regulatory partners, including the U.S. Fish and Wildlife Service, N.C. Wildlife Resource Commission, National Marine Fisheries Service, N.C. Division of Marine Fisheries, and the U.S. Environmental Protection Agency-Region IV, all of which have representatives on the PACG. This combined group provides programmatic assessments, addresses issues, and works with EEP staff to adjust operating procedures and policies that are mutually beneficial to respective programs.

Critical to EEP's long-term success is maintaining accountability and credibility with organizations and businesses interested in North Carolina's mitigation responsibilities. Environmental advocacy groups, the transportation industry, and private mitigation bankers have specific interests and concerns about EEP's operation and success. In addition, there is a keen interest in eventually expanding EEP's programs to private development to provide mitigation in advance of impacts on a fee-for-service basis. This would provide a substantial environmental benefit for this high-growth state.

The EEP sponsors felt the need to establish external communications with stakeholders to maintain accountability and credibility with these diverse groups. After consultation with his partners, the secretary of NCDENR established a liaison council for EEP. The council membership represents the widely diverse interests that need to understand and support EEP to assure its longevity. Current members represent land trusts, private engineering and biological firms, mitigation bankers, the Environmental Defense Fund, the Southern Environmental Law Center, North Carolinians for Business Commerce and Industry, and the Road Builders Industry. The primary purpose of the council is to provide a forum to share information about EEP and to identify issues and concerns that may affect EEP before they become

“problems.” For example, the liaison council provided valuable feedback on the draft MOA prior to the formal USACE public notification process.

With both internal (PACG) and external (Liaison Council) mechanisms in place to review EEP’s implementation, any emerging concerns about the program’s regulatory and mitigation requirements can be identified and resolved quickly before they compromise EEP’s long-term viability.

SUMMARY

This is an exciting time for the state of North Carolina. With the advent of the Ecosystem Enhancement Program, a more holistic approach to mitigation is ensuring the preservation, restoration, and enhancement of the state’s most pristine natural resources while advancing the delivery of the state’s most vital transportation programs. Rather than focusing on individual highway project impacts with complementary mitigation, the EEP concept revolves around watershed plans and considers cumulative impacts associated with a given watershed. As a result, the EEP provides *cumulative mitigation for cumulative impacts*. While many implementation issues still need to be resolved, the long-term benefits to be gained by the EEP far outweigh the short-term challenges that NCDOT, NCDENR, and USACE have experienced to date. Since EEP’s inception no NCDOT project has been delayed due to inadequate or inappropriate mitigation availability – and this fact continues to drive the implementation process forward.

LIST OF REFERENCES

1. Environmental Streamlining Homepage. Federal Highway Administration, U.S. Department of Transportation. <http://environment.fhwa.dot.gov/strmlng/vfovervw.htm>. Accessed July 16, 2004.
2. Ross Jr., William G., Lyndo Tippet and Charles R. Alexander Jr. *Memorandum of Agreement Among the North Carolina Department of Environment and Natural Resources and the North Carolina Department of Transportation and the United States Army Corps of Engineers, Wilmington District*. July 2003.
3. Ecosystem Enhancement Program Homepage. <http://www.nceep.net>. Accessed July 16, 2004.

LIST OF TABLES AND FIGURES

Table 1, EEP Biennial Budget (04/05 – 05/06)

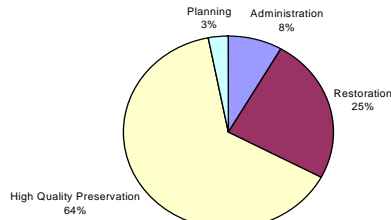
Figure 1, EEP Change Management Infrastructure

TABLE 1 EEP BIENNIAL BUDGET (04/05 – 05/06)

EEP Biennial Budget: State Fiscal Years 2004/05 and 2005/05 - Summary

Item	MOA Year 2				MOA Year 3				Total Cost
	Quarter #1 7/04 - 9/04	Quarter #2 10/04 - 12/04	Quarter #3 1/05 - 3/05	Quarter #4 4/05 - 6/05	Quarter #5 7/05 - 9/05	Quarter #6 10/05 - 12/05	Quarter #7 1/06 - 3/06	Quarter #8 4/06 - 6/06	
Administration									
Salaries	\$552,983	\$633,503	\$699,239	\$699,239	\$812,895	\$812,895	\$812,895	\$812,895	\$5,836,544
Operating	\$411,400	\$525,800	\$465,300	\$465,300	\$585,350	\$585,350	\$527,850	\$527,850	\$4,094,200
SPO,SCO, DPS	\$ 137,500	\$ 137,500	\$ 137,500	\$ 137,500	\$ 151,250	\$ 151,250	\$ 151,250	\$ 151,250	\$1,155,000
Contracts	\$562,500	\$562,500	\$562,500	\$562,500	\$562,500	\$562,500	\$562,500	\$562,500	\$4,500,000
Restoration Mitigation	\$ 5,820,489	\$ 5,820,489	\$ 5,820,489	\$ 5,820,489	\$ 5,820,489	\$ 5,820,489	\$ 5,820,489	\$ 5,820,489	\$46,563,915
HQ Preservation	\$ 36,427,079	\$ 36,427,079	\$ 12,142,360	\$ 12,142,360	\$ 6,071,180	\$ 6,071,180	\$ 6,071,180	\$ 6,071,180	\$121,423,598
Planning Studies	\$ 741,865	\$ 741,865	\$ 741,865	\$ 741,865	\$ 741,865	\$ 741,865	\$ 741,865	\$ 741,865	\$5,934,922
Total	\$ 44,653,817	\$ 44,848,737	\$ 20,569,253	\$ 20,569,253	\$ 14,745,530	\$ 14,745,530	\$ 14,688,030	\$ 14,688,030	\$189,508,179
Permanent Full-Time Positions	36	42	47	47	51	51	51	51	

Biennial Summary



Biennial Summary	
Administration	\$ 15,585,744
Restoration	\$ 46,563,915
High Quality Preservation	\$ 121,423,598
Planning	\$ 5,934,922
Biennial Total	\$ 189,508,179

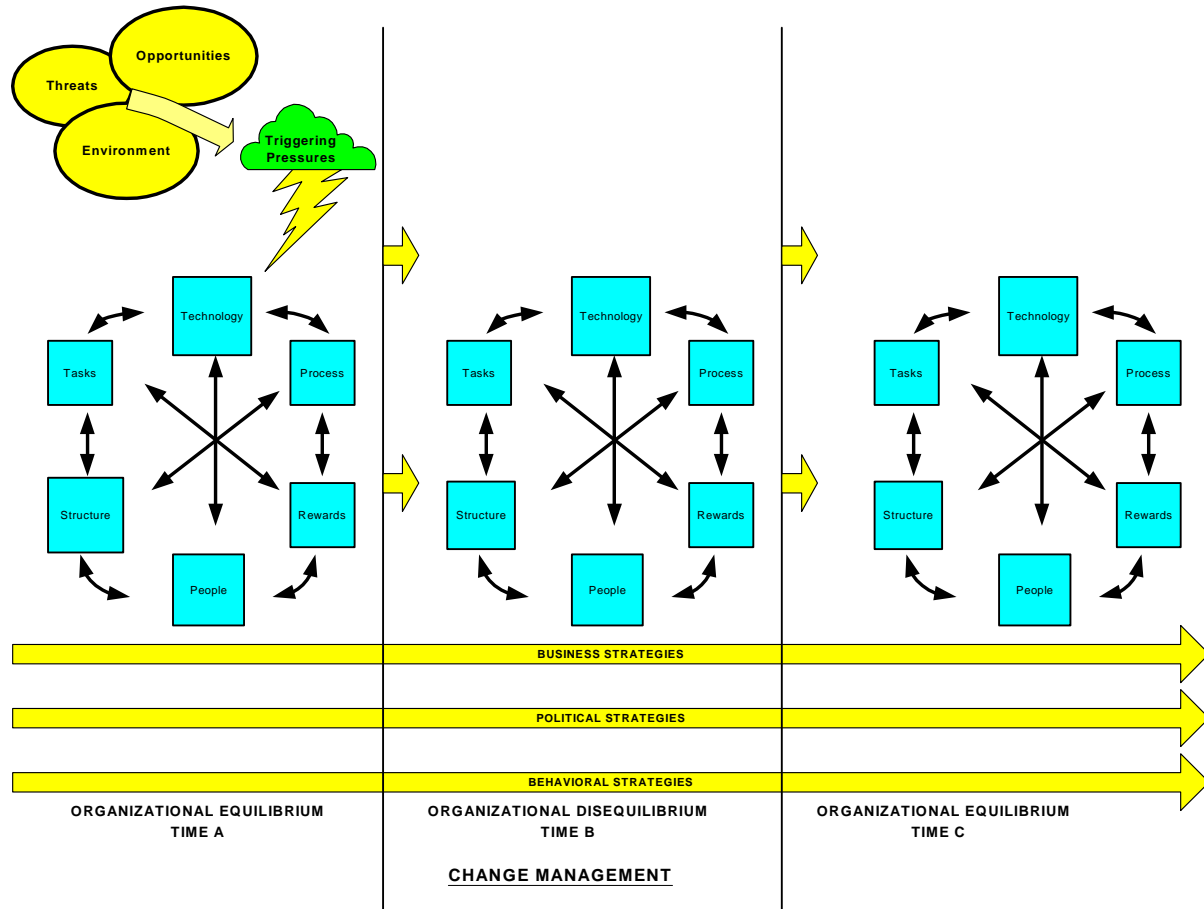


FIGURE 1 EEP change management infrastructure.