

ENVIRONMENTAL MITIGATION
ALTERNATIVES FOR
TRANSPORTATION PROJECTS
IN CONNECTICUT

SEPTEMBER 2010

A REPORT BY

THE CONNECTICUT
ACADEMY OF SCIENCE
AND ENGINEERING



FOR

THE CONNECTICUT DEPARTMENT OF
TRANSPORTATION

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This study was initiated at the request of the Connecticut Department of Transportation on August 12, 2009. The project was conducted by an Academy Study Committee with the support of Joseph Bushey, PhD, Study Manager; Eric Jackson, PhD, Research Associate; and Juan Pablo Correa, Research Assistant. The content of this report lies within the province of the Academy's Transportation Systems Technical Board. The report has been reviewed by Academy Members Robert J. Hermann, PhD and Brian J. Skinner, PhD. Martha Sherman, the Academy's Managing Editor, edited the report. The report is hereby released with the approval of the Academy Council.

Richard H. Strauss
Executive Director

Disclaimer

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16. Abstract The objective of this study is to determine whether consolidated mitigation alternatives such as In-lieu Fee (ILF) and Wetland Banking (WB) programs are viable options to be implemented in Connecticut. Specifically, the study focuses on whether the Connecticut Department of Transportation (ConnDOT) may be able to develop such programs for their own use. ConnDOT is interested in the potential for alternative mitigation strategies to decrease costs and improve construction timing while potentially increasing wetland environmental benefits. To address this objective, published literature was reviewed concerning mitigation practices and surveys of other states and potential third parties were conducted to identify possible solutions. The primary study recommendation is for ConnDOT to more thoroughly evaluate the cost-benefits of implementing an ILF EMA program. As significantly less money is required up-front for an ILF program than that required for a WB program, it is recommended that an ILF program is the most appropriate mechanism to provide EMAs in Connecticut, and that ConnDOT consider developing an ILF program for its transportation projects. ConnDOT's decision to develop an ILF program should take into consideration potential cost savings and user and public relations benefits for eliminating construction delays associated with more timely mitigation approval, as well as the increased environmental benefits of larger, more contiguous mitigation projects. Furthermore, in Connecticut the regulation of private impacts by municipalities prevents the private sector from buying into an EMA program. Until state law is amended to allow for private participation in an EMA program, ConnDOT would need to establish an EMA program accounting for only state impacts, hoping that a successful program will serve to prompt the General Assembly to update the state's legal structure regarding wetland mitigation.			
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EXECUTIVE SUMMARY

Wetlands are important aspects of ecosystems because of their rich biotic life as well as their role in chemical cycling. Wetlands also provide benefits to humans by creating wildlife habitat, recreation resources, flood control and the mitigation of nutrient contamination. However, these functions and services are compromised as wetlands and watercourses regularly are impacted by human development (Zedler and Kercher 2005, NRC 2001, ELI 2002). To offset the loss of wetlands, federal legislation was passed in 1972 requiring developers who may potentially impact wetlands to first avoid impacts when possible, second, minimize the unavoidable impacts, and lastly, compensate for the wetland functions lost. Ultimately, the purpose of the legislation is to achieve the goal of no net loss of wetlands.

Traditionally, permittee-responsible mitigation (PRM) has been the predominant form of compensatory mitigation, where the developer bears the responsibility to offset the wetland functions lost on or adjacent to the site where the impacts occurred. However, the high costs and the high number of unsuccessful PRM projects have led to changes in approach and the flourishing of environmental mitigation alternatives (EMA).

Two distinct programs have emerged as alternatives to provide permittees with increased flexibility when fulfilling permit requirements while increasing efficiency, the rate of success, and environmental quality:

1. A compensatory wetland banking (WB) program is administered by a state agency, a private entity or a nonprofit organization. A WB program acquires a site, independent of or related to a specific proposed regulated activity. The WB restores, enhances, creates or preserves a wetland, generating credits based on the type and quality of wetland improvement. Separately, in the course of seeking authorization for an activity that impacts wetlands, if on-site compensatory mitigation is deemed impracticable, the developer may satisfy their permit requirements by buying these generated credits from the WB. The WB has a limited amount of credits to sell, and this limit is determined when establishing the conditions with the different governmental agencies involved.
2. An In-lieu Fee (ILF) program is administered by a resource agency or a non-governmental organization and has the same function as that of the WB, previously described. The only fundamental difference between a WB and a ILF program is that a WB must have selected a consolidated mitigation site before it begins selling its credits, whereas an ILF program may sell credits even if no site has been built. In an ILF program, the funds are accrued until there is enough money to establish a mitigation site, creating lag time that can vary significantly from program to program

STUDY PURPOSE

The objective of this study is to determine whether consolidated mitigation alternatives such as ILF and WB programs are viable options in Connecticut. Specifically, the study focuses on

whether the Connecticut Department of Transportation (ConnDOT) may be able to develop such programs for its own use. ConnDOT is interested in the potential for alternative mitigation strategies to decrease costs and improve construction timing while potentially increasing wetland environmental benefits. Determining an appropriate mitigation site for transportation projects impacting wetlands has caused long delays. If sites are not identified and a permit is not issued, construction projects are halted until such sites are selected. Project delays result in the loss of time and resources and proper programming of federal and state funds in a constrained capital program. This ultimately impacts the general public because much needed transportation projects are not constructed. EMAs represent the solution to such delays because they provide an option that may be used when mitigation projects are difficult for the permittee to develop on-site. Additionally, EMAs offer the opportunity for increased environmental functions and needs associated with larger, more contiguous natural areas. Many mitigation efforts from projects with relatively minor impacts result in small mitigated wetland areas with minimal ecological value. The goal of this report is to assess the potential for implementation of alternative compensatory mitigation and to make recommendations regarding current and future practices in Connecticut. To address this objective, published literature concerning mitigation practices was reviewed, and surveys of other states, and potential third parties were conducted to identify possible solutions. Based on this review and discussions with ConnDOT and the Connecticut Department of Environmental Protection (DEP), the Connecticut Academy of Sciences and Engineering (CASE) Study Committee has identified the following:

1. Alternatives available to conduct consolidated wetland mitigation based on information gathered from case studies and survey results.
2. Recommendations for ConnDOT that may improve the mitigation process. Additionally, the study provided recommendations regarding consolidated mitigation programs.

CONCLUSIONS

Based on this study, a set of recommendations was developed for ConnDOT's consideration in addressing wetland mitigation challenges for transportation projects. The study committee concluded that an EMA program should be established in the state of Connecticut to provide an alternative to PRM—specifically, an ILF program. PRM has many limitations that EMA programs do not; these are discussed in this report. Two of the EMA programs discussed in this study and widely used throughout the United States are WB and ILF programs. Both programs provide wetland mitigation in consolidated sites. However, WB programs must secure, establish and demonstrate the success of a mitigation site in order to sell credits to permittees. ILF programs may sell credits before a site has been secured. This means that to establish a WB program, large amounts of money are needed to cover the up-front costs, a difficulty given the economic climate, the cost of land in Connecticut and the typical pattern through which ConnDOT receives funds from the Federal Highway Administration (FHWA). In an ILF program, a fraction of the funds are needed up-front because mitigation sites and construction are not performed until sufficient funds have been collected from permittees. As significantly less money is required up-front for an ILF program, the study committee recommends an ILF program as the most appropriate mechanism to provide EMAs in Connecticut, and that ConnDOT consider developing an ILF program for its transportation projects. A general overview of the cost for operating an ILF program is presented in this study. However, more specific values for the cost of land purchased

for mitigation by ConnDOT and the costs of mitigation project construction need to be assessed. Additionally, ConnDOT's decision to develop an ILF program should take into consideration potential cost savings and user and public relations benefits for eliminating construction delays associated with more timely mitigation approval, as well as the increased environmental benefits of larger, more contiguous mitigation projects.

Furthermore, in Connecticut the regulation of private impacts by municipalities prevents the private sector from buying into an EMA program. Therefore, the only current guarantee for an EMA sponsor in Connecticut would be the credits that ConnDOT and other state agencies would purchase, estimated to be about 3 acres per year (Alexander 2010). The relatively small amount of impacts does not provide economy of scale, and thus reduces incentive for the for-profit WB sponsors; this makes covering ILF operational costs more difficult for ConnDOT. However, if state law were changed to permit private impacts to be mitigated through an EMA, the mitigated area would increase significantly, with the ILF program definitively receiving sufficient payments to cover operational costs even if only a few municipalities participate. Concurrently, environmental quality will increase with mitigation at a larger scale and with increased flexibility in site selection. However, until state law is amended to allow for private participation in an EMA program, ConnDOT would need to establish an EMA program accounting for state impacts only, hoping that a successful program will serve to prompt the General Assembly to update the state's legal structure regarding wetland mitigation.

RECOMMENDATIONS

The primary study recommendation is for ConnDOT to more thoroughly evaluate the cost benefits of implementing an ILF EMA program. The additional recommendations below follow from that recommendation, and are divided into three parts: general recommendations, which will benefit current environmental mitigation practices, regardless of whether an EMA program is developed; recommendations specific to the development of an EMA program; and recommendations specifically aimed at EMA programs and therefore only beneficial if such programs are established.

General Recommendations

Recommendation 1: It is important that ConnDOT and DEP each develop cohesive and cooperative long-range plans articulating the following objectives, and provide for interagency review and comment through plan development.

1. Forecasting impacts
2. Classifying watershed goals
3. Prioritizing open space opportunities

Recommendation 2: ConnDOT and DEP should individually and collectively articulate the environmental goals and objectives of specific mitigation projects in written form. In doing so, each agency not only lays the groundwork for establishing future EMA, but also enhances the existing permitting processes.

Recommendation 3: In addition to the regular joint planning meetings between the two agencies, meetings focusing on a general discussion of wetland remediation approaches should be established. New Hampshire's survey response indicated that conducting monthly meetings proved to be valuable in the EMA project design process.

Recommendation 4: Evaluate the adequacy and efficacy of wetland impact documentation. If necessary, ConnDOT should improve the documentation of wetland impacts and DEP should improve documentation of the ecological success of wetland mitigation projects. According to the NCHRP (2002), many states are not properly documenting the mitigation process, leading to uncertainty as to whether the current mitigation options are effective and successful.

Recommendation 5: Work in cooperation with the Department of Economic and Community Development (DECD), and other state agencies as appropriate, to identify future project development areas that will impact wetlands.

Recommendations Specific to the Development of an EMA Program

Recommendation 6: Identify potential service areas that could be appropriate for consolidated wetland mitigation. Having long-term plans in place for both ConnDOT and DEP is a necessary pre-requisite for determining the appropriate classification of mitigation boundaries. This recommendation should not be undertaken until there is certainty that an EMA program is feasible and ready to be established, because these actions imply that a thorough analysis of costs and the necessary steps towards program implementation have been conducted.

Recommendations Only if an EMA Program is to be Developed

Recommendation 7: Inform municipalities and regional entities and other stakeholders of the opportunities provided by EMA programs, and evaluate the interest of the public and its representatives in altering the Connecticut General Statutes to permit towns to participate in a regional or statewide EMA program.

Recommendation 8: Identify potential sources of start-up financing for administrative development of a consolidated mitigation plan and instrument. Apply for federal (i.e., EPA) grants to assist in defraying costs of development.

Recommendation 9: Keep the USACE and other federal resource agencies including EPA, US Fish and Wildlife Service (USFWS), and the National Marine Fisheries Service (NMFS) informed about the steps discussed above.

In summary, should compensatory mitigation be desired, Recommendations 6-9 will be necessary to establish the groundwork for initiating either a WB or ILF program. The first step in this process is to outline and document the processes regarding wetland mitigation. Long-term plans and efficient design processes regarding the stakeholders involved will be crucial for achieving program success. The next step is to obtain funding for developing a plan regarding the evaluation of ecosystem credits and long-term monitoring requirements. Finally, ConnDOT, along with DEP, should support legislation necessary to authorize the use of an EMA program, citing increased operational efficiency and environmental functioning.

Recommendations Only if an EMA Program is Developed

Recommendation 10: If an EMA is implemented, develop a means to include ecosystem services in project evaluation. Ecosystem services are services that wetlands provide directly to the public. A wetland that has been created or restored to be part of a park, for instance, creates recreation opportunities, wildlife viewing, flood control, etc., to the surrounding community. In short, ecosystem services generate a value to the public (Polasky and Segerson 2009), possibly reflected in increased property value, adding to the list of benefits consolidated mitigation programs could offer.

Recommendation 11: Mitigation options should be in-line with ecosystem goals established in DEP's long-term plan. Establishing a documented set of criteria and mitigation option rankings in-line with ecosystem goals provides transparency in the decision-making process.

Recommendation 12: Develop a means for long-term financing for administration of consolidated mitigation projects.

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