Title
Guidance for the selection of compensatory mitigation options: results from the NCHRP project 25-16

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GUIDANCE FOR THE SELECTION OF COMPENSATORY MITIGATION OPTIONS:
RESULTS FROM THE NCHRP PROJECT 25-16

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Abstract
Since the passage of the Transportation Equity Act for the 21st Century (TEA-21) in 1998, the volume of
transportation projects being evaluated and designed has significantly increased. Over the past three years,
funding for highway, bridge, and tunnel construction has steadily increased from $30 billion to just over
$40 billion (Rubin et al. 2001). This 33 percent increase may rise further as more of the record $198 billion
surface transportation investments directed by TEA-21 is channeled into roadway projects. Paralleling this
increase in roadway construction is a potential increase in the amount of impacts to the nation’s wetlands
and, subsequently, an increase in the number of wetland mitigation projects. Therefore, it is critical that
information be distributed to the state departments of transportation (DOTs) to assist them in developing
wetland mitigation programs that not only streamline the compensatory mitigation process, but also improve
the quality of mitigation sites. This report will help DOT wetland managers to better understand the status of
DOT mitigation programs across the United States, while also providing the necessary information to evaluate
mitigation options and modify their respective programs to incorporate options that are appropriate for the
mitigation demands.

This report summarizes the results of the National Cooperative Highway Research Program (NCHRP) Project
25-16, “Guidance for Selecting Compensatory Wetland Mitigation Options.” This project was conducted in two
phases. Phase I compares the success rates of the different wetland mitigation options. Phase II provides
a decision-making tool to assist DOT wetland managers in developing comprehensive wetland mitigation
programs that use multiple mitigation options. This objective was accomplished by illustrating the steps
involved in developing a banking program, by developing eight case studies of state DOT wetland mitigation
programs, and by evaluating existing banking agreements and guidelines.

Published in February 2001 as NCHRP Research Results Digest 251 (NCHRP 2001), Phase I results show that
the data on the relative success of mitigation options are incomplete and highly subjective. Available data on
wetland mitigation currently deal primarily with project-specific mitigation, not with consolidated mitigation
or with a comparison of the two. The data have consistently illustrated the problems with project-specific
mitigation, including sites not being built, problems with grading, insufficient or excessive hydrology, incorrect
plant communities, and large differences in the proposed and established mitigation types. No study has
adequately investigated the success rate of consolidated mitigation or determined whether the procedures
differ for establishing functioning project-specific and consolidated mitigation sites. The Phase I results also
illustrate the following:

- Many state DOTs lack mitigation options.
- Inconsistencies exist in the quality and type of monitoring information collected by states.
- DOTs make it impossible to determine whether the mitigation sites were actually successful.
- There is a perception that the success of project-specific and consolidated mitigation sites
  depends on better site selection, better coordination between designers and contractors, and
  more appropriate vegetation selection and planting techniques.
- There is a perception that consolidated mitigation offers more favorable results.

These results parallel the recently completed National Research Council’s (NRC’s) Committee on Mitigating
Wetland Losses report (2001), which states that the committee can not compare the success of mitigation
options: “such an approach would have required the committee to identify a single mitigation target (‘or
success criteria’) and then determine which mechanism would most likely meet it. There simply was no
data that could be used for such an assessment.” The U.S. General Accounting Office’s 2001 report on the
effectiveness of in-lieu fee mitigation also finds that U.S. Army Corps of Engineers’ (USACE) officials in 11 of 17
districts with fee-based mitigation programs believe that these programs are successful in mitigating wetland loss. The USACE officials maintain this belief despite having data that contradicts it (GAO 2001). These results demonstrate not only that there is a lack of data to compare mitigation options, but also that many resource agencies maintain the belief, despite a lack of scientific data, that consolidated mitigation is more successful than project-specific mitigation.

Phase I information helped to refine Phase II’s objectives. The NCHRP Project 25-16 research panel agreed that Phase II objectives would be accomplished with the development of case studies of sample DOT wetland mitigation programs across the United States. These case studies focus on the history of selected wetland mitigation programs and their use of consolidated mitigation options, as well as the successes and problems of their programs. Information is also provided on the language of banking agreements and on the wetland banking development process to further assist in the understanding and development of a banking program.

It is anticipated that the final report will provide guidance to state DOTs interested in expanding their mitigation programs to include consolidated mitigation options. The central issues regarding banking agreements are highlighted to provide the DOTs with an understanding of how consensus can be built among resource agencies. Finally, it is hoped that this project will encourage DOTs to become more proactive in addressing their mitigation needs, to invest in consensus building among agencies, and to ultimately produce functional wetland mitigation projects whose benefits are maintained for the long term.

Additional Information:
URL for the NCHRP 25-16 information: http://www4.trb.org/trb/crp.nsf/All+Projects/NCHRP+26-16

The final report can be viewed at: http://gulliver.trb.org/publications/nchrp/nchrp_rpt_482.pdf

**Biographical Sketch:** Xavier Riva has been with A.D. Marble & Company, an environmental consulting firm headquartered in Conshohocken, Pennsylvania, for five years as a project manager and environmental scientist. Mr. Riva manages the monitoring of wetland mitigation sites in New Jersey and Pennsylvania, as well as NEPA-related projects associated with transportation improvements in these states. Mr. Riva completed this report as part of the National Cooperative Highway Research Program’s Project 25-16, which was published in December 2002. Mr. Riva’s background is in water quality management with a focus on watershed management and wetland ecology. He earned his master’s of environmental management from Duke University (1998) and a bachelor of arts from the University of Pennsylvania (1994).