



PUTTING RESEARCH TO WORK

BRIEF

New Tool Tracks Environmental Mitigation Projects

WisDOT engineers design transportation projects to avoid sensitive environmental resources whenever possible, and to minimize or mitigate environmental effects when such resources are unavoidable. When it is not feasible to avoid sensitive resources or negative environmental impacts during project construction, WisDOT establishes an environmental mitigation project. Examples of these projects include detention basins for stormwater runoff, wetland enhancements, stream relocations, and wildlife barriers and passages.

Some environmental mitigation projects are constructed to meet the requirements of the National Environmental Policy Act, while others are the result of an agreement with the Wisconsin Department of Natural Resources. WisDOT's environmental mitigation projects fall into two categories: those that can be completed during construction of a transportation project, and those that require ongoing maintenance or monitoring to fulfill a project's intended purpose.

What's the Problem?

WisDOT has a long history of environmental and asset management. However, a centralized, comprehensive program has not been established to manage those environmental mitigation projects that require ongoing monitoring or maintenance. This prompted WisDOT to investigate ways to collect and track information about existing mitigation projects and how they should be maintained to ensure the long-term functionality of these environmental features. Tracking environmental mitigation projects can encourage collaboration among participating agencies and inform the construction of future projects by identifying best practices that improve design and functionality and reduce the cost of future mitigation efforts.

Research Objectives

Jointly funded by WisDOT and the National Center for Freight and Infrastructure Research and Education, this project sought to explore the current state of environmental mitigation project activities in Wisconsin; review existing environmental inventory and asset management programs; develop an inventory of environmental mitigation features in Wisconsin; and create a tool that can be used by WisDOT to track commitments to maintain environmental mitigation projects.

Methodology

Research tasks included:

- Scanning the literature to assess the state of the practice in collecting and tracking environmental commitments.
- Conducting site visits and reviewing Environmental Impact Statements and Environmental Assessments to develop a list of existing environmental commitments in need of monitoring and maintenance.
- Developing three case studies to gain insight into the current condition of existing environmental commitments.
- Interviewing WisDOT and WDNR staff to gather information about existing procedures.
- Developing a tool and processes to track mitigation projects.

Results

Researchers developed an inventory of existing mitigation projects in the five WisDOT regions, where environmental commitments vary based on types of land use, wildlife populations, demographics and levels of urbanization. With the inventory in place, researchers turned their attention to developing the tracking tool.

Investigator



"The asset management tool is part of a proactive approach to managing nonhighway assets. WisDOT can use the tool to plan for preventive maintenance and monitoring needed for environmental mitigation projects."

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“Three key things resulted from this research: an inventory of environmental commitments, best practices that can be shared throughout the state and an asset management tool that can help WisDOT manage ongoing monitoring and maintenance of environmental mitigation projects.”

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Turtle walls such as this newly constructed one (left) are designed to prevent turtles and other small wildlife from crossing the roadway at grade. However, growth in nearby grasses can create a “turtle ramp” (right) that allows turtles to access the highway, resulting in turtle loss.

Though hoping to learn from the experience of other states monitoring environmental commitments, researchers’ scan of the literature indicated that no state employs a stand-alone or integrated tracking system to monitor environmental commitments after construction. Key features shared by many systems used to monitor environmental commitments during construction include standardization, ease of use, accessibility and file-sharing options, the ability to create reports and notifications, and the ability to integrate with geographic information systems mapping programs. Researchers sought to include as many of these features as possible when developing the tracking tool.

Researchers used Microsoft Excel to develop the tracking tool because of staff familiarity with Excel and the ease with which data and files can be shared. The tracking tool—an interactive spreadsheet with data that can be easily sorted—contains a wide range of descriptive information about each environmental commitment contained in the inventory. The tool was designed to minimize data input given the current need for manual data entry, and data elements reflected in the Excel spreadsheet allow for future transition to a Geographical Information System program. The project produced a user’s guide to clarify and ease the use of this tool.

Implementation and Benefits

WisDOT is reviewing the inventory and tracking tool for implementation. The new tools are expected to support WisDOT’s environmental mitigation efforts by:

- Offering ready access to critical information about mitigation projects across regions and agencies.
- Providing information about the effectiveness of project design, which will contribute to more efficient use of public funds.
- Creating the opportunity to ensure that all contracted work associated with mitigation projects is completed.
- Generating annual reports that provide an overview of monitoring and maintenance needs at a statewide level, allow for effective coordination to minimize maintenance costs, and show the level of resources committed to environmental regulation and mitigation.

Development of the mitigation project inventory and tracking tool is the first step in establishing a comprehensive asset management system for environmental features. The results of this project will help WisDOT meet its longer-term goal to develop a forecasting tool that identifies costs associated with environmental mitigation projects, from design and construction to ongoing maintenance.

This brief summarizes Project 0092-08-25, CFIRE 01-07, “Develop an Asset Management Tool for Collecting and Tracking Commitments on Selected Environmental Mitigation Features,” produced for the Wisconsin Department of Transportation Research Program, 4802 Sheboygan Ave., Madison, WI 53707.

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