

Environmental Landscape Scale Planning Tools: Maryland and Texas Improve Linkages between Conservation and Transportation Planning

The latest federal transportation legislation provides some of the most significant changes to environmental provisions affecting transportation in decades, including environmental stewardship and better links between transportation and conservation planning. The American Association of State Highway and Transportation Officials (AASHTO) Technology Implementation Group (TIG) Program, which identifies and champions nationwide use of new, high-payoff, ready-to-use technologies, selected Maryland and Texas as a Lead States Team (LST) to showcase, through national outreach and education strategies, innovative methods that facilitate and improve quality in environmental aspects of transportation project planning. This LST promotes the expanded use of Environmental Planning GIS Tools for Transportation Planning and Design by the Maryland State Highway Administration (SHA) and the Texas Department of Transportation (DOT). In both cases, transportation and natural resource planners worked collaboratively to develop decision-support tools designed to deliver critical transportation services in an environmentally protective and restorative manner.

The use of Environmental Planning GIS Tools facilitates the planning and design process for transportation projects. A Texas GIS-driven environmental impact assessment and screening tool allows project alternatives to be rated in order to minimize potential environmental impacts. Projects are prioritized according to a system that ranks areas from highly vulnerable at a score of 5 to areas of low concern at a 1. This technology allows ecologically important areas to be targeted for avoidance, minimization of impacts, compensatory mitigation, and early assistance with National Environmental Policy Act (NEPA) planning and analysis.

Another GIS-driven tool, Maryland's Green Infrastructure Assessment, is used to identify high priority ecological areas for conservation and restoration at a statewide scale. The MD SHA uses the tool to aid in environmental process streamlining, avoidance and minimization efforts and identifying stewardship opportunities. This GIS tool is used as part of the Conservation Fund's strategic approach to conservation land planning, which aims to bridge the gap between the environmental and transportation professions. The Green Infrastructure Assessment and Approach can ensure sustainable infrastructure development using innovative design to protect critical habitats and ecosystems from the encroachment of highway infrastructure. An optimization tool has been developed to analyze both the costs and benefits of specific environmental stewardship projects. These tools highlight the importance of an integrated, multi-scale planning process to facilitate the development of transportation infrastructure within the context of interconnected networks of ecologically important lands.