

# Successes **in** Stewardship

<http://www.environment.fhwa.dot.gov/strmlng/index.asp>

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## Streamlining Planning and Environment Linkages (PEL) through Statewide GIS Applications

Federal Highway Administration's (FHWA) Planning and Environment Linkages (PEL) initiative is an approach to transportation decisionmaking that considers environmental, community, and economic goals early in the planning stage and carries decisions through development, design, construction, and maintenance. By promoting greater communication within and among transportation and resource agencies, PEL can help them to simplify decisionmaking and project development.

FHWA has recently begun to look more closely at the possibility of using Geographic Information Systems (GIS) to further streamline the PEL approach. GIS is a collection of software, hardware, and data used to store, manipulate, analyze, and present geographically referenced information. With GIS applications, agencies can layer or merge multiple data sets for a given location to more effectively view and analyze the potential impacts of proposed projects. This allows transportation planners to integrate environmental information early in the planning and development process and facilitates more environmentally robust decisionmaking, both of which are key goals of PEL.



*This map shows how transportation and resource agencies in Florida overlay proposed transportation projects on sensitive resources maps using their GIS Environmental Screening Tool.*

### Peer Exchange on Using GIS for Planning and Environment Linkages

In October 2007, FHWA's Office of Environment, Planning, and Realty convened a one and a half-day peer exchange for state GIS, planning, and environmental staff to explore how GIS might help state Departments of Transportation (state DOTs) accomplish the goals of PEL. Attendees included representatives from the Florida, Idaho, Oregon, South Carolina, Tennessee, and Washington state DOTs; the FHWA Oregon and Washington Division Offices; and the USDOT Volpe Center. Presentations and discussions focused on three core themes:

- Identifying existing transportation and environmental data
- Interagency coordination to share data and understand processes
- Using GIS data effectively in planning

Participant discussions revealed there is no single model for how state DOTs can use GIS to further the goals of PEL. Some states already use formalized GIS processes and applications to screen projects for inclusion in their Statewide Transportation Improvement Program (STIP), while others are still working to build a centralized program through which GIS applications may be used.

As part of the peer exchange, state DOT staff described their current GIS activities and highlighted myriad ways that GIS can be applied to transportation decisionmaking. Discussion and presentations focused on:

- South Carolina's Advanced Project Planning Report
- Tennessee's Statewide Environmental Management System
- [Washington's Environmental GIS Workbench](#)
- [Oregon's Environmental Data Management System](#)



- [Florida's Efficient Transportation Decision Making Process](#)

## Considerations for Using GIS in Planning and Environment Linkages

Throughout the peer exchange, state DOT participants shared lessons learned and suggestions based on their efforts to implement GIS for PEL outcomes. These concepts can be useful tools to consider when creating or enhancing a GIS system to better incorporate PEL goals. Recommendations included the following

- *GIS maps are not panaceas.* It's important to consider how GIS can facilitate the integration of planning and environment rather than thinking of it as an end in itself. GIS mapping is a useful new screening tool to help streamline environmental decisionmaking, but it does not provide the complete answer.
- *Take a team approach to implementing GIS activities.* It can be difficult to create a standardized GIS process when state DOTs balance multiple planning activities and business functions. Taking an integrated team approach to facilitate discussion across disciplines will lead to a better understanding of how GIS can serve the multiple business needs of state DOTs. Using GIS applications to streamline planning and environmental processes relies on problem-solving, so solutions are more likely to be identified with input from multiple stakeholders.
- *Partner when possible.* Inter-agency data-sharing can be a challenge, but coordinating early helps to build the trust and relationships necessary to make it work. Resource agencies need to be included not only in data-sharing but throughout the decisionmaking process. Allowing them to analyze their own data gives them the opportunity to judge the quality of their data and, when necessary, to update it.
- *Train staff to think conceptually.* Project development is a complex process, and helping people to expand their thinking from their individual area of focus to more conceptual, higher-level thoughts about coordinated processes can be challenging. Education at both the executive and staff levels is a key way to promote programmatic and process changes. Both leadership and staff will be more willing to make changes if they understand why a change is worthwhile.
- *Don't get bogged down in details when starting out.* When beginning to develop a GIS process, focus on broader programmatic goals and on creating the means for inter-agency coordination first and worry about pinpointing the right data sets to use later. Once the process has been established and agencies see how it can benefit their work, the concepts will sell themselves. Buy-in from management, both internally and at resource agencies, is another key starting point, as these individuals will be able to create the culture shift necessary to build staff support and engagement.

### Using GIS for PEL: FHWA Resources

- The [GIS in Transportation](#) website contains a searchable database of state DOTs' current GIS applications.
- An executive-level domestic scan of the [State of the Practice of GIS for Transportation Decisionmaking](#) includes expected near-term advancements in the GIS field.
- The [PEL](#) website provides further information on the benefits of PEL and ideas for effective implementation.
- FHWA's [Environmental Competency Building Program](#) website contains information on current and future multidisciplinary development needs of transportation and environmental professionals.

## Next Steps in Developing GIS Tools for Planning and Environment Linkages

Participants also took the opportunity to share ideas on how to continue to develop GIS tools to advance PEL. These included:

- Learn more about how GIS is being used in planning by hosting a one-day information technology showcase.
- Convene meetings of planning and environmental staff, and brainstorm opportunities for using GIS to improve the working relationship between divisions.
- Consider new approaches for engaging and working with resource agencies.
- Invite planning staff to attend monthly meetings that GIS and environmental staff convene.
- Consider how GIS can be better used for construction and maintenance purposes.

A full report detailing the presentations and outcomes of this peer exchange is available [online](#). A PDF version of this report may also be accessed [here](#).

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### What's New

The President's Climate Change Science Program has released a new draft report, [Impacts of Climate Change and Variability on Transportation Systems and Infrastructure: Gulf Coast Study](#), for public and interagency review.

On November 8, 2007, Judge Alexander Williams, Jr., of U.S. District Court ruled that the Intercounty Connector can move forward. The project, which includes \$370 million in environmental mitigation measures, is being heralded as "one of the greenest highways in history."

*Successes in Stewardship* is a Federal Highway Administration newsletter highlighting current environmental streamlining and stewardship practices from around the country. To subscribe, visit [http://environment.fhwa.dot.gov/sis\\_registration/Register.aspx](http://environment.fhwa.dot.gov/sis_registration/Register.aspx) or call 617-494-3137.

