

Broad-based Ecological Approach to Highway Planning Stretches Project Implementation Dollars

An early focus on ecological resources reduces review times and costs when projects move from planning to implementation

In today's economic climate, transportation agencies must find ways to stretch dollars while meeting ever-shifting operating demands. The context is changing. Ecosystem and watershed restoration and species recovery needs are expanding as a more holistic view of the Endangered Species Act is taking hold. Stakeholders expect more from government agencies in terms of avoiding impacts to ecosystems and using transportation projects as a way to support ecosystem recovery. Environmental mitigation comes at a real cost to transportation agencies. The Environmental Law Institute estimates that \$2.9 billion is spent annually on compensatory wetland mitigation alone.

The benefits of integrating ecosystem-level environmental considerations into highway planning are widely recognized, and there is an immediate need for practical guidance on how to implement these approaches cost-efficiently. A new tool developed through the second Strategic Highway Research Program (SHRP2) provides a step-by-step process for making decisions within an ecological framework, effectively integrating conservation with transportation planning. It is a blueprint for a structured, multi-agency approach, including supporting tools and data.

Integrating Ecological Mitigation to Enhance Efficiency

The Solution

The Integrated Ecological Framework (IEF) is a nine-step, science-based process **that helps planners integrate ecological priorities and make timely decisions about transportation capacity enhancements and other system investments at the pre-NEPA planning stage.** The framework provides clear, practical steps to enhance integration and to support an ecological approach to environmental stewardship.

The framework includes tools for overcoming important obstacles to integrating highway planning and ecological considerations such as the need to build collaborative interagency relationships and usable data collections from existing data sets, analyze alternatives and cumulative effects, and develop regulatory assurances and ecosystem crediting strategies. The IEF also provides a template for developing organizational strategies to make ecological approaches a priority.

Practical guidance for meeting ecological priorities; win-win solutions for transportation and the environment

FOCUS AREA:
Capacity (C06)

Structured nine-step approach, tools, and templates to meet both ecosystem and transportation goals.

Save Lives

- Enhanced environmental outcomes are supportive of human health.



Save Money

- Streamlined, efficient delivery of infrastructure projects means real savings.



Save Time

- Increased predictability supports more efficient regulatory processes, saving implementation time.
- Enhances interagency coordination.



The Benefits

By better coordinating transportation planning with natural resource planning through an IEF, opportunities to avoid or minimize environmental impacts can be identified at the planning stage, potentially reducing mitigation requirements or reducing delays during project-level environmental review and permitting. The IEF process can also identify opportunities for advanced mitigation when it is needed, ensuring that a plan is in place when the project is built. The IEF provides a structure that allows transportation and natural resource agencies to systematically establish more collaborative working relationships to achieve transportation goals, mutual environmental goals, and reduced costs. In particular, reducing delay means real savings: for a \$100 million transportation project, a year of delay costs roughly \$5 million. The long-term benefits of applying the IEF process are better environmental outcomes and lowered costs associated with planning, environmental review, and regulatory decision making. In the short term, the IEF provides practical guidance on selecting and using the most appropriate effective data, methods, tools, and processes to achieve an integrated, landscape-scale approach to transportation decision making.

Who is using these tools?

The IEF process is being pilot tested in four locations:

- ▶ **Oregon:** The Rogue Valley Council of Governments has put in place the first three steps of the IEF. Outcomes: Biological and ecosystem processes were integrated. Ecological corridors were preserved, red tape reduced, and costs cut.
- ▶ **California:** Caltrans and the University of California, Davis, are working together on the SR 37 corridor study (north side of San Francisco Bay) to apply the IEF process. Outcomes: Better system planning, early stakeholder engagement, and enhanced issue awareness. Established a foundation for continued ecological actions. Is informing statewide system planning guidelines for sensitive corridors and SLR adaptation.
- ▶ **West Virginia:** The West Virginia Department of Transportation (DOT), Division of Highways, is working with the West Virginia University to revisit mitigation plans for proposed new freeways using the IEF process. Outcomes: Enhanced awareness of regional tools to conduct alternatives analysis of route selection impacts. Provided a guide for quantifying impacts within the regulatory framework of the existing mitigation tool. Provided a standardized, defensible approach to avoiding or minimizing environmental impacts. Provided a watershed-based approach to mitigation.
- ▶ **Colorado:** The Colorado DOT and the Colorado State University is using the IEF process as part of a corridor study of the widening of SH 285 in Park County. Outcomes: Confirmed IEF is well suited to long-range and corridor-level planning and that using IEF requires a shift from a permit-driven to strategy-driven approach at all levels of the DOT.

How can you learn more?

An Ecological Approach to Integrating Conservation and Highway Planning, Volume 2, is available online at <https://www.environment.fhwa.dot.gov/ecological/ImplementingEcoLogicalApproach/default.asp>. The IEF and related tools are being integrated into the web-based resource *Transportation for Communities: Advancing Projects through Partnerships (TCAPP)*, available at www.transportationforcommunities.com. For more information, contact Mike Ruth at FHWA, Mike.Ruth@dot.gov; Kate Kurgan at AASHTO, kkurgan@aaashto.org. Updates on current implementation efforts can be found at www.fhwa.dot.gov/GoSHRP2 or <http://SHRP2.transportation.org>.



About SHRP2 Implementation

The second Strategic Highway Research Program is a national partnership of key transportation organizations: the Federal Highway Administration, the American Association of State Highway and Transportation Officials, and the Transportation Research Board. Together, these partners conduct research and deploy products that will help the transportation community enhance the productivity, boost the efficiency, increase the safety, and improve the reliability of the Nation's highway system.

Strategic Highway Research Program

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