This report summarizes progress the Federal Highway Administration (FHWA) and American Association of State Highway Officials (AASHTO) made under the Second Strategic Highway Research Program’s (SHRP2) during FY 2013-2017 on:

**Product:** Implementing Eco-Logical – Articulates a vision that endorses ecosystem-based avoidance, minimization, and mitigation through integrating data, plans, design, and reviews across agency and disciplinary boundaries in developing infrastructure projects – organized into 9 steps.

**Goal:** Improve the state of the practice – Increase awareness and understanding of Implementing Eco-Logical in all states and regions and at all levels of government, and to integrate its principles into routine transportation planning, and resource and regulatory agency business practices.

**Budget:** $3.6 million budget (Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU funds) for fiscal years 2013-16.

---

Changes in the State of the Practice since Implementation

SHRP2 played an important part in Eco-Logical’s growing momentum by helping Eco-Logical move from concept to implementation. Implementing Eco-Logical contributes to accomplishing goals related to agency adoption, accelerated environmental reviews and project delivery, and policy support within transportation and resource agencies. The following measures demonstrate progress towards these goals:

- **The number of practitioners has increased as a result of SHRP2.** In 2014, 27 State Departments of Transportation (DOTs) and Metropolitan Planning Organizations (MPOs) were familiar with Eco-Logical and 14 agencies were actively implementing Eco-Logical (AASHTO 2014 survey). By 2016, at least 36 transportation agencies were actively implementing Eco-Logical.

- **The number and quality of available resources are increasing.** Six peer exchanges, four workshops, two executive trainings, three annual reports, and four Community of Practice webinars are among the resources made available to practitioners.

- **The value that practitioners obtain from implementing the approach is increasing.** Practitioners report improved partnerships, stakeholder engagement, leadership support, environmental outcomes, and project delivery resulting from Eco-Logical projects.

- **Legislation and national policy directives are encouraging the adoption of a collaborative landscape-scale approach for conservation, mitigation and infrastructure development.** From 2012 until present, at least seven new regulations, policies, Executive and agency actions have shown a major shift towards normalizing a landscape-scale approach. See the AASHTO Practitioner’s Handbook for more information on Federal policy initiatives.

- **The eight Signatory Agencies (resource/regulatory agencies) reaffirmed their commitment to the Eco-Logical approach.** As part of this 10-year anniversary of establishing the Eco-Logical approach, they also agreed to actively continue the work they have fostered around this landscape-scale approach and work to collaborate and further advance this effort.

---

Second Strategic Highway Research Program (SHRP2)

SHRP2 relied on the partnership between FHWA, AASHTO, and the Transportation Research Board (TRB). TRB completed the research, and FHWA and AASHTO jointly implemented the resulting SHRP2 Solutions that helped the transportation community enhance productivity, boost efficiency, increase safety, and improve the reliability of the Nation’s highway system. SHRP2 was funded by Congress.

The program launched more than 100 research projects to address the most pressing needs of the Nation’s highway system. The projects advanced innovative methods in the areas of Safety, Renewal, Reliability, and Capacity. Implementing Eco-Logical, or C06, is one SHRP2 Solution listed under the Capacity focus area.
This table reports on the performance for the Implementing Eco-Logical SHRP2 Solution. It identifies the SHRP2 Implementation strategies and goals, accomplishments from the SHRP2 funding investment, and the progress toward goal completion. The priority investment strategy was to provide seed money for projects, supported by technical assistance and marketing activities (e.g., workshops, peer exchanges, webinars), and monitor performance to build a business case.

### Implementation Strategies

<table>
<thead>
<tr>
<th>Strategy Description</th>
<th>Items Produced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educate Agency Leadership</td>
<td>59 champions nation-wide</td>
</tr>
<tr>
<td>Develop Incentives &amp; Support</td>
<td>100% Complete</td>
</tr>
<tr>
<td>Provide Technical Assistance (TA)</td>
<td>7% Invested</td>
</tr>
<tr>
<td>Develop a Business Case</td>
<td>3% Invested</td>
</tr>
<tr>
<td>Develop New Tools &amp; Technologies</td>
<td>1% Invested</td>
</tr>
<tr>
<td>Develop Communications &amp; Outreach Materials</td>
<td>1% Invested</td>
</tr>
</tbody>
</table>

### Examples of SHRP Implementing Eco-Logical in Practice

#### Maine Department of Transportation

**Overview:**
- The FHWA, Maine Department of Transportation (MDO), U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (USACE), and Maine Turnpike Authority developed a programmatic consultation for the federally endangered Atlantic salmon that includes its critical habitat.

**Key Results:**
- 76% increase in project approvals.
- $230,000 estimated savings on consultation costs.
- Increased trust between resource and regulatory agencies.
- Restoration of high-value habitat access for Atlantic salmon.
- Development of an In-Lieu Fee (ILF) Program initiated by MDO and USFWS.

**Timeline:** 5 years (2013–2017)

**Budget:** $256,000

#### Michigan Department of Transportation

**Overview:**
- The FHWA, Michigan Department of Transportation (MDOT), and eight resource and regulatory agencies applied the Eco-Logical approach to their I-75 Reconstruction Project.

**Key Results:**
- $1 million in estimated savings.
- 2-year reduction in permitting timeframes.
- Strengthened partnerships and coordination with resource and regulatory agencies.
- Enhanced outcomes for wetlands and threatened and endangered species by completing the following: needs assessment; site identification mitigation plan development; site selection and procurement; and development of a mitigation performance plan.

**Timeline:** 5 years (2013–2017) (Phase I)

**Budget:** $250,000

---

**Status of SHRP2 Implementation Plan Activities: Implementing Eco-Logical**

Eco-Logical has been successfully applied at a variety of scales and is gaining momentum among agencies. The following two examples highlight the improved environmental outcomes and expedited project delivery realized through implementing Eco-Logical.
Key Results & Findings
SHRP2 was a major contributor to advancing the state of the practice of Eco-Logical. The keys to Eco-Logical’s recent success was the IAP in combination with technical assistance and marketing activities (e.g., workshops, peer exchanges, webinars), and improved performance measurement that helped to build a business case. Eco-Logical has been proven to enable agencies to improve relationships and environmental outcomes, and accelerate project delivery through an integrated and interdisciplinary planning and project development process that includes data- and resource-sharing.

Lessons Learned
FHWA needs better connections to the MPO associations, similar to that held with AASHTO. Practitioners have demonstrated the need for tailored data sets and tools specific to one’s region or State. “Champions” and supportive leadership remain integral to long-term success of Eco-Logical within transportation agencies, and can serve to ensure continuity of Eco-Logical following staff turnover. Formalized agreements between transportation and regulatory and resource agency partners also help with institutionalizing Eco-Logical, and can protect investments of time and resources. However, States and MPOs have faced challenges working with partners with differing missions. Finally, while many agencies would like to see more quantified benefits from use of the approach, this data remains difficult to measure and compare across agencies due to the need to measure across long timeframes and structural factors that are not comparable between agencies.

The Future of Implementing Eco-Logical
As it transitions from being part of SHRP2, Implementing Eco-Logical will continue to be managed by FHWA Office of Project Development and Environmental Review. Based on practitioner recommendations, the program will focus on:

- Developing a strategy that focuses on expediting project delivery and supports agency requirement initiatives, such as One Federal Decision, while applying an interagency landscape-scale approach to project development and decisionmaking.
- Engaging agency leadership to educate and promote Eco-Logical, including making a business case and demonstrating quantifiable benefits.
- Developing and implementing an Eco-Logical training module, and distributing Eco-Logical outreach materials to educate new agency practitioners.
- Providing technical assistance to practitioners about the application of techniques and tools such as Geographic Information Systems (GIS).
- Integrating of Eco-Logical into complementary programs, training, and outreach (e.g., PEL, EDC).
- Coordinating with other U.S. DOT modes and external partners to adopt the Eco-Logical Approach.

For More Information
Contacts
David T. Williams
FHWA Office of Project Development and Environmental Review (HEPE)
(202) 366-4074
David.Williams@dot.gov

Kate Kurgan
American Association of State Highway and Transportation Officials
(202) 624-3635
kkurgan@aashto.org

Mike Ruth
FHWA HEPE
(202) 366-9509
Mike.Ruth@dot.gov

Resources
- Implementing Eco-Logical 2015/2016 Annual Report
- Eco-Logical Reaffirmation Video
- Implementing Eco-Logical Website