



## **Implementation Plan**

*Implementing Eco-Logical (C06B)*

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# SHRP2 Implementation Plan

## *Implementing Eco-Logical (C06B)*

### 1. Executive Summary

The *Implementing Eco-Logical* Implementation Plan, developed as part of a second Strategic Highway Research Program (SHRP2) Implementation Planning Workshop (IPW) in September 2012, aims to achieve widespread use of integrated highway and conservation planning and development strategies within 10 years. A panel of experts and stakeholders representing state departments of transportation (DOTs), metropolitan planning organizations (MPOs), Federal resource and regulatory agencies, professional associations, and non-governmental organizations (NGOs) developed the recommended strategies and tactics, which are slated to begin in FY13 and continue through FY23. *Implementing Eco-Logical* includes specific strategies and tools that will result in streamlined permitting processes while also achieving mobility and environmental goals.

Successful implementation of this SHRP2 Solution requires increased awareness and understanding of *Implementing Eco-Logical* in all states and regions and at all levels of government, and will be achieved when its principles are integrated into routine transportation planning, and resource and regulatory agency business practices. Agencies can adopt *Implementing Eco-Logical* in a phased or wholesale manner – whether by leveraging flexibilities in existing policies and procedures or creating new ones – without significant up-front investments in time, cost, or expertise. *Implementing Eco-Logical* will expedite environmental reviews and permitting; provide for more effective environmental mitigation; and improve public perception of transportation delivery services. While *Implementing Eco-Logical* is intended to apply to larger-scale agency and interagency initiatives, outcomes can also be expected to influence smaller, day-to-day activities such as maintenance and safety projects.

This implementation plan recommends six strategies to promote the adoption of *Implementing Eco-Logical* as part of routine business practices at state DOTs, MPOs, and Federal and state resource and regulatory agencies. The following strategies will be overseen and managed primarily by the Federal Highway Administration (FHWA), with support from the American Association of State Highway and Transportation Officials (AASHTO), and champions of *Implementing Eco-Logical*.

#### Implementation Strategies

**Strategy 1:** Educate agency (Federal, state, and regional transportation; and resource and regulatory agencies) leadership about the value and benefits of the ecosystem-scale approach to gain support for implementation activities. Summarize the current state of the practice and availability of resources at the state and regional levels as input to the design of training and communication efforts.

**Strategy 2:** Develop incentives or support for state and regional transportation agencies to adopt a Regional Ecosystem Framework (REF) or integrate elements of the Integrated Ecological Framework (IEF) into standard procedures.

**Strategy 3:** Provide technical assistance to educate staff-level practitioners about techniques and tools for *Implementing Eco-Logical* and provide opportunities for target audiences to learn from their peers.

**Strategy 4:** With input from the user community, develop a business case highlighting *Implementing Eco-Logical's* time and cost savings to support use.

**Strategy 5:** Develop new tools and technologies that increase and/or enhance access to existing data and support interagency collaboration.

**Strategy 6:** Develop communications and outreach materials to increase awareness about *Implementing Eco-Logical* and facilitate information sharing among potential users.

The strategies above may be carried out through a \$3 million funding scenario. Many of the strategies and tactics as outlined in this implementation plan are intended to complement or directly support FHWA's Eco-Logical program.

## 2. Overview

Authorized by the U.S. Congress under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), the second Strategic Highway Research Program (SHRP2) is a comprehensive effort to advance innovative methods for planning, renewing, operating, and ensuring safety on the Nation’s highway system. SHRP2 addresses some of the most pressing needs related to the Nation’s highway system: the high toll taken by highway deaths and injuries, aging infrastructure that must be rehabilitated with minimum disruption to users, and congestion stemming from both inadequate physical capacity and events that reduce the effective capacity of a highway facility.

SHRP2 research covers four interrelated areas that address the most critical challenges the highway community faces:

Focus area	Goal
Safety	Improve safety by understanding driver behavior
Renewal	Develop design and construction methods that minimize disruption and produce longer-lasting products
Reliability	Reduce congestion and improve travel-time reliability through operational improvements and incident management and mitigation
Capacity	Integrate mobility, economic, environmental, and community needs into the planning and design of new capacity projects to streamline project delivery

The approach to transportation planning and delivery as developed in the SHRP2 C06B (*Implementing Eco-Logical*) project is being advanced through SHRP2’s Capacity focus area.

This SHRP2 Implementation Plan is a product of the Integrated Ecosystem, Transportation Planning, and Mitigation Strategies (C06B) joint Knowledge Transfer and Implementation Planning Workshop (IPW) held on September 11 and 12, 2012, in Washington, D.C. A list of participants and an agenda are attached as appendices. The joint Knowledge Transfer and Implementation Planning Workshop brought together researchers, partner organizations, and potential early adopters such as state departments of transportation (DOTs), metropolitan planning organizations (MPOs), Federal resource and regulatory agencies, and non-governmental organizations (NGOs) to discuss the outcomes of the SHRP2 *Implementing Eco-Logical*- research and develop product implementation strategies.

Strategies collected during the IPW were considered by an implementation team comprised of American Association of State Highway and Transportation Officials (AASHTO), Federal Highway Administration (FHWA), and Transportation Research Board (TRB) representatives. The strategies were refined based on current conditions and incorporated into the [action plan](#) in this document.

## 2.1 PRODUCT DESCRIPTION

*Implementing Eco-Logical* will provide transportation and environmental professionals with a structure to apply ecosystem-scale principles in transportation planning and project development. *Implementing Eco-Logical* is a collection of processes and tools including:

- Cumulative Effects and Alternatives Assessment (CEAA) process (ecosystem-scale assessment and ecosystem crediting tools, including a Regional Ecological Framework (REF));
- Strategies to achieve predictability in regulatory and permitting processes to reduce conflict and delays associated with regulatory requirements;
- Environmental accounting strategies to link ecosystem-scale measurements among various scales; and,
- Environmental mitigation activities in transportation planning.

Key benefits of the *Implementing Eco-Logical* Solution include:

- Transportation and infrastructure projects that meet both mobility and environmental objectives;
- Expedited project delivery; and
- Reduced project cost and time.

The goal of this Implementation Plan is to ensure that a majority of state DOTs and MPOs utilize *Implementing Eco-Logical* as part of their standard long-range environmental transportation planning processes, and that the *Implementing Eco-Logical* approach be institutionalized within resource and regulatory agencies at the state and Federal level.

Use of *Implementing Eco-Logical* may require changes in current business practices at many transportation agencies, including the development of robust partnerships with resource and regulatory agencies. Due to the effort that full adoption may require, many states and regions may choose to adopt the *Implementing Eco-Logical* using a phased approach; full adoption by an agency could take several (5 to 10) years. Adoption time will greatly vary depending on the current political climate and staff capacity within a region or state.

## 2.2 BACKGROUND

Current approaches designed to minimize and mitigate negative impacts of transportation development on the environment do not always result in solutions that benefit both mobility and the environment. Transportation agencies often experience unnecessary project delays due to the lack of coordination between transportation planning and environmental processes.

Early consideration of ecological resources by all relevant stakeholders when planning transportation projects can help streamline environmental review and permitting processes and improve the environmental outcomes of infrastructure projects. This is also known as an “ecosystem-scale approach,”<sup>1</sup> or applying “ecosystem-scale principles,” to infrastructure planning and development. In 2006, eight Federal agencies and representatives of four states published *Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects* (Eco-Logical). Eco-Logical presents a multi-step integrated planning framework that incorporates an ecosystem-scale approach to infrastructure planning, environmental mitigation agreements, and adaptive management through performance measures.

In support of the Eco-Logical approach, *National Cooperative Highway Research Program Report 541* showed that the data and institutional cooperation needed to consider environmental factors in infrastructure planning often are not available to planners and decision makers. Separately, FHWA launched its Eco-Logical program to test applications of the ecosystem approach while working with partners and stakeholders to determine strategies to increase awareness and adoption of ecosystem-scale principles in infrastructure planning and delivery.

To support the FHWA Eco-Logical program, FHWA requested that SHRP2 include a capacity project (C06) to develop mechanisms to “operationalize,” or incorporate the Eco-Logical approach into normal business practices, specifically as they relate to transportation planning and development. The objective of the SHRP2 C06 research was to address the institutional and technical processes needed to fully operationalize and standardize an ecosystem approach to infrastructure development. The SHRP2 C06 effort produced two volumes of research:

- **C06A** addressed the barriers and opportunities agencies faced in incorporating the Eco-Logical approach into their operations. The main product of C06A was the nine-step Integrated Eco-Logical Conservation and Transportation Planning Framework (IEF). The IEF expands upon the eight-step integrated planning framework defined in Eco-Logical and provides a structured process to avoid or minimize environmental impacts, as well as plan future mitigation through the prioritization of natural resources in early infrastructure planning. C06A also developed agency business cases and reports on how the agencies involved could effectively transition to an ecological approach.
- **C06B** defined the scientific and technical processes and tools needed to support the IEF, including data and strategies related to the development of a REF.

The tools and processes resulting from C06 research were combined and are being introduced to the transportation and environmental communities as the SHRP2 Solution, *Implementing Eco-Logical*. ***Implementing Eco-Logical is intended to become a part of the ongoing activities, initiatives, and***

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<sup>1</sup> For the purposes of this implementation plan, the term “ecosystem-scale” approach is synonymous with “landscape scale,” “ecological,” or “Eco-Logical” approach.



**research associated with FHWA's STEP-funded Eco-Logical program.** This implementation plan represents the recommendations of panelists at the C06B IPW. Final programming and budgeting decisions will be determined in FHWA, AASHTO and the Implementation Task Force in consultation with the SHRP2 Oversight Committee.

## 2.3 IMPLEMENTATION GOALS

The vision for *Implementing Eco-Logical* is that it will support the evolution of transportation planning and project development to reflect the Eco-Logical approach. To achieve this vision, FHWA and AASHTO will need to increase awareness of *Implementing Eco-Logical* and the availability of training tools, while providing in-person training and technical assistance to early adopters. Targets and performance measures will be developed once the national state of practice is determined through a self-assessment tool or survey. The most effective implementation strategy will involve targeted outreach to likely early adopters in specific geographic areas based on the current state of practice in those regions. The implementation goals for *Implementing Eco-Logical* are:

1. **Full or partial adoption of *Implementing Eco-Logical* throughout all levels of Federal, state, and regional transportation, resource, and regulatory agencies (target number of states or regions will be based on the current state of practice determined through a self-assessment tool or survey).**
  - a. A certain number or percentage of state DOTs and MPOs incorporate a REF in their long-range planning processes
  - b. All state DOTs understand the concepts of *Implementing Eco-Logical*
  - c. A certain number or percentage of state DOTs adopt policies that support the principles of an integrated approach to conservation and transportation planning
  - d. State and Federal resource and regulatory agencies are actively involved in collaborative working groups prior to the formal initiation of long-range and project-level transportation planning
  - e. Federal resource agencies adopt the *Implementing Eco-Logical* approach and continue to act as partners in its implementation

Approximately 10 states or regions currently have initiatives in place that integrate Eco-Logical principles into their transportation planning and project development processes. Due to the comprehensive effort necessary to achieve full adoption of *Implementing Eco-Logical* on a national scale, initial targets and benchmarks will be determined after identifying the agencies most willing and receptive to adoption. A self-assessment tool or survey developed as a part of the implementation process will help identify the current state of the practice, level of readiness, resource availability and interest among state and regional agencies. Agencies identified as receptive or ready for *Implementing Eco-Logical* will, at a minimum, adopt REFs in their long-range planning processes and adopt policies that support full or partial elements of the ecosystem-scale approach.

2. **Streamlined environmental review, permitting, and transportation project delivery.**
  - a. Reduced conflict and delay in planning and project development processes
  - b. Improved environmental outcomes, decreased use of significant ecosystem resources/services

- c. Better identification of mitigation opportunities based on greatest ecosystem-scale significance and best possible mitigation outcomes
- d. Improved decision-making and collaboration by state DOTs and MPOs to prioritize new capacity and maintenance projects using an ecosystem approach

The greatest expected benefits of *Implementing Eco-Logical* include expedited project delivery, reduced project costs, and limited environmental impacts. By considering ecosystem-scale priorities earlier in the transportation decision-making process through intra- and inter-agency partnerships, conflict and delays resulting from environmental reviews and permitting will be reduced on a national scale. *Implementing Eco-Logical* will enable transportation agencies to realize increased efficiency and improved environmental outcomes for all types of transportation projects, including those associated with maintenance and expanded capacity.

**3. New organizational structures and policy support within state DOTs, MPOs, and resource and regulatory agencies that are consistent with the institutional adoption of *Implementing Eco-Logical*.**

- a. Widespread executive-level understanding of and support for *Implementing Eco-Logical*
- b. Training, peer guidance, and technical support for incorporating landscape-level analysis into the transportation and regulatory decision-making process in all regions, and self-implemented in most regions
- c. Collaborative approach to ecosystem-scale transportation development and delivery institutionalized in states or regions, demonstrated by:
  - Memorandums of understanding (MOUs) among transportation agencies, MPOs, and resource and regulatory agencies
  - Policy and engineering directives and standard operating procedures (SOPs)

Dedicated staff time and agency directives are necessary for *Implementing Eco-Logical* at the federal, state and regional levels. Support by state DOT, MPO, and resource and regulatory agency executive leadership helps secure the staff and agency resources for implementation. As part of *Implementing Eco-Logical*, executive leadership of state DOTs and MPOs will be educated on the benefits of ecosystem-scale transportation planning and development, including savings in time and cost and improved environmental protection and mitigation. Executive-level support will enable staff to obtain appropriate training, and drive partnerships among stakeholder agencies to establish the necessary communicative structure for collaborative planning and decision making. MOUs, SOPs, and other inter- and intra-agency guidance and directives that promote an ecosystem-scale approach will help ensure *Implementing Eco-Logical*-supportive policies transcend changes in agency leadership, staff turnover, and the evolution of agency priorities over time.

**Table 1: Implementation Goals and Outcomes**

The table below contains the strategic goals for the Implementing Eco-Logical SHRP2 Solution. These goals address both near-term (within five years) and long-term (beyond five years) goals.

<b>Implementing Eco-Logical SHRP2 Solution</b>			
<b>Goal #</b>	<b>Goal (in order of priority)</b>	<b>Near-Term / Long-Term</b>	<b>Desired Outcome</b>
1	Full or partial adoption of <i>Implementing Eco-Logical</i> throughout all levels of transportation and resource and regulatory agencies. <ul style="list-style-type: none"> <li>– A designated percentage of state DOTs and MPOs incorporate a REF in their long range planning processes</li> <li>– All state DOTs understand the concepts of <i>Implementing Eco-Logical</i></li> <li>– A certain number or percentage of state DOTs adopt policies that support the principles of an integrated approach to conservation and transportation planning</li> <li>– State and Federal resource and regulatory agencies are routinely involved in transportation decision making beginning prior to the long-range and project-level transportation planning process</li> <li>– Federal resource agencies formally adopt the <i>Implementing Eco-Logical</i> approach and continue to act as partners in its implementation.</li> </ul>	<i>Long-term</i>  <i>Near-term</i>  <i>Near-term</i> <i>Near-term</i>  <i>Long-term</i>	– <i>Implementing Eco-Logical is recognized as the preferred approach to transportation planning, development, and delivery</i>  – <i>Implementing Eco-Logical identified as goal for state DOTs and MPOs without associated policies or practices in place</i>

Goal #	Goal (in order of priority)	Near-Term / Long-Term	Desired Outcome
2	Streamlined environmental reviews and project delivery of transportation projects. <ul style="list-style-type: none"> <li>– Reduced conflict and delay in project development and planning processes</li> <li>– Improved environmental outcomes, increased avoidance of significant ecosystem resources/services</li> <li>– Mitigation projects selected based on greatest ecosystem-scale significance and best possible mitigation outcomes</li> <li>– Improved decision-making and collaboration by state DOTs and MPOs to prioritize new capacity and maintenance projects using an ecosystem approach</li> </ul>	<i>Long-term</i>  <i>Long-term</i>  <i>Long-term</i>  <i>Long-term</i>  <i>Long-term</i>	<ul style="list-style-type: none"> <li>– <i>Time between project planning and implementation is regularly reduced on a nationwide scale</i></li> <li>– <i>Reduced paperwork associated with environmental reviews</i></li> <li>– <i>Decreased environmental impacts associated with all types of transportation projects</i></li> </ul>

3	<p>New organizational structures and policy support within state DOTs, MPOs, and resource and regulatory agencies that are consistent with institutional adoption of <i>Implementing Eco-Logical</i>.</p> <ul style="list-style-type: none"> <li>– Widespread executive-level understanding of and support for <i>Implementing Eco-Logical</i></li> <li>– Training, peer guidance, and technical support for incorporating landscape-level analysis into the transportation and regulatory decision-making process in all regions, and self-implemented in most regions</li> <li>– Collaborative approach to ecosystem-scale infrastructure development and delivery among stakeholders institutionalized in states or regions demonstrated through: <ul style="list-style-type: none"> <li>• Memorandums of understanding between transportation agencies and resource and regulatory agencies</li> <li>• Policy and engineering directives</li> <li>• Updated standard operating procedures</li> <li>• Incorporation into formal design / project development guidance at state DOTs</li> </ul> </li> </ul>	<p><i>Long-term</i></p> <p><i>Near-term</i></p> <p><i>Near-term</i></p> <p><i>Long-term</i></p>	<ul style="list-style-type: none"> <li>– <i>Staff at state, regional, and resource and regulatory agencies can access technical support, expertise, and information on the Implementing Eco-Logical tools and approach on an ongoing basis</i></li> <li>– <i>Executive-level support of Implementing Eco-Logical enables agency staff to pursue training and drives agency-wide policy and procedural changes</i></li> <li>– <i>Mechanisms are established at agencies to enable adoption of Implementing Eco-Logical to withstand changes in administration, fluctuations in funding, and staff turnover</i></li> </ul>
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**Table 2: Challenges, Opportunities, and Success Factors**

*A thorough assessment of institutional and technical implementation barriers was completed as part of the C06A project research. Some of the opportunities and success factors identified below have been incorporated into the implementation approach and action plan that follows.*

Challenge	Opportunities and Success Factors
Institutional silos	<ul style="list-style-type: none"> <li>– Time-savings resulting from an integrated approach to transportation and conservation</li> <li>– Collaborative tools such as Transportation for Communities: Advancing Projects through Partnerships (TCAPP)</li> <li>– Regional articulation of priorities (through liaisons)</li> </ul>
Lack of data, information, and tools	<ul style="list-style-type: none"> <li>– Prioritization through interactive modeling</li> <li>– Meaningful access to tools and data</li> <li>– Use of universities, portals, and libraries</li> <li>– Techniques to work with different scales of data</li> <li>– Leverage existing government-wide information coordination initiatives (such as data.gov, etc.)</li> </ul>
Resistance to change or lack of incentives	<ul style="list-style-type: none"> <li>– Training</li> <li>– Increased funding or streamlined approval processes for use of REF or IEF</li> <li>– Incremental or modular implementation</li> <li>– More demonstrations and examples</li> <li>– Model projects and awards to increase competition among agencies</li> <li>– Supportive opinion leaders identified among a variety of states</li> </ul>
Lack of implementation expertise	<ul style="list-style-type: none"> <li>– Guide to contacts and expertise for getting started (TCAPP)</li> <li>– Mobile expertise</li> <li>– Local awareness</li> </ul>
Lack of coordination	<ul style="list-style-type: none"> <li>– Define and build structures within state DOTs for better communications</li> <li>– All agencies using an environmental screening tool to yield consistent results</li> <li>– Federal and state agencies coordinate internally and with one another to avoid unnecessary steps and duplication of effort.</li> </ul>
Differences in missions	<ul style="list-style-type: none"> <li>– Involve transportation liaisons in planning activities</li> </ul>
Lack of regulatory assurances	<ul style="list-style-type: none"> <li>– Programmatic mitigation plans</li> </ul>
Insufficient documentation of procedures (such as early consultations)	<ul style="list-style-type: none"> <li>– Address shortcomings in administration and documentation of project impacts</li> </ul>
Lack of trust among agencies	<ul style="list-style-type: none"> <li>– Improved interagency relationships leading to simpler permitting and decision-making processes</li> </ul>
Restrictions or assumed restrictions in regulations or guidance	<ul style="list-style-type: none"> <li>– Develop improved communication with resource agencies to determine actual vs. perceived regulatory restraints, especially with state-level resource and regulatory agencies</li> <li>– Opportunity to take advantage of flexibilities under regulatory authorities to yield better environmental and mobility outcomes</li> </ul>
Challenging to demonstrate success	<ul style="list-style-type: none"> <li>– Define performance measures for areas implementing an ecosystem-scale approach</li> <li>– Define and identify measures for ecosystem services</li> </ul>

**Table 3: Stakeholders**

Key stakeholders for Implementing Eco-Logical must be understood in order to achieve successful implementation. These groups of individuals or organizations can influence the manner and extent to which the SHRP2 Solution is used, and must be considered in reaching the implementation goals. The following stakeholders are not listed in order of priority.

Stakeholders	Role
<p><b>State DOT and MPO leadership</b> State DOT secretaries, commissioners, directors, CEOs, board members, and chief engineers (change agents within implementing agencies); MPO board of directors; state DOT and MPO executive committees</p>	<ul style="list-style-type: none"> <li>– Direct policy and mission of state DOTs and MPOs that guide programs, processes, and procedures at the lower level</li> <li>– Set agency priorities at the state and regional levels that guide transportation planning and project decision making</li> </ul>
<p><b>Federal and state resource and regulatory agency leadership and management</b> Agency directors, field office directors, regional office directors, regulatory chiefs, environmental commissioners, regulatory chiefs, section chiefs, branch chiefs, field office directors, regional office directors/managers, Section 7 Endangered Species Act (ESA) coordinators</p>	<ul style="list-style-type: none"> <li>– Set agency priorities that guide policies, programs, and funding at the division/district levels</li> <li>– Support and encourage interagency partnerships</li> <li>– Understand concepts of ecosystem-scale approach and promote it among agency staff and leadership</li> </ul>
<p><b>State DOT and MPO management and staff</b> Executive directors, chief engineers, division and district heads, MPO program managers, transportation supervisors; technical, engineering, environmental, and planning staff</p>	<ul style="list-style-type: none"> <li>– Direct the crafting of policies and procedures that facilitate implementation</li> <li>– Provide staff with flexibility to pursue training and implementation in planning and projects</li> <li>– Facilitate development of agreements and partnerships</li> <li>– Obtain training on ecosystem-scale approach and incorporate into planning and project development activities</li> <li>– Inform development of agreements and partnerships with other agencies</li> </ul>
<p><b>Federal and state resource and regulatory agency staff</b> Field office directors, biologists, funded and non-funded liaisons</p>	<ul style="list-style-type: none"> <li>– Obtain training on ecosystem-scale approach and incorporate into activities</li> <li>– Inform development of agreements and partnerships with other agencies</li> <li>– Develop agreements and partnerships with other agencies to facilitate an ecosystem-scale approach to infrastructure planning</li> </ul>
<p><b>FHWA Division Administration and Staff</b> FHWA division administrators, project administrators</p>	<ul style="list-style-type: none"> <li>– Serve as liaison between FHWA and state and regional agencies</li> <li>– Provide expertise and information on <i>Implementing Eco-Logical</i></li> </ul>

Stakeholders	Role
<p><b>AASHTO Committees</b> Standing Committee on Environment, Standing Committee on Planning, Standing Committee on Design, etc.</p>	<ul style="list-style-type: none"> <li>– Serve as primary communication channel to state DOTs about <i>Implementing Eco-Logical</i></li> </ul>
<p><b>Professional and Trade Associations</b> Executive and policy directors of organizations representing environmental, conservation, and transportation sectors</p>	<ul style="list-style-type: none"> <li>– Provide technical expertise and support on various elements of <i>Implementing Eco-Logical</i></li> <li>– Serve as liaison between state DOTs, MPOs, and resource and regulatory agencies</li> <li>– Communicate the benefits of <i>Implementing Eco-Logical</i> to target audiences</li> <li>– Advocate for policy and law changes among state and local lawmakers that support <i>Implementing Eco-Logical</i></li> </ul>
<p><b>Non-governmental Organizations (NGOs)</b> Executive directors and policy directors of organizations representing environmental and conservation organizations</p>	<ul style="list-style-type: none"> <li>– Provide technical expertise and support on various elements of <i>Implementing Eco-Logical</i></li> <li>– Serve as liaison between state DOTs, MPOs, and resource and regulatory agencies</li> <li>– Communicate the benefits of <i>Implementing Eco-Logical</i> to target audiences and the public</li> <li>– Advocate for policy changes among state and local lawmakers that support <i>Implementing Eco-Logical</i></li> </ul>
<p><b>Facilitators/Conflict Resolution Professionals</b> Government, university, NGO, and private-sector agencies or organizations routinely involved in collaborative decision making</p>	<ul style="list-style-type: none"> <li>– Resolve conflicts that arise in the context of environmental, public lands, or transportation issues</li> </ul>
<p><b>Private Sector</b> Executive and policy directors of transportation trade associations and organizations</p>	<ul style="list-style-type: none"> <li>– Potentially promote the economic and time efficiencies of <i>Implementing Eco-Logical</i> to state DOT and MPO clients</li> </ul>
<p><b>The Public</b> Interested citizens, citizen- or jurisdiction-based advocacy groups</p>	<ul style="list-style-type: none"> <li>– Articulate expectations of government agencies such as state DOTs and MPOs</li> <li>– Voice expectations to local elected officials related to transportation and environmental issues</li> </ul>

### 3. Deployment of *Implementing Eco-Logical*

This section outlines the implementation strategies and tactics for the deployment of the *Implementing Eco-Logical* SHRP2 Solution. An [action plan](#) (section 3.3) identifies the agencies and organizations that will engage in implementation, their roles and responsibilities in executing various tactics, and a timeline for advancement.

#### 3.1 IMPLEMENTATION APPROACH

Panelists outlined the following six strategies to support implementation of this SHRP2 Solution within all state and regional transportation agencies and relevant Federal and state resource and regulatory agencies under either a medium- or high-budget scenario:

**Strategy 1:** Engage and educate agency (Federal, state, and regional transportation; resource and regulatory agencies) leadership about the value and benefits of the ecosystem-scale approach to gain support for implementation activities. Summarize the current state of the practice and availability of resources at the state and regional levels as input to the design of training and communication efforts.

**Strategy 2:** Develop incentives or support for state and regional transportation agencies to adopt a REF or integrate elements of the IEF into standard procedures.

**Strategy 3:** Provide technical assistance to educate staff-level practitioners about techniques and tools for *Implementing Eco-Logical* and provide opportunities for target audiences to learn from their peers.

**Strategy 4:** With input from the user community, develop a business case highlighting *Implementing Eco-Logical's* time and cost savings to support use.

**Strategy 5:** Develop new tools and technologies that increase and/or enhance access to existing data and support interagency collaboration.

**Strategy 6:** Develop communications and outreach materials to increase awareness about *Implementing Eco-Logical* and facilitate information sharing among potential users.

Many of the goals, strategies, and tactics outlined in this implementation plan are complementary, or relate directly to parallel efforts underway through FHWA's STEP-funded *Eco-Logical* program. To ensure that the products developed through SHRP2 will be appropriately folded into the broader FHWA *Eco-Logical* program, FHWA plans to oversee *Implementing Eco-Logical*, with AASHTO leading activities that involve outreach and messaging to state DOTs and MPOs, and TRB providing continued research support to aid the development of technological tools.

The following section describes the top three (or four, where there was a tie) tactics for each strategy as envisioned by the *Implementing Eco-Logical* IPW panelists. Additional strategies identified by panelists

are listed in Table 4: Summary of Implementation Strategies and Tactics. **The implementation approach as described in this plan serves as the basis for the action plan. Tactics and strategies have been refined and revised to align with available resources and to avoid duplication with existing activities implemented by FHWA, AASHTO, and other partner organizations. Several of these tactics will require travel.**

### **Strategy 1: Engage Agency Leadership**

Executive-level understanding of and support for the Eco-Logical approach allows staff-level practitioners the flexibility to pursue implementation of a REF, steps of the IEF, or other related activities. Executive support can also facilitate the development of collaborative partnerships between agencies. The overall deployment approach of *Implementing Eco-Logical* focuses substantially on reaching executive leadership with the ability to change business practices, policies, and programs.

#### ***1.1 Identify and equip champions and opinion leaders***

Panelists overwhelmingly agreed that the most effective means of conveying the benefits of *Implementing Eco-Logical* is through in-person presentations and peer-to-peer meetings. Champions for the ecosystem-scale approach must be identified during outreach efforts at state, regional, and resource and regulatory agencies. These executive- or management-level individuals will understand the high-level concepts and benefits of *Implementing Eco-Logical* and advocate for its partial or full adoption within their agency and among other agency leaders.

Each participating state should have at least one influential and high-level champion. These champions can serve as liaisons between FHWA/AASHTO and the state DOT and regional agencies, as well as work to influence the awareness and opinion of *Implementing Eco-Logical* among transportation and environmental professionals in their state or region. Champions may also serve as points of contact at agencies that have made significant progress in implementation, and are willing to establish mentorships with other agencies that are only in the beginning stages of implementation.

Champions will be supported by Federal representatives that can serve as outside experts in presentations and meetings with state DOTs, MPOs, and resource agencies. **Engaging with and supporting champions may require travel funding support.**

*Current Activities:* In the STEP-funded Eco-Logical training strategy currently under development by FHWA, executive-level leadership, mid-level managers and staff-level practitioners serve as spokespeople to communicate the benefits of the ecosystem approach to local elected officials, state DOT leadership, MPO board members, the public, and other partners. Mid-level managers are to be contacted through web conferences, and will identify staff-level practitioners to participate in in-person training and technical assistance.

#### ***1.2 Offer executive training***

Outreach to agency executives will be tailored to demonstrate how *Implementing Eco-Logical* specifically applies to their agencies, and how it can be integrated into existing policies and procedures. Case studies and demonstration projects from the appropriate region will be utilized as available. Training on cost and time savings that an ecosystem-scale approach provides will also help agency

executives further understand its benefits. The executive audience will be reached through state, regional, or resource and regulatory agency champions, as well as a Federal representative that serves as a traveling expert. Meetings among executives of multiple agencies in a region may also be arranged.

**Conducting executive training may require travel funding support.**

*Current Activities:* In the STEP-funded Eco-Logical training strategy currently under development, agency executives will be educated on the concepts and benefits of Eco-Logical through web and video conferences, as well as through meetings with regional advocates and peers. FHWA is also meeting biannually with representatives of the original Eco-Logical signatory agencies to strategize on how to maintain agency support for and engagement with Eco-Logical.

### **1.3 Link Implementing Eco-Logical to MAP-21 requirements**

Promoting the new streamlining, scoping, and mitigation requirements for Moving Ahead for Progress in the 21<sup>st</sup> Century (MAP-21) and how *Implementing Eco-Logical* supports these will make agency leaders take notice and better understand the significant impact of using an ecosystem-scale approach. Meeting MAP-21's new requirements may also leave Federal and state resource and regulatory agencies receptive to changing business practices, creating opportunities to integrate elements of *Implementing Eco-Logical*. Outreach and guidance on MAP-21 requirements would occur in conjunction with executive or staff-level outreach and training efforts.

### **1.4 Develop practitioner's handbook for Implementing Eco-Logical**

To facilitate the adoption of *Implementing Eco-Logical* among staff-level transportation and environmental practitioners, a step-by-step handbook with clear steps will be developed. This will enable staff to self-train and help mitigate leadership perceptions that extensive training or new employees are required for implementation. A handbook will promote widespread awareness of the transportation planning and project delivery processes that exist among many resource and regulatory agencies in order to facilitate the development of collaborative partnerships and agreements with state DOTs and MPOs.

*Current Activities:* One product of the SHRP2 C06A research is a detailed step-by-step guide to implementing the IEF. TRB is currently moving forward on publication of this document, though it may require updating based on stakeholder review.

- **Other Strategy 1 Tactics:**

- Conduct survey or self-assessment to determine the state of the practice in the states and regions, including ongoing programs, level of awareness, and availability of resources.
- Utilize AASHTO Committees to reach agency leadership
- Disseminate model projects
- Provide model job descriptions and agreements for liaisons

## **Strategy 2: Create Incentives for Implementation**

Though state DOT and MPO leadership and staff may understand the conceptual benefits of *Implementing Eco-Logical*, incentives that provide a more immediate payoff in terms of funding or

expedited reviews will widen the number of agencies willing to adopt *Implementing Eco-Logical*. Incentives will also provide assurance that *Implementing Eco-Logical* has long-term support at the Federal level.

A self-assessment tool or survey will help determine the current state of practice and interest in *Implementing Eco-Logical* among agencies. Incentives will be designed to support the various levels of interest and progress reported through the tool, and may be focused in particular geographic areas based on the number and diversity of agencies showing similar interest levels or progress.

### **2.1 Offer incentives for using *Implementing Eco-Logical***

To encourage the development and use of REFs, or the incorporation of steps of the IEF into the transportation planning or development processes, state DOTs, MPOs, and resource and regulatory agencies could be eligible for funding from FHWA or expedited reviews (on a case by case basis) from Federal and state resource and regulatory agency partners within designated regions. The prospect of increased funds and expedited delivery timeframes would create competition among state DOTs and MPOs, and compensate for any hesitation about altering existing policies and procedures. Incentive programs would be tailored among designated regions according to the results of the self-assessment tool or survey.

### **2.2 Provide incentive grants and assistance for implementation**

Increasing the availability and number of demonstration projects and enabling a greater number of agencies to experience the benefits of *Implementing Eco-Logical* will help establish it as the preferred approach. Competitive grants would support proposals by state DOTs, MPOs, and resource and regulatory agencies to develop and adopt elements of *Implementing Eco-Logical*. Proposals could include data integration efforts, new agreements and partnerships, and REFs (among others), or also include the development of programmatic mitigation programs that align with MAP-21 requirements. Grants would also support and encourage agencies that have already made progress toward adopting an ecosystem-scale approach. The range of grants available in each region would depend on the state of practice determined through the self-assessment tool.

*Current Activities:* FHWA is currently reviewing an extension of its Eco-Logical grant program. The first round of grants supported 15 different implementation efforts and demonstration programs at state DOTs, MPOs, and NGOs across the country. In addition, FHWA's Every Day Counts program workshops provide regional trainings on programmatic mitigation and its relation to MAP-21 requirements. These resources are in addition to SHRP2 implementation funds.

### **2.3 Offer awards and recognition**

Creating an awards and recognition system that highlights agency efforts to implement an ecosystem-scale approach will help create positive perceptions of *Implementing Eco-Logical* by the public and political leadership. Agencies receiving such recognition will set a standard with which other agencies will be inclined to compete.

Awards and recognition could include individual certification for training in *Implementing Eco-Logical* concepts and techniques and/or institutional recognition for the completion of the self-assessment tool or survey; adoption of a REF or steps in the IEF; or other activities that support collaborative and

integrated decision making. Awards and recognition would also be developed for particularly innovative projects or collaborative efforts that use an ecosystem-scale approach to achieve improved environmental and transportation outcomes. Best practices would also be described on SHRP2 and related websites and publications.

Furthermore, FHWA and AASHTO could recognize model implementation efforts through existing awards programs such as the FHWA Environmental Excellence Award program or Exemplary Ecosystem Initiatives.

### **Strategy 3: Provide Technical Assistance**

Providing a wide and accessible array of technical assistance for staff-level practitioners is critical to *Implementing Eco-Logical*. Technical assistance is necessary to help practitioners recognize opportunities for implementation within their own agencies and as it relates their roles, as well as how to approach and develop collaborative relationships and partnerships. Practitioners that understand how an ecosystem-scale approach applies to their agency's business practices can also communicate its benefits to peers, management, and leadership within their own agency and among partners. Technical assistance will include training materials available to all agencies nationwide as well as teams that provide in-person training to targeted agencies. **Team trainings will require travel funding support.**

#### ***3.1 Develop technical assistance teams/"circuit riders"***

Based on the level of readiness and interest expressed through the self-assessment tool or survey, state DOTs, MPOs, and resource and regulatory agencies targeted for in-person technical assistance will be visited by a team of champions and experts (or "circuit riders") of *Implementing Eco-Logical*. (Alternatively, multi-agency training programs could also be held at the National Conservation Training Center, as appropriate.) Potential participants include agency management, project managers and designers, planning and environmental staff, key project reviewers, and other technical staff.

Training could include an interdisciplinary strengths-weaknesses-opportunities-threats (SWOT) analysis; a review of current business practices (transportation planning, project review, and project management and delivery); training on collaboration skills and technology and multiparty negotiation; a discussion of best practices, case studies, and examples; and the identification of relationship-building opportunities. Circuit riders could also support instruction and workshops on the IEF and other related activities. While the training is intended to cover tools and techniques developed as part of *Implementing Eco-Logical*, the greatest value will be in developing a staff-level understanding of individual and agency roles in the ecosystem-scale approach to transportation planning and development.

*Current Activities:* FHWA's STEP-funded Eco-Logical training strategy is currently under development. The strategy includes tailored approaches to training at state DOTs, MPOs, and the Federal resource and regulatory agencies most closely involved with the regulation and permitting of transportation projects.

#### ***3.2 Sponsor state DOT peer exchanges and forums***

Opportunities for state DOTs to share their experiences and best practices in *Implementing Eco-Logical* will occur as state DOTs advance with implementation. Peer exchanges and forums enable agencies to benefit and learn from the exchange of best practices and ideas among peers that are in different stages

of implementation. When appropriate, representatives from Federal and state resource and regulatory agencies will also be included. Mentorships between advanced and beginning agencies may be formed as an outcome of the peer exchanges. **Peer exchanges will require travel funding support.**

### **3.3 Develop a “starter kit” for Implementing Eco-Logical**

A “starter kit” for agencies with no experience with ecosystem-scale planning will be developed to educate new audiences about the benefits of the approach. The kit will have information particularly relevant to MPO requirements, which are more removed from many regulatory and project delivery processes. The kit may also include checklists and additional resource materials targeted to both managerial and staff-level audiences, and could be paired with training as appropriate. Users can utilize the starter kit to understand their agency’s role in the transportation planning and delivery process, and scope potential opportunities to apply the ecosystem-scale approach. Case studies, model policies, sample interagency agreements and contacts for more information, organized by geographic region, could also be included.

- **Other Strategy 3 Tactics:**
  - Disseminate information via conferences, committees, etc.
  - Provide model policies and agreements
  - Develop online courses and other training tools

## **Strategy 4: Make the Business Case**

One of the identified risks of *Implementing Eco-Logical* is that agency leadership and management may be hesitant to pursue implementation of a REF, steps of an IEF, or other elements of an ecosystem-scale approach if quantified savings in time and cost are not immediately apparent, or if relevant resource agencies are not engaged. The strategy of making the business case is intended to demonstrate the benefit of using *Implementing Eco-Logical* compared to traditional transportation planning, development, and delivery processes.

### **4.1 Make case studies widely available**

Case studies can help potential users visualize the possible outcomes of *Implementing Eco-Logical*, reinforce the product’s real-world benefits, and provide best practices that may be applicable to their agencies. As more state DOTs, MPOs, and Federal and state resource and regulatory agencies gain experience in implementing REFs, steps of the IEF, collaborative partnerships and tools, and other elements of *Implementing Eco-Logical*, case studies will be developed that highlight the positive economic and time-saving outcomes of these activities. Particular projects that feature collaboration among agencies as well as improved environmental outcomes due to the adoption of *Implementing Eco-Logical* could provide additional case study topics.

### **4.2 Disseminate lifecycle costs and benefits**

An overarching study that compares the lifecycle costs and benefits of *Implementing Eco-Logical* to traditional transportation planning and development could be developed for widespread dissemination, particularly to agency executives.

*Current Activities:* FHWA is currently administering a STEP-funded economic benefit assessment of Eco-Logical.

#### **4.3 Conduct targeted outreach to stakeholders**

The lifecycle costs of *Implementing Eco-Logical* will be targeted towards potential transportation agency partners and stakeholders. The audience for this outreach may be expanded to include elected officials, private sector stakeholders, and non-governmental/advocacy organizations. This strand of outreach could occur in conjunction with in-person training and through more general outreach (associations, online training materials, etc.). **Travel funding support may be required in cases where conferences or other events present a unique opportunity to reach stakeholder audiences.**

#### **4.4 Sponsor demonstration programs**

With this tactic, state DOTs and MPOs willing to measure the economic, time-saving, and environmental benefits of their particular implementation effort will be eligible for grant funding. Results will be incorporated as part of the training and outreach strategy.

### **Strategy 5: Develop New Tools and Technology**

New tools and technology for *Implementing Eco-Logical* will increase both access to existing data and opportunities for collaboration. The SHRP2 C40 A and B projects, currently underway, will develop and test web-based, geospatial tools that enable agencies to access data from disparate sources for use in the early transportation planning phase through the environmental review process. The C40 projects are a direct outgrowth of the C06 research, which revealed a lack of access to the transportation and environmental data necessary to conduct integrated planning and decision making. The final products of C40 may be utilized to mitigate the lack of access to integrated data among agencies.

The capstone SHRP2 Capacity project [Transportation for Communities: Advancing Projects through Partnerships](#) (TCAPP) will serve to facilitate the collaborative process by illustrating opportunities for collaboration for each step of the IEF.

#### **5.1 Facilitate data management and access**

Agencies will receive training and support in identifying, accessing, and managing the data necessary and available in their states and regions to develop effective mitigation strategies as part of an ecosystem-scale approach. Once the SHRP2 C40 project is complete, training may also be provided on utilizing the data tool in various states and regions. Instructions for utilizing the C40 tool and managing data could also be added to the practitioners' handbook.

#### **5.2 Develop an information clearinghouse**

A centralized web-based resource that houses all current information on *Implementing Eco-Logical* will facilitate access to useful data, best practices, training materials/online toolbox, case studies, and up-to-date information on implementation efforts across the country. This clearinghouse may be developed as part of FHWA's existing Eco-Logical website or added to NatureServe's existing system. State DOTs and

MPOs would also receive training and technical assistance to develop their own information clearinghouses.

### ***5.3 Develop structures to foster collaboration (TCAPP, new policies)***

Routine collaboration between agencies may be established through the development of new technology or policies. For example, Florida DOT's online Efficient Transportation Decision Making Process tool guides agency partners through a specific set of reviews for transportation project alternatives, obliging representatives of multiple agencies to communicate in order to meet project approval requirements. Another way to promote collaboration is to restructure policies and procedures in such a way that interagency collaboration is required. Such policy or technology tools would have to be configured to allow Federal agencies to easily participate in state and regional processes. Opportunities for the development of such structures will be outlined in the steps of the IEF in TCAPP and during trainings.

*Current Activities:* The SHRP2 C40 A and B projects are currently exploring the development of a multiagency data integration platform that could be distributed for customized use nationwide, and testing existing platforms for potential replication. A SHRP2 IPW for TCAPP is scheduled for FY13.

- **Other Strategy 5 Tactics:**
  - Assist states and regions in creating or supplementing data portals and resource libraries
  - Assist states and regions in using collaboration technology

## **Strategy 6: Develop Communications and Outreach Materials**

*Implementing Eco-Logical* is a multifaceted approach to changing business practices rather than a specific tool or technology. As a result, most of the implementation strategies and tactics in this plan incorporate some form of communications or outreach. Messages, goals, and audiences for specific communication efforts, however, are outlined in [section 4](#) of this implementation plan.

### ***6.1 Develop and implement a strategic marketing and communications plan***

Using the target audiences, goals, and draft messages developed through the IPW as a foundation, craft a strategic marketing action plan that supports the overall implementation plan for *Implementing Eco-Logical*. The plan would include additional market research (as needed); detailed tactics, messages, exhibit and conference opportunities; a toolkit to support circuit riders and product champions; as an outline of roles and responsibilities; a budget; and other collateral. The plan will be coordinated with other components of *Implementing Eco-Logical* and its action plan to create an integrated and cohesive approach.

### ***6.2 Develop and distribute an informational video***

Some audiences—particularly executive leadership—may be more receptive to an introduction to *Implementing Eco-Logical* through an informational video rather than a web conference. A video will be available and distributed through AASHTO TV and other video distribution channels with the aim of

agency leadership further disseminating the video to staff. Consideration may also be given to generating video support materials for the handbook that can be used to supplement the training or as a standalone product.

- **Other Strategy 6 Tactics:**

- Provide supporting materials for training and self-assessments
- Develop brochures highlighting business practices that are targeted to different audiences (Federal, state/regional, industry, or associations)
- Present educational and interactive webinars to targeted audiences
- Develop news articles and short blog pieces as well as web content, highlighting case studies and success stories associated with an IEF or other element of *Implementing Eco-Logical*, and pitch stories to professional and trade publications and other press contacts

**Table 4: Summary of Implementation Strategies and Tactics**

The following table summarizes the strategies and tactics for deployment of *Implementing Eco-Logical* as prioritized by workshop panelists. Panelists were asked to allocate a percentage of funding for both a \$1.5 million and a \$3 million funding scenario for each strategy in order to indicate the level of priority. The table shows both the average allocation for each strategy as well as the mode (the most frequently provided response). The result of this exercise did not indicate a significant difference in funding allocations between the two scenarios, with the exception of increased funding for incentive programs (including grants) under the high-budget scenario. Should a high-budget scenario be selected, panelists agreed that additional funding should be used to provide a greater number of incentive programs and implementation grants.

Strategy (in priority order)	Tactics (in priority order)	Strategy funding under \$1.5M Scenario	Strategy funding under \$3M Scenario
Engaging agency leadership	<p><b>Top Three Tactics</b></p> <ol style="list-style-type: none"> <li>1. Identification of champions and opinion leaders</li> <li>2. Executive training</li> <li>3. Linkage of <i>Implementing Eco-Logical</i> to MAP-21 requirements</li> </ol> <p>3. Practitioner’s handbook for <i>Implementing Eco-Logical</i></p> <p><b>Other Tactics</b></p> <ul style="list-style-type: none"> <li>• Self-assessment tool/survey</li> <li>• AASHTO Committees: Standing Committee of Environment (SCOE) resources; annual conference; co-meeting with Standing Committee on Planning (SCOP); Center for Environmental Excellence</li> <li>• Model projects and reporting</li> <li>• Agency liaisons: provide model job description and agreements</li> <li>• Re-engineer processes/procedures/policies</li> </ul>	<p>18% (average)</p> <p>10% (mode)</p>	<p>20% (average)</p> <p>10% (mode)</p>
Incentives	<p><b>Top Three Tactics</b></p> <ol style="list-style-type: none"> <li>1. Increased funding/streamlined review process in exchange for using or adopting <i>Implementing Eco-Logical</i></li> <li>2. Federally funded grants</li> <li>3. Awards and recognitions</li> </ol>	<p>23% (average)</p> <p>5% (mode)</p>	<p>26% (average)</p> <p>10% (mode)</p>
Technical Assistance	<p><b>Top Three Tactics</b></p> <ol style="list-style-type: none"> <li>1. Technical assistance teams/“circuit riders”</li> <li>2. “Starter kit” for agencies and MPOs new to the process</li> <li>3. State DOT peer exchanges and forums</li> </ol> <p><b>Other Tactics</b></p> <ul style="list-style-type: none"> <li>• Dissemination of information (conferences, committees, etc.)</li> <li>• Model agreements/policies</li> </ul>	<p>24% (average)</p> <p>25% (mode)</p>	<p>22% (average)</p> <p>25% (mode)</p>

Strategy (in priority order)	Tactics (in priority order)	Strategy funding under \$1.5M Scenario	Strategy funding under \$3M Scenario
	<ul style="list-style-type: none"> <li>Online courses and other training tools</li> </ul>		
Business Case	<p><b>Top Three Tactics</b></p> <ol style="list-style-type: none"> <li>Case studies</li> <li>Lifecycle costs and benefits</li> <li>Targeted outreach to stakeholders</li> <li>Demonstration programs</li> </ol>	<p>18% (average)</p> <p>10% (mode)</p>	<p>18% (average)</p> <p>10% (mode)</p>
New Tools and Technology	<p><b>Top Three Tactics</b></p> <ol style="list-style-type: none"> <li>Data management and access (technical assistance)</li> <li>Data clearinghouse</li> <li>Developing structures to foster collaboration (TCAPP, new policies)</li> </ol> <p><b>Other Tactics</b></p> <ul style="list-style-type: none"> <li>Portals</li> <li>Libraries</li> </ul>	<p>16% (average)</p> <p>15% (mode)</p>	<p>15% (average)</p> <p>10% (mode)</p>
Outreach and Communications Materials	<ol style="list-style-type: none"> <li>Informational video</li> </ol> <p><b>Other Tactics</b></p> <ul style="list-style-type: none"> <li>Educational webinars</li> <li>Press releases and articles associated with projects</li> </ul>	<p>11% (average)</p> <p>10% (mode)</p>	<p>10% (average)</p> <p>10% (mode)</p>

### 3.2 ASSUMPTIONS AND RISKS

The following section outlines the main factors that that must be considered to help ensure widespread adoption of *Implementing Eco-Logical*.

#### Assumptions

1. Adoption of *Implementing Eco-Logical* will cast state and regional transportation agencies and Federal and state resource and regulatory agencies as innovative, cutting-edge leaders among their transportation and environmental peers.
2. *Implementing Eco-Logical* is a tested and proven way to change business practices in order to become more efficient and save scarce resources.
3. *Implementing Eco-Logical* is applicable to transportation capacity and maintenance projects.
4. *Implementing Eco-Logical* is accessible to all interested agency leaders, management, and practitioners through a suite of tools and guidance available within TCAPP and other websites.

**Table 5: Risks and Mitigation Strategies**

	Risk	Mitigation Strategy
1	Executives and management at agencies will not embrace <i>Implementing Eco-Logical</i> due to a perception that implementation will require major up-front costs or policy and procedural changes with little return on economic or time benefits.	Outreach to the executive level through web-based conferences and champions will convey the message that adopting <i>Implementing Eco-Logical</i> does not necessarily introduce new requirements but streamlines existing policies and procedures using existing authorities. Adopting <i>Implementing Eco-Logical</i> through a phased approach (such as by first adopting a REF) may make some agencies more comfortable with the prospect of full implementation. Executives and management will also be educated on the business case through examples, demonstration programs, and a study on the lifecycle costs of the ecosystem-scale approach compared to traditional transportation planning and delivery.
2	Executives and management at target agencies may not be receptive to or available for web-conference formats, making it difficult to communicate the benefits of <i>Implementing Eco-Logical</i> .	An informational video disseminated through AASHTO TV and other online outlets will serve as an alternative method of outreach that explains the benefits of <i>Implementing Eco-Logical</i> to an executive-level audience. Champions of the ecosystem-scale approach from peer agencies will also serve as a contact point with executive-level leaders as appropriate.
3	Potential champions of <i>Implementing Eco-Logical</i> may be reluctant to promote the ecosystem-scale approach within their agencies due to the risk of being tied to problems or failures that may arise from introducing new practices within tight budgets or schedules.	Case studies and demonstration programs will illustrate that the ecosystem-scale approach is a proven solution to streamline the transportation planning and delivery process. Champions and mentors from peer agencies may also make themselves available.

	Risk	Mitigation Strategy
4	Practitioners may be aware of and even support the value of utilizing an ecosystem-scale approach but not have the time or flexibility to begin moving towards implementation.	Outreach to executive leadership at all targeted agencies will help establish an organizational environment in which staff-level practitioners have the resources and support to pursue implementation.
5	The term “Eco-Logical” may not resonate with audiences that are skeptical of environmentally-motivated initiatives or messages.	The savings in time and costs, and improved efficiency of project delivery, will be emphasized in all training and outreach efforts.
6	Progress towards adoption of <i>Implementing Eco-Logical</i> at agencies may not be institutionalized to a degree that withstands changes in agency leadership and priorities over time.	Technical assistance and guidance will be made available for agencies to develop technological and policy-based tools that provide structure and permanence to collaborative processes. In addition, the REF and the IEF both require collaboration with partner agencies; training materials and TCAPP will promote the establishment of formal collaborative agreements in order to institutionalize the ecosystem-scale approach.
7	Practitioners at resource and regulatory agencies and non-governmental organizations that could serve as collaborative partners may not understand the transportation planning and delivery process or their role within it, diminishing their motivation to engage in collaborative partnerships with state DOTs and MPOs.	While promoting the adoption of <i>Implementing Eco-Logical</i> to state DOTs and MPOs is a focus of this implementation plan, significant effort will also be directed toward outreach and communication with Federal and state resource and regulatory agencies. FHWA is currently engaging the leadership of each of the original Eco-Logical signatory agencies in order to re-affirm their agency’s commitment to the ecosystem-scale approach.
8	Regulatory agencies may not embrace the key IEF concepts of regional advance assessment and mitigation planning and remain focused on individual project-by-project assessments.	Work with Federal regulatory agencies to establish standards that would compel state and regional regulatory offices to accept state DOT/MPO IEFs (subject to review of those products for regulatory compliance).
9	Some states may have mitigation laws that would hinder the use of an REF or mitigation banking program.	All States can benefit from the avoidance elements of the ecological approach. In addition, outreach should include identification of opportunities to change or utilize flexibilities in state environmental policy where appropriate.

### 3.3 ACTION PLAN

The action plan (Table 6) illustrates the delivery process for *Implementing Eco-Logical* as outlined by the partner agencies. Roles and responsibilities, funding streams, and the integration of this implementation plan's recommendations with ongoing programs and initiatives were determined based on current funding availability and partner agency capacity.

The *Implementing Eco-Logical* SHRP2 Solution is one product in a larger suite of other programs and initiatives that aim to implement the Eco-Logical approach on a national scale. For this reason, the action plan lists activities recommended by panelists that will be funded or managed outside of the SHRP2 program. Tactics are not listed in order of priority.

#### **Next Steps and Long-term Outlook**

The prioritized action plan (Table 6) was developed with the input and feedback of panelists, FHWA, AASHTO, and the SHRP2 Oversight Committee. Though panelists were provided with general costs for the implementation of various tactics, the final budget for this action plan will be based in part on FHWA and AASHTO's significant experience in implementing similar strategies and tactics. Actual costs for these activities may vary from or be significantly higher than the estimated costs presented to the panelists.

It is anticipated that full adoption of *Implementing Eco-Logical* (that is, full integration of the IEF and supportive systems into routine business practices) at any agency may take 5 to 10 years. An annual stakeholder meeting or workshop that considers the current state of practice, new funding opportunities, and evolving science is proposed for the first two years of implementation and beyond. The meeting/workshop will provide a forum to discuss the continued relevance of *Implementing Eco-Logical* to current conditions, as well as an opportunity for panelists of the SHRP2 C06B IPW to remain involved in guiding national-scale implementation.

**Table 6: Action Plan**

The table below outlines the action plan based on recommendations of the panelists and as agreed upon by the partner organizations. Specific budget allocations of SHRP2 funds for each activity will be determined through further discussions with the partner organizations and the SHRP2 Oversight Committee.

	Tactic Description	Implementing Organization	Funding Stream	Start Year 1	Start Year 2	Description
<b>Strategy 1</b> Engage agency leadership	<b>Identification of champions and opinion leaders</b>	<b>FHWA</b>	SHRP2	X		Informational materials sent to potential champions and agency leadership should convey the national-scale roll-out of <i>Implementing Eco-Logical</i> and include information useful to all target audiences, including state DOTs, MPOs, and Federal and state resource and regulatory agencies.
	<b>Executive training</b>	<b>AASHTO</b>	SHRP2	X		AASHTO will utilize its existing networks to reach agency leadership at state DOTs to encourage adoption of <i>Implementing Eco-Logical</i> . Outreach may include web conferences and in-person presentations and meetings. Executive training for Federal and state resource agency leadership will be overseen by FHWA through its Eco-Logical training strategy.
	<b>Linkage of <i>Implementing Eco-Logical</i> to MAP-21 requirements</b>	<b>FHWA</b>	MAP-21	X		All outreach materials and training will include information on how <i>Implementing Eco-Logical</i> supports the policies and requirements of MAP-21 as such policies and requirements are issued by FHWA.
	<b>Practitioner’s handbook for <i>Implementing Eco-Logical</i></b>	<b>AASHTO</b>	SHRP2	X		Research material produced by the SHRP2 C06 project will be integrated into a format useful to practitioners, similar to other materials produced by AASHTO’s Center for Environmental Excellence, and distributed to state DOTs and MPOs. The need for a companion video will be investigated as part of market research.
	<b>Joint meeting with AASHTO Standing</b>	<b>AASHTO &amp; FHWA</b>	SHRP2		X	A meeting between SCOEE and SCOP in the second year of implementation will focus exclusively on the progress and

	Tactic Description	Implementing Organization	Funding Stream	Start Year 1	Start Year 2	Description
	<b>Committee of Environment (SCOE) and Standing Committee on Planning (SCOP)</b>					lessons learned of <i>Implementing Eco-Logical</i> and measures the committees can take to promote <i>Implementing Eco-Logical</i> as routine practice.
	<b>Model projects and reporting</b>	<b>FHWA</b>	STEP/ MAP-21	X	X	Examples of projects that were developed using an eco-system approach will be documented and made available in the user community.
	<b>Agency liaisons: Provide model job description and agreements</b>	<b>FHWA</b>	STEP/ MAP-21	X		Model liaison and programmatic agreements will be continually available through FHWA's existing Transportation Liaison Community of Practice.
	<b>Re-engineer processes/procedures/policies</b>	<b>FHWA</b>	STEP/ MAP-21	X	X	FHWA will work with participating state DOTs to consider how to re-engineer existing policies, procedures, and processes to accommodate <i>Implementing Eco-Logical</i> . This coordination could take place through FHWA's Eco-Logical training strategy.
	<b>Additional tactics: Self-assessment tool / survey</b>	<b>FHWA &amp; AASHTO</b>	STEP/ MAP-21	X		A self-assessment tool (survey) to benchmark the state of practice will be developed by FHWA as part of its Eco-Logical training strategy and promoted to state DOTs and MPOs by AASHTO.
<b>Strategy 2</b> Incentives	<b>Increased funding/streamlined review process in exchange for using or adopting <i>Implementing Eco-Logical</i></b>	<b>FHWA</b>	STEP/ MAP-21	X	X	Opportunities to incentivize adoption of <i>Implementing Eco-Logical</i> through increased funding or streamlined approvals will be identified and developed through training workshops as well as outreach through FHWA's Eco-Logical training strategy.

	Tactic Description	Implementing Organization	Funding Stream	Start Year 1	Start Year 2	Description
	<b>Federally funded grants</b> - Development and tracking - Disbursement	<b>FHWA</b>	SHRP2	X	X	Grants will be awarded to agencies pursuing implementation (not pilots) of <i>Implementing Eco-Logical</i> through FHWA Division offices on a competitive basis. Grant solicitation and the development of a tracking system will take place in the first year of implementation, with disbursement of grant funds taking place in the second.
	<b>Awards and recognition</b>	<b>AASHTO</b>	SHRP2		X	An awards and recognition program for <i>Implementing Eco-Logical</i> will be developed and managed by AASHTO.
<b>Strategy 3</b> Technical Assistance	<b>Technical assistance teams</b> – Implementation workshops by State – Regional or national peer exchanges	<b>AASHTO &amp; FHWA</b>	SHRP2	X	X	Workshops for state DOTs and MPOs will be customized to include direct training or a peer exchange (with regional or national participation), depending on the preference and needs of the implementing agency. Workshops and peer exchanges are intended for those agencies at the beginning stages of implementation. FHWA will oversee the content of the workshops due to the interaction with Federal resource agencies. AASHTO will oversee planning and logistics associated with the workshops.
	<b>Technical experts/“circuit riders”</b>	<b>AASHTO &amp; FHWA</b>	SHRP2	X		A team of practitioners knowledgeable about the steps in the IEF will assist in developing training materials, and serve on call across the nation in accordance with their expertise. This team will assist those agencies that have already made progress in implementation. A website or listserv may be developed to facilitate communication among this pool of experts. Invitational travel associated with Federal employees would be managed by FHWA all other invitational travel will be managed by AASHTO.
	<b>“Starter kit” for agencies and MPOs new to the process</b>	<b>AASHTO</b>	SHRP2	X		A starter kit for MPOs and Federal and state resource agencies will be developed from the SHRP2 C06B research results. The kit will be distributed by AASHTO.

	Tactic Description	Implementing Organization	Funding Stream	Start Year 1	Start Year 2	Description
	<b>Community of practice</b>	<b>AASHTO</b>	SHRP2		X	A community of practice dedicated to the dissemination of best practices, knowledge, and expertise related to <i>Implementing Eco-Logical</i> will be developed through AASHTO's Center for Environmental Excellence, either as a new platform or as part of an existing community of practice.
	<b>Model agreements/policies</b>	<b>FHWA</b>	STEP/ MAP-21	X	X	Policies and memorandums of agreements/understanding that represent best practices will be disseminated through the <i>Implementing Eco-Logical</i> community of practice and other communications channels.
	<b>Online courses and other training tools</b>	<b>FHWA</b>	STEP/ MAP-21	X	X	Online courses and training materials developed as part of the workshops/peer exchanges as well as FHWA's Eco-Logical training strategy will be made available online to all interested agencies for self-training purposes.
Strategy 4 Making the Business Case	<b>Case studies</b> - Compile case studies of ongoing work - Update old and catalogue new case studies	<b>AASHTO</b>	SHRP2	X	X	Milestones and innovative practices related to <i>Implementing Eco-Logical</i> will be tracked and developed into case studies as appropriate. Existing case studies (such as those developed through SHRP2 C06A and FHWA's Eco-Logical grant program) will be updated as progress continues.
	<b>Lifecycle costs and benefits</b> - Eco-Logical benefits assessment	<b>FHWA</b>	STEP	X		An assessment of the lifecycle costs and benefits of an ecosystem scale approach to transportation planning and delivery compared to traditional practices is under development as part of FHWA's Eco-Logical program.
	<b>Demonstration Programs</b> - Eco-Logical grant program	<b>FHWA</b>	STEP	X		FHWA may continue providing grant funding to the projects that proved most promising in the first round of its Eco-Logical grant program.

	Tactic Description	Implementing Organization	Funding Stream	Start Year 1	Start Year 2	Description
<b>Strategy 5</b> New Tools and Technology	<b>Data management and access (technical assistance)</b>	FHWA	SHRP2		X	Technical assistance with multiagency data integration and management may accompany implementation of the SHRP2 C40 data portal products, pending the outcome of a SHRP2 C40 IPW.
	<b>Data and information clearinghouse</b>	FHWA	SHRP2		X	Funding for public-private collaborative efforts to develop data and information clearinghouses will be available on a case-by-case basis provided that the clearinghouse is applicable to multiple agencies and competencies, and supports <i>Implementing Eco-Logical</i> .
	<b>Develop structures to foster collaboration (TCAPP, new policies)</b>	FHWA	SHRP2		X	Implementation of TCAPP will be determined through an upcoming SHRP2 Implementation Planning Workshop.
	<b>Additional tactics:</b> – C40 data portal tool – Resource libraries		SHRP2		X	Pending the outcome of the SHRP2 C40 research, a customizable platform for the integration of multiagency data may be distributed nationwide. The tool will support interagency collaboration and decision making at the state and regional levels as part of <i>Implementing Eco-Logical</i> or other efforts.
<b>Strategy 6</b> Outreach and Communications	<b>Develop and implement a strategic marketing and communications plan</b>	AASHTO	SHRP2	X	X	Using the target audiences, goals, and draft messages developed through the IPW as a foundation, craft a strategic marketing action plan that supports <i>Implementing Eco-Logical</i> . The plan would include additional market research (as needed); detailed tactics, messages, exhibit and conference opportunities; a toolkit to support circuit riders and product champions; an outline of roles and responsibilities; a budget; and other collateral.

### 3.4 READINESS ASSESSMENT

As awareness of *Implementing Eco-Logical* builds nationwide, the readiness of each new implementing agency will need to be assessed. Among the factors that will be considered are an implementing agency's vision (clearly defined and broadly supported goals); business case (identified benefits to business activities); accountability (committed sponsors to guide and manage implementation); funding (committed fiscal resources for implementation); and information technology capacity (technological and systematic resources and needs), among many others. The self-assessment tool will establish the range of implementation opportunities among agencies nationwide. Readiness assessment criteria will be further refined as the implementation phase of *Implementing Eco-Logical* progresses.

### 3.5 TIMELINE

Full adoption of *Implementing Eco-Logical* within any given agency is expected to take place over ten years; however implementation and outreach activities at a national scale will be fully underway within two years. The action plan lists the start date (Year 1 or Year 2) for each tactic. All tactics will carry on throughout a ten-year time span as funding allows and needs remain.

It should be noted that policies and requirements related to MAP-21 are still in development by FHWA, and will be incorporated into *Implementing Eco-Logical* as they become available.

## 4. Outreach and Communications

*Implementing Eco-Logical requires outreach and training strategies to successfully promote awareness and adoption. Outreach and communications goals support the overall product implementation goals, and many of the strategies and tactics have significant communications components. This section outlines specific communication goals for Implementing Eco-Logical. The Audience and Stakeholder Landscape (Table 7) identifies the appropriate users and audiences and targeted messages for each. The development of a strategic communications plan may yield additional tactics, audiences, and messages.*

### 4.1 COMMUNICATION GOALS

- Promote widespread awareness and understanding of *Implementing Eco-Logical* among transportation, environmental, and conservation professionals, particularly state DOTs.
- Increase awareness of the tools and resources available to aid in adoption of *Implementing Eco-Logical*.
- Establish *Implementing Eco-Logical* as the most cost-effective and efficient way of responding to the Nation's transportation needs.
- Develop a suite of messages that:
  - Encourages audiences already engaged with elements of *Implementing Eco-Logical* to pursue further implementation;
  - Prompts interested audiences to take the first steps towards implementation; and,
  - Persuades new or skeptical audiences that *Implementing Eco-Logical* is the preferred and peer-respected approach to transportation planning, development, and delivery.
- Provide champions/advocates and partners with support tools, evidence, and data to communicate with their peers about the benefits of *Implementing Eco-Logical*.

### 4.2 COMMUNICATION STRATEGIES

Though *Implementing Eco-Logical* is intended for a wide variety of audiences, several strategies will be employed in outreach and communications efforts in order to maximize the effectiveness of core messages. Communications strategies include the following:

- Develop consistent, short, and articulate talking points when promoting awareness, especially among executive leadership.
- Support core messages with best practices, case studies, and local data.
- Include peer and partner agencies in introducing *Implementing Eco-Logical* to target audiences whenever possible.
- Encourage and equip state or regional champions to continually advocate to their colleagues and contacts, even if their own agency/organization has already adopted *Implementing Eco-Logical*.
- Ensure that field staff at resource and regulatory agencies that may not have regular access to training and workshop opportunities receive informational materials.

- Generate publicity for projects that utilize *Implementing Eco-Logical*.
- Utilize video conferencing in place of webinars when possible.

### 4.3 PRODUCT MESSAGING

The positioning statement for *Implementing Eco-Logical* represents how audiences and stakeholders should view the product. The following statement will drive all outreach and communication efforts:

*Implementing Eco-Logical is a tested, proven approach to transportation planning, development, and delivery that results in reduced costs, increased efficiency, and improved environmental outcomes while working within existing policy and regulatory structures.*

Common examples of the benefits of *Implementing Eco-Logical* provide further illustration:

*Reduced timeframes and unanticipated costs:* Fewer changes to projects late in the transportation delivery process due to unforeseen environmental factors.

*Increased efficiency:* Early notification of potential regulatory or permitting obstacles during the project planning phase.

*Improved environmental outcomes:* Project designs are sensitive to critical environmental resources, and provide avoidance and mitigation strategies.

The following core messages are to be incorporated in all outreach and communication materials:

- *Implementing Eco-Logical* results in better environmental outcomes and lower transaction costs.
- *Implementing Eco-Logical* reduces redundancy and increases the efficiency, transparency, and predictability of the transportation delivery process.
- *Implementing Eco-Logical* promotes public support and increases public confidence in an agency's ability to provide effective and efficient service.
- *Implementing Eco-Logical* works within existing regulations and policies and represents the cutting-edge of innovative, forward-thinking transportation and environmental practice.
- *Implementing Eco-Logical* can be adopted using a phased approach and offers incremental benefits in terms of improved interagency collaboration and communication, and more predictable transportation and environmental review processes.

The Audience and Stakeholder Landscape (Table 7) identifies the audiences and stakeholders (including users, decisionmakers, beneficiaries, and champions) that have a vested interest in *Implementing Eco-Logical*. The purpose of this analysis is to provide a strategic view of key audiences and the messages that will resonate with them. Targeted messages are included for each audience.

**Table 7: Audience and Stakeholder Landscape**

Implementing Eco-Logical stakeholders include target audiences that can influence the manner and extent to which the product is used. This audience and stakeholder landscape identifies the individuals and organizations (including users, decision makers, beneficiaries, and advocates) that have a vested interest in Implementing Eco-Logical and should be the focus of outreach and communications efforts. The goal of this analysis is to gain a strategic view of the human and institutional landscape, the relationships among these groups, the issues they care about, and the messages that will resonate with them.

Stakeholders	Characteristics	Obstacles (Human and Physical)	Opportunities	Targeted Message	Messenger	Delivery Method
<p><b>State DOT and MPO leadership</b></p> <p>DOT commissioners; division heads; DOT and MPO board members</p>	<ul style="list-style-type: none"> <li>- Strategic visionaries that can influence agency culture and innovation</li> <li>- Sensitive to public/elected official input</li> <li>- Not always familiar with technical processes</li> <li>- MPOs focus on a regional scale, which supports ecosystem-scale and corridor planning</li> </ul>	<ul style="list-style-type: none"> <li>- Risk-averse</li> <li>- Busy schedules</li> <li>- Need to see tangible economic value</li> <li>- Competing priorities</li> <li>- Short tenure</li> <li>- MPOs are subject to few Federal and state requirements for integrated planning</li> </ul>	<ul style="list-style-type: none"> <li>- Demonstrate cost and time savings</li> <li>- Show examples from peer agencies</li> <li>- Demonstrate long-term support from FHWA, Eco-Logical signatory agencies</li> </ul>	<ul style="list-style-type: none"> <li>- Improves public confidence in agency services</li> <li>- Benefits public and private sectors</li> <li>- Helps agency meet its mission</li> <li>- This will cast your agency as an innovative leader in the field</li> <li>- Saves time and money</li> <li>- Facilitates Context Sensitive Solution process</li> <li>- This is NOT about “smart growth,” “global warming,” or “land use”</li> </ul>	<ul style="list-style-type: none"> <li>- Peer agency director</li> <li>- FHWA</li> <li>- AASHTO</li> <li>- MPO leadership (to state DOTs)</li> <li>- State DOT leadership (to MPOs)</li> <li>- State/regional advocate/champion</li> <li>- Mid-level manager</li> <li>- Private sector</li> </ul>	<ul style="list-style-type: none"> <li>- Presentations/briefs</li> <li>- In-person meetings</li> <li>- Web conferences</li> <li>- Informational video</li> <li>- NGOs and conservation organizations</li> </ul>

Stakeholders	Characteristics	Obstacles (Human and Physical)	Opportunities	Targeted Message	Messenger	Delivery Method
<b>Federal and state resource and regulatory agency leadership</b>  Division directors; district directors; regional office administrators; state environmental commissioners	<ul style="list-style-type: none"> <li>- Strategic visionaries that can influence agency culture and innovation</li> <li>- Sensitive to public/elected official input</li> <li>- Not always familiar with transportation processes</li> <li>- Motivated by better outcomes and the improved provision of services</li> </ul>	<ul style="list-style-type: none"> <li>- Busy schedules</li> <li>- Need to see tangible economic and efficiency value</li> <li>- Many competing priorities</li> <li>- Short tenure</li> <li>- Some agencies focus programs on specific resources, not ecosystems</li> <li>- A large volume of individual projects consume the resources of some agencies</li> </ul>	<ul style="list-style-type: none"> <li>- Interested in collaboration with other agencies and increasing transparency</li> <li>- Interested in improved permitting times</li> </ul>	<ul style="list-style-type: none"> <li>- Re-aligning regulatory processes saves money</li> <li>- Reduced permitting timelines</li> <li>- Reduced exposure to litigation</li> <li>- Improved and more meaningful mitigation outcomes</li> <li>- Fits into existing practices and regulations</li> <li>- Other agencies are doing this</li> </ul>	<ul style="list-style-type: none"> <li>- FHWA</li> <li>- Other Eco-Logical signatory agency leadership</li> <li>- Environmental Council of the States (ECOS)</li> <li>- Association of Fish and Wildlife Agencies</li> <li>- White House Council for Environmental Quality (CEQ)</li> <li>- Transportation liaisons</li> <li>- Regional or state champions</li> </ul>	<ul style="list-style-type: none"> <li>- Presentations/briefs</li> <li>- In-person meetings</li> <li>- Web conferences</li> <li>- Case studies about current and peer agency involvement</li> <li>- NGOs and conservation organizations</li> </ul>

Stakeholders	Characteristics	Obstacles (Human and Physical)	Opportunities	Targeted Message	Messenger	Delivery Method
<p><b>State DOT and MPO managers</b></p> <p>Bureau project development director; chief engineer; planning director; director of environmental services; division managers; regional engineers; manager of capital programming; manager of long range planning; manager of environmental programming; tribal</p>	<ul style="list-style-type: none"> <li>- Project delivery staff located at regional offices at larger state DOTs</li> <li>- Specialists located at headquarters in smaller state DOTs</li> <li>- MPO managers focused on long range transportation and corridor planning</li> <li>- State DOT managers focused on project development and delivery</li> </ul>	<ul style="list-style-type: none"> <li>- Competing priorities</li> <li>- Busy schedules</li> <li>- Limited budgets</li> <li>- Lack of leadership support</li> <li>- Siloed responsibilities</li> </ul>	<ul style="list-style-type: none"> <li>- Receptive to innovation and efficiencies</li> <li>- Can advocate to agency leadership, peers</li> </ul>	<ul style="list-style-type: none"> <li>- Can implement incrementally</li> <li>- This is a proven approach</li> <li>- This approach does not require significant up-front cost and time</li> <li>- There is a support system and multiple resources to aid in implementation</li> <li>- This approach is supported by agency leadership</li> <li>- This approach is tied to existing policies, processes, and requirements</li> <li>- Implementing Eco-Logical is a routine way to do work, not an additional task</li> <li>- Implementing Eco-Logical is supported with project and quantified examples</li> </ul>	<ul style="list-style-type: none"> <li>- Funded liaisons</li> <li>- Training teams</li> <li>- Champions</li> <li>- Peer agencies</li> <li>- FHWA</li> <li>- AASHTO</li> </ul>	<ul style="list-style-type: none"> <li>- Web conferences</li> <li>- In-person, multi-agency meetings</li> <li>- Multiagency trainings</li> <li>- Case studies</li> <li>- Project examples</li> <li>- Community of practice</li> <li>- NGOs and conservation organizations</li> </ul>

Stakeholders	Characteristics	Obstacles (Human and Physical)	Opportunities	Targeted Message	Messenger	Delivery Method
<p><b>Federal and state resource and regulatory agency managers</b></p> <p>Regulatory chiefs; section chiefs; branch chiefs; regional/field office directors; Section 7 ESA coordinators; funded liaisons</p>	<ul style="list-style-type: none"> <li>- <i>Directly engaged with improving cost effectiveness and efficiency</i></li> </ul>	<ul style="list-style-type: none"> <li>- <i>Competing priorities</i></li> <li>- <i>Busy schedules</i></li> <li>- <i>Limited budgets</i></li> <li>- <i>Some agencies focused at project level</i></li> </ul>	<ul style="list-style-type: none"> <li>- <i>Receptive to innovation and efficiencies</i></li> <li>- <i>Can advocate to agency leadership, peers</i></li> <li>- <i>Can market Implementing Eco-Logical to State DOTs and MPOs</i></li> </ul>	<ul style="list-style-type: none"> <li>- <i>Can implement incrementally</i></li> <li>- <i>This is a proven approach</i></li> <li>- <i>There is a support system and multiple resources to aid in implementation</i></li> <li>- <i>This approach is supported by agency leadership</i></li> <li>- <i>This approach is tied to existing policies, processes, and requirements</i></li> </ul>	<ul style="list-style-type: none"> <li>- <i>FHWA</i></li> <li>- <i>AASHTO</i></li> <li>- <i>ECOS</i></li> <li>- <i>Association of Fish and Wildlife Agencies</i></li> </ul>	<ul style="list-style-type: none"> <li>- <i>Web conferences</i></li> <li>- <i>In-person meetings</i></li> <li>- <i>Trainings</i></li> <li>- <i>Case studies</i></li> <li>- <i>Project examples</i></li> <li>- <i>Community of practice</i></li> <li>- <i>NGOs/conservation organizations</i></li> </ul>

Stakeholders	Characteristics	Obstacles (Human and Physical)	Opportunities	Targeted Message	Messenger	Delivery Method
<b>State and MPO staff</b>  Planners; project managers; department administrators; project designers / engineers; biologists; environmental staff	<ul style="list-style-type: none"> <li>- Carry out project planning, delivery, and development activities</li> </ul>	<ul style="list-style-type: none"> <li>- Perception that ecosystem approach has high up-front costs and time investment</li> <li>- Lack of management support or interest</li> <li>- Lack of flexibility to pursue implementation</li> </ul>	<ul style="list-style-type: none"> <li>- Interested in improving efficiency of processes</li> <li>- Have strong relationships with natural resource agencies</li> </ul>	<ul style="list-style-type: none"> <li>- Implementing Eco-Logical is a routine way to do work, not an additional task</li> <li>- This approach will make your work easier</li> <li>- Helps bridge silos between and within agencies</li> <li>- Facilitates context sensitive solutions</li> <li>- Local training is available (in select areas)</li> <li>- This is a proven approach</li> <li>- Agency leadership is supportive</li> </ul>	<ul style="list-style-type: none"> <li>- State DOT and MPO management</li> <li>- Professional associations (AASHTO, APA, etc.)</li> <li>- NGOs</li> </ul>	<ul style="list-style-type: none"> <li>- Interagency trainings and workshops, ideally timed to coincide with state or regional planning processes or large-scale projects or corridor plans</li> <li>- Webinars and web conferences</li> <li>- Awards/certification</li> <li>- Community of practice</li> </ul>

Stakeholders	Characteristics	Obstacles (Human and Physical)	Opportunities	Targeted Message	Messenger	Delivery Method
<p>Federal and state resource and regulatory agency staff</p> <p>Field office directors; biologists</p>	<ul style="list-style-type: none"> <li>- Carry out regulatory and permitting activities related to projects</li> <li>- Some involvement in planning activities</li> </ul>	<ul style="list-style-type: none"> <li>- Work may be oriented around individual projects or specific natural resources</li> <li>- Perception that ecosystem approach has high up-front time investment</li> <li>- Lack of management support or interest</li> <li>- Lack of flexibility to pursue implementation</li> <li>- Some field staff may lack internet access</li> <li>- Varying priorities among field offices</li> </ul>	<ul style="list-style-type: none"> <li>- Some field offices are already taking an Eco-Logical approach to conservation and infrastructure planning</li> <li>- Many staff are already familiar with basic terms and concepts associated with the Eco-Logical approach</li> <li>- Resource and regulatory agencies are in a position to share communications and informational materials with State DOTs and MPOs</li> </ul>	<ul style="list-style-type: none"> <li>- Helps bridge silos between and within agencies</li> <li>- This approach will result in a more efficient permitting and environmental review process</li> <li>- Implementing Eco-Logical is a routine way to do work, not an additional task</li> <li>- Implementing Eco-Logical can improve mitigation and protection of individual species and resources</li> <li>- Implementing Eco-Logical can increase usage and access to existing agency tools and data to develop shared priorities</li> <li>- State DOTs and MPOs should hear about the benefits of Implementing Eco-Logical from their resource and regulatory agency partners</li> </ul>	<ul style="list-style-type: none"> <li>- Funded liaisons</li> <li>- Peer agencies</li> <li>- Champions</li> <li>- Environmental NGOs</li> <li>- ECOS, Association of Fish and Wildlife Agencies, and other professional organizations</li> </ul>	<ul style="list-style-type: none"> <li>- Interagency trainings and workshops</li> <li>- Webinars</li> <li>- Practitioner's handbook</li> <li>- Community of practice</li> </ul>

Stakeholders	Characteristics	Obstacles (Human and Physical)	Opportunities	Targeted Message	Messenger	Delivery Method
NGOs / Professional Organizations	<ul style="list-style-type: none"> <li>- Focused on specific professions or issues that are involved in various elements of the Eco-Logical approach</li> </ul>	<ul style="list-style-type: none"> <li>- Some organizations may have a narrow focus that doesn't accommodate broader message of Implementing Eco-Logical</li> </ul>	<ul style="list-style-type: none"> <li>- Various associations cover wide spectrum of audiences and stakeholders for this implementation plan</li> <li>- Existing communications and outreach systems</li> <li>- Potential for partnerships in implementation activities</li> <li>- May have connections to elected officials</li> <li>- May have capacity to assist in technical aspects of implementation</li> </ul>	<ul style="list-style-type: none"> <li>- This approach can help your membership increase their efficiency and productivity, saving them time and money</li> <li>- Implementing Eco-Logical advances your mission</li> <li>- This approach provides the potential for partnerships with agencies and entities that you wish to influence</li> </ul>	<ul style="list-style-type: none"> <li>- Champions</li> <li>- FHWA</li> <li>- AASHTO</li> </ul>	<ul style="list-style-type: none"> <li>- In-person meetings</li> <li>- Press releases and case studies on example projects that highlight role of their members in the Eco-Logical approach</li> </ul>

Stakeholders	Characteristics	Obstacles (Human and Physical)	Opportunities	Targeted Message	Messenger	Delivery Method
<b>FHWA Division Offices</b>	- <i>Oversee project and program implementation at state DOTs that involves Federal aid</i>	- <i>Other activities compete for staff time</i>	- <i>Strong relationships with state DOTs</i>  - <i>Can oversee distribution of implementation grants</i>	- <i>Implementing Eco-Logical can help improve the time and cost efficiency of transportation projects in your state</i>  - <i>Implementing Eco-Logical is a national priority of FHWA</i>	- <i>FHWA leadership, peer divisions</i>	- <i>FHWA Division emails and web conferences</i>  - <i>Community of practice</i>
<b>Facilitators/ Conflict Resolution Professionals</b>	- <i>Experienced in assisting collaborative problem-solving and conflict resolution for environmental and transportation-related issues</i>	- <i>Services provided on a reimbursable basis</i>	- <i>Can skillfully engage practitioners to advance adoption of the ecological approach</i>	- <i>Implementing Eco-Logical will become routine business practice at state DOTs, MPOs, and resource and regulatory agencies</i>	- <i>FHWA</i>  - <i>CEQ</i>  - <i>U.S. Institute for Environmental Conflict Resolution</i>	- <i>Conferences</i>  - <i>Webinars</i>  - <i>Direct outreach (email)</i>

Stakeholders	Characteristics	Obstacles (Human and Physical)	Opportunities	Targeted Message	Messenger	Delivery Method
Private Sector	<ul style="list-style-type: none"> <li>- Interested in improving efficiency, consistency, and predictability</li> </ul>	<ul style="list-style-type: none"> <li>- May view Implementing Eco-Logical as an unpredictable process with unpredictable outcomes</li> </ul>	<ul style="list-style-type: none"> <li>- May be able to offer technological tools and technical expertise</li> </ul>	<ul style="list-style-type: none"> <li>- Implementing Eco-Logical improves certainty in the transportation delivery process</li> <li>- Implementing Eco-Logical reduces risk and improves predictability of the permitting process</li> </ul>	<ul style="list-style-type: none"> <li>- FHWA (Divisions)</li> <li>- AASHTO</li> <li>- Champions</li> <li>- Professional organizations</li> <li>- NGOs</li> </ul>	<ul style="list-style-type: none"> <li>- In-person meetings</li> <li>- Press releases and case studies on example projects that highlight role of their customers in the Eco-Logical approach</li> </ul>
The Public	<ul style="list-style-type: none"> <li>- Interested in improved government efficiency and cost-savings</li> <li>- Interested in protecting the environment while benefitting from timely project delivery</li> </ul>	<ul style="list-style-type: none"> <li>- Implementing Eco-Logical encompasses complex concepts</li> <li>- Public may not be aware of various steps of transportation planning and project delivery</li> </ul>	<ul style="list-style-type: none"> <li>- Can push agencies to achieve benefits of streamlined transportation planning and development through elected officials</li> </ul>	<ul style="list-style-type: none"> <li>- State DOTs and MPOs can use the ecological approach to speed project delivery</li> <li>- The ecological approach saves time and cost and improves environmental outcomes</li> </ul>	<ul style="list-style-type: none"> <li>- FHWA (Divisions)</li> <li>- NGOs</li> <li>- Champions</li> <li>- Professional organizations</li> <li>- Universities</li> </ul>	<ul style="list-style-type: none"> <li>- Project-oriented informational materials</li> <li>- General educational materials</li> </ul>

## 4.4 RESOURCES

The following associations, committees, and organizations constitute key players in disseminating information to target audiences.

### Professional Organizations and Trade Associations

- Association for Conflict Resolution – Environment and Public Policy Section
- American Consulting Engineers Council (ACEC)
- Association of Environmental Professionals (AEP – California)
- American Planning Association (APA)
- American Council of Engineering Companies (ACEC)
- American Society of Highway Engineers (ASCE)
- Association of Fish and Wildlife Agencies
- Association of Metropolitan Planning Organizations (AMPO)
- Environmental Council of the States (ECOS)
- Institute of Transportation Engineers (ITE)
- Land Trust Alliance (LTA)
- National Association of Development Organizations (NADO)
- National Association of Environmental Professionals (NAEP)
- National Association of Mitigation Bankers (NMBA)
- National Association of Regional Councils (NARC)
- National States Geographic Information Council
- State associations of environmental professionals
- State councils/associations of regional governments

### Committees

- AASHTO Standing Committee on Environment
- AASHTO Standing Committee on Planning
- AASHTO Standing Committee on Design
- State DOT and MPO executive committees

### Other

- Academia (University Transportation Centers)
- Federal Geographic Data Committee
- Agency-based environmental collaboration and conflict resolution programs
- Agency-based NEPA contacts
- National Network of Landscape Conservation Cooperatives

The following events are likely platforms for delivering information about *Implementing Eco-Logical*:

Event
AAMPO Annual and Spring Conferences
AASHTO GIS for Transportation Symposium
AASHTO Standing Committee on Environment
AASHTO Standing Committee on Planning
American Planning Association National and Regional Conferences
American Society of Wetlands Managers
George Wright Society Conference
International Conference on Ecology and Transportation
NARC National Conference of Regions
National Mitigation and Ecosystem Banking Conference
National Association of Environmental Professionals Conference
TRB Annual and Summer Meetings
Western Governors Association Annual Meeting

## 4.5 EVALUATING SUCCESS

Metrics to measure the success of outreach and communications efforts will be determined once the state of practice is established. Possible metrics include:

- Number of self-assessments completed indicate increased (percentage or number) adoption of or interest in *Implementing Eco-Logical*
- Number of in-person trainings requested led to increased (percentage or number) adoption of and REF or other elements of *Implementing Eco-Logical*
- Number of web or video conferences completed compared to the number of new agencies adopting elements of *Implementing Eco-Logical*
- Number of hits on web sites of interest carrying *Implementing Eco-Logical* messages and information.

## 5. Evaluation

Evaluation is an integral part of SHRP2 implementation. Evaluation benefits executives and policy makers by helping them understand the benefits of product implementation (agency-relevant outcomes and societal impacts) and providing them with metrics to help describe the results to others. This section identifies potential performance measures and evaluation processes for tracking and analyzing performance data, reporting on results, and using performance data to improve results.

### 5.1 PERFORMANCE MEASURES

**Table 8: Performance Measures**

The table below identifies performance measures for tracking and evaluating progress toward implementation goals. Specific targets will be set once a state-of-practice is established through a self-assessment tool or survey.<sup>2</sup>

Implementing Eco-Logical SHRP2 Solution			
Goal #	Goal	Performance Measure	Potential Target/Date
1	Full or partial adoption of <i>Implementing Eco-Logical</i> throughout all levels of transportation and resource and regulatory agencies. <ul style="list-style-type: none"> <li>– All state DOTs understand the concepts of <i>Implementing Eco-Logical</i></li> <li>– A certain number or percentage of state DOTs adopt policies that support the principles of an integrated approach to conservation and transportation planning</li> <li>– State and Federal resource and regulatory agencies are actively involved in collaborative working groups prior to the formal initiation of planning</li> </ul>	<ul style="list-style-type: none"> <li>– # or % of state DOTs adopt/incorporate REF into transportation plans (REF must result in one connectivity project, one wildlife connectivity project, and the establishment of mitigation banks)</li> <li>– Use of IEF or IEF-like framework to evaluate long-range plans among state DOTs</li> <li>– # of MOUs and MOAs</li> <li>– # of self-assessments completed</li> </ul>	To be determined after the state of practice is established

<sup>2</sup> [The National Cooperative Highway Research Program \(NCHRP\) Report 708, “A Guidebook for Sustainability Performance Measurement for Transportation Agencies.”](http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_708.pdf) may serve as a useful resource in establishing performance measures for *Implementing Eco-Logical*, particularly as they relate to Goal 1. NCHRP Report 708 is accessible at [http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp\\_rpt\\_708.pdf](http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_rpt_708.pdf).

<i>Implementing Eco-Logical SHRP2 Solution</i>			
Goal #	Goal	Performance Measure	Potential Target/Date
2	<p>Streamlined environmental reviews and project delivery of transportation projects.</p> <ul style="list-style-type: none"> <li>– Reduced conflict and delay in project development and planning processes</li> <li>– Improved environmental outcomes, increased avoidance of significant ecosystem resources/services</li> <li>– Mitigation projects selected based on greatest ecosystem-scale significance and best possible mitigation outcomes</li> <li>– Improved ability by state DOTs and MPOs to prioritize retrofit and maintenance projects using an ecosystem approach</li> </ul>	<ul style="list-style-type: none"> <li>– # resource agencies to become involved in long-range planning within # states</li> <li>– X reduction in average time to perform NEPA reviews</li> <li>– Reduced number of take permits issued</li> <li>– Reduced agency costs for mitigation</li> <li>– Reduction to species population exposed to roadway issues</li> <li>– # of permit applications tied to a REF</li> <li>– # of transportation liaisons</li> <li>– Landscape gaps in corridors re-established</li> <li>– Acres of habitat restored</li> </ul>	<p>To be determined after the state of practice is established</p>

<i>Implementing Eco-Logical SHRP2 Solution</i>			
Goal #	Goal	Performance Measure	Potential Target/Date
3	<p>New organizational structures and policy support within state DOTs, MPOs, and resource and regulatory agencies that are consistent with institutional adoption of <i>Implementing Eco-Logical</i>.</p> <ul style="list-style-type: none"> <li>– Widespread executive-level understanding of and support for <i>Implementing Eco-Logical</i></li> <li>– Training, peer guidance, and technical support for incorporating landscape-level analysis into the transportation and regulatory decision making process in all regions, and self-implemented in most regions</li> <li>– Collaborative approach to ecosystem-scale infrastructure development and delivery among stakeholders institutionalized in states or regions demonstrated through:               <ul style="list-style-type: none"> <li>• Memorandums of understanding between transportation agencies and resource and regulatory agencies</li> <li>• Policy and engineering directives</li> <li>• Updated standard operating procedures</li> <li>• Incorporation into formal design/project development guidance at state DOTs</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>– # of state DOTs/MPOs that adopt policies to support <i>Implementing Eco-Logical</i></li> <li>– # of new partnerships</li> <li>– # of MOUs and MOAs</li> <li>– # of programmatic agreements that use steps of an IEF</li> <li>– # of states or regions that have access to a multi-agency data integration tool</li> </ul>	To be determined after state of the practice is established

## 5.2 INCORPORATING EVALUATION RESULTS

Evaluation of *Implementing Eco-Logical* will take place as part of FHWA's ongoing monitoring and reporting of the Eco-Logical program. Tasks funded by SHRP2 as part of this implementation plan will be identified, monitored, and reported separately as such in FHWA Eco-Logical reporting. Tasks funded by SHRP2 will also be reported according to SHRP2 reporting requirements.

## Appendix A: SHRP2 C06B Implementation Planning Workshop Agenda

SHRP2 Joint Knowledge Transfer Workshop (KTW) and Implementation Planning Workshop (IPW)

### SHRP2 Capacity Project C06B:

*Integrated Ecosystem, Transportation Planning, and Mitigation Strategies*

444 North Capitol Street NW, Suite 283/85, Washington, DC 20001

September 11-12, 2012

### AGENDA

#### MEETING OBJECTIVES

- To share information between the research team, implementation agencies, and potential early adopters of the product.
- To communicate and discuss significant research project outcomes of the C06B product, Integrated Ecosystem, Transportation Planning, and Mitigation Strategies, with the state transportation community and resource agencies.
- To identify opportunities, risks, and estimated resources affecting potential implementation of the C06B product at the Federal, state and regional levels.
- To develop a detailed implementation plan, with strategies, goals and tactics, marketing and outreach, as well as a budget and performance measures for C06B that will support adoption by the SHRP2 Solutions user and stakeholder groups.
- To communicate the relationship between C06B and the completed and in-progress work performed by FHWA and its Federal resource and regulatory agency partners through Eco-Logical.

#### DAY 1 – Tuesday, September 11, 2012

- 9:00 a.m.      **Welcome and Introductions** – Luisa Paiewonsky, Volpe Center, Facilitator; Joe Conway, FHWA; and Steve Andrle, TRB
- 9:15 a.m.      **Overview of SHRP2 Program** – Shari Schaftlein, FHWA; Shannon Eggleston, AASHTO; and Steve Andrle, TRB
- 9:30 a.m.      **Overview and Purpose of the Workshop** – Luisa Paiewonsky, Facilitator
- a. Participants' Role in Workshop
  - b. Role of C06B as a high-priority SHRP2 Solution
  - c. Overview of Components of Implementation Plan
  - d. Review of Agenda
- 9:45 a.m.      **Knowledge Transfer: Presentation of Findings for C06B, *Integrated Ecosystem, Transportation Planning, and Mitigation Strategies*** – Steve Andrle, TRB
- a. Project Summary – Lisa Gaines, Oregon State University (OSU)
  - b. Impact on Practice – Lisa Gaines

- c. Benefits and Limitations – Patrick Crist, NatureServe
- d. Pilot Tests and Results – Dave Anderson, Colorado State University
- e. Questions and Answers – Lisa Gaines

10:45 a.m. **Break**

11:00 a.m. **C06B in a National Context** – Shari Schaftlein, FHWA; Shannon Eggleston, AASHTO; and Steve Andrle, TRB

- a. Eco-Logical and Related Research Activities, Initiatives, and Policies
- b. AASHTO - Related Initiatives, Programs, and Policies
- c. Summary of Fall 2011 Meeting and SHRP2 C40 Projects
- d. Roles/responsibilities of SHRP2 partner organizations during product implementation phase

Noon **Lunch**

1:00 p.m. **Success Factors** – All

1:45 p.m. **Implementation Planning: Addressing Challenges and Seizing Opportunities for Implementation** – Lisa Gaines and Luisa Paiewonsky, Facilitators

2:30 p.m. **Breakout Groups: Implementation Planning** – Kristin Hull, CH2M Hill and Luisa Paiewonsky, Facilitators

- a. Technical Implications
- b. Peer Exchanges
- c. Demonstration Projects

3:30 p.m. **Break**

3:45 p.m. **Breakout Groups Report Out/Discussion**

4:15 p.m. **Preview of Day 2 Agenda** – Luisa Paiewonsky

4:30 p.m. **Adjourn**

## **DAY 2 – Wednesday, September 12, 2012**

8:30 a.m. **Summary of Day 1 Themes and Recommendations**

9:00 a.m. **Breakout Groups: Marketing and Communications** – Sherry Appel, CH2M Hill and Luisa Paiewonsky, Facilitators

- a. Strategies and Goals
- b. Audiences and Stakeholders
- c. Key Messages
- d. Communication Methods
- e. Key Events

10:00 a.m.      **Breakout Groups Report Out/Discussion**

10:45 a.m.      **Break**

11:00 a.m.      **Performance Measures and Evaluation – All**

Noon              **Lunch**

1:00 p.m.        **Budgeting for Implementation: Prioritizing Strategies and Tactics – All**

2:00 p.m.        **Discussion of Implementation at the State and MPO Levels – All**

3:00 p.m.        **Wrap-up/Next Steps – Luisa Paiewonsky**

3:15 p.m.        **Workshop Assessment Survey**

3:30 p.m.        **Adjourn**

## Appendix B: SHRP2 C06B Implementation Planning Workshop Panelists

**Amy Pettler Bailey**

Senior Endangered Species Coordinator  
Caltrans

**Joe Burns**

National Threatened, Endangered, and Sensitive  
Species Program Leader  
USDA Forest Service

**Karen Capps, P.E.**

Project Development and Environmental  
Analysis Unit  
North Carolina Department of Transportation

**Amy Boyers**

Senior Environmental Planner  
Houston-Galveston Area Council

**Lauren Diaz**

National Transportation Liaison  
U.S. Army Corps of Engineers

**Patty Elkis**

Deputy Planning Director  
Delaware Valley Regional Planning Commission

**Judy Gates**

Director, Environmental Office  
Maine Department of Transportation

**Tamika Graham**

Senior Planner  
Wilmington Area Planning Council

**Mary Grace Lewandowski**

Corridor Studies Coordinator  
East-West Gateway Council of Governments

**Catherine Liller**

National Transportation Liaison  
U.S. Fish and Wildlife Service

**Heather Lowe**

Environmental Planning Division  
Maryland State Highway Administration

**Anne C. Neale**

Physical Scientist, Landscape Ecology Branch  
U.S. Environmental Protection Agency

**Kathleen Neill**

Director, Office of Policy Planning  
Florida Department of Transportation

**Kevin Percival**

Chief, Branch of Facilities Planning  
National Park Service

**Karen Prentice**

National Healthy Landscapes Coordinator  
Bureau of Land Management

**Amanda C. Reed**

Policy Associate, Energy  
The Nature Conservancy

**Kristin Schuster, P.E.**

Operations Environmental Engineer  
Michigan Department of Transportation

**Karen Siderelis**

Director of Technology Collaboration  
U.S. Institute for Environmental Conflict  
Resolution

**Mike Tust**

Fish Biologist, ESA Interagency Cooperation  
Division  
National Oceanic and Atmospheric  
Administration

**Kevin Walsh**

Director of Environmental Services, Highway  
Division  
Massachusetts Department of Transportation

**Jessica Wilkenson**

Senior Policy Analyst  
Environmental Law Institute

**Todd Williams**

Director, Office of Environmental Services  
Arizona Department of Transportation

**Steve Williams**

Executive Director  
Thomas Jefferson Planning District Commission

## Appendix C: Summary of SHRP2 C06B IPW Evaluations

At the conclusion of the workshop, panelists completed surveys on the quality of the pre-workshop webinar, workshop content, and logistics. Below is a list of questions as presented to panelists and a summary of their responses.

### 1. What was the most valuable aspect of the workshop?

A majority of panelists found the opportunity for networking and making connections as most valuable. Learning the positions of MPOs, participation in break-out sessions, and gaining an understanding of how SHRP2 and various transportation programs relate to one another were also frequently listed as valuable workshop features.

### 2. What was the least valuable aspect of the workshop?

A majority of panelists found the information presented during the knowledge transfer portion of the workshop somewhat redundant, particularly because the pre-workshop webinar held the week before contained much of the same information. Panelists also felt that discussing budgeting for strategies and tactics was premature since true costs of implementation were not known.

### 3. Are there questions or issues you wished the workshop had addressed that it didn't?

Panelists noted that they had hoped the workshop would go into a greater level of detail regarding implementation activities, including more information on TCAPP. Additional comments included the desire for more discussion about leveraging other initiatives and funding (including public-private partnerships), and how an ecosystem-scale approach can be applied to projects of varying scales, including maintenance projects.

### 4. Did the pre-workshop webinar and other materials provide you with clear and adequate information in advance of the workshop?

Panelists generally found the pre-workshop webinar and other advance materials helpful, but noted that more time for review before the workshop would have been helpful.

### 5. I understand the topic better now than before the workshop.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Strongly Agree	✓	✓		✓		✓		✓	✓		✓			✓	✓			✓	✓			✓
Agree							✓			✓		✓	✓			✓	✓				✓	✓
Un-decided			✓		✓																	
Disagree																						
Strongly Disagree																						

**6. My expectations for what I would learn in the workshop were met.**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Strongly Agree	✓	✓		✓		✓		✓						✓				✓				✓
Agree			✓		✓				✓		✓	✓	✓		✓		✓			✓	✓	
Un-decided							✓			✓						✓			✓			
Disagree																						
Strongly Disagree																						

**7. I believe I can apply what I learned from the workshop in my job.**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Strongly Agree		✓		✓				✓	✓					✓								
Agree			✓		✓		✓			✓	✓	✓			✓			✓	✓			✓
Un-decided						✓							✓			✓	✓			✓	✓	
Disagree																						
Strongly Disagree																						

**8. The presenters delivered clear information.**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Strongly Agree		✓		✓		✓		✓						✓	✓		✓			✓		✓
Agree	✓				✓		✓		✓	✓	✓	✓	✓					✓	✓		✓	
Un-decided			✓													✓						
Disagree																						
Strongly Disagree																						

**9. If you were dissatisfied with the content covered in the workshop, please explain why.**

Panelists were generally satisfied with the content presented during the workshop. Some panelists suggested that the discussion was too high-level or could have benefitted from more project examples to illustrate potential outcomes.

**10. Please describe any logistical difficulties you experienced while planning your participation in the workshop.**

Most panelists did not list logistical difficulties related to the workshop. Among responses that were submitted, the most frequent included the distance of the hotel from the meeting site and the lack of coffee and refreshments. One comment also noted that the total time investment of the workshop, including preparation and providing responses to a pre-workshop questionnaire, was not accurately conveyed to participants ahead of time.

**11. What suggestions do you have to improve future workshops?**

Panelists mainly recommended smaller break-out groups and gathering input from more state DOTs and MPOs.

## Appendix D: FHWA Eco-Logical Program Background and Summary

The development of infrastructure facilities can negatively impact ecosystems. Current approaches to avoid, minimize, and mitigate negative impacts do not always provide the greatest environmental benefit due to the lack of coordination between transportation planning and programming and environmental assessment and permitting. Early consideration of ecological resources when planning infrastructure projects by all relevant stakeholders can help to streamline the environmental review and permitting processes and improve environmental outcomes of infrastructure projects.

In 2002, the Montana Department of Transportation and other stakeholders initiated Integrated Transportation and Ecological Enhancements for Montana (ITEEM) to address the need for a new process and to respond to Executive Order 13274, Environmental Stewardship and Transportation Infrastructure Project Reviews, which called for environmental stewardship and streamlining of high-priority transportation projects across the United States. Executives from several of Montana's transportation, resource, and regulatory agencies formed the ITEEM Interagency Review Team (IRT) and selected Highway 83, a resource-rich corridor to the northeast of Missoula, to test ITEEM and the new streamlined approach.

Concurrently, in 2006, eight federal agencies and representatives of four states published *Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects* (Ecological). Eco-Logical presents a multi-step integrated planning framework that incorporates an ecosystem-scale approach to infrastructure planning, environmental mitigation agreements and adaptive management through performance measures. The approach enhances ecosystem sustainability and is sensitive to wildlife habitat.

Following the publication of Eco-Logical, FHWA launched its Eco-Logical program to test applications of the Eco-Logical approach and work with partners and stakeholders to determine strategies to increase awareness and adoption of ecological principles in infrastructure planning and delivery.

IPW panelists agreed that *Implementing Eco-Logical* could naturally and efficiently be folded into FHWA's Eco-Logical program and associated implementation efforts. FHWA's Eco-Logical program and related tools and outreach efforts include the following:

- Eco-Logical Grant Program: In 2007, FHWA provided matching funds to 15 projects to apply the principles of Eco-Logical to transportation planning, programming, and delivery at various scales. Project activities included planning, data collection and analysis, mitigation, public education for sustainable streets, and prioritization of natural and cultural resources. Since 2007 FHWA has been tracking the progress of the grant recipients through quarterly progress reports and participation in a comprehensive annual report that presents key findings and recommendations.

- Eco-Logical Webinar Series: Semi-monthly and monthly webinar series are presented on projects and best practices that advance the Eco-Logical approach.
- Eco-Logical Signatory Agency Meetings: Bi-annual meetings are held to maintain engagement of signatory agencies and develop inter- and intra-agency strategies to integrate Eco-Logical into standardized practice.
- Eco-Logical Successes: This multiagency publication features the Eco-Logical related programs of each of the signatory agencies and highlights the relationship between these programs and the FHWA Eco-Logical program.
- Eco-Logical Research: An in-depth study on the origins of the Eco-Logical approach and documentation of the longest-running Eco-Logical-type program (ITEEM) was conducted and posted to the Eco-Logical website.
- Eco-Logical Needs Assessment and Training Strategy: Key stakeholders were interviewed to assess the need for and type of training required to implement Eco-Logical. From this needs assessment, a training strategy is being developed that will help improve understanding of the Eco-Logical approach and its benefits; facilitate interagency collaboration; and overcome institutional challenges to advanced, ecosystem-scale planning among transportation, resource, and regulatory agencies across the nation.
- Eco-Logical Research Assessment and Benefit Framework: This current effort will develop a series of process models to begin to demonstrate the economic benefit associated with applying the Eco-Logical approach. The process models and an associated short written report will demonstrate the differences in the inputs and outputs of the standard transportation delivery process and the Eco-Logical approach.