Implementing Eco-Logical

2014/2015 Annual Report

Implementing Eco-Logical

STEP 1
STEP 2
STEP 3
STEP 4
STEP 5
STEP 6
STEP 7
STEP 8
STEP 9
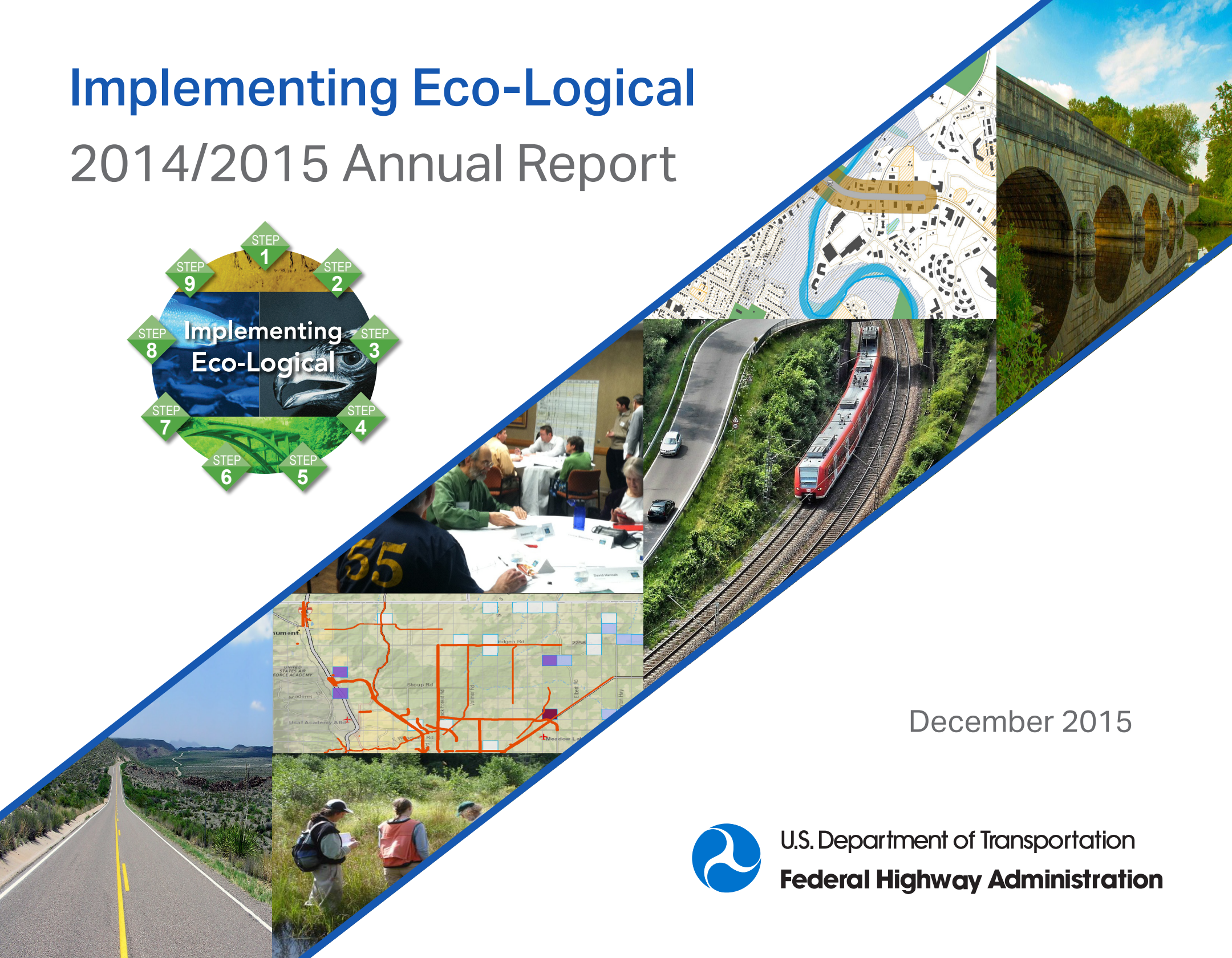
December 2015

U.S. Department of Transportation
Federal Highway Administration

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Acronyms and Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
BLM	Bureau of Land Management
DOT	Department of Transportation
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FHWA	Federal Highway Administration
GIS	Geographic Information Systems
IAP	Implementation Assistance Program
IEF	Integrated Ecological Framework
LRTP	Long-Range Transportation Plan
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
NEPA	National Environmental Policy Act
NGO	Non-Governmental Organization
NOAA	National Oceanic and Atmospheric Administration
NPS	National Park Service
REF	Regional Ecosystem Framework
RTP	Regional Transportation Plan
SHRP2	Second Strategic Highway Research Program
SVM	Shared Value Mitigation
TRB	Transportation Research Board
USACE	U.S. Army Corps of Engineers
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service

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13. ABSTRACT (Maximum 200 words) The Eco-Logical approach offers an ecosystem-based framework for integrated infrastructure and natural resource planning, project development, and delivery. The 2014/2015 Implementing Eco-Logical Program Annual Report provides updates on the Federal Highway Administration's (FHWA) Eco-Logical Program, in particular the Implementing Eco-Logical initiative funded through the Second Strategic Highway Research Program (SHRP2) in coordination with the American Association of State Highway and Transportation Officials (AASHTO) and the Transportation Research Board (TRB). The report discusses program accomplishments of Implementing Eco-Logical as well as from Implementing Eco-Logical Implementation Assistance Program recipients. The report provides findings and updates on recipients' projects and shares recommendations for next steps for the FHWA Eco-Logical Program.			
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Table of Contents

To our Eco-Logical Practitioners, Readers, and Friends:

In April 2006, eight Federal agencies signed *Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects*, affirming their commitment to transportation planning at the ecosystem level. Today, this commitment continues through Implementing Eco-Logical, one of the many solutions under the Second Strategic Highway Research Program (SHRP2) led by the Federal Highway Administration (FHWA), American Association of State Highway and Transportation Officials (AASHTO), and the Transportation Research Board. As partners, FHWA and AASHTO manage Implementing Eco-Logical, a set of tools, steps, and activities that bring the Eco-Logical approach into practice.

In designing the 2014/2015 program activities (for the period June 2014 through July 2015), we wanted to focus on education, assistance, and tools, and I am immensely proud to say that we have made great strides in all of these areas. We kicked off our technical assistance activities by holding several workshops and peer exchanges, launching the On-Call Technical Assistance team, and convening a group of subject-matter experts known as our Eco-Logical Champions. We debuted a variety of resources to help explain and promote Eco-Logical—from our Eco-Logical Starter Kit website, to a Practitioner's Handbook currently in development, to case studies featuring examples of the nine steps of the Eco-Logical approach in action.

Leaders in the field are also making great progress in applying Eco-Logical to transportation projects and plans. Several State departments of transportation and metropolitan planning organizations participating in our Implementing Eco-Logical Implementation Assistance Program have completed their projects, while others are scheduled to finish them by December 2015 and through early 2016.

Over the coming year, we will continue to educate agencies about Eco-Logical and provide assistance and tools to support implementation. New peer exchanges, workshops, and resources for the Starter Kit—including building a business case for Eco-Logical—are on the horizon. Through these activities, we aim to build a community of practice for implementing Eco-Logical. We hope that you will join us.

Sincerely,

David T. Williams
Environmental Protection Specialist
FHWA Office of Project Development & Environmental Review
December 2015

Executive Summary

This 2014/2015 Implementing Eco-Logical Program Annual Report reviews the recent activities and successes of the Implementing Eco-Logical Program, led by the Federal Highway Administration (FHWA) and the American Association of State Highway and Transportation Officials (AASHTO), for the period of June 2014 through July 2015, as well as examples of Eco-Logical in use across the country.

Implementing Eco-Logical (C06) is one of many solutions under the Second Strategic Highway Research Program (SHRP2), a multi-agency partnership among FHWA, AASHTO, and the Transportation Research Board (TRB). Implementing Eco-Logical also complements FHWA's existing Eco-Logical Program.

Both programs encourage the Eco-Logical approach, a process designed to help agencies engage in early collaboration to establish joint environmental priorities and identify critical resources when planning and developing infrastructure projects.

In 2012, FHWA, AASHTO, and TRB convened a group of Eco-Logical stakeholders to discuss strategies for advancing Eco-Logical. The resulting strategies formed the basis of an Implementation Plan, which guides FHWA and AASHTO's activities for Implementing Eco-Logical (see right).

Program Accomplishments

FHWA and AASHTO are actively developing and delivering activities identified in the Implementation Plan strategies. Recent accomplishments in the past year include:

- Launched the Starter Kit website and online technical assistance request tool.

- Engaged a team of Eco-Logical "Champions."

- Held three peer exchanges and one workshop.

- Began development of two Eco-Logical case studies and the Practitioner's Handbook.

- Managed the Implementing Eco-Logical Implementation Assistance Program (IAP).

Implementing Eco-Logical Implementation Plan Strategies

Educate agency leadership.

Develop incentives or support for State and regional transportation agencies.

Provide technical assistance.

Develop a business case.

Develop new tools and technologies.

Develop communications and outreach materials.

Findings and Recommendations

Through input from the IAP recipients and the field, FHWA and AASHTO track opportunities and challenges often encountered when applying the Eco-Logical approach. These findings help shape recommendations for FHWA and AASHTO to consider when developing future Implementing Eco-Logical program activities. In addition, the findings demonstrate helpful ways that practitioners might explore applying Eco-Logical in their own agencies.

Category	Findings
1. Building and Sustaining Partnerships	**1.1** Agencies implementing Eco-Logical recruit partners early in the process. **1.2** IAP recipients use a variety of methods to promote consistent stakeholder engagement while respecting partners' time constraints. **1.3** Successful relationships established through IAP projects carry over into other projects, lay the groundwork for future collaboration, and result in new opportunities for streamlining.
2. Institutionalizing Eco-Logical into Agency Practices	**2.1** In many cases, IAP project leads serve as "champions" for promoting Eco-Logical within their agency and building institutional knowledge. **2.2** Formal agreements, such as memoranda of agreement or memoranda of understanding, can help promote long-term implementation of Eco-Logical by formalizing commitments and providing an institutional framework that is more resilient to shifting priorities and staffing changes. **2.3** One way for agencies to support the long-term use of the Eco-Logical approach is to build connections with related initiatives within the agency. **2.4** Support for Eco-Logical at the leadership level makes it much easier to institutionalize Eco-Logical into agency practices and ensure long-term implementation.
3. Quantifying and Communicating Results	**3.1** Quantifying the benefits of applying the Eco-Logical approach—based on cost, time, or other savings—continues to be a challenge for agencies implementing Eco-Logical.
4. Developing Data, Tools, and Strategies	**4.1** Eco-Logical data and tools are most effective when tailored to the region's goals, priorities, and constraints. **4.2** Some technical aspects of Eco-Logical, such as creating an REF or setting up a mitigation crediting program, require a level of specialized expertise that may present a barrier to entry for some agencies.

NOTE: For the full list of recommendations, please refer to page 25.

Upcoming Activities and Next Steps

FHWA and AASHTO continue to identify technical assistance needs and opportunities for the Implementing Eco-Logical Program. Upcoming activities include:

- Continuing organization of peer exchanges, workshops, and other technical assistance requests.

- Continuing coordination with IAP recipients.

- Fostering a community of practice among Eco-Logical practitioners and interested stakeholders.

- Continuing integration of Implementing Eco-Logical activities with other elements of the FHWA Eco-Logical Program.

Introduction

This 2014/2015 Implementing Eco-Logical Program Annual Report provides information on recent activities and successes of the FHWA-AASHTO Implementing Eco-Logical Program for the period June 2014 through July 2015.

Implementing Eco-Logical (C06), one of the many solutions under SHRP2 led by FHWA, AASHTO, and TRB, advances Eco-Logical, an approach designed to help transportation, resource, and regulatory agencies integrate their infrastructure development and conservation planning processes and arrive at a joint set of environmental priorities.

As Implementing Eco-Logical complements FHWA's existing Eco-Logical Program, this report also shares updates on these related program activities.

This report is organized as follows:

PART 1: **PROGRAM OVERVIEW AND ACTIVITIES**
A look at the Implementing Eco-Logical Program and its accomplishments for the performance period

PART 2: **FINDINGS AND RECOMMENDATIONS**
In-depth findings on the state of the practice of Eco-Logical, derived from the 13 Implementing Eco-Logical IAP recipients

PART 3: **APPENDICES**
Additional supporting information, including summaries of each of the IAP projects

Source: California Department of Transportation

Part 1: Program Overview and Activities

The Eco-Logical Approach

What is Eco-Logical?

Eco-Logical is a process designed to help agencies engage in early collaboration to establish joint environmental priorities and identify critical resources when planning and developing infrastructure projects.
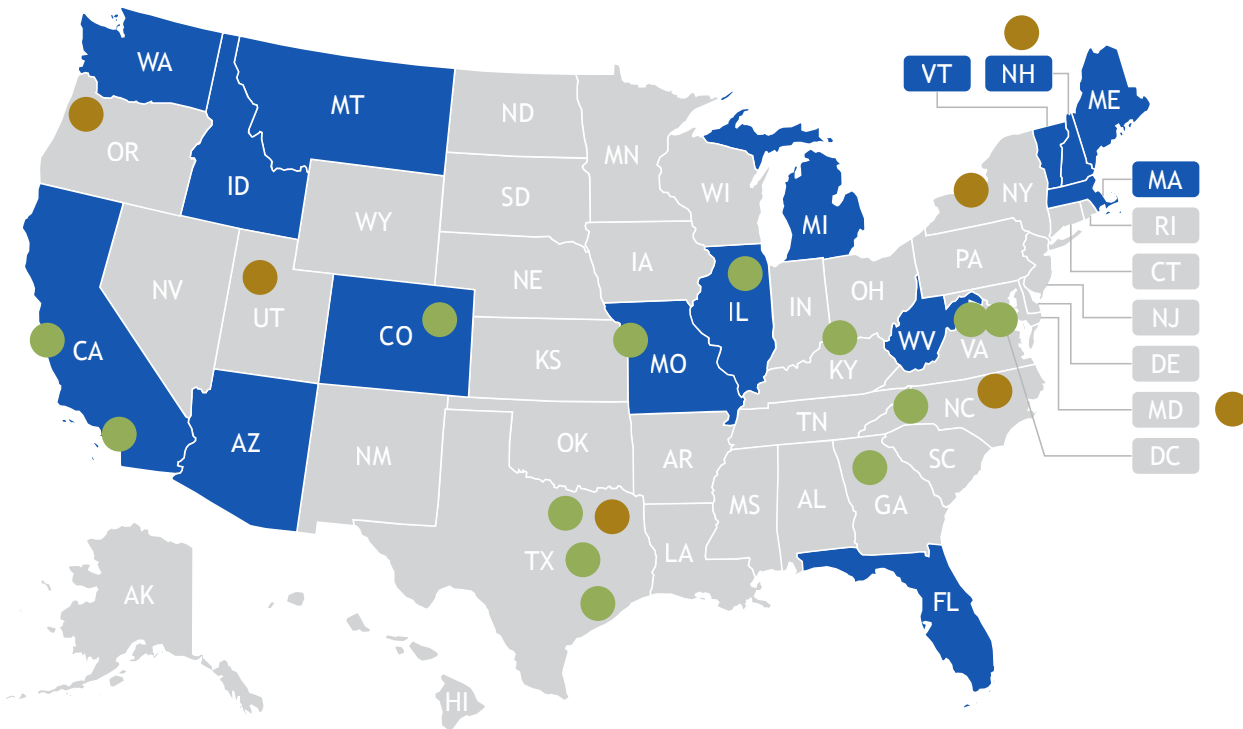
- Eco-Logical uses a nine-step framework to guide agencies, known as the Integrated Ecological Framework (IEF) (see diagram at right). Agencies may complete the steps in order or non-sequentially to fit their needs.

- Eco-Logical formally began at the Federal level in 2002, with the creation of an interagency steering team of eight Federal agencies (known as the "Signatory Agencies") and four State agencies. In 2006, the team jointly published *Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects*, which serves as the foundation for FHWA's Eco-Logical Program and for the FHWA-AASHTO Implementing Eco-Logical Program.

STEP 1 — Collaboration
STEP 2 — Eco Status
STEP 3 — Develop REF
STEP 4 — Assess REF
STEP 5 — Prioritize
STEP 6 — Crediting
STEP 7 — Agreements
STEP 8 — Implement
STEP 9 — Update REF

Implementing Eco-Logical

The steps of the Eco-Logical approach. More information on each step is available on the Eco-Logical website: www.environment.fhwa.dot.gov/ecological/eco_index.asp

The Regional Ecosystem Framework

Step 3 in the nine-step IEF is the development of a regional ecosystem framework (REF), a key product in applying the Eco-Logical approach. The REF is the consolidation of the data collected in Step 2 with land use and long-range transportation plans into a geospatial database.

PART ONE PART TWO PART THREE

Map of agencies in the United States using the Eco-Logical approach.

Legend:
- ■ Department of Transportation
- ● Metropolitan Planning Organization
- ● Other Organization

Who is Implementing Eco-Logical?

There are more than 35 transportation agencies in the United States using the Eco-Logical approach today, including:

- 13 State departments of transportation (State DOTs) and metropolitan planning organizations (MPOs) funded through the SHRP2 Implementing Eco-Logical IAP; and

- 22 other transportation agencies that are using Eco-Logical to guide transportation plans or projects.

Is your agency engaged in Eco-Logical but not listed on the map?

Let us know:
www.environment.fhwa.dot.gov/ecological/ImplementingEcoLogicalApproach

SHRP2 Implementing Eco-Logical

Select Milestones in the History of the SHRP2 Implementing Eco-Logical Program

FHWA's Eco-Logical effort first began in 2002, when eight Federal agencies and four State DOTs convened to start developing what is now known as the FHWA Eco-Logical Program. Today, FHWA and AASHTO continue to lead technical assistance and resource development efforts through the SHRP2 Implementing Eco-Logical initiative.

SHRP2 Research on Implementing Eco-Logical Begins
Implementing Eco-Logical is one of many solutions under SHRP2, a large-scale cooperative research program funded by Congress and administered by FHWA in coordination with AASHTO and TRB.

2002   2006   2007   2008

National Eco-Logical Effort Begins
An interagency team of eight Federal agencies (known as the Eco-Logical "Signatory Agencies") and four State DOTs convenes first meeting and starts development of the Eco-Logical Guide.

Eco-Logical Guide Published
FHWA, with support from the Signatory Agencies and four State DOTs, publishes *Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects.*
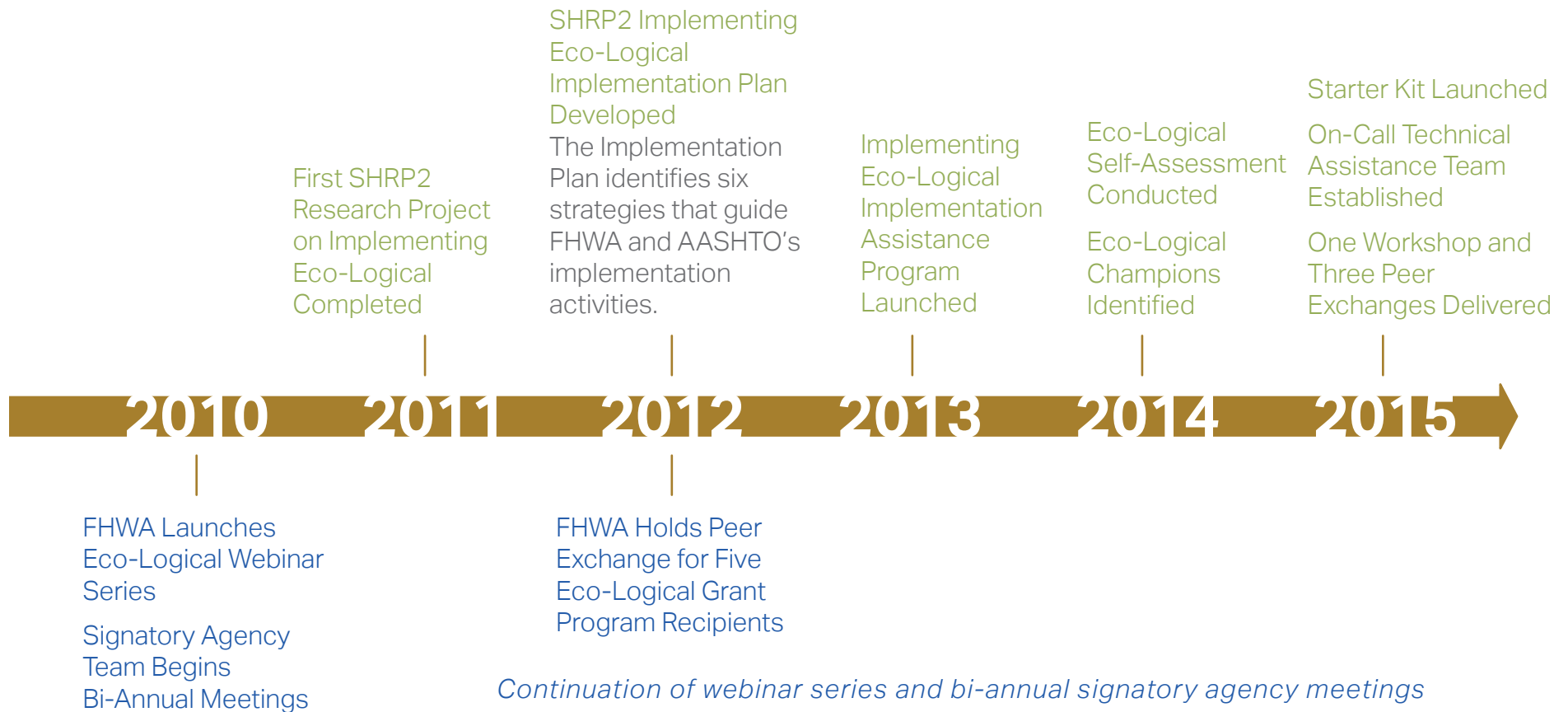
FHWA Eco-Logical Program Established

FHWA Launches Eco-Logical Grant Program
FHWA selects 15 projects across the country to receive funding to test an ecosystem-scale approach to infrastructure development.

PART ONE   PART TWO   PART THREE

FHWA-AASHTO SHRP2 Implementing Eco-Logical Program

SHRP2 Implementing Eco-Logical Implementation Plan Developed
The Implementation Plan identifies six strategies that guide FHWA and AASHTO's implementation activities.

Starter Kit Launched

First SHRP2 Research Project on Implementing Eco-Logical Completed

Implementing Eco-Logical Implementation Assistance Program Launched

Eco-Logical Self-Assessment Conducted

Eco-Logical Champions Identified

On-Call Technical Assistance Team Established

One Workshop and Three Peer Exchanges Delivered

2010 2011 2012 2013 2014 2015 →

FHWA Launches Eco-Logical Webinar Series

Signatory Agency Team Begins Bi-Annual Meetings

FHWA Holds Peer Exchange for Five Eco-Logical Grant Program Recipients

Continuation of webinar series and bi-annual signatory agency meetings

FHWA Eco-Logical Program

Implementation Strategies

Implementing Eco-Logical Program Strategies

In September 2012, a panel of experts representing FHWA, AASHTO, TRB, State DOTs, MPOs, and Federal resource and regulatory agencies developed an Implementation Plan for Implementing Eco-Logical.

The Implementation Plan identifies six strategies for engaging transportation agencies (see right).

These strategies guide FHWA and AASHTO's implementation activities and complement or directly support the FHWA Eco-Logical Program.

Educate agency leadership

- Identify and equip champions
- Offer executive training
- Develop Practitioner's Handbook
- Conduct Eco-Logical self-assessment

Develop a business case

- Make case studies widely available
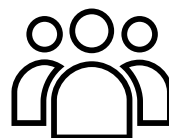- Conduct targeted outreach to stakeholders

Develop incentives + support

- Provide incentive grants and assistance for implementation
- Offer awards and recognition

Develop new tools + technologies

- Facilitate data management and access
- Develop an information clearinghouse
- Develop structures to foster collaboration[1]

Provide technical assistance

- Develop technical assistance teams
- Sponsor peer exchanges and forums
- Develop a Starter Kit for Implementing Eco-Logical

Develop communications + outreach materials

- Develop and implement a strategic marketing and communications plan
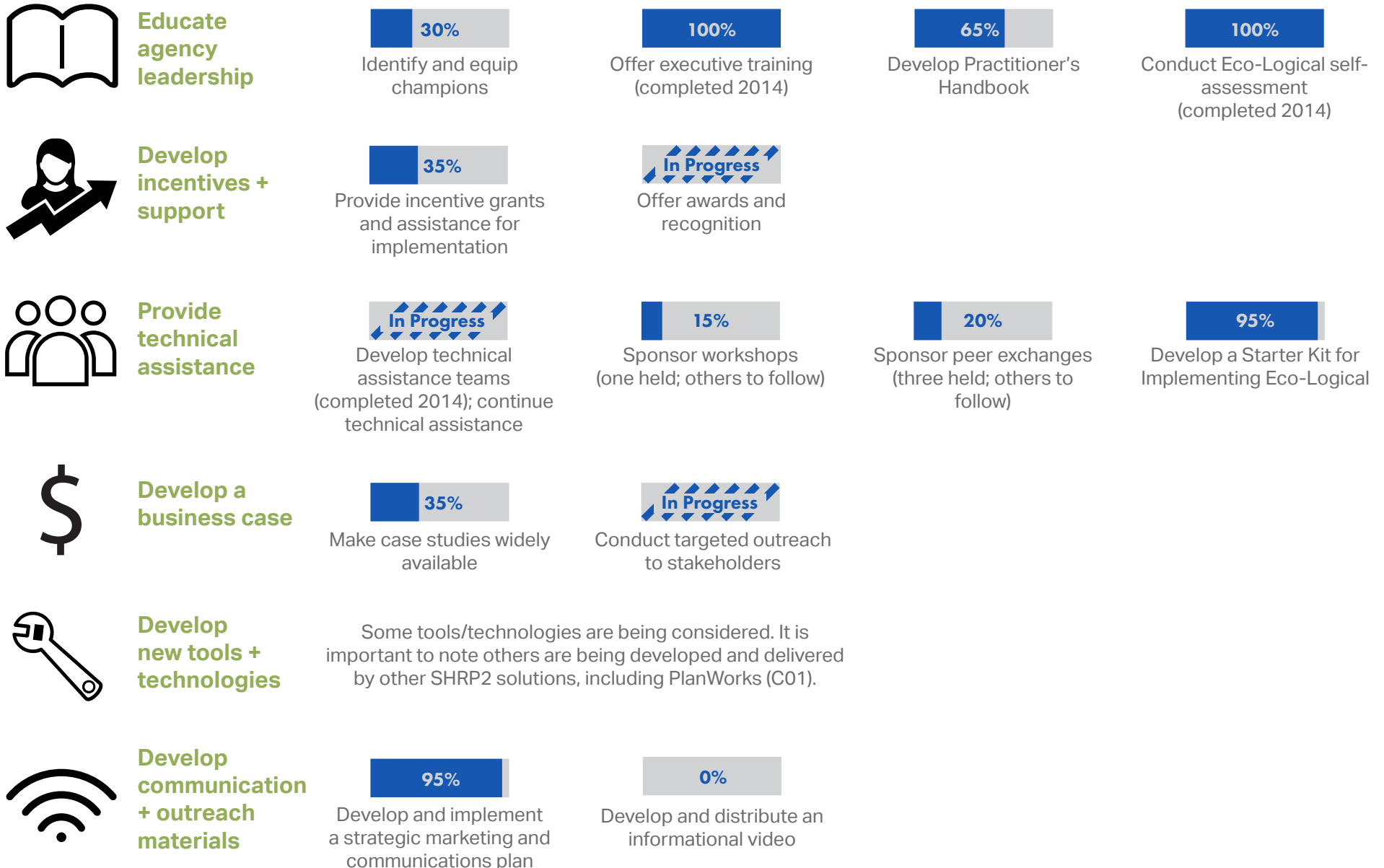- Develop and distribute an informational video

[1]This strategy relates to the development of new policies and PlanWorks, a web-based resource that highlights common decision points and opportunities for collaboration throughout transportation planning and environmental review processes. For more information, visit the PlanWorks website: https://fhwaapps.fhwa.dot.gov/planworks/Home

Icon Credits (all from the Noun Project; clockwise, from top left): Leadership: Samuel Q. Green; Business Case: N/A; Tools: Julie Reyes Villalta; Communications: romzicon; Technical Assistance: Gregory Radek; Incentives: Wilson Joseph

PART ONE PART TWO PART THREE

Tracking Performance of Implementing Eco-Logical Implementation Plan Activities

FHWA regularly monitors the status of activities relating to the six Implementing Eco-Logical strategies. As of July 2015, FHWA and AASHTO had made progress on or completed the following activities:

Educate agency leadership

30%	100%	65%	100%
Identify and equip champions	Offer executive training (completed 2014)	Develop Practitioner's Handbook	Conduct Eco-Logical self-assessment (completed 2014)

Develop incentives + support

35%	In Progress
Provide incentive grants and assistance for implementation	Offer awards and recognition

Provide technical assistance

In Progress	15%	20%	95%
Develop technical assistance teams (completed 2014); continue technical assistance	Sponsor workshops (one held; others to follow)	Sponsor peer exchanges (three held; others to follow)	Develop a Starter Kit for Implementing Eco-Logical

Develop a business case

35%	In Progress
Make case studies widely available	Conduct targeted outreach to stakeholders

Develop new tools + technologies

Some tools/technologies are being considered. It is important to note others are being developed and delivered by other SHRP2 solutions, including PlanWorks (C01).

Develop communication + outreach materials

95%	0%
Develop and implement a strategic marketing and communications plan	Develop and distribute an informational video

Program Accomplishments

During the period June 2014 through July 2015, FHWA and AASHTO accomplished a variety of activities under the Implementing Eco-Logical Program, including:

Implementing Eco-Logical Program Activities	Related Implementation Plan Strategies
Technical Assistance + Agency Engagement • Continued to offer technical assistance opportunities through the On-Call Technical Assistance Team • Promoted the Eco-Logical "Champions"	
Technical Assistance Peer Exchanges + Workshops • Provided in-person peer learning opportunities for State DOTs and MPOs, including three technical assistance peer exchanges and one workshop	
Implementation Assistance Program • Coordinated with the 13 IAP recipients as they continued and completed their IAP projects	
Implementation Resources • Delivered web-based products and resources for Eco-Logical practitioners and agencies interested in learning more about the Eco-Logical approach	

NOTE: This section uses the icons associated with the Implementing Eco-Logical Implementation Plan strategies to indicate the strategy that corresponds with the activity noted.

Activities not associated with an icon are those outside of the Implementing Eco-Logical Program (e.g., activities conducted solely by FHWA through its existing Eco-Logical Program).

Icons not shown in this section did not have substantial program activity during the 2014/2015 report period.

Technical Assistance + Agency Engagement

FHWA and AASHTO's technical assistance efforts and agency engagement activities focus on ways for transportation, resource, and regulatory agencies and their partners to apply, institutionalize, and learn about Eco-Logical. These efforts include on-call technical assistance, Eco-Logical Champions, and peer exchanges and workshops.

On-Call Technical Assistance Team

In January 2015, FHWA launched the On-Call Technical Assistance Team and created an online request form on the Eco-Logical website.

Since its inception, the Team has received requests from 9 MPOs, 10 State DOTs, 2 non-governmental organizations (NGOs), and 1 individual. These requests have primarily been fulfilled through peer exchanges and workshops.

The Team provides responsive, individualized guidance and support to agencies as they implement the Eco-Logical approach. Team members assist with organizational, technological, regulatory, or scientific issues and questions.

Champions

Eco-Logical Champions are practitioners, partners, and researchers that are willing to "champion" the Eco-Logical approach within their own agencies and to partner with agencies and others in their professional networks.

Fifty-six individuals from Federal, State, Tribal, regional, academic, and non-profit agencies and organizations currently serve as Champions. They work to help increase understanding of Eco-Logical among agencies and motivate greater participation in the Implementing Eco-Logical Program.

The Champions are also uniquely positioned to provide feedback from the field on the implementation of Eco-Logical. FHWA calls on the Champions to answer questions and provide insight to practitioners, present their expertise at webinars and conferences, and review drafts of products created by FHWA and AASHTO under the Implementing Eco-Logical Program.

Eco-Logical Champions by Agency Type

Pie chart: Federal 20, State 18, Regional 12, Academic 4, Tribal 1, Non-Profit 1
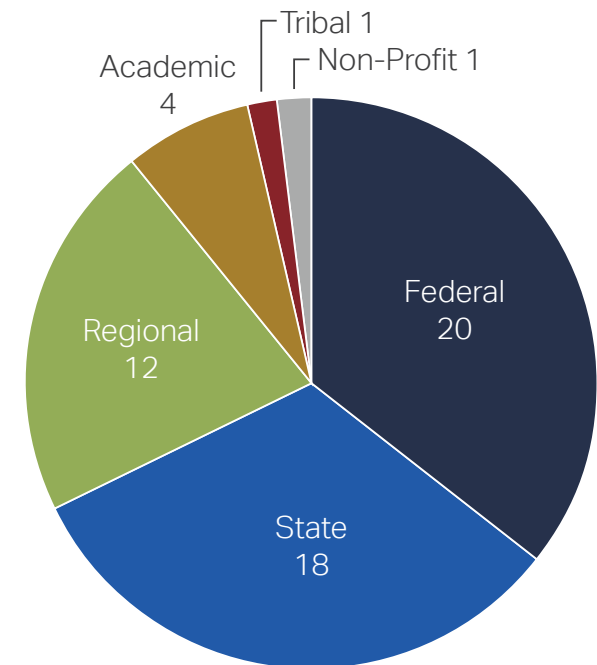
Technical Assistance Peer Exchanges + Workshops

State DOT Eco-Logical Programmatic Mitigation Peer Exchange

Purpose: State DOTs discussed their programmatic mitigation needs and made suggestions to each other to advance their individual programs.

March 2015 (2 days)

Product: Individual State DOT actions to address mitigation challenges in an Eco-Logical context.

Attendees: State DOTs from California, Colorado, Florida, and South Carolina; subject-matter experts included Lauren Diaz (USACE) and Deblyn Mead (USFWS).

MaineDOT and Resource Agency Partners Technical Assistance Workshop

Purpose: Participants focused on the development of a Programmatic Biological Assessment for Atlantic salmon and draft Mitigation Instrument related to the Maine DOT's (MaineDOT) SHRP2 Implementing Eco-Logical IAP project.

April 2015 (2 days)

Product: An agreed-upon action plan and schedule.

Attendees: MaineDOT, USFWS, USACE, the National Marine Fisheries Service, and the Maine Department of Marine Resources.

MPO Eco-Logical Programmatic Mitigation Peer Exchange

Purpose: MPOs discussed regional data-associated mapping tools and ways to share data to promote conservation objectives in their regions.

June 2015 (2 days)

Product: Individual MPO plans to enhance data-sharing capabilities in their regions.

Attendees: MPOs in the St. Louis, San Francisco, San Diego and Dallas-Ft. Worth regions; subject-matter experts included Lauren Diaz (USACE) and Deblyn Mead (USFWS).

Developing an REF: Eco-Logical at AASHTO SCOP/SCOE Conference

Images courtesy of CH2M HILL

Purpose: Attendees learned the components of the REF and conducted mapping activities for their individual States during a day-long peer exchange held as part of the AASHTO Standing Committee on Planning (SCOP) and Standing Committee on Environment (SCOE) annual meeting.

July 2015 (1 day)

Product: Mapping exercises to test how an REF could benefit attendees' programs.

Attendees: Environmental practitioners or transportation planners from 19 State DOTs. Moderated by practitioners from the Massachusetts DOT and Oregon DOT.

PART ONE   PART TWO   PART THREE

Implementation Assistance Program

Overview

The IAP provides two types of funding assistance to help State DOTs and MPOs apply and integrate Eco-Logical principles in their activities:

- **Lead Adopter assistance** (up to $250,000) supports agencies that have completed early steps of the Eco-Logical approach, including agencies with existing collaborative partnerships that have developed or used REFs.

- **User Incentive assistance** (up to $25,000) encourages agencies that have interest, though not necessarily prior experience, in adopting Eco-Logical into their organizations.

Legend:
- Lead Adopter
- User Incentive
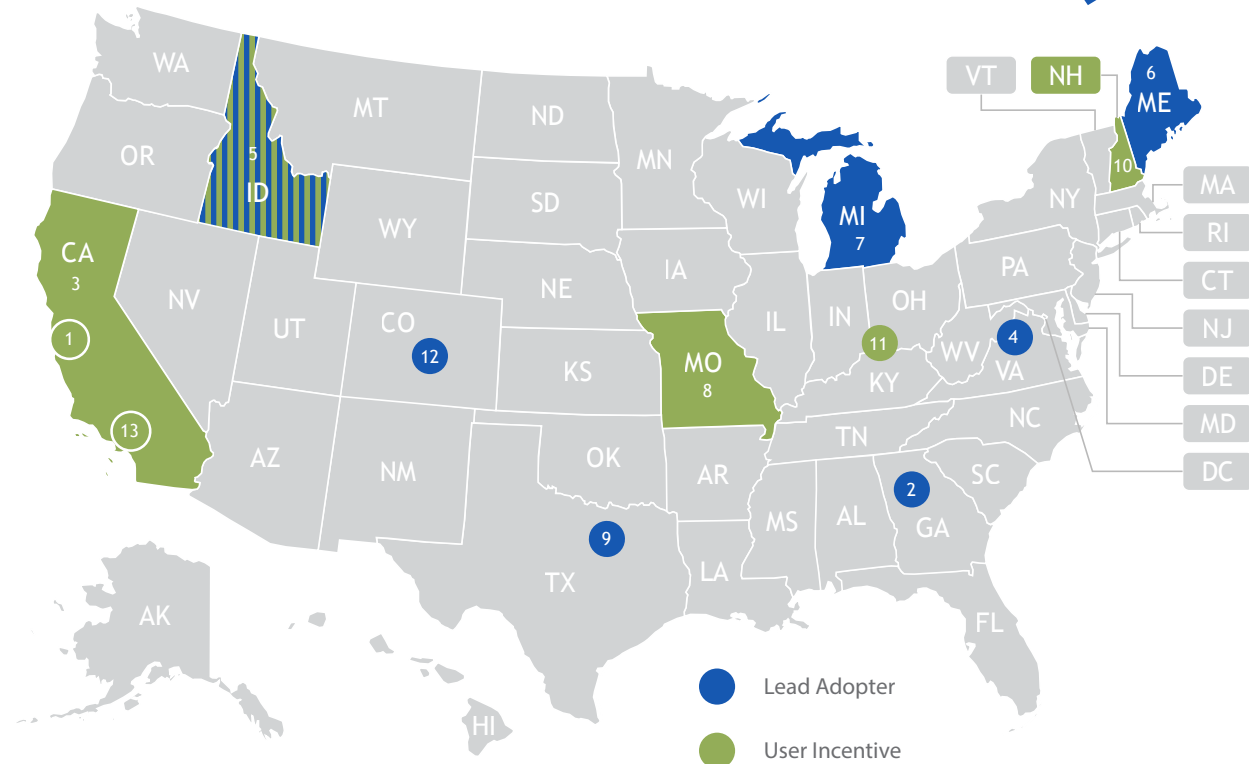
Locations of IAP recipients. Shaded States show State DOT projects and circles indicate MPO projects. States with striped shading received both Lead Adopter and User Incentive funds.

1. Association of Monterey Bay Area Governments
2. Atlanta Regional Commission
3. California Department of Transportation
4. Charlottesville-Albemarle Metropolitan Planning Organization
5. Idaho Transportation Department
6. Maine Department of Transportation
7. Michigan Department of Transportation
8. Missouri Department of Transportation
9. North Central Texas Council of Governments
10. New Hampshire Department of Transportation
11. Ohio-Kentucky-Indiana Regional Council of Governments
12. Pikes Peak Area Council of Governments
13. Southern California Association of Governments

Implementation Assistance Program - Continued

IAP Recipient Progress

During 2014/2015, IAP recipients actively worked on their projects and deliverables.

- As of July 2015, five IAP projects are complete.

- Six of the remaining nine projects are scheduled to be complete by December 2015, with the final three anticipated in 2016.

- Collectively, IAP recipients will complete 115 deliverables.

- These deliverables include data-sharing agreements and Memoranda of Understanding (MOUs), final reports, and online data tools and platforms.

- As of July 2015, 50 deliverables (44%) are complete.

*IAP recipients have completed a range of products and activities to date, including:*
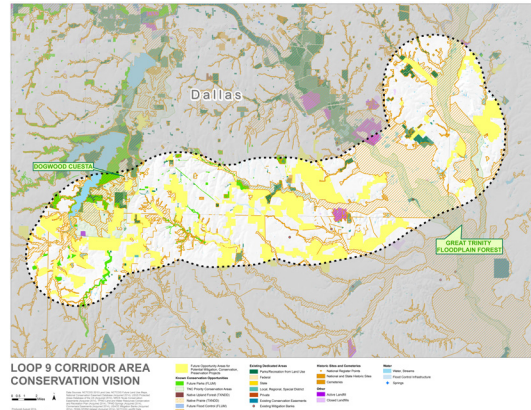
Data collection, maps, and REFs,
such as the one shown above by the North Central Texas Council of Governments;

Partnerships with existing and new stakeholders,
such as Michigan DOT's partnership with the Michigan Department of Natural Resources;
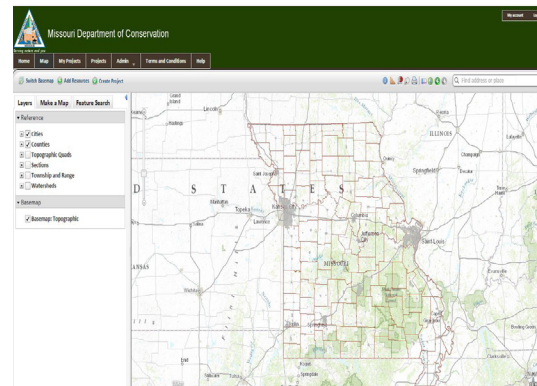
Websites of mapped and compiled data,
such as Missouri DOT's work to improve the Natural Heritage Review website; and
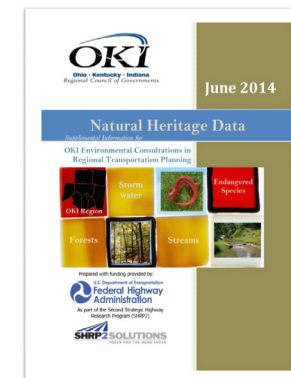
Final reports with documentation of methodologies and lessons learned,
such as the Ohio-Kentucky-Indiana Regional Council of Governments' final report.

PART ONE   PART TWO   PART THREE

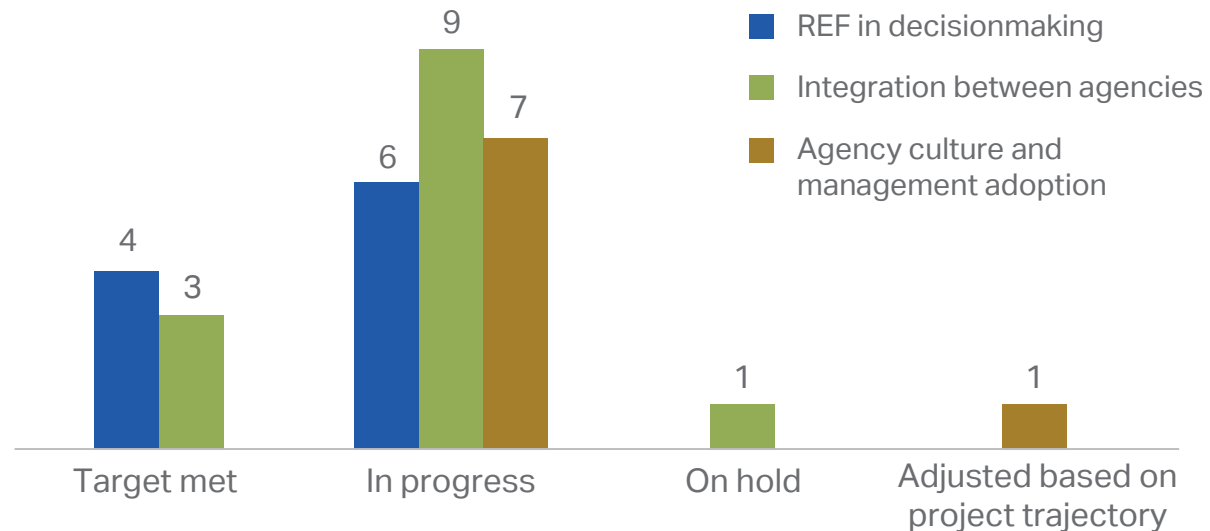# Implementation Assistance Program - Continued

IAP Performance Measures

Agencies that are implementing Eco-Logical have consistently reported the need for measurable benefits of the approach, in part to make a business case for Eco-Logical among their leadership and with partners.

FHWA uses performance measures to track the measurable benefits of IAP projects. FHWA tracks performance measures in three focus areas:

1. Use of the REF and data tools in the decisionmaking process within an organization

2. Integration of planning and decisionmaking between agencies

3. Incorporation of the Eco-Logical approach into the management and culture of an organization

Status of IAP Performance Measures as of July 2015

Legend:
- REF in decisionmaking
- Integration between agencies
- Agency culture and management adoption

Target met: REF in decisionmaking = 4, Integration between agencies = 3
In progress: REF in decisionmaking = 6, Integration between agencies = 9, Agency culture and management adoption = 7
On hold: Integration between agencies = 1
Adjusted based on project trajectory: Agency culture and management adoption = 1

In the initial kick-off stages of their projects, IAP recipients identified the performance measures they wished to use. Lead Adopter recipients selected one performance measure in each of the three focus areas. User Incentive recipients identified a minimum of one measure. In total, IAP recipients selected 31 performance measures.

As of July 2015, of the 31 performance measures initially identified:

- 10 relate to "REF in decisionmaking," of which 4 are complete.

- 13 relate to "Integration of planning and decisionmaking," of which 3 are complete.

- 8 relate to "Agency culture and management adoption," of which 0 are complete.

Implementation Resources

FHWA and AASHTO have launched several products related to Implementing Eco-Logical and/or the FHWA Eco-Logical Program. Here are a few examples of the activities to date:
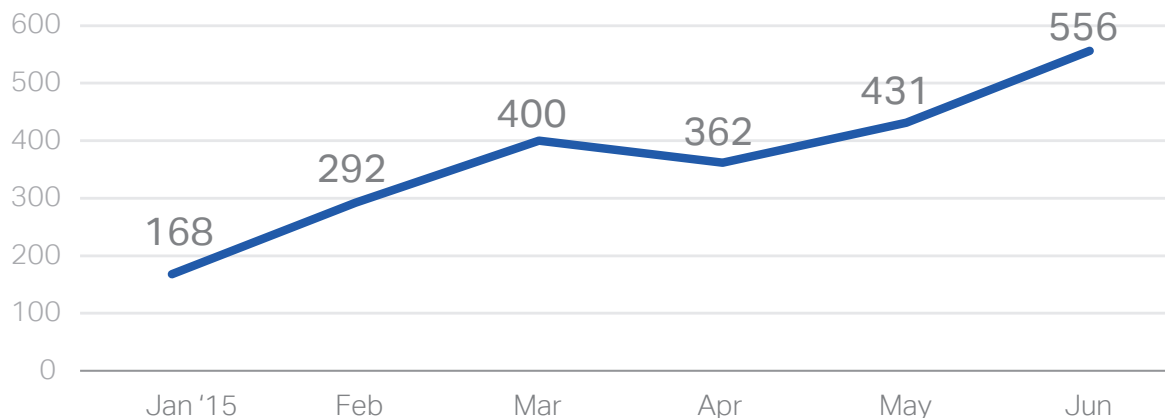
Starter Kit

FHWA released the Eco-Logical Starter Kit in January 2015.

The Starter Kit offers an overview of the nine steps of the IEF and provides real-life examples of agencies applying these steps.

The Starter Kit includes research products, reports, case studies, and more. Since its release, visits to the FHWA Eco-Logical website have tripled (see below).

Practitioner's Handbook

The handbook, currently in development, introduces approaches to applying Eco-Logical in a simplified format consistent with existing AASHTO Center for Environmental Excellence handbooks.

The handbook will describe each step of the IEF, along with goals, strategies, and roles for agencies to implement each step.

Case Studies

The Eco-Logical case studies highlight how transportation agencies are implementing the nine steps of the IEF. Each case study documents an agency's achievements and challenges as it applies the Eco-Logical approach in its region or State. FHWA delivered two case studies in 2015, featuring:

- **Charlottesville-Albemarle Metropolitan Planning Organization's** implementation of Steps 1-4 of the IEF, which emphasize partnerships, sharing data, creating an REF, and analyzing effects.

- **Colorado Department of Transportation's** accomplishment of Steps 7-9 of the IEF through the implementation of its I-70 Mountain Corridor Project.

Eco-Logical Starter Kit Visits by Month

PART ONE   PART TWO   PART THREE

Other Eco-Logical Program Activities + Resources
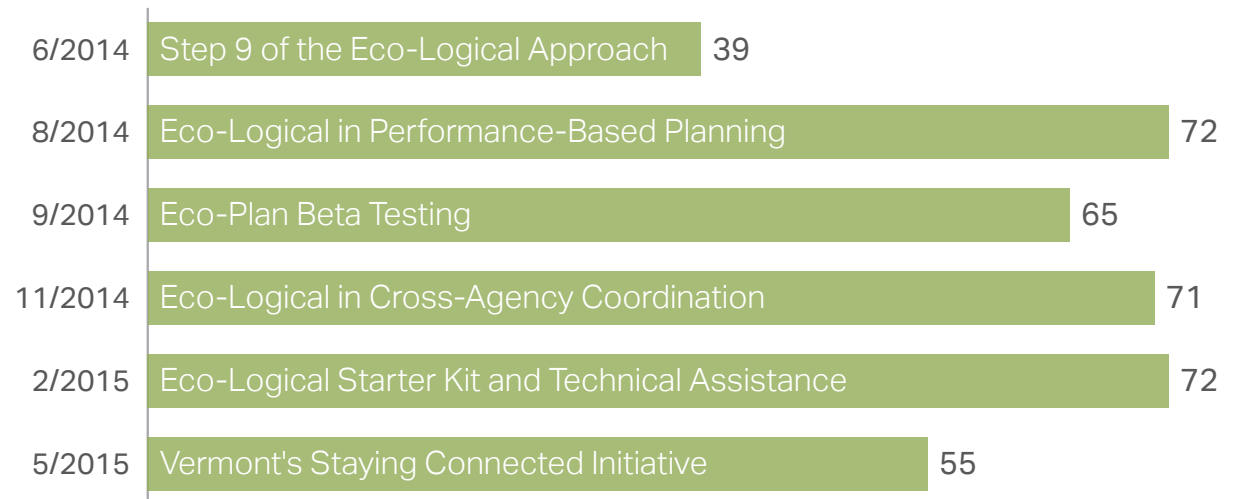
Eco-Logical Webinar Series

As part of FHWA's Eco-Logical Program, FHWA offers bi-monthly webinars. Topics range from the IEF's nine steps to examples of Eco-Logical in practice and related initiatives.

The audience for the one-hour webinars often includes Implementing Eco-Logical IAP recipients, transportation agency practitioners, FHWA environmental staff, partner Federal agencies, State and regional resource agencies, academic researchers, and NGOs.
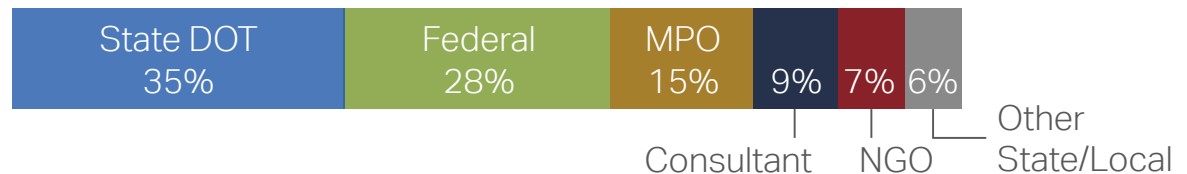
Over half of webinar participants are transportation practitioners that seek relevant applications of Eco-Logical in practice.

In 2014/2015, FHWA presented 6 webinars to more than 370 participants.

Number of Webinar Participants

Date	Webinar	Participants
6/2014	Step 9 of the Eco-Logical Approach	39
8/2014	Eco-Logical in Performance-Based Planning	72
9/2014	Eco-Plan Beta Testing	65
11/2014	Eco-Logical in Cross-Agency Coordination	71
2/2015	Eco-Logical Starter Kit and Technical Assistance	72
5/2015	Vermont's Staying Connected Initiative	55

Webinar Participation by Agency Type

| State DOT 35%	Federal 28%	MPO 15%	Consultant 9%	NGO 7%	Other State/Local 6%

Other Eco-Logical Program Activities + Resources

Signatory Agency Coordination

Representatives from eight Federal agencies (the "Signatory Agencies")—Bureau of Land Management, FHWA, National Oceanic and Atmospheric Administration, National Park Service, U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and U.S. Forest Service—affirmed their commitment to Eco-Logical in 2006 by developing and endorsing *Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects.*

FHWA continues to support collaboration among the Signatory Agencies, including through bi-annual in-person meetings. These meetings focus on continued implementation and cross-agency support of the Eco-Logical approach or other agency initiatives under the Eco-Logical umbrella. FHWA hosted two meetings in 2014/2015, in July 2014 and January 2015.

The Signatory Agencies are currently working on activities for the 10th anniversary of Eco-Logical in 2016.
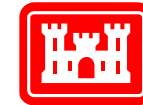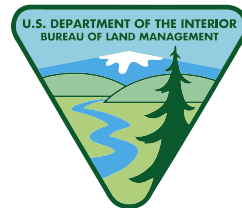
Signatory Agency Eco-Logical Initiatives

In leading Implementing Eco-Logical activities and through coordination with the Signatory Agencies, FHWA recognizes that agencies may often organize or participate in activities that align with the principles of Eco-Logical. These initiatives, sometimes known under different names, may include:

- Landscape conservation cooperatives

- Inventory and monitoring programs

- Watershed approach

- Eco-regional assessments

- Integrated ecosystem assessment approach

- Landscape approach

Logos of the Eco-Logical Signatory Agencies (clockwise, from left): BLM, NPS, USACE, USFS, USFWS, NOAA, FHWA, and EPA.

PART ONE   PART TWO   PART THREE

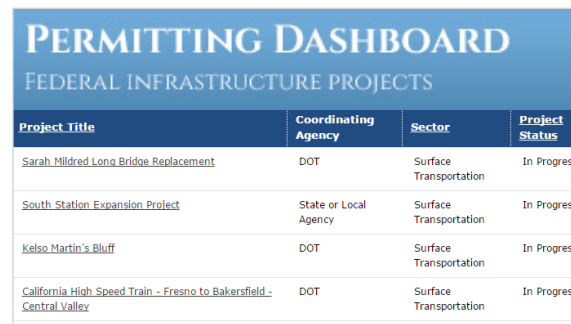# Executive Actions Related to Eco-Logical

Efficient processing of environmental reviews and permits at the Federal level can help expedite the delivery of large-scale infrastructure projects while ensuring that design and construction protect environmental and community resources. Since 2011, the Obama Administration has issued several presidential memoranda and executive orders to establish methods designed to reduce review and permitting periods and increase transparency.

Presidential Memorandum -
Speeding Infrastructure Through More Efficient and Effective Permitting and Environmental Review

On August 31, 2011, President Obama issued a memorandum that focuses on the role of environmental review and permitting processes in maintaining standards for infrastructure development that supports public health, safety, and the environment. The memorandum sets forth that the Federal government shall serve as an active party in establishing a Federal Infrastructure Permitting Dashboard to help advance projects with significant economic development and job creation potential through the environmental planning and permitting stages while promoting accountability and transparency.

Executive Order -
Improving Performance of Federal Permitting and Review of Infrastructure Projects

On March 22, 2012, the White House issued Executive Order (EO) 13604 to further help expedite Federal permitting and review processes for infrastructure projects while improving environmental and economic benefits. The EO expanded projects under the Dashboard to include those of National or regional significance.

PERMITTING DASHBOARD
FEDERAL INFRASTRUCTURE PROJECTS

Project Title	Coordinating Agency	Sector	Project Status
Sarah Mildred Long Bridge Replacement	DOT	Surface Transportation	In Progress
South Station Expansion Project	State or Local Agency	Surface Transportation	In Progress
Kelso Martin's Bluff	DOT	Surface Transportation	In Progress
California High Speed Train - Fresno to Bakersfield - Central Valley	DOT	Surface Transportation	In Progress

Screenshot of the Federal Infrastructure Permitting Dashboard (www.permits.performance.gov/)

Presidential Memorandum -
Modernizing Federal Infrastructure Review and Permitting Regulations, Policies, and Procedures

Building on the earlier efforts, on May 17, 2013, the President delivered a memorandum that directed the development of an implementation plan to institutionalize best management practices, leverage web-based technologies for information-sharing, and encourage opportunities for stakeholder engagement and public input.

Published in May 2014, the Implementation Plan offers strategies and reforms for expediting review and permitting processes, such as the expanded use of the Dashboard. Today, the Federal government continues to deliver on the strategies discussed in the Implementation Plan.

Other Federal Initiatives Relating to Eco-Logical

Planning and Environmental Linkages

The Eco-Logical approach is closely linked to FHWA's Planning and Environment Linkages (PEL) initiative.

PEL is a collaborative and integrated approach to transportation decisionmaking that 1) considers environmental, community, and economic goals early in the transportation planning process, and 2) uses the information, analysis, and products developed during planning to inform the environmental review process. Eco-Logical could, for example, be used to address the biological components of a PEL program.

PlanWorks

PlanWorks is a SHRP2 Solution that includes the Eco-Logical approach as part of its web-based decision support tool for collaborative decisionmaking in transportation planning and project development.

PlanWorks is built around key decision points in long-range planning, programming, corridor planning, and environmental review. PlanWorks suggests when and how to engage cross-disciplinary partners and stakeholder groups. This system can help build consensus throughout these processes.

Turner-Fairbank Implementing Eco-Logical Program Evaluation

The FHWA Turner-Fairbank Highway Research Center is currently leading an effort to evaluate its research and technology (R&T) development program and the selection and use of R&T funded research, including funds provided to the SHRP2 Implementing Eco-Logical Program.

The Implementing Eco-Logical evaluation will investigate the effect of FHWA R&T activities on the knowledge and implementation of the Eco-Logical approach (i.e., ecosystem-based infrastructure planning and mitigation) to transportation decisionmaking (i.e., transportation planning, project development, and environmental mitigation) by State DOT and MPO decisionmakers.

PLANNING & ENVIRONMENT LINKAGES

PlanWorks
Better planning. Better projects.

Part 2: Findings and Recommendations

FINDINGS AND RECOMMENDATIONS

Overview

The experiences of the 13 IAP recipients help FHWA monitor the state of the practice of Eco-Logical, identify noteworthy practices and lessons learned, develop recommendations for agencies implementing the approach, and recognize potential opportunities for future support as part of the FHWA Eco-Logical Program.

This section summarizes findings from the 13 IAP recipients from June 2014 through July 2015 and provides applicable recommendations for agencies interested in applying Eco-Logical and for FHWA in advancing its Eco-Logical Program.

Methodology

FHWA tracks the progress of IAP recipients through mid-year reports and annual telephone discussions.

In December 2014, FHWA asked each IAP recipient to complete a written progress report to collect updates on project status, performance measures, and deliverables.

In March 2015, FHWA conducted one-hour-long teleconference calls with the IAP recipients to obtain updates, insights, and lessons learned relating to the IAP projects.

In July 2015, IAP recipients provided written updates on project status and deliverables.

Findings and Recommendations

The findings and recommendations discussed in this report fall into four categories (see table at right):

1. *Building and Sustaining Partnerships*

2. *Institutionalizing Eco-Logical into Agency Practices*

3. *Quantifying and Communicating Results*

4. *Developing Data, Tools, and Strategies*

Through these findings, FHWA seeks to strengthen knowledge of Eco-Logical and its uses, the opportunities and benefits it provides, and the challenges practitioners face to help guide both agencies in implementation and future activities of the FHWA Eco-Logical Program.

Findings and Recommendations from the 2014/2015 Implementing Eco-Logical Annual Report

Category	Findings	Recommendations for Agencies Implementing Eco-Logical	Recommendations for FHWA
1. Building and Sustaining Partnerships	**1.1** Agencies implementing Eco-Logical recruit partners early in the process. **1.2** IAP recipients use a variety of methods to promote consistent stakeholder engagement while respecting partners' time constraints. **1.3** Successful relationships established through IAP projects carry over into other projects, lay the groundwork for future collaboration, and result in new opportunities for streamlining.	• Engage agency partners early in the process, and listen to their needs. • Develop tailored messages to demonstrate the benefits that Eco-Logical brings to a particular stakeholder group. • Think of agency relationships as a long-term investment, rather than a project-specific commitment. • At the beginning of a project, work with stakeholders to clarify expectations for time commitments and develop a coordination plan that works for all parties.	• Continue to promote existing FHWA materials that practitioners can use to educate partners about Eco-Logical, such as the Eco-Logical Starter Kit.
2. Institutionalizing Eco-Logical into Agency Practices	**2.1** In many cases, IAP project leads serve as "champions" for promoting Eco-Logical within their agency and building institutional knowledge. **2.2** Formal agreements, such as memoranda of agreement or memoranda of understanding, can help promote long-term implementation of Eco-Logical by formalizing commitments and providing an institutional framework that is more resilient to shifting priorities and staffing changes. **2.3** One way for agencies to support the long-term use of the Eco-Logical approach is to build connections with related initiatives within the agency. **2.4** Support for Eco-Logical at the leadership level makes it much easier to institutionalize Eco-Logical into agency practices and ensure long-term implementation.	• Look for opportunities to formally or informally educate agency staff about Eco-Logical. • Document internal processes for implementing Eco-Logical to facilitate knowledge transfer when there is staff turnover. • When possible, use signed agreements to institutionalize roles and protocols. • Look for opportunities to integrate Eco-Logical into other agency initiatives, including regular long-range transportation plan updates. • Recruit high-level champions.	• Distribute a template presentation or other outreach materials on Eco-Logical that agencies can use internally to educate staff and senior leadership. • Explore ways to promote Eco-Logical among senior leadership at transportation agencies.
3. Quantifying and Communicating Results	**3.1** Quantifying the benefits of applying the Eco-Logical approach—based on cost, time, or other savings—continues to be a challenge for agencies implementing Eco-Logical.	• N/A	• Continue to explore how best to support agencies in making a business case for Eco-Logical and in demonstrating quantifiable benefits.
4. Developing Data, Tools, and Strategies	**4.1** Eco-Logical data and tools are most effective when tailored to the region's goals, priorities, and constraints. **4.2** Some technical aspects of Eco-Logical, such as creating an REF or setting up a mitigation crediting program, require a level of specialized expertise that may present a barrier to entry for some agencies.	• Work with partners to ensure that transportation and conservation data inputs reflect regional realities and priorities.	• Continue to support tools that simplify the creation of an REF for MPOs that have limited GIS capacity. • Continue to work with individual agencies to provide customized technical assistance and subject-matter expertise.

Eco-Logical Implementation

Institutionalizing Eco-Logical into Agency Practices   *Developing Data, Tools, and Strategies*

Building and Sustaining Partnerships   *Quantifying and Communicating Results*

Category 1: Building and Sustaining Partnerships

As noted in previous years' Eco-Logical annual reports, strong partnerships with external stakeholders are key to successful implementation of the Eco-Logical approach. All IAP recipients emphasized the importance of relationships to the ultimate success of their Eco-Logical projects, and several recipients cited improved relationships as the most valuable and useful outcome of their IAP projects. The following findings demonstrate how IAP recipients have been able to translate early coordination efforts into continuing and long-standing partnerships.

Finding 1.1: Agencies implementing Eco-Logical recruit partners early in the process.

Explanation

Engaging partners early helps ensure that an agency's implementation of Eco-Logical reflects shared regional priorities and that the work products—for example, an REF or advanced mitigation strategy—will be useful for all stakeholders.

It may take time to cultivate new relationships and engage partners. Some later steps of Eco-Logical, such as establishing a programmatic consultation, require an upfront investment of time and resources. Stakeholder agencies may be hesitant to commit, particularly if it is unclear what the specific benefits may be for them. Targeted messages and early coordination can help encourage buy-in.

Supporting Example

In beginning its IAP User Incentive project, the Missouri Department of Transportation (MoDOT) partnered with the Missouri Department of Conservation (MDC) to conduct stakeholder outreach to partner agencies as part of its effort to improve the sharing of natural resource information on the MDC Natural Heritage Review website. MoDOT and MDC's close coordination, further formalized by a Memorandum of Agreement (MOA) between the two agencies, helped facilitate four stakeholder meetings to collect feedback on needed website updates, identify shared priorities among the partners, and establish best management practices to protect threatened and endangered species from impacts.

Recommendations

Recommendation for agencies implementing Eco-Logical:

- Engage agency partners early in the process, and listen to their needs.
- Develop tailored messages to demonstrate the benefits that Eco-Logical brings to a particular stakeholder group.

Recommendation for FHWA:

- Continue to promote existing FHWA materials that practitioners can use to educate partners about Eco-Logical, such as the Eco-Logical Starter Kit.

Finding 1.2: IAP recipients use a variety of methods to promote consistent stakeholder engagement while respecting partners' time constraints.

Explanation

After partners have agreed to participate, regular coordination and meetings with partner agencies are essential to ensure that application of the Eco-Logical approach is consistent and that data and tools reflect shared priorities, even as those priorities change.

IAP recipients often face a delicate balance between maintaining a high level of engagement and overburdening partners with extended demands on their time.

By working together early on in the project process, IAP recipients have found innovative ways to build and sustain partners' involvement such as offering alternatives to in-person attendance at meetings, presentations to agency leadership, and continued outreach and support to partners to share information on IAP projects and identify opportunities for future activities.

Supporting Example

In their projects, IAP recipients have used a variety of techniques to avoid stakeholder fatigue, including limiting the number of meetings that were absolutely necessary, structuring project timelines to accommodate partners' schedules, and providing opportunities for remote participation to reduce travel times.

The Pikes Peak Area Council of Governments' (PPACG) IAP Lead Adopter project involved 19 agencies and organizations, all of whom had limited schedules and varying availabilities. To maximize participation in its stakeholder meetings, PPACG offered web-based remote participation options, allowing stakeholders located several hours away to participate conveniently.

Recommendations

Recommendation for agencies implementing Eco-Logical:

- At the beginning of a project, work with stakeholders to clarify expectations for time commitments and develop a coordination plan that works for all parties.
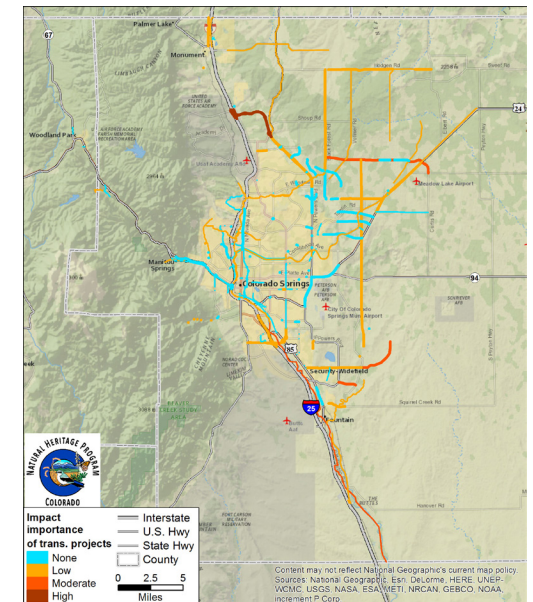
Working with its partners, PPACG mapped the impact importance of transportation projects in the Colorado Springs region.
Source: PPACG

Finding 1.3: Successful relationships established through IAP projects carry over into other projects, lay the groundwork for future collaboration, and result in new opportunities for streamlining.

Explanation

IAP recipients reported that their projects strengthened personal connections, built institutional knowledge about how to partner effectively, and established a track record of successful collaboration—all factors that facilitate future implementation of the Eco-Logical approach and generate positive impacts that extend beyond the scope of the original IAP projects.

Even when stakeholder agencies are ultimately not able to fully accommodate requests to share data or formalize partnerships, the process—of establishing agency points of contact, learning about partners' priorities and constraints, and discussing landscape-level integration of infrastructure and conservation planning—can lay the groundwork for future efforts.

Supporting Examples

The California Department of Transportation (Caltrans) found that the lines of communication established during its IAP project have allowed its newly created Highway Stewardship Teams—interagency teams dedicated to reducing animal/vehicle collisions in Northern and Southern California—to respond quickly to opportunities for grant funding to improve wildlife connectivity.

While the Association of Monterey Bay Area Governments (AMBAG) was not able to obtain archaeological resource data due to data sensitivity concerns, its initial request to the California Office of Historic Preservation sparked a useful dialogue between the two agencies on how this type of data could be used more effectively in transportation planning and project delivery in the future.

Recommendations

Recommendation for agencies implementing Eco-Logical:

- Think of agency relationships as a long-term investment, rather than a project-specific commitment.
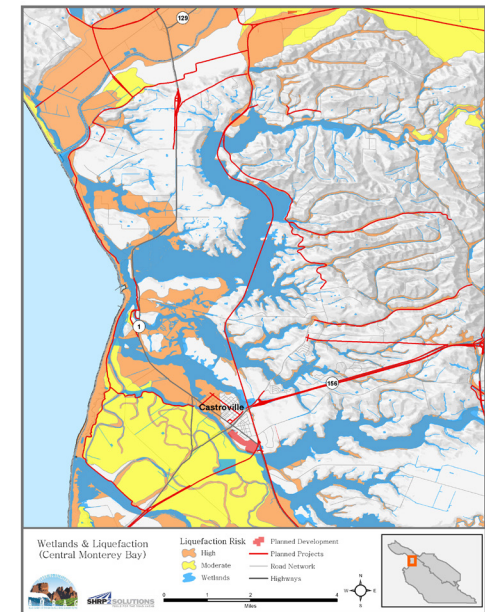
AMBAG's IAP User Incentive project involved compiling and mapping sensitive resources, such as the map of wetlands and liquefaction shown above. *Source: AMBAG*

Category 2: Institutionalizing Eco-Logical into Agency Practices

As the IAP recipients complete their IAP projects, they face new challenges in leveraging the progress made and lessons learned beyond the projects' duration. Ensuring that an agency continues to implement the Eco-Logical approach requires maintaining staff knowledge, formalizing commitments, and fostering connections between Eco-Logical and existing programs. Institutionalizing Eco-Logical into an agency's internal processes and procedures requires high-level knowledge and support of the Eco-Logical approach agency-wide and at management levels.

Finding 2.1: In many cases, IAP project leads serve as "champions" for promoting Eco-Logical within their agency and building institutional knowledge.

Explanation

IAP recipient project leads increase agency awareness by holding lunch-and-learns or other informational sessions, sharing updates at staff meetings, and presenting results to their State DOT or MPO leadership and boards.

As Eco-Logical practitioners, the IAP recipient project leads have a strong understanding of Eco-Logical at the application and implementation levels, which they often leverage to demonstrate project-specific and overall benefits to managers and agency leadership.

Supporting Examples

Increasing awareness of Eco-Logical within an agency is important because, when an agency's expertise about Eco-Logical rests in just one staff member, it is more vulnerable to disruption if that person leaves the agency or changes roles.

For many of the IAP projects, IAP project leads have worked to build a team of several staff to facilitate the transfer of Eco-Logical knowledge across project teams, divisions, and departments.

Recommendations

Recommendations for agencies implementing Eco-Logical:

- Look for opportunities to formally or informally educate agency staff about Eco-Logical.

- Document internal processes for implementing Eco-Logical, to facilitate knowledge transfer when there is staff turnover.

Recommendation for FHWA:

- Distribute a template presentation or other outreach materials on Eco-Logical that agencies can use internally to educate staff and senior leadership.

Finding 2.2: Formal agreements, such as MOAs or MOUs, can help promote long-term implementation of Eco-Logical by formalizing commitments and providing an institutional framework that is more resilient to shifting priorities or staffing changes.

Explanation

In addition to their benefits for establishing data-sharing protocols and kick-starting dialogue with partner agencies, signed agreements can provide a framework for continued implementation of Eco-Logical, including after the completion of an IAP project.

These agreements help ensure partners' long-term involvement in Eco-Logical as well as formalize the agencies' commitment to Eco-Logical. For example, having the transportation agency commitment in place and known to partners can further help to increase awareness of Eco-Logical over time and continue to build connections.

Supporting Examples

Of the 13 IAP recipients, 4 have signed agreements with partners as part of their IAP projects, and 4 more are making progress towards signed agreements. Many of these agreements describe commitments, roles, and protocols for how two or more agencies will implement a particular aspect of Eco-Logical.

For example, as part of its IAP User Incentive project, the Idaho Transportation Department (ITD) updated an existing MOU with the Idaho Department of Fish and Game (IDFG) to include new protocols for data-sharing and interagency coordination between transportation planning and wildlife management. The agreement has led the way for implementation of these protocols under the ITD-IDFG IAP Lead Adopter project.

Recommendations

Recommendation for agencies implementing Eco-Logical:

- When possible, use signed agreements to institutionalize roles and protocols.

"This MOU embodies the idea that 'we cannot sacrifice transportation for wildlife and we cannot sacrifice our wildlife for transportation' and so establishes a program of cooperation between the agencies."

— Excerpt from MOU between ITD and IDFG

PART ONE   PART TWO   PART THREE

Finding 2.3: One way for agencies to support the long-term use of the Eco-Logical approach is to build connections with related initiatives within the agency.

Explanation

Incorporating the Eco-Logical approach into existing agency programs and initiatives is an efficient way to demonstrate the relevance of the Eco-Logical approach and promote long-term agency adoption.

Tying Eco-Logical principles to updates for a long-range transportation plan (LRTP) can help bring in environmental considerations as part of the project prioritization process and further integrate the Eco-Logical approach into "traditional" transportation planning practices. For example, the REF can be used as a quantitative performance measure for evaluating transportation projects for inclusion in the LRTP.

Supporting Example

The Southern California Association of Governments (SCAG) used its IAP User Incentive project to develop a regional open space database and a methodology for identifying conservation priority areas.

Building off of its IAP project, SCAG convened an Open Space Conservation Working Group to develop recommendations for how it should address conservation and mitigation in the next update of its Regional Transportation Plan (RTP).

By connecting the outcomes of its IAP project to its RTP, SCAG was more effectively able to tie landscape-level conservation and mitigation planning into its transportation planning activities.

Recommendations

Recommendation for agencies implementing Eco-Logical:

- Look for opportunities to integrate Eco-Logical into other agency initiatives, including regular LRTP updates.
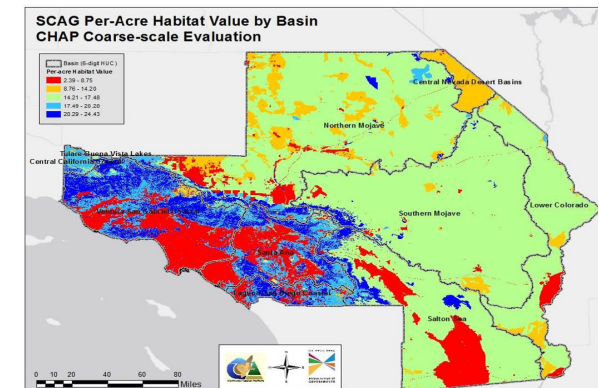
As part of its IAP User Incentive project, SCAG developed a framework for assessing conservation and habitat value.
Source: SCAG

Finding 2.4: Support for Eco-Logical at the leadership level makes it much easier to institutionalize Eco-Logical into agency practices and ensure long-term implementation.

Explanation

Leadership-level "champions" can effectively support long-term implementation of Eco-Logical through each of the three strategies discussed earlier: building institutional knowledge of the Eco-Logical approach, supporting formalized commitments to implementing Eco-Logical, and identifying and promoting connections to existing agency programs.

Supporting Example

Vocal support from senior leadership at the Maine Department of Transportation (MaineDOT) is leading to advancement of a programmatic agreement with USFWS on Atlantic salmon. Leadership-level champions at MaineDOT have also promoted efforts to document MaineDOT's internal process workflows and identify interagency connections to Eco-Logical.

Recommendations

Recommendation for agencies implementing Eco-Logical:

- Recruit high-level champions.

Recommendation for FHWA:

- Explore ways to promote Eco-Logical among senior leadership at transportation agencies.

| Safety-condition-level of service | Risk-alternatives-benefit-cost assessment | Assurances-scope-budget-schedule | NEPA-Permitting | Design | Deliver |

MaineDOT's programmatic agreement on Atlantic salmon is designed to help expedite the delivery of transportation projects in the State and follow an agreed-upon and predictable process (see above).
Source: MaineDOT

Category 3: Quantifying and Communicating Results

Some steps of the Eco-Logical approach, such as creating an REF or establishing a programmatic agreement, require a short-term investment of resources upfront but can save time and money later in transportation project development or planning processes. In an era of fiscal constraint and declining transportation revenues, agencies may face challenges in setting aside or justifying start-up funding for implementing the Eco-Logical approach. In this context, staff champions of Eco-Logical may be requested to make a "business case" for the Eco-Logical approach by demonstrating that the long-term benefits of Eco-Logical outweigh its costs.

Finding 3.1: Quantifying the benefits of applying the Eco-Logical approach—based on cost, time, or other savings—continues to be a challenge for agencies implementing Eco-Logical.

Explanation

Although IAP recipients observed anecdotal evidence of Eco-Logical's benefits, none has comprehensively attempted to quantitatively measure the effects of the Eco-Logical approach on schedule or budget. In many cases, constraints on resources, funding, time, or expertise may limit staff's availability to perform these types of in-depth analyses.

All IAP recipients recognized the importance of quantitative measures, but many emphasized the difficulty of quantifying avoided costs.

Supporting Examples

As the IAP recipients complete their projects, leverage IAP project findings into new projects, and continue to apply the Eco-Logical approach in their agencies, they will likely have more opportunities to track how the approach affects schedule and budget throughout a project lifecycle.

Examples of how other agencies have implemented Eco-Logical may also serve as a starting point for engaging agency leadership in a discussion about the potential benefits of Eco-Logical for a specific project, corridor, or region.

Recommendations

Recommendations for FHWA:

- Continue to explore how best to support agencies in making a business case for Eco-Logical and in demonstrating quantifiable benefits. Possible ideas include:
  - Expand on existing research sponsored by FHWA on how to quantify the benefits of Eco-Logical.
  - Develop one-page summaries of how agencies are implementing Eco-Logical and the types of benefits that they are seeing.
  - Distribute case studies on how agencies have made the business case for Eco-Logical.
  - Provide funding for agencies to track the quantitative benefits of Eco-Logical.

Category 4: Developing Data, Tools, and Strategies

From REFs to advanced mitigation strategies, data and tools that support landscape-level decisionmaking are at the core of the Eco-Logical approach. In previous years' annual reports, IAP recipients noted many challenges related to data. Based on the results of this reporting year, recipients have resolved many of these challenges through their efforts.

Finding 4.1: **Eco-Logical data and tools are most effective when tailored to the region's goals, priorities, and constraints.**

Explanation

Eco-Logical products—including REFs, conservation priority sites, or advanced mitigation plans—are only as good as the data used to create them. Data that may be crucial in one region, such as salmon habitat, may be less relevant in another. IAP recipients are working with stakeholders to tailor data collection and analysis efforts to fit regional needs.

In many cases, agencies use the nine-step IEF promoted by Eco-Logical as a starting point. Agencies can then adapt available data and tools to meet their goals for a particular project or get a more holistic perspective of the region's ecological resources and transportation priorities.

Supporting Examples

The Michigan Department of Transportation (MDOT) worked with stakeholders to select seven regionally important conservation targets—coastal tributaries, inland wetlands, wildlife connectivity, globally rare natural communities, aerial migrants, migratory fish, and bats—that will guide its REF and Conservation Action Plan.

In order to make sure its REF accurately reflected planned transportation projects in the Pikes Peak region, PPACG reached out to local partners to include data on locally and privately funded transportation projects. The resulting REF will include more than 300 proposed transportation projects—including those that receive no Federal-aid funding.

Recommendations

Recommendation for agencies implementing Eco-Logical:

- Work with partners to ensure that transportation and conservation data inputs reflect regional realities and priorities.
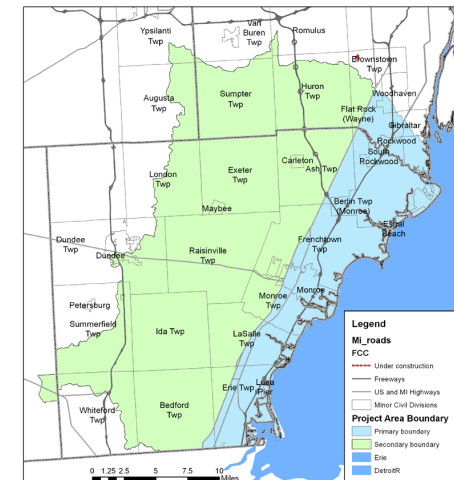
MDOT established a Technical Advisory Committee to help develop its REF and determine the IAP project boundaries.
Source: MDOT

Finding 4.2: Some technical aspects of Eco-Logical, such as creating a REF or setting up a mitigation crediting program, require a level of expertise that may present a barrier to entry for some agencies.

Explanation

Smaller MPOs that lack advanced GIS analysis skills or sufficient staff capacity may find creation of an REF daunting. Setting up a mitigation banking program requires technical knowledge of ecosystem services and crediting options, areas of expertise that many transportation agencies may not have in-house.

While examples of successful implementations from other regions can be helpful as models, each region has a unique combination of ecological, regulatory, and political factors that requires a tailored approach. Consequently, building a team with the required expertise and capacity is extremely helpful for implementation of the more technical aspects of Eco-Logical. This expertise can come from within an agency or from other external, public or private sector sources.

Supporting Examples

The North Central Texas Council of Governments (NCTCOG) noted the importance of outside subject-matter experts on environmental science and mitigation programs to advance the design of its Shared Value Mitigation (SVM) Pilot Program.

All of the IAP recipients represent State DOTs and MPOs that have significant technical capacity in-house, or that have connected with partners or consultants who provide the needed resources or expertise for implementation of the IAP projects. The varying scopes of the IAP User Incentive and Lead Adopter projects demonstrate how technical knowledge might be applied at different levels of effort. However, steps like advanced mitigation may still pose a challenge.

Recommendations

Recommendations for FHWA:

- Continue to support tools that simplify creation of an REF for MPOs that have limited GIS capacity.

- Continue to work with individual agencies to provide customized technical assistance and subject-matter expertise.

Regional Ecosystem Framework: Composite Map
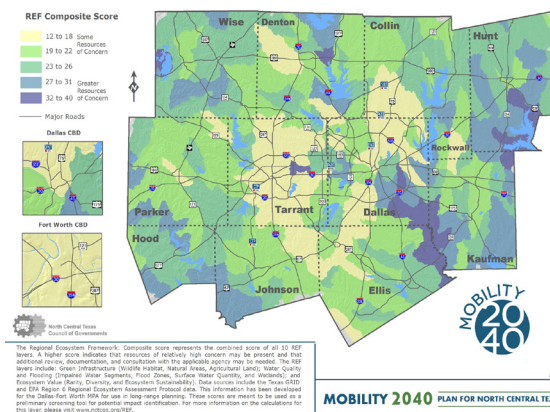
NCTCOG's REF, updated as part of its IAP Lead Adopter project, combines environmental and transportation considerations and will help guide next steps for the SVM effort. *Source: NCTCOG*

CONCLUSION

The 2014/2015 Implementing Eco-Logical Program Annual Report showcases the accomplishments of the Implementing Eco-Logical Program as well as of the 13 IAP recipients. With many activities now complete or in progress, FHWA, AASHTO, and the IAP recipients have had a productive year in releasing program materials and resources, and project-related deliverables.

Focus on Technical Assistance

For the Implementing Eco-Logical Program, the 2014/2015 report cycle represented a strong focus on technical assistance. With several peer exchanges and workshops completed and others already on the horizon for the 2015/2016 period, FHWA and AASHTO plan to continue this technical assistance focus over the coming year to offer additional opportunities for peer information-sharing.

New Implementing Eco-Logical Resources

New resources such as the Practitioner's Handbook will provide written references for agencies seeking information on Eco-Logical's nine-step approach and on how peers effectively applied these steps.

The results from the IAP projects captured in this report further demonstrate the successes these State DOTs and MPOs have found in implementing Eco-Logical. The findings showcase practices that the IAP recipients have found useful throughout their work as well as serve as the basis for suggestions on how other agencies might take similar approaches.

Upcoming Activities

Project findings indicate areas of opportunity for the FHWA Eco-Logical Program in the future—from developing tailored stakeholder messages to formalizing partnerships to helping agencies demonstrate quantifiable benefits. Over the coming year, FHWA will continue to work with the IAP recipients to gather information on final conclusions and project results as the IAP projects come to a close to help guide future Eco-Logical Program activities.

Per-acre Habitat Value

- 2.39 - 8.75
- 8.76 - 14.20
- 14.21 - 17.48
- 17.49 - 20.28
- 20.29 - 24.43

Basin (6-digit HUC)

Central Nevada Desert Basins

Northern Mojave

Tulare-Buena Vista Lakes

Central California Coastal

Ventura-San Gabriel Coastal

Southern Mojave

Lower Colorado

Santa Ana

Laguna-San Diego Coastal

Salton Sea
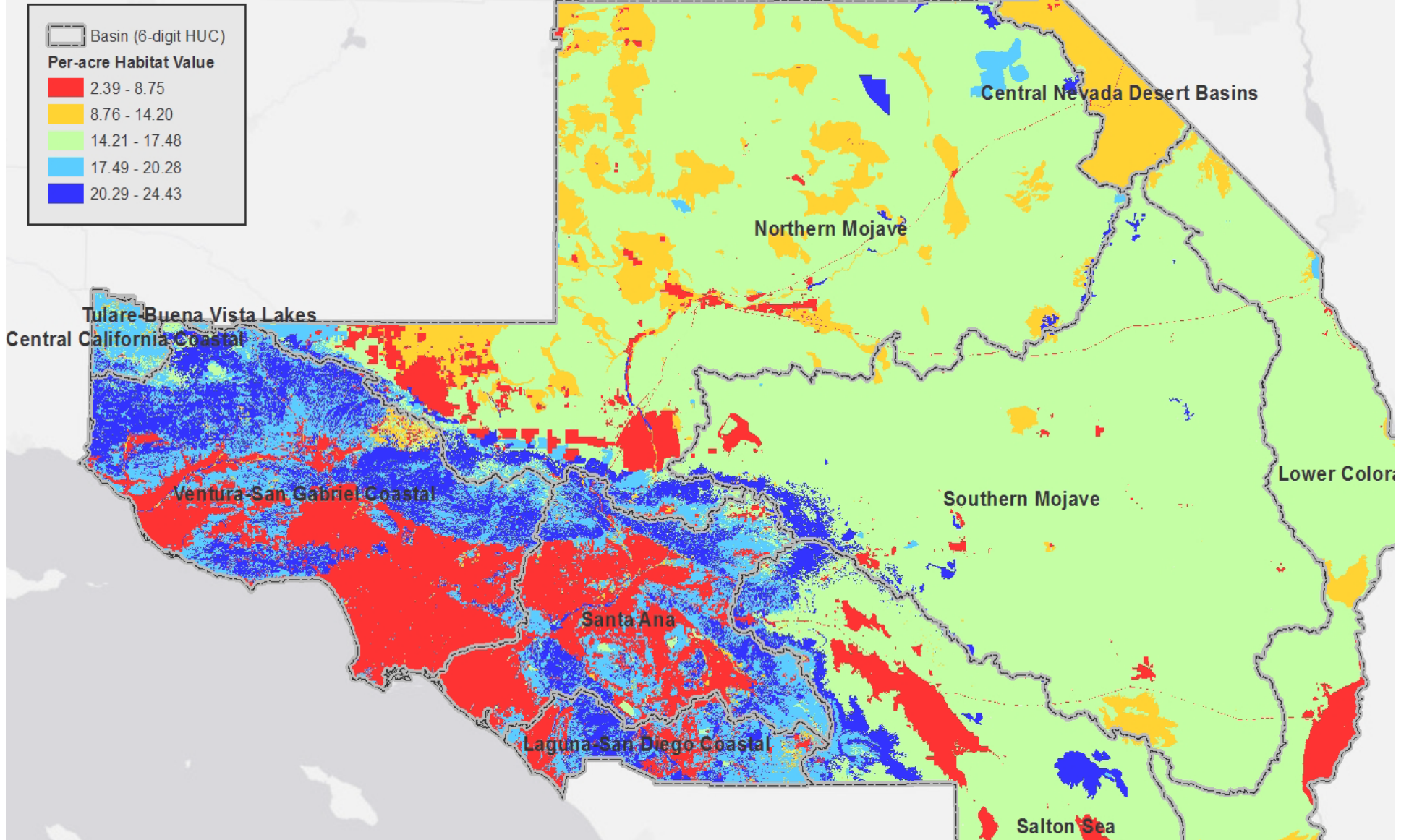
Part 3: Appendices

APPENDICES

IAP Project Summaries

Project Summaries

Atlanta Regional Commission (ARC) –
Developing an REF for the Proctor Creek Environmental District

Schedule: June 2013-Dec 2015   **Total Cost:** $250,000

Project Goals

ARC is developing and implementing a Regional Ecosystem Framework (REF) and creating a strategic framework for the Proctor Creek Environmental District (PCED)—a key watershed in the Atlanta metropolitan area—in order to expand the types of ecological and economic data used for prioritizing new transportation projects in the region.

Process

ARC convened a stakeholder committee to facilitate coordination with partners, and hired a consultant to study the fiscal, economic, and environmental effects of implementing an REF near a central business district. ARC also tested methodologies for inclusion in a decision support tool, a component of the strategic framework, which will help guide infrastructure investment in the PCED over the next few decades.

Recent Activities and Accomplishments

» Held internal and external Proctor Creek stakeholder meetings to coordinate and prioritize information needs with participants from the City of Atlanta, Federal Highway Administration, U.S. Environmental Protection Agency, Metro Water District, and other non-governmental organizations, among others.

» Hired a consultant to complete a market economic analysis in the PCED to analyze the links between economic development and environmental resources. As part of this activity, ARC is looking to draw linkages and connections between economic development and environmental outcomes such as watershed restoration.

» Began analyzing previous project prioritization selection methods to determine gaps that should be included in the decision support tool.

Atlanta Regional Commission

Timeline of Deliverables

June 2013: Project kick-off
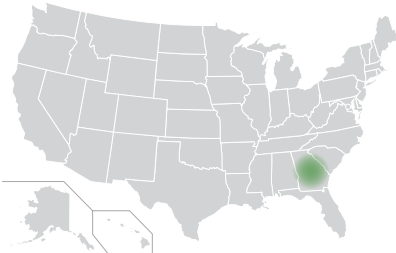
Nov 2013: 1st stakeholder meeting

June 2015: Best practices analysis and phase 1 of economic analysis completed

Aug 2015: Anticipated negotiation of scope of work to complete implementation framework

Future Steps

» Continue to compile economic and environmental information and use it to inform the PCED REF.

» Meet with Federal and State project partners to review data from the study and reaffirm the commitment to linking economic factors with environmental considerations in the REF.

» Use the REF data to create draft maps and decision criteria for inclusion in ARC's future regional transportation plans.

» Determine the feasibility of placing updated REF data online, which would make the data more accessible to project partners.

» Explore partnering with the Atlanta University Center (AUC) to provide technical assistance as part of the development of the AUC / Vine City English Avenue Eco-District, which is wholly contained within the Proctor Creek watershed.

Insights on Eco-Logical

» Effective early communication with stakeholders is important to leverage existing knowledge and share information. ARC worked closely with the Proctor Creek Community Group early on in the project, participating in meetings and incorporating feedback into deliverables.

» Eco-Logical has created opportunities for ARC staff from different departments to collaborate, allowing the agency's specialists in transportation, land use, and Geographic Information Systems to develop a more holistic view of projects.

"Having an overarching principle like Eco-Logical that touches on a lot of focus areas and brings them under one umbrella has been really helpful for both internal and external coordination across projects."

— ARC staff member

Project Summaries

Schedule: June 2013-Oct 2015   **Total Cost:** $250,0000

Project Goals

Through its IAP Lead Adopter project, CA-MPO is advancing project alternatives for the Free Bridge Area Congestion Relief Project to alleviate significant congestion issues on the US-250 Crossing of the Rivanna River in Virginia.

Process

CA-MPO convened a stakeholder committee to identify and rank project alternatives, and used its existing Regional Ecosystem Framework (REF) to establish a weighted ranking system for evaluating each alternative's environmental impacts.

Recent Activities and Accomplishments

» Organized 3 meetings with 33-member stakeholder committee, facilitated by a neutral third-party, which resulted in a weighted, REF-based ranking system and identification of 2 preferred transportation alternatives.

» Added the stakeholder committee's preferred alternatives to the CA-MPO's Visioning List of its long-range transportation plan (LRTP). The Visioning List is used by CA-MPO to identify important regional projects and priorities for either future inclusion on its constrained project list or to prioritize for State transportation funding.

» Reached an agreement with the Virginia Department of Transportation (VDOT) Culpeper District to endorse the use of the REF as a planning and decision support tool for transportation project development within CA-MPO.
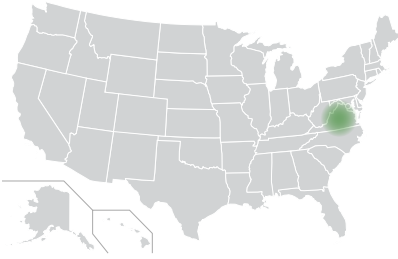
PART ONE   PART TWO   PART THREE

Timeline of Deliverables

June 2013: Project kick-off

Nov 2013: 1st stakeholder meeting

Nov 2014: Final stakeholder meeting

May 2015: Scenarios added to LRTP Visioning List

Future Steps

» Coordinate with VDOT to formalize agency's endorsement of Eco-Logical and work with VDOT contacts and support staff to ensure that the Eco-Logical REF tool is used during the development of transportation project alternatives within CA-MPO.

» Update the CA-MPO website to include its REF tool, user guide, and instructional presentation in order to promote use of the REF by local governments.

» Develop a training module on Eco-Logical and the REF tool for staff at VDOT, other metropolitan planning organizations, and local jurisdictions.

» Prepare a report that documents how the Eco-Logical approach and REF satisfy Virginia's statewide requirement for transportation agencies to use environmental performance measures.

Insights on Eco-Logical

» An independent facilitator who is trusted by the community can make the stakeholder engagement process more legitimate and productive.

» The REF is a versatile tool that can support decisionmaking at various stages of the transportation planning process.

"We successfully used the Eco-Logical approach to restore confidence in the transportation planning process, while at the same time, resolve issues that prevented productive dialog in the past. Our diverse stakeholder group came together and identified a set of transportation solutions that they were comfortable advancing for further study, design, and construction."

— CA-MPO staff member

Project Summaries

Idaho Transportation Department (ITD) -
Coordinating Transportation Planning and Wildlife Management

Schedule: June 2013-Mar 2016   **Total Cost:** $275,000

Project Goals

ITD is working with the Idaho Department of Fish and Game (IDFG) to implement data-sharing protocols and develop Species of Greatest Conservation Need (SGCN) data layers in order to improve interagency coordination, streamline transportation project development, and facilitate stewardship of natural resources. ITD received $25,000 in User Incentive and $250,000 in Lead Adopter funding.

Process

For its User Incentive project, ITD updated its Memorandum of Understanding (MOU) with IDFG to include new protocols for data-sharing and interagency coordination between transportation planning and wildlife management. For the Lead Adopter project, ITD and IDFG developed a web service that allows ITD to view real-time IDFG data in IPLAN, ITD's cloud-based portal for spatial data. ITD and IDFG are also developing SGCN data layers to help support transportation project development and reduce wildlife impacts.

Recent Activities and Accomplishments

» Held 3 stakeholder workshops to inform the development of the MOU, which were attended by approximately 125 staff from ITD, IDFG, and Federal partner agencies.

» Executed an MOU with IDFG for improved data-sharing and interagency coordination.

» Established metadata standards for shared datasets.

» Developed a secure web service that enables ITD to access IDFG data and view in IPLAN.

» Began delivery of SGCN datasets.
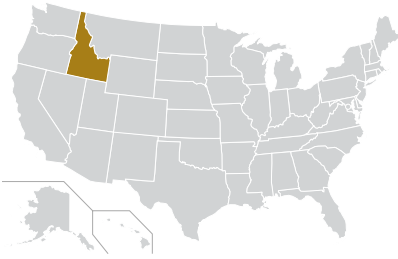
Idaho Transportation Department

Timeline of Deliverables

June 2013: Project kick-off

June 2014: Stakeholder workshops

July 2015: Signed MOU

July 2015: Web service for accessing IDFG data in IPLAN

Future Steps

» Refine existing IDFG data layers to improve usability in IPLAN and make data more accessible.

» Complete SGCN datasets and share in IPLAN.

» Identify data needs for fish passage barrier data.

» Compile lessons learned, successes, and challenges into a formal document.

» Provide training to ITD staff to ensure that IDFG's data is used consistently and effectively.

Moving forward from its IAP projects, ITD plans to:

» Update its planning manual to set expectations about how to use IDFG data in transportation planning and project development.

Insights on Eco-Logical

» In-person stakeholder workshops were an effective way to gather honest feedback from staff at ITD, IDFG, and partner agencies about how to improve interagency collaboration on transportation planning and project development.

» By building a web service for ITD to access IDFG data layers, the two agencies facilitated future data-sharing efforts and laid the groundwork for further collaboration. For example, layers from IDFG's State Wildlife Action Plan and road kill database will be accessible in IPLAN.

"We cannot sacrifice transportation for wildlife and we cannot sacrifice our wildlife for transportation."

— MOU between ITD and IDFG

Project Summaries

Maine Department of Transportation (MaineDOT) -
Streamlining Endangered Species Act Consultations

Schedule: June 2013-Mar 2016   **Total Cost: $250,000**
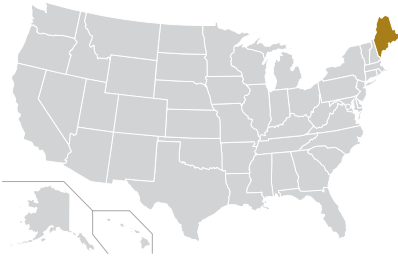
Project Goals

MaineDOT is working to reduce the impacts of transportation projects on Atlantic salmon and review timeframes for Endangered Species Act (ESA) consultations for State transportation projects classified as Categorical Exclusions under the National Environmental Policy Act.

Process

MaineDOT streamlined its internal process for ESA consultations, hired a consultant to develop a decision support tool to aid in landscape-level decisionmaking along transportation corridors, and is working with the U.S. Fish and Wildlife Service (USFWS) to develop and implement a Programmatic Biological Assessment (PBA) and in-lieu fee mitigation instrument.

Recent Activities and Accomplishments

» Analyzed internal workflow for ESA consultations and made changes to increase efficiency and improve collaboration with USFWS and other partner agencies using a risk assessment matrix.

» Completed a draft PBA for Atlantic salmon, which seeks to reduce the number of individual ESA consultations and the timeframe for receiving concurrence on effects.

» Completed a draft in-lieu fee mitigation instrument for Atlantic salmon.

» Hosted an interagency Implementing Eco-Logical workshop in April 2015 to discuss the finalization of the Atlantic salmon PBA and mitigation instrument.

Maine Department of Transportation

Timeline of Deliverables

June 2013: Project kick-off

Aug 2013: Internal changes for ESA consultations

Jan 2015: Draft PBA and mitigation instrument

April 2015: Implementing Eco-Logical workshop

Future Steps

» Finalize the Atlantic salmon PBA.

» Work with The Conservation Fund to finalize the Atlantic salmon in-lieu fee mitigation instrument.

» Complete a publicly available online library of construction and design practices that will be used to educate partner agencies, contractors, and the general public about best practices.

» Document the changes in MaineDOT's workflow for ESA consultations in order to institutionalize the process changes.

» Develop a Geographic Information Systems-based corridor-level decision support tool that will score potential projects based on the level of risk.

» Collaborate internally to incorporate the risk assessment matrix into MaineDOT's asset management process.

Insights on Eco-Logical

» Eco-Logical provides a framework for holistically and concurrently addressing many potential environmental impacts, including endangered species habitat, climate change, and stormwater treatment.

» Discussing how Eco-Logical can support an agency in reaching its goals can help make its message more compelling and encourage buy-in from partners.

» Close cooperation with partners is a key step in the Eco-Logical process. MaineDOT is working closely with agency partners to finalize the PBA.

"The Eco-Logical process is not just a lofty policy document; we're actually doing this here in Maine.... It really is functional and practical, and if you approach issues through this landscape lens, it can solve many problems."

— MaineDOT staff member

Project Summaries

Michigan Department of Transportation (MDOT) - Implementing an Eco-Logical Approach in the I-75 Corridor in Southeast Michigan

Schedule: June 2013-Sept 2015   **Total Cost:** $250,000

Project Goals

MDOT is working to develop a robust, collaborative Regional Ecosystem Framework (REF) for the Southeast Michigan / Lake Erie Coastal region that will identify priority locations for mitigation and conservation, resulting in improved environmental outcomes and increased regulatory certainty for projects along the I-75 corridor.

Process

MDOT established a Technical Advisory Committee (TAC) to assist in the development of the REF. The TAC includes representatives from more than 10 resource, regulatory, and planning agencies. MDOT will also execute agreements with regulatory agencies to improve coordination, share data, and implement the REF. In addition, MDOT will establish Conservation Plan Action Teams to develop a Conservation Action Plan (CAP).

Recent Activities and Accomplishments

» Worked with the TAC to choose seven conservation targets for the study area: coastal tributaries, inland wetlands, wildlife connectivity, globally rare natural communities, aerial migrants, migratory fish, and bats (Northern Long Eared and Indiana). For each conservation target, a group of stakeholders and experts evaluated threats to reaching the target.

» Executed a statewide cooperative Geographic Information Systems (GIS) agreement in January 2015 with the Michigan Department of Natural Resources (DNR) to facilitate data-sharing between the two agencies.

» With added data, eliminated bats as a conservation target and identified four areas of threat to the six remaining targets: Roads and Run-off; Agricultural Non-Point Source Pollution and Drainage Systems; Invasive Species; and Urban Development/Non-Point Run-off.

» Executed a *Master Agreement Concerning Interagency Collaboration* with the Michigan DNR in May 2015.

Michigan Department of Transportation

Timeline of Deliverables

June 2013: Project kick-off
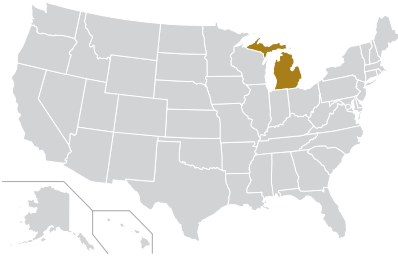
Sept 2014: 1st public outreach meeting

Jan 2015: Data sharing agreement with DNR

May 2015: Master Interagency Cooperation Agreement with DNR

Future Steps

» Finalize the REF and CAP.

» Hold final TAC and public outreach meetings.

» Hold additional workshops with the Conservation Plan Action Teams to complete the prioritization of action items.

» Work with the TAC to continue public outreach around the CAP.

» Work with the Southeast Michigan Council of Governments (SEMCOG) to integrate the different data layers and processes from creating the REF into SEMCOG's long-range transportation plan.

» Use the information from the REF to inform activities for other transportation projects in the region.

Insights on Eco-Logical

» Compiling GIS data such as land use and water quality into one place improved coordination and relationships among partners. The consolidated data will also be helpful for future wetland impact mitigation and road-stream crossing projects.

» MDOT's IAP project strengthened its relationship with the Michigan DNR by demonstrating the value that increased collaboration between transportation planning and conservation efforts can bring.

» Planning activities have helped take resource agency relationships to a new working level where MDOT has jointly worked with partners to identify wetland mitigation sites and is joining the local Weed Cooperative Management Area.

Project Summaries

North Central Texas Council of Governments (NCTCOG) – Applying an REF and Implementing Mitigation as Part of a Regional Shared Mitigation Program

Schedule: July 2013-Dec 2015   **Total Cost:** $225,000

Project Goals

NCTCOG is identifying focus areas for mitigation and enhancement by updating its Regional Ecosystem Framework (REF) with additional environmental data from 18 stakeholders to build a priority sub-watershed map.

Process

NCTCOG worked with agency partners to update its REF and develop maps of priority watersheds and potential mitigation areas. NCTCOG applied the REF to a pilot corridor, the Loop 9 Southeast Corridor, to determine the feasibility of using the REF for corridor-level conservation and mitigation.

Recent Activities and Accomplishments

» Updated the REF with additional information from agency partners to ensure that the REF uses the most current data available and reflects regional conservation priorities.

» Developed a prioritized list and maps of 12 key sub-watersheds in order to guide conservation and transportation planning in the region.

» Developed the Loop 9 Corridor Area Conservation Vision, a pilot process that applies the REF to a corridor-level conservation strategy.

» Met with staff at the U.S. Environmental Protection Agency to discuss the next steps for implementing a pilot shared value mitigation (SVM) program.

» Held two stakeholder meetings with partners from resource and regulatory agencies, transportation agencies, and non-governmental organizations (NGOs) to discuss the REF and how it fits into the planning process.
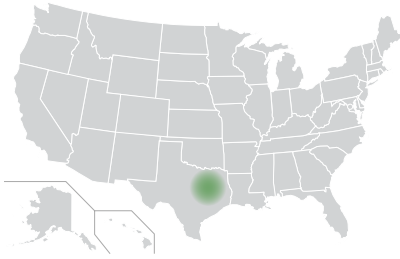
North Central Texas Council of Governments

Timeline of Deliverables

June 2013: Project kick-off

June 2014: 1st stakeholder meeting

Fall 2014: Updated REF

Jan 2015: Loop 9 Area Conservation Vision

Future Steps

» **Pursue the SVM program effort** by meeting with additional resource agencies and NGOs.

» Develop an interactive mapping website to house the updated REF with the capability for partners to upload proposed infrastructure project layers.

Moving forward from its IAP project, NCTCOG plans to:

» Incorporate REF data and additional Eco-Logical ideas into the next update to its metropolitan transportation plan for the region.

» Strengthen relationships with resource and regulatory partners to be engaged in one another's strategic planning processes.

» Conduct outreach to other agencies and the consultant community to facilitate trainings and information-sharing based on NCTCOG's experience implementing Eco-Logical. Topics may include developing and updating an REF, regional tolling analysis, and mitigation approaches.

Insights on Eco-Logical

» NCTCOG has noticed increased communication internally and cross-agency by implementing the Eco-Logical approach.

» Consistent coordination with partner agencies, such as local government and resource and regulatory agencies, can shorten timelines in project development.

» NCTCOG's updated REF enables a focus on natural environment factors in its planning region, such as species rarity and quantity of habitat. In addition, NCTCOG is considering ways to expand resource tracking and mitigation opportunity identification to the built environment, including historic and archaeological resources.

Project Summaries

Schedule: June 2013-July 2015   **Total Cost:** $218,000

Project Goals

PPACG is the designated metropolitan planning organization for the Colorado Springs urbanized area for the Pikes Peak region. PPACG updated its Regional Ecosystem Framework (REF) for the region and developed an Integrated Regional Management Plan (IRMP) to guide mitigation activities in the area.

Process

PPACG worked with a stakeholder group to develop a prioritized list of conservation targets and mitigation sites and to update the region's REF. PPACG is also developing an online platform for the IRMP, which will allow partners to identify transportation projects and potential mitigation sites associated with the project's impacts and partner agency projects.

Recent Activities and Accomplishments

» Held 4 stakeholder steering committee meetings, which resulted in the identification of 180 conservation targets to include in the IRMP.

» Mapped more than 300 transportation projects that will be included in the 2040 update of the PPACG regional transportation plan (RTP).

» Developed a conservation priority rating system and, for each proposed transportation project, estimated the number of acres of affected land.

» Developed an IRMP spatial database that provides a list of mitigation targets, with total acres of mapped occurrences and impacted acres.

» Created a list of conservation elements, with conservation status ranks and mitigation bin assignments; each bin shows different types of mitigation targets.

» Identified potential mitigation sites.

PART ONE   PART TWO   PART THREE

Pikes Peak Area Council of Governments

Timeline of Deliverables

June 2013: Project kick-off
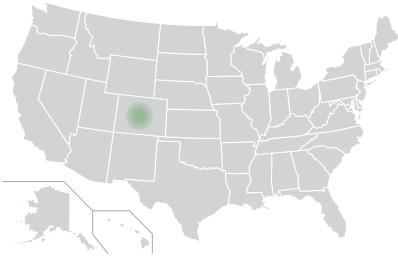
June 2014: 1st stakeholder committee meeting

July 2015: Mitigation database completed

July 2015: Integrated regional mitigation plan

Future Steps

» Develop a web-based IRMP, which will allow PPACG, other public agencies, non-profits, and private stakeholders to easily access and use the IRMP.

Looking forward, PPACG plans to further integrate Eco-Logical into agency practices by:

» Exploring how it can use cost-benefit analyses to evaluate the benefits of mitigation at particular sites.

» Using the framework and methodology developed during its IAP project during the updates of its 2040 and 2045 RTPs to ensure that conservation and mitigation priorities are incorporated into regional transportation planning.

» Integrating the IRMP into a Green Infrastructure Plan for the region.

Insights on Eco-Logical

» When engaging partners, PPACG tailored its message to emphasize how Eco-Logical would benefit their missions and the need to collaborate on joint project opportunities.

» Consider how agency interests are represented in the stakeholder engagement process. PPACG coordinated with 19 agencies and organizations during the course of its IAP project and used webinars to allow stakeholders to participate remotely.

"We're trying to be as deliberate with mitigation projects as we are with transportation projects to make sure we provide the region with the best overall benefits."

— PPACG staff member

Project Summaries

Schedule: June 2013 - July 2014   **Total Cost:** $25,000

Project Goals

For its IAP project, AMBAG compiled an inventory of existing natural resource data and developed a Regional Ecosystem Framework (REF) for the three-county Monterey Bay region. AMBAG's goals were to: (1) identify sensitive resources in the region to give transportation project managers a better understanding of the potential impacts and mitigations associated with transportation projects; and (2) promote long-term resource planning and early mitigation.

Process

AMBAG worked with State and Federal resource agencies, counties, and non-governmental organizations to compile an inventory of existing natural resource data and produce a consolidated set of maps.

Recent Activities and Accomplishments

AMBAG completed its IAP project in July 2014 with its report, "Monterey Bay Area Sensitive Resource Mapping Project." For its IAP project, AMBAG:

» Compiled and mapped data on sensitive resources, including: wetlands, liquefaction zones, select plant species, select animal species, coastal zones, sensitive farmlands, wildlife corridors, parks, and other protected areas.

» Developed an REF—a series of 32 maps that show the intersection between planned regional transportation projects and sensitive resources.

» Developed a web-based platform for exploring and downloading the data in the REF.

PART ONE   PART TWO   PART THREE
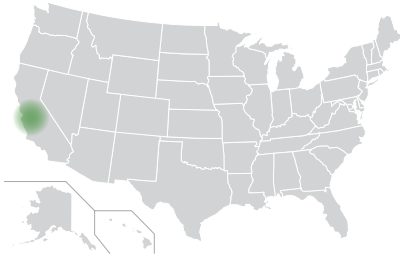
Association of Monterey Bay Area Governments

Sept 2013: Project kick-off

July 2014: REF completed

Timeline of Deliverables

Sept 2013 - July 2014: Compilation, review, verification, and mapping of data

Future Steps

Moving forward from its IAP project, AMBAG plans to:

» Continue to promote use of the REF by transportation agencies at the region's 3 counties and 21 cities through Technical Advisory Committee meetings and by providing Geographic Information Systems mapping services.

» Use its Finance Working Group to identify funding sources such as the California Natural Resources Agency Environmental Enhancement and Mitigation Grant Program to support early consultation and mitigation for future regional transportation projects.

Insights on Eco-Logical

» Although the California Office of Historic Preservation (OHP) was unable to provide AMBAG with archaeological resource data due to concerns about data confidentiality, AMBAG found that coordination with OHP sparked a useful dialogue about how archaeological resource data could be more effectively used in transportation project development.

"The maps produced for our IAP project allow transportation project managers to quickly identify potential resource conflicts and apply mitigation and avoidance strategies early in the project development process."

— AMBAG staff member

Project Summaries

California Department of Transportation (Caltrans) -
Applying Lessons Learned from the Highway 89 Stewardship Team

Schedule: July 2013-Dec 2015   **Total Cost:** $25,000

Project Goals

Caltrans is building upon the framework of the interagency Highway 89 Stewardship Team, which focuses on reducing the high animal-vehicle collision rates on 2-lane highways typical of 265,000 miles of US highways across public lands, by mentoring two new stewardship teams in northern and southern California.

Process

The Highway 89 Stewardship Team facilitated the growth of two nascent interagency Highway Stewardship Teams along SR 139 in Modoc County (Northern Team), and SR 41 in the Sierra National Forest accessing Yosemite National Park (Southern Team), by training the teams in transportation ecology and in strategic planning for mitigating animal/vehicle collisions.

Recent Activities and Accomplishments

» Met twice at each team's location to identify issues and opportunities for habitat connectivity and to prioritize mitigation for wildlife-vehicle collisions.

» Conducted a field visit with the Modoc Team to review the areas of concern and discuss strategies for planning and mitigating the seasonal collisions.

» Mentored and facilitated interagency partnerships to identify appropriate mitigation strategies within Yosemite National Park and Sierra National Forest for minimizing impacts to the rare Pacific fisher and Great Gray Owls as well as other species.

» Mentored the new teams in developing their team visions, long-term action plans, and team organizational structures, including public outreach.

» Engaged researchers at U.S. Forest Service to develop a long-term research strategy for the Highway 89 Stewardship Team.

California Department of Transportation

Timeline of Deliverables
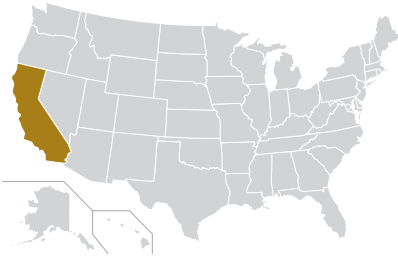
July 2013: Project kick-off; Northern and Southern Teams formed

Aug 2013: First training course

July 2013 - June 2015: Stakeholder outreach

Summer 2015: Second training course

Future Steps

Moving forward, the Highway 89 Stewardship Team and the new teams—now named the Highway 139 Stewardship Team and the Sierra-Yosemite Road Ecology Team—plan to:

» Send six remaining Team members to the next "Innovative Approaches to Wildlife and Highway Interactions" course in summer 2015.

» Collaborate with partners to review and finalize action plans by October 2015.

» Present action plans to Caltrans' agency management and other State and Federal resource agencies to consider how the connectivity and mitigation findings from the Team will integrate into future transportation plans.

Insights on Eco-Logical

» Through productive collaboration with local, State, Federal, and private entities and transportation districts, the Northern and Southern Teams improved decisionmaking and stakeholder involvement about wildlife concerns in their regions, such as the Northern Team's inclusion of their site in Caltrans' Long Term Transportation Plan.

» While no transportation projects are currently planned in the Teams' corridors, their early coordination activities provide a strong starting point to quickly leverage funding opportunities as they arise.

» The mitigation strategies can be included in agency land and species management decisions, highway asset management planning, and public / private resource management strategies.

Project Summaries

Missouri Department of Transportation (MoDOT) - Improved Natural Resource Information in Missouri: Natural Heritage Review Website Updates and MOA

Schedule: June 2013-Sept 2015   **Total Cost:** $25,000

Project Goals

MoDOT sought to strengthen coordination and communication between conservation resource agencies and transportation agencies by improving the sharing of natural resource information on the Missouri Department of Conservation (MDC) Natural Heritage Review (NHR) website.

Process

MoDOT worked with MDC to hold stakeholder meetings to gain feedback about the NHR website, formalize a Memorandum of Agreement (MOA) to improve the sharing of natural resource information, and establish best management practices (BMPs) to protect sensitive species from the impacts of transportation projects.

### Recent Activities and Accomplishments

» Signed a MOA with MDC for MDC's support of the MoDOT User Incentive project.

» Revised 26 existing BMPs for species, most of which are Federally listed. MoDOT incorporated transportation-specific language into the BMPs, familiar to MoDOT contractors, to ensure clarity for users.

» Completed a report that describes recommended changes to the NHR website, based on feedback from five stakeholder organizations.

» Awarded contract to NatureServe to revise the NHR website to implement the proposed changes.

"We had an idea of the kind of feedback that we would receive, but the level of stakeholder engagement and input has been enlightening and tremendous."

— MoDOT staff member

Missouri Department of Transportation

Timeline of Deliverables
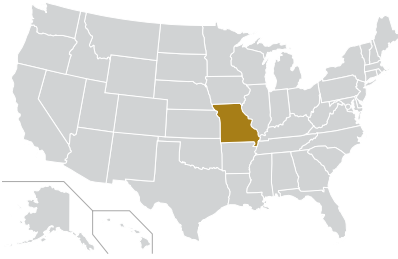
June 2013: Project kick-off

Dec 2014: NHR Website Report

Sept 2013: 1st stakeholder meeting

Sept 2015: MOA and BMPs finalized

Future Steps

» **Finalize the BMPs**, which are currently under Legal review.

Moving forward from its IAP project, MoDOT plans to:

» **Provide training on using the updated NHR website** to ensure that MoDOT staff, consultants, and partner agencies understand the website's new functionality.

» Develop an **online-based training for local public agencies and consultants regarding procedures for Threatened and Endangered Species screening**, which will include resources such as the new MDC website developed from the IAP project and clarification on submittals to MDC and the U.S. Fish and Wildlife Service for screening and MoDOT for determination.

Insights on Eco-Logical

» Four face-to-face meetings with stakeholders from State and Federal agencies were extremely helpful for gathering candid feedback on the NHR website.

» MoDOT used a primary point of contact for its IAP project to lead efforts, organize stakeholder meetings, gather input from partner agencies, and ensure follow-up.

» Applying the Eco-Logical approach helped MoDOT build new and strengthen existing connections with partners. Pre-existing working relationships with many stakeholders provided a strong starting point for MoDOT to launch its IAP project.

Project Summaries

New Hampshire Department of Transportation (NHDOT) - Implementing a Pilot Project with the New Hampshire Natural Heritage Bureau to Assess Wetlands Impacts

Schedule: June 2013-June 2015   **Total Cost:** $24,997

Project Goals

NHDOT sought to improve the quality, consistency, and efficiency of wetlands impacts assessments conducted for NHDOT roadway projects.

Process

Through a Memorandum of Understanding (MOU), NHDOT partnered with the New Hampshire Natural Heritage Bureau (NHNHB) to implement a pilot project that uses a standardized wetland assessment methodology called the Ecological Integrity Assessment (EIA) to assess wetlands impacted by roadway projects.

Recent Activities and Accomplishments

NHDOT completed its IAP project in June 2015. For the project, NHDOT:

» Conducted two outdoor training sessions at Pequawket Pond in New Hampshire to train NHDOT staff on how to use the EIA methodology in the field.

» Coordinated with NHNHB and NatureServe (the non-profit organization that developed the EIA) to develop a streamlined scorecard for EIA wetlands assessments.

» Completed a final report, "Eco-Logical Integrity Assessment Pilot Project," which evaluates the EIA against the existing highway methodology framework.

New Hampshire Department of Transportation

Timeline of Deliverables
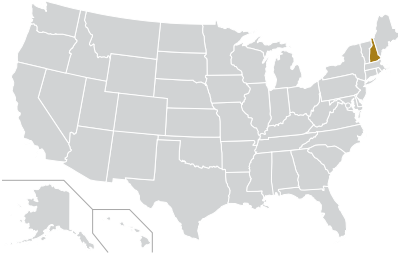
June 2013: Project kick-off

Fall 2013: Signed MOU between NHDOT and NHNHB

May 2014: EIA scorecard developed

Oct 2014: Field trainings on EIA completed

June 2015: Delivered final report

Future Steps

Moving forward from its IAP project, NHDOT plans to:

» Work with the New Hampshire Department of Environmental Services (NHDES) to ensure that the EIA methodology will comply with NHDES's upcoming revisions to permitting regulations.

» Evaluate the need for a programmatic agreement or a Memorandum of Agreement between NHDOT and NHNHB to formalize their relationship moving forward.

» Continue to educate staff and partners about the EIA methodology and the overall Eco-Logical process in order to ensure agency adoption and stakeholder buy-in.

Insights on Eco-Logical

» Building a strong partnership with NHNHB was key to the success of the IAP project. The two agencies worked together throughout the process to refine the EIA, train staff, and write the report.

» NHDOT noted that, for agencies considering the Eco-Logical approach, it can help to start with a small project and then leverage early successes to build momentum for larger initiatives.

Project Summaries

Ohio-Kentucky-Indiana Regional Council of Governments (OKI) -
Coordinating State Natural Heritage Database Data

Schedule: June 2013-June 2014   **Total Cost:** $24,992

Project Goals

The OKI IAP User Incentive project integrated data from three Ohio, Kentucky, and Indiana natural heritage databases with OKI's regionally significant environmental resource data, and used the integrated data to reduce the environmental impacts of transportation projects that OKI reviews and funds. The natural heritage databases include data about endangered species and threatened species and significant habitats.

Process

OKI implemented data-sharing agreements with State agencies in Ohio, Kentucky, and Indiana and applied the data to produce updated maps of regionally significant environmental resources in the Cincinnati region.

Recent Activities and Accomplishments

OKI completed its IAP project in June 2014 with its report, "Natural Heritage Data: Supplemental Information for OKI Environmental Consultations in Regional Transportation Planning." As part of the IAP project, OKI:

» Finalized data sharing agreements with the Indiana Natural Heritage Data Center, Kentucky State Nature Preserves Commission, and the Ohio Natural Heritage Program.

» Collected, compiled, and mapped natural heritage data for the entire three-State region in order to develop a comprehensive database of regionally significant environmental resources.

Since completing its IAP project in June 2014, OKI has:

» Used the natural heritage data to evaluate the environmental impacts of the Route 536 Corridor in Kentucky and identify potential red flags.

» Launched an interactive online map with regional natural resource data to allow partner agencies to easily access the data.
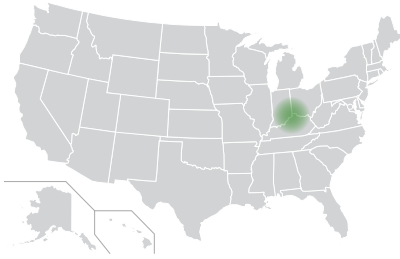
Ohio-Kentucky-Indiana Regional Council of Governments

Timeline of Deliverables

June 2013: Project kick-off

Oct 2013: Meetings with State natural heritage programs

April 2014: Finalized data-sharing agreements

June 2014: Integrated maps and methodology report

Future Steps

Moving forward from its IAP project, OKI plans to:

» Use the updated natural resource data to review potential projects for feasibility before inclusion in the region's updated long-range transportation plan.

» Encourage OKI staff and local jurisdictions to refer to the natural heritage data during field reviews of proposed transportation projects.

» Work with the Ohio Natural Heritage Program and Kentucky State Nature Preserves Commission to renew data-sharing agreements that are due to expire.

Insights on Eco-Logical

» According to OKI, transparency and strong existing relationships allowed it to establish the data-sharing agreements quickly. Agencies were willing to work with OKI because they supported OKI's goal to reduce the ecological impacts of transportation projects.

» OKI uses its updated natural heritage data to identify environmental concerns, screen projects for feasibility, and communicate to partners about environmental impacts—all aspects of improved environmental decisionmaking.

Project Summaries

Southern California Association of Governments (SCAG) -
Creating a Regional Open Space Database

Schedule: June 2013-Jan 2015   **Total Cost:** $25,000

Project Goals

SCAG worked to identify important areas for conservation in a 6-county region encompassing 191 cities in southern California and advance the regional discussion on landscape-level conservation and early mitigation.

Process

SCAG worked with consultants to compile open space data from Federal, State, local, and non-profit sources, develop a regional open space database, and develop a methodology for identifying conservation priority areas.

Recent Activities and Accomplishments

SCAG completed its IAP project in January 2015. For the IAP project, SCAG:

- » Compiled an inventory of more than 75 Geographic Information Systems data sources related to open space in the SCAG region.

- » Wrote a report, "Existing Information and Data Gaps for Natural Resources in the SCAG Region."

- » Developed a methodology for identifying and prioritizing important areas for conservation efforts. This methodology is described in SCAG's report, "Conservation Framework and Assessment."

Building on its IAP project, since January 2015, SCAG:

- » Convened an Open Space Conservation Working Group to develop recommendations for how SCAG should address regional open space conservation, and held five working group meetings.
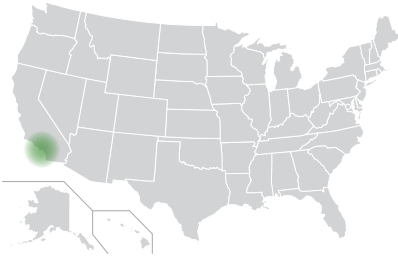
PART ONE   PART TWO   PART THREE

Southern California Association of Governments

Timeline of Deliverables

April 2014: GIS inventory
and report

Jan 2015: Report on conservation
framework and assessment

Future Steps

» Incorporate natural lands and open space into the development of SCAG's regional transportation plan for the first time to ensure that the plan incorporates conservation priorities.

» Include natural lands as part of future climate adaptation planning.

» Implement recommendations currently being developed by the Open Space Conservation Working Group on how SCAG should integrate conservation and open space into regional transportation planning.

» Continue to promote the open space database to agencies in the region through coordination with the Open Space Conservation Working Group, engagement with the County Transportation Commissions, and other stakeholder opportunities.

Insights on Eco-Logical

» SCAG provided regular updates to its board of directors to educate senior decisionmakers about the project. According to SCAG, visual elements like maps were particularly effective in gaining buy-in from board members and stakeholders.

» SCAG's IAP products—the inventory of open space data and the reports—helped start discussions with regional stakeholders about incorporating conservation goals into regional transportation planning.

"The process has helped advanced the conversation on landscape-level habitat conservation and led us to identify a need to specify conservation goals."

—SCAG staff member

IAP Project Points of Contact

Lead Adopter Incentive Projects

ARC – Developing an REF for Proctor Creek Environmental District

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CA-MPO – Testing Application of an Existing REF in Transportation Projects and Conservation Prioritization

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ITD – Coordinating Transportation Planning and Wildlife Management

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MaineDOT – Streamlining Endangered Species Act Consultations

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Michigan DOT – Implementing an Eco-Logical Approach in the I-75 Corridor in Southeast Michigan

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NCTCOG – Applying an REF and Implementing Mitigation as Part of a Regional Shared Value Mitigation Program

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IAP Project Points of Contact

PPACG – Establishing an Integrated Regional Mitigation Plan

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IAP Project Points of Contact

User Incentive Projects

AMBAG – Developing an REF for the Monterey Bay Area Regional Mitigation Plan

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Caltrans – Applying Lessons Learned from the Highway 89 Stewardship Team

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Environmental Management, M-3
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MoDOT – Improved Natural Resource Information in Missouri: Natural Heritage Review Website Updates and MOU

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NHDOT – Implementing a Pilot Project with the New Hampshire Natural Heritage Bureau to Assess Wetlands Impacts

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OKI – Coordinating State Natural Heritage Database Data

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SCAG – Creating a Regional Open Space Database

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Additional IAP Resources

Compilation of Key IAP Lead Adopter Project Deliverables

ARC – Developing an REF for the Proctor Creek Environmental District

REF; testing of methodologies for inclusion in a decision support tool

CA-MPO – Testing Application of an Existing REF in Transportation Projects and Conservation Prioritization

Final report on facilitated stakeholder process; final report on Free Bridge Congestion Relief Project Alternatives; website with REF tool, user guide, and instructional presentation. Available at: www.campo.tjpdc.org/eco-logical/

ITD – Coordinating Transportation Planning and Wildlife Management

ITD-IDFG MOU (User Incentive); web service for accessing IDFG data in IPLAN, additional SGCN data layers

MaineDOT – Streamlining Endangered Species Act Consultations

Programmatic Biological Assessment and mitigation instrument for Atlantic salmon; decision-support tool for prioritizing transportation projects

MDOT – Implementing an Eco-Logical Approach in the I-75 Corridor in Southeast Michigan

Final REF and Conservation Action Plan

NCTCOG – Applying an REF and Implementing Mitigation as Part of a Regional Shared Value Mitigation Program

Updated REF; Loop 9 Corridor Area Conservation Vision; Pilot SVM Program; Interactive Website. Available at: www.nctcog.org/traces/Ref.asp

PPACG – Establishing an Integrated Regional Mitigation Plan

Prioritized set of mitigation actions; updated REF; online Integrated Regional Management Plan

Additional IAP Resources

Compilation of Key IAP User Incentive Project Deliverables

AMBAG – Developing an REF for the Monterey Bay Area Regional Mitigation Plan

REF and accompanying report

Caltrans – Applying Lessons Learned from the Highway 89 Stewardship Team

Completion of the "Innovative Approaches to Wildlife and Highway Interactions" training course by new team members; mitigation action plans for the new project areas; and long-term research strategy for the Highway 89 Stewardship Team

MoDOT – Improved Natural Resource Information in Missouri: Natural Heritage Review Website Updates and MOA

MOA; BMPs; report on proposed revisions to NHR website

NHDOT – Implementing a Pilot Project with the New Hampshire Natural Heritage Bureau to Assess Wetlands Impacts

Training for NHDOT staff on EIA methodology, including pre-field, field, and post-field training; final report

OKI – Coordinating State Natural Heritage Database Data

Data-sharing agreements; integrated maps of natural heritage data; methodology report. Available at: www.oki.org/plans-and-programs/greenspace-program/

SCAG – Creating a Regional Open Space Database

Inventory of open-space GIS data; Report on Existing Information and Data Gaps for Natural Resources; Report on Conservation Framework and Assessment. Available at: www.sustain.scag.ca.gov/Sustainability%20Portal%20Document%20Library/Forms/AllItems.aspx

For more information on these deliverables, please directly contact the project points-of-contact listed on prior pages.