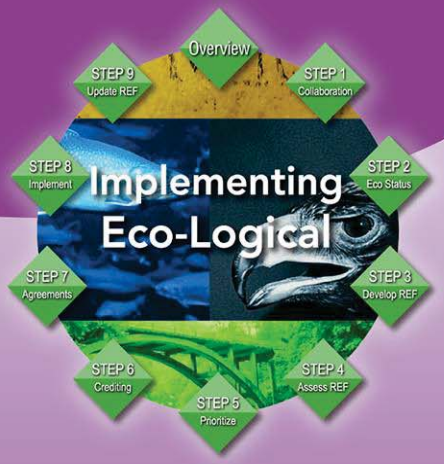
Practical Tips

on Implementing the

Eco-Logical Approach



Live Webinar

November 10, 2016

2:30 – 3:30 PM EST

SHRP2 SOLUTIONS
TOOLS FOR THE ROAD AHEAD

U.S. Department of Transportation
Federal Highway Administration

American Association of State Highway and Transportation Officials
AASHTO

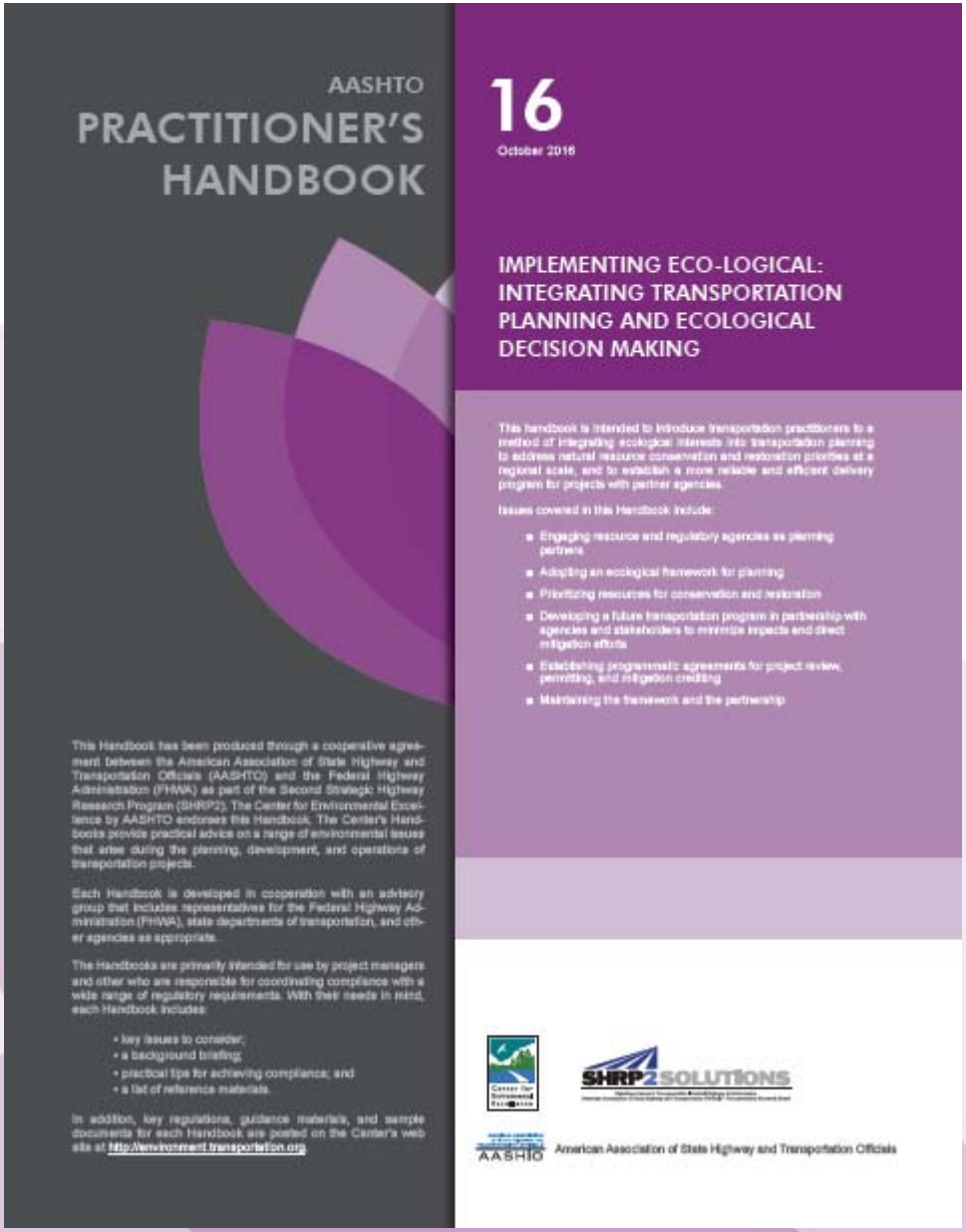
Center for Environmental Excellence

The Implementing Eco-Logical Practitioner's Handbook

Kate Kurgan
AASHTO

Welcome to the Webinar!

- All attendees on listen only mode
- Questions can be submitted in ‘chat’ window of your control panel to the right
- Responses provided at the end of webinar
- Poll



Practitioner's Handbook: Developed through SHRP2 Collaboration

- SHRP2 partnership – AASHTO & FHWA
- Provide technical information in usable format
- Visit our SHRP2 websites
- http://shrp2.transportation.org/Pages/default.aspx
- https://www.fhwa.dot.gov/goshrp2/

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SHRP2 SOLUTIONS
TOOLS FOR THE ROAD AHEAD

Second Strategic Highway Research Program (SHRP2) & Its Focus Areas

- **Safety:** Fostering safer driving through analysis of driver, roadway and vehicle factors in crashes, near crashes, and ordinary driving.
- **Renewal:** Rapid maintenance and repair of the deteriorating infrastructure using already-available resources, innovations, and technologies.
- **Capacity:** Planning and designing a highway system that offers minimum disruption and meets the environmental, and economic needs of the community.
- **Reliability:** Reducing congestion and creating more predictable travel times through better operations.

AASHTO Practitioner's Handbooks

New #16

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- 03 Managing the NEPA Process for Toll Lanes and Toll Roads (August 2016)
- 04 Tracking Compliance with Environmental Commitments/Use of Environmental Monitors
- 05 Utilizing Community Advisory Committees for NEPA Studies
- 06 Consulting Under Section 106 of the National Historic Preservation Act (August 2016)
- 07 Defining the Purpose and Need and Determining the Range of Alternatives for Transportation Projects (August 2016)
- 08 Developing and Implementing an Environmental Management System in a State Department of Transportation (DOT)
- 09 Using the SAFETEA-LU Environmental Review Process (23 U.S.C. 139)
- 10 Using the Transportation Planning Process to Support the NEPA Process
- 11 Complying with Section 4(f) of the U.S. DOT Act
- 12 Assessing Indirect Effects and Cumulative Impacts under NEPA (August 2016)
- 13 Developing and Implementing a Stormwater Management Program in a Transportation Agency
- 14 Applying the Section 404(b)(1) Guidelines in Transportation Project Decision-Making (August 2016)
- 15 Preparing High-Quality NEPA Documents for Transportation Projects
- 16 Implementing Eco-Logical: Integrating Transportation Planning and Ecological Decision Making (October 2016) NEW

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Review Panel for Practitioner's Handbook

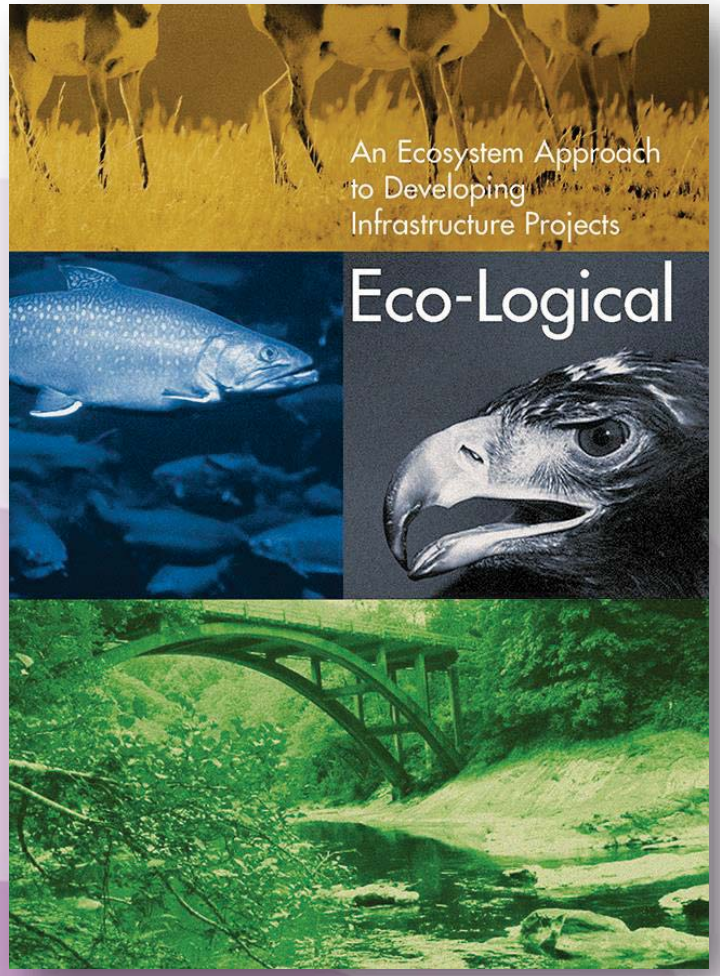
- Margaret Barondess, Michigan DOT
- Kendall Wendling, North Central Texas COG
- Sonna Lynn Fernandez, Idaho Transportation Department
- David Williams, FHWA
- Mike Ruth, FHWA
- Marlys Osterhues, FHWA
- William Malley, Perkins Coie LLP
- Kate Kurgan, AASHTO
- Additional AASHTO, FHWA, and Volpe staff

Today's Agenda

- Introduction to Eco-Logical and Overview of Practitioner's Handbook Format
  - Kate Kurgan, AASHTO
- Examples of Applying Eco-Logical
  - Margaret Barondess, Michigan DOT
  - Craig Casper, Pikes Peak Area COG
  - Judy Gates, MaineDOT
- Questions and Answers

SHRP2 Implementing Eco-Logical

- Landscape-scale approach to transportation project development.
- Transportation agencies collaborate during the planning process.
- Lead to agreed-upon mitigation strategies and timely permit decisions.

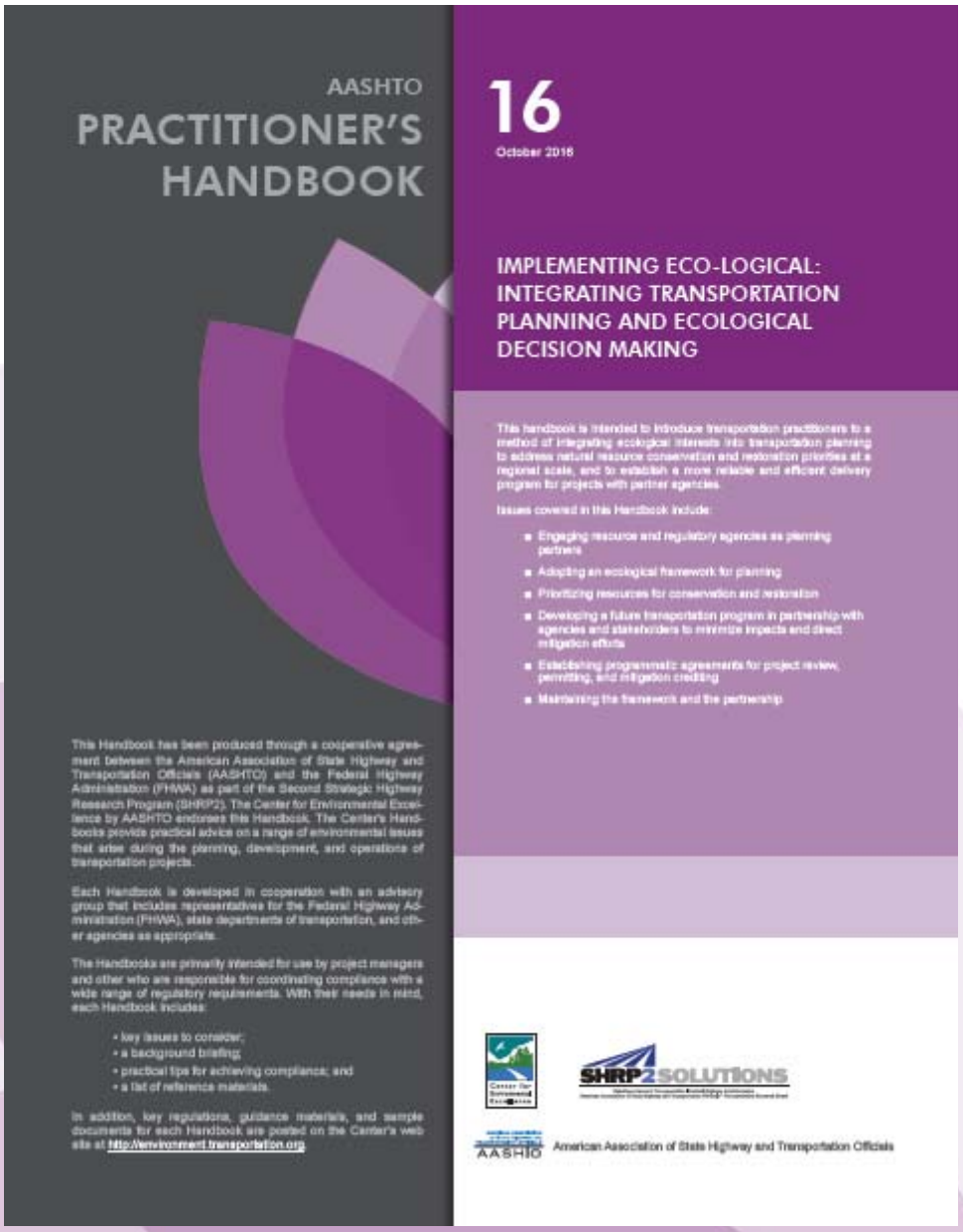


Implementing Eco-Logical Steps

1. Build collaborative partnerships & vision
2. Characterize resource status
3. Create REF
4. Assess effects on conservation
5. Identify & Prioritize actions
6. Develop crediting strategy
7. Develop agreements
8. Implement agreements
9. Update REF over time

Content

- Overview
- Background Briefing
- Key Issues to Consider
- Practical Tips
- Reference Materials



Overview and Background Briefing

- Overview
- Outlines the goals of Eco-Logical
- Background Briefing
  - Regulations
  - Policies
  - Guidance
  - Programs (PEL)

Overview



This Handbook assists transportation agencies in defining a path and realistic goals for implementing the Eco-Logical process for their programs.

In 2006, a team of representatives from eight Federal agencies, including the Federal Highway Administration (FHWA), published *Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects*[1] to present a vision of early collaboration among transportation, natural resource, and regulatory agencies when planning infrastructure projects and programs. In that vision, the interagency collaboration during system-wide planning provides an opportunity for sustaining or restoring ecological systems and their functions and values on an ecosystem scale, while also identifying more context sensitive solutions for the transportation plan, and improving environmental compliance and documentation.

The goals of Eco-Logical are to:

- Help state and local transportation agencies improve decisionmaking;
- Minimize the time and costs associated with planning, environmental reviews, and permitting;
- Provide for more effective environmental mitigation;
- Capitalize on environmental enhancement opportunities; and
- Improve public perception of the transportation project delivery processes.

Many state departments of transportation (DOTs) and metropolitan planning organizations (MPOs) have used some of the methods that make up the Eco-Logical approach. Eco-Logical broadens the scope of interagency cooperation with an overarching methodology to guide both transportation agencies (state DOTs and MPOs) and resource agencies in addressing natural resource issues system-wide. The Eco-Logical concepts for addressing natural resource avoidance, minimization, and mitigation on a broad scale have been organized into a systematic, step-wise process.

Background Briefing

There is a growing emphasis on resource conservation and planning at the regional level rather than the localized, project level. Recent studies recognize that consolidated, regional-level mitigation provides ecological economies of scale by lowering the cost per acre of restoration, improving the restoration success rate, and increasing the protection to resident species with larger, unfragmented habitats (Murcia 1995, Schwartz 1999, Drechsler and Watzold 2009).[2,3,4]

Federal initiatives toward regional infrastructure planning include:

1. Since the late 1980s, there has been a trend toward watershed-level planning to address water quality in accordance with Sections 303 (impaired waters) and 402 (National Pollutant Discharge Elimination System) of the Clean Water Act (CWA)

1 Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects. DOT-VNTSC-FHWA-06-01, FHWA-HEP-06-011 (April 2006). https://www.environment.fhwa.dot.gov/ecological/eco_index.asp

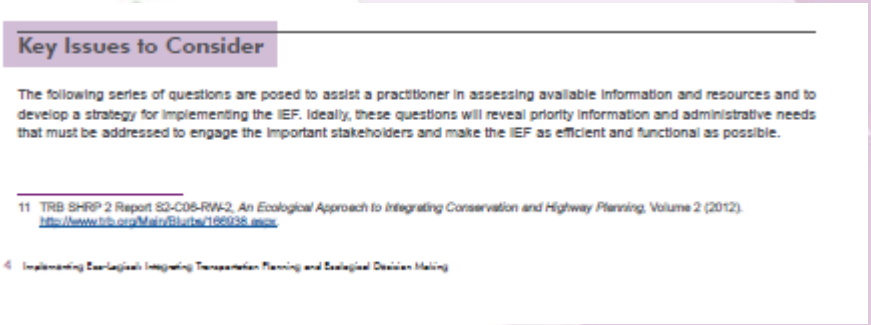
2 Murcia, C. 1995. "Edge effects in fragmented forests: implications for conservation." *Trends in Ecology and Evolution*. 10(2): 58-62. https://www.researchgate.net/publication/49757343_Edge_Effects_in_Fragmented_Forests_Implications_for_Conservation

3 Schwartz, M.W. 1999. "Choosing the appropriate scale of reserves for conservation." *Annual Review of Ecology and Systematics*. 30:83-108. https://www.researchgate.net/publication/223996801_Choosing_the_Appropriate_Scale_of_Reserves_for_Conservation

4 Drechsler, M. and F. Watzold. 2009. "Applying tradable permits to biodiversity conservation: Effects of space-dependent conservation benefits and cost heterogeneity on habitat allocation." *Ecological Economics*. 68(4): 1083-1092. https://www.researchgate.net/publication/23991071_Applying_Tradable_Permits_to_Biodiversity_Conservation_Effects_of_Space-Dependent_Conservation_Benefits_and_Cost_Heterogeneity_on_Habitat_Allocation

Key Issues to Consider

- Overview
- Outlines the goals of Eco-Logical
- Background Briefing
  - Regulations
  - Policies
  - Guidance
  - Programs (PEL)

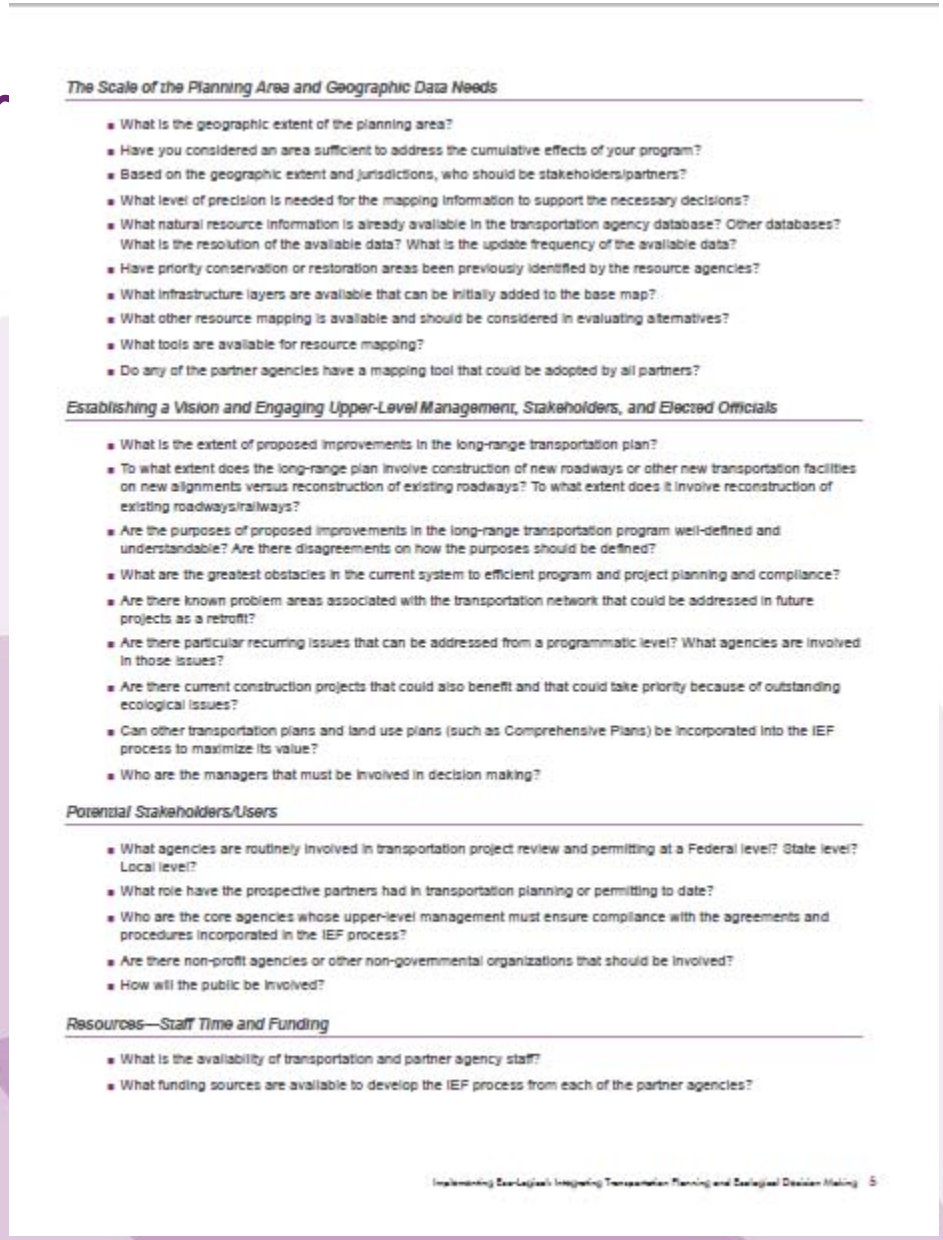


Key Issues to Consider

The following series of questions are posed to assist a practitioner in assessing available information and resources and to develop a strategy for implementing the IEF. Ideally, these questions will reveal priority information and administrative needs that must be addressed to engage the important stakeholders and make the IEF as efficient and functional as possible.

11 TRB SHRP 2 Report S2-C06-RW-2, *An Ecological Approach to Integrating Conservation and Highway Planning*, Volume 2 (2012). http://www.trb.org/Main/Blurbs/166938.aspx.

4 Implementing Eco-Logical: Integrating Transportation Planning and Ecological Decision Making



The Scale of the Planning Area and Geographic Data Needs

- What is the geographic extent of the planning area?
- Have you considered an area sufficient to address the cumulative effects of your program?
- Based on the geographic extent and jurisdictions, who should be stakeholders/partners?
- What level of precision is needed for the mapping information to support the necessary decisions?
- What natural resource information is already available in the transportation agency database? Other databases? What is the resolution of the available data? What is the update frequency of the available data?
- Have priority conservation or restoration areas been previously identified by the resource agencies?
- What infrastructure layers are available that can be initially added to the base map?
- What other resource mapping is available and should be considered in evaluating alternatives?
- What tools are available for resource mapping?
- Do any of the partner agencies have a mapping tool that could be adopted by all partners?

Establishing a Vision and Engaging Upper-Level Management, Stakeholders, and Elected Officials

- What is the extent of proposed improvements in the long-range transportation plan?
- To what extent does the long-range plan involve construction of new roadways or other new transportation facilities on new alignments versus reconstruction of existing roadways? To what extent does it involve reconstruction of existing roadways/railways?
- Are the purposes of proposed improvements in the long-range transportation program well-defined and understandable? Are there disagreements on how the purposes should be defined?
- What are the greatest obstacles in the current system to efficient program and project planning and compliance?
- Are there known problem areas associated with the transportation network that could be addressed in future projects as a retrofit?
- Are there particular recurring issues that can be addressed from a programmatic level? What agencies are involved in those issues?
- Are there current construction projects that could also benefit and that could take priority because of outstanding ecological issues?
- Can other transportation plans and land use plans (such as Comprehensive Plans) be incorporated into the IEF process to maximize its value?
- Who are the managers that must be involved in decision making?

Potential Stakeholders/Users

- What agencies are routinely involved in transportation project review and permitting at a Federal level? State level? Local level?
- What role have the prospective partners had in transportation planning or permitting to date?
- Who are the core agencies whose upper-level management must ensure compliance with the agreements and procedures incorporated in the IEF process?
- Are there non-profit agencies or other non-governmental organizations that should be involved?
- How will the public be involved?

Resources—Staff Time and Funding

- What is the availability of transportation and partner agency staff?
- What funding sources are available to develop the IEF process from each of the partner agencies?

Implementing Eco-Logical: Integrating Transportation Planning and Ecological Decision Making 5

Practical Tips

- Summary
- Goals of each step
- Narrative description

Practical Tips

This section provides a discussion of the main concepts of each of the IEF steps, with recommendations and considerations in approaching each step. The IEF is intended to be flexible to fit the user's program, geography, and resources. The IEF is a step-by-step process, and ideally the users would proceed through all of the steps to address a wide array of ecological issues on a regional, program-wide basis. The team building and data gathering of the earlier steps are pre-requisites for the later steps.

Step 1 | Build and Strengthen Collaborative Partnerships and Vision

The goals of this step are to:

1. Break down organizational barriers.
2. Take an inventory of each stakeholder's goals, priorities, processes, and major areas of concern within a specified planning region.
3. Document significant issues that may affect agency goals and mitigation needs.
4. Create a shared regional planning vision.
5. Obtain and document formal agreements on roles, responsibilities, processes, and timelines that establish or reinforce partnerships.
6. Document criteria and opportunities for using programmatic agreements to better address transportation and conservation planning needs.
7. Identify initial funding options.

The transportation agency, as the responsible party for transportation planning and implementation, typically initiates the IEF process by developing a basic vision and committing an initial investment of resources toward the process. At this stage, the transportation agency begins outreach to other planning organizations and resource agencies in the planning area. The goal of this initial step is to begin identifying the most critical resource conservation needs and creating a shared regional planning vision that addresses all needs and common interests, while also communicating the benefits of the process to all stakeholders.

The Geographic Extent and Scale of the Planning Area. Agencies should jointly consider their overall goals and regional vision in setting a scale for the planning area. Agencies may also consider their own technical capabilities and data availability in selecting a planning area and level of effort. The geographic extent of the planning area and scale of the planning effort

Eco-Logical Online

- https://www.environment.fhwa.dot.gov/ecological/implementingecologicalapproach/default.asp

I-75 Corridor Conservation Plan

Margaret Barondess
Michigan Department of Transportation
Environmental Services Section

Michigan Natural Features Inventory

SEMCOG
Southeast Michigan Council of Governments

MDOT
Michigan Department of Transportation

Implementing Eco-Logical

How do you get started with the Eco-Logical Approach?

1. Build/strengthen collaborative partnerships
2. Integrate ecosystem status, data, and goals
3. Create a regional ecosystem framework
4. Assess regional ecosystem framework
5. Establish and prioritize ecological actions
6. Develop a crediting strategy
7. Develop programmatic agreements and consultations
8. Implement agreements and deliver projects
9. Update regional ecosystem framework

Practitioner's Handbook Practical Tips

- Goals & Summary
  - Geographic areas
  - Team Responsibilities
  - Documentation
  - Mapping Tools
  - Resources

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Step 2 | Characterize Resource Status and Integrate Natural Environment Plans

The goals of this step are to:

1. Compile the existing available data and plans into a refined map that identifies locations of all resources of interest and areas for conservation and mitigation action.
2. Understand historical/long-term trends, priorities, and concerns related to aquatic and terrestrial species and habitats in the region.
3. Identify data gaps that need to be addressed to achieve a complete and reliable product at the appropriate level of resolution and accuracy.
4. Identify past impacts at critical locations, such as stream crossings and migration corridors (especially if retrofitting will be a mitigation option).
5. Arrive at an agreed-upon set of conservation and mitigation goals.

During Step 2, partner agencies identify, assemble, and combine data into a map that can start to guide planning efforts.

Mapping Tools. Web-based mapping tools are available that reference a number of national datasets. Some also allow users to add more-detailed local layers to the database and share that data.

The most effective mapping platform is one that is compatible with and accessible by all potential users, including the stakeholder agencies, planning consultants, agency and consulting design engineers, and construction managers. If the IEF process will be the new mode of operation, all who are expected to follow it must have easy access and be able to integrate their data and plans.

Ecological systems are dynamic and will continue to change over time. The transportation plan will evolve with changing transportation needs. The GIS mapping of resources and infrastructure must be able to be updated easily, with input from each stakeholder. The more integrated the base map is with the resource agencies' own products, the more likely it will be a living database. Ideally, the transportation agency's planned improvements will interface readily and automatically update as the plans are modified. Systems that are "shared" with management responsibilities divided among the stakeholders will be more useful and valuable to project partners.

Important Resources to be Included. Stakeholders should work together to define the list of sensitive resources that will be considered. Recognizing that agencies have unique interests in prioritizing certain types of natural resources, all stakeholders

12 Federal law allows states to enter into funding agreements with Federal agencies (including U.S. DOT), state agencies, and Indian tribes, under which the state provides funds to "support activities that directly and meaningfully contribute to expediting and improving transportation project planning and delivery for projects in that State." See 23 USC 139(j).

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5. Obtain formal agreements on roles, responsibilities, processes, and timelines that establish or reinforce partnerships.
6. Document criteria and opportunities for using programmatic consultation approaches to better address transportation and conservation planning needs.
7. Identify initial funding options.

With a basic vision in mind and the commitment of the transportation planning organization to make the initial investment of resources toward the IEF process, the transportation planning agency (for example, state DOT or MPO), as the responsible party for transportation planning and implementation, begins outreach to other planning organizations and resource agencies in the planning area.

Define the Scale of the Planning Area. Defining the area under the jurisdiction of the planning organization is straightforward. The geographic extent of the planning area and scale of the planning effort will determine the resolution of the mapping data that is relevant. In other words, a broader brush planning effort would not necessarily require high resolution data, although the resolution of the data that is manageable is limited only by

Library Resources

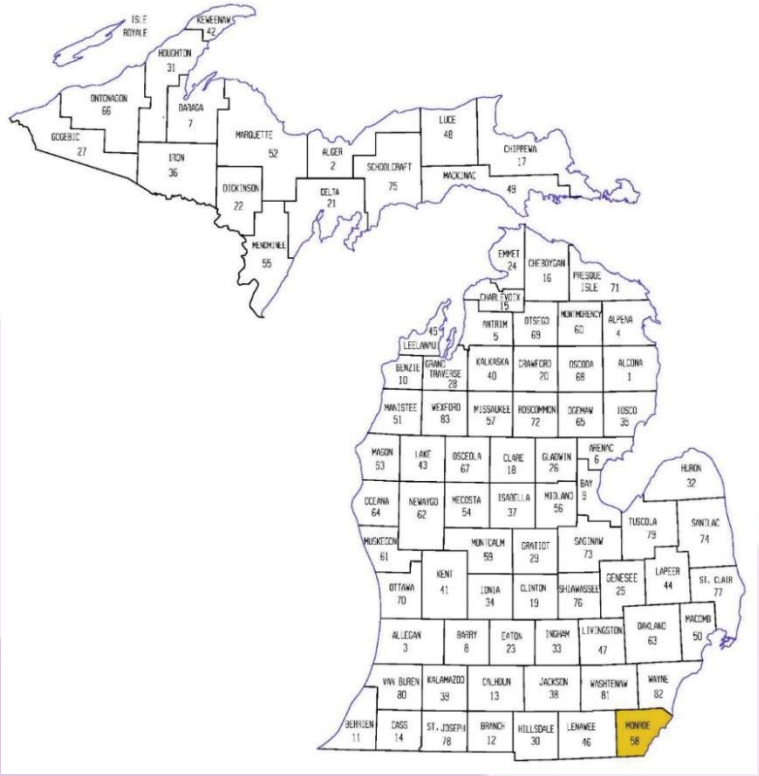
Eco-Logical Webinar on Step 1

Summary of Step 1 from Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects

Practitioner summary of Step 1 from Practitioner's Guide to the Integrated Ecological Framework, Volume 3 SHRP 2

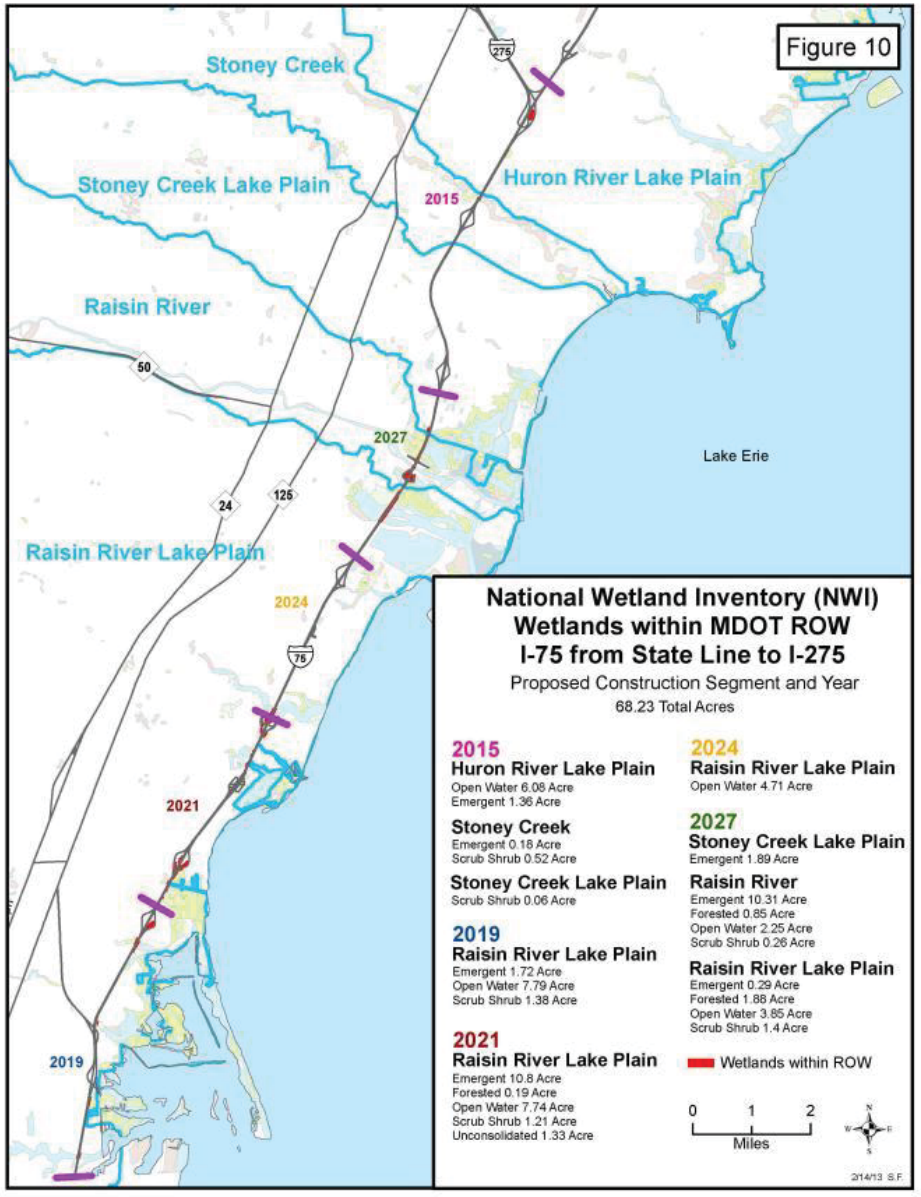
Study Location

- Maumee Lake Plain
- Glacial lake bed
- Flat, poorly drained soils
- Between two high density urban centers (Detroit and Toledo)
- Abundance of exotic species



I-75 Reconstruction

- Busiest truck route
- Aging pavement
- Total reconstruction
- $500 million
- 5 phases



Technical Advisory

Goal of the Project

- To develop and implement a Collaboratively-based Landscape Scale Conservation Plan that facilitates rebuilding the I-75 Corridor while maximizing conservation and restoration outcomes in the region.

What were the benefits of building partnerships?

- Regional level data sharing and organization
- Improved resource agency and public perception of MDOT
- Better mitigation options
- More predictable permitting

Outcome of Partnering: Wetland Mitigation

Outcome of Partnering: Public Outreach

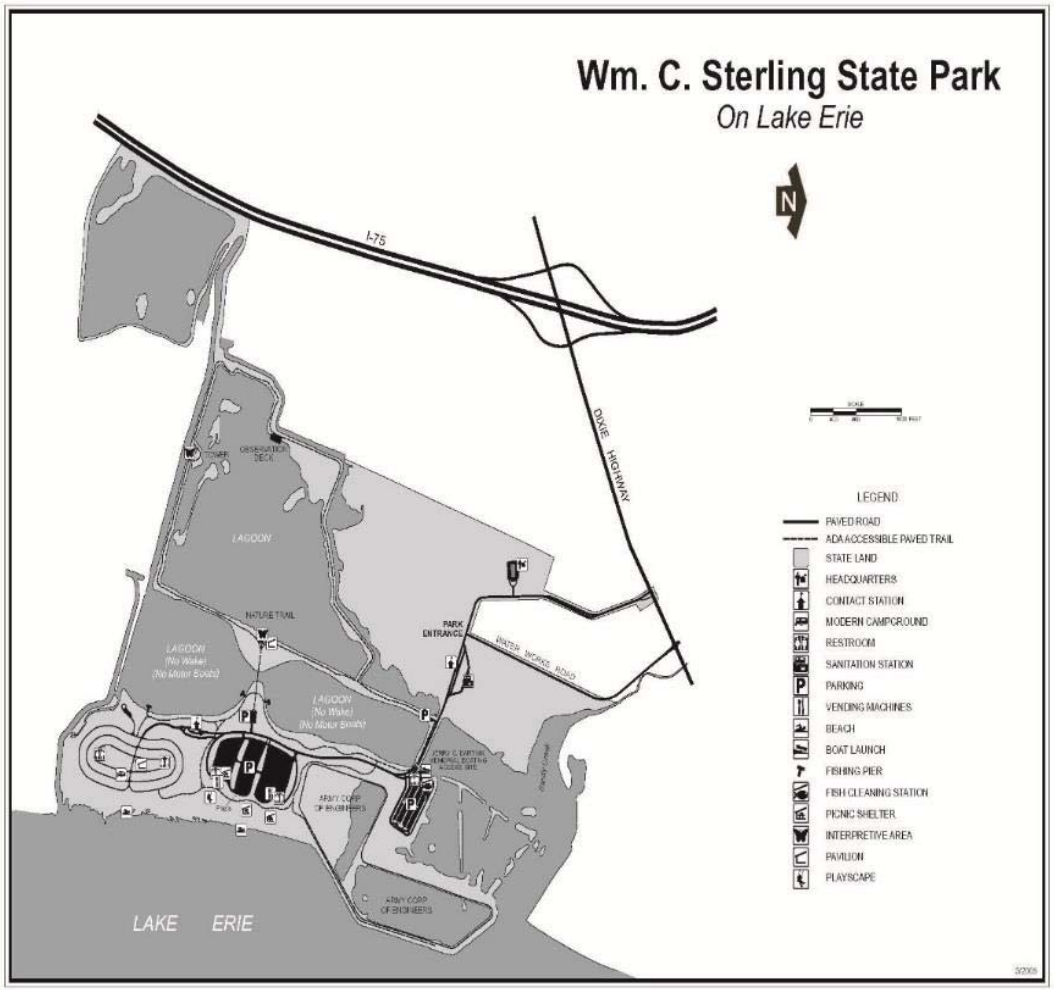
Michigan Natural Features Inventory

Implementing Eco-Logical

NOAA
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
U.S. DEPARTMENT OF COMMERCE

Outcome of Partnering: Better Mitigation

- 16,000 state threatened plants in the Right of Way



Partnership Agreements

- MDOT/MDNR Master
- GIS
- MDEQ/MDNR/MDOT Wetland Mitigation

What were the key factors of our success?

- A dedicated core team with the right mix of knowledge and skills
- Extensive outreach to state and federal regulatory agencies, non-profit organizations and local experts
- Appealing to a larger sense of purpose in tackling water quality problems in the Western Lake Erie Basin.
- Support from the leadership and project development staff at MDOT

Margaret Barondess

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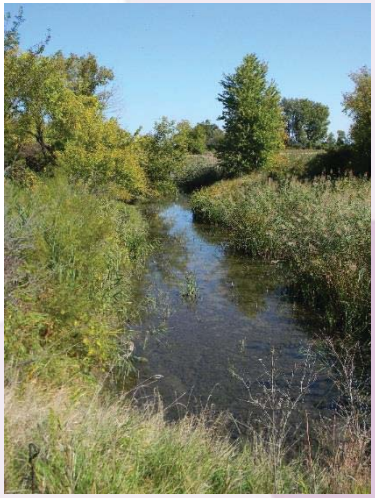
- (517) 335-2621



MDOT
Michigan Department of Transportation

Implementing Eco-Logical

Eco-Logical at Work in Long-term Mitigation

Craig Casper
Pikes Peak Area Council of Governments

How do you get started with the Eco-Logical Approach?

1. Build/strengthen collaborative partnerships
2. Integrate ecosystem status, data, and goals
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7. Develop programmatic agreements and consultations
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9. Update regional ecosystem framework

Practitioner's Handbook Practical Tips

- Goals & Summary
  - Planning Scenarios
  - Impact Assessment
  - Prioritize Actions

Step 3 | Create a Regional Ecosystem Framework (Conservation Strategy + Transportation Plan)

The goals of this step are to:

1. Create the regional ecosystem framework geospatial database, based on mapping and prioritization of resources and transportation and land-use plans.
2. Create transportation program scenarios that address short- and long-term improvements and include all features that may cause impacts to natural resources.
3. Obtain a shared understanding of the current and planned/proposed locations, quantities, and patterns of all development, uses, and resource impacts in the region.

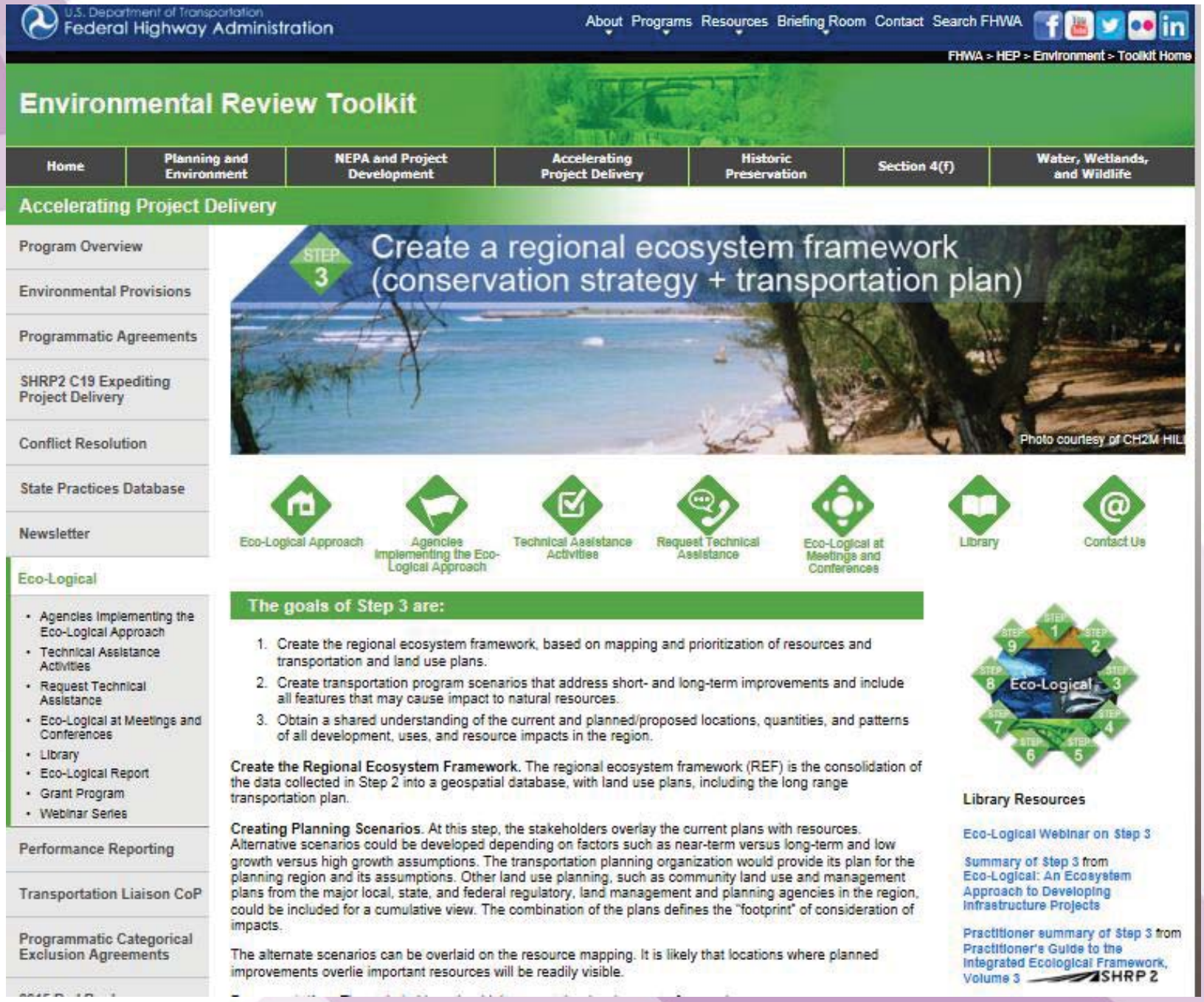
The purpose of Step 3 is to overlay transportation plans and projects with conservation priorities and land uses. This can help partners clearly see where there are areas that may be potentially impacted by transportation projects and where opportunities may exist for conservation.

The Regional Ecosystem Framework (REF). The REF is a geospatial database that includes the data collected in Step 2, as well as land-use plans and the long-range transportation plan. Using the mapping tool(s) selected in Step 2, the stakeholders collect and organize the available natural resource information to understand the ecosystem and to gain consensus on the most important areas for conservation and restoration potential.

Planning Scenarios. At this step, the stakeholders overlay the current transportation plans with resources. Alternative scenarios could be developed depending on factors such as near-term versus long-term, low growth versus high growth, and various program funding assumptions. The concepts of scenario planning in the FHWA Scenario Planning Guidebook are directly applicable here. The transportation agency would provide the transportation plan for the planning region, including identification of transportation projects that should be included the scenarios. The scenarios also could include assumptions about future land use changes based on community land use and management plans from the major local, state, and Federal regulatory, land management, and planning agencies in the region. The combination of the transportation projects and anticipated land use changes would define the "footprint" of future development for the purposes of each scenario; the footprint would provide the basis for estimating environmental impacts under each scenario. Partners should collaboratively define the planning scenarios and then ensure that the REF is designed to illustrate those scenarios. The alternate scenarios can be overlaid on the resource mapping, which will likely show locations where planned improvements overlie important resources.

The conclusion of Step 3 is a good time for the team to share the collection of the natural resource information and overlay of the proposed land use and transportation system improvements with the public. This also provides an opportunity to gather additional information from the public about natural resources in the planning area.

Documentation. The stakeholders should document the development of scenarios. The FHWA Scenario Planning Guidebook recommends visual documentation of scenarios along with a narrative or set of assumptions to describe the developed or modeled scenarios. Documentation will help communicate with partners and the public about how the REF was developed, which data was included, and how planning scenarios were selected.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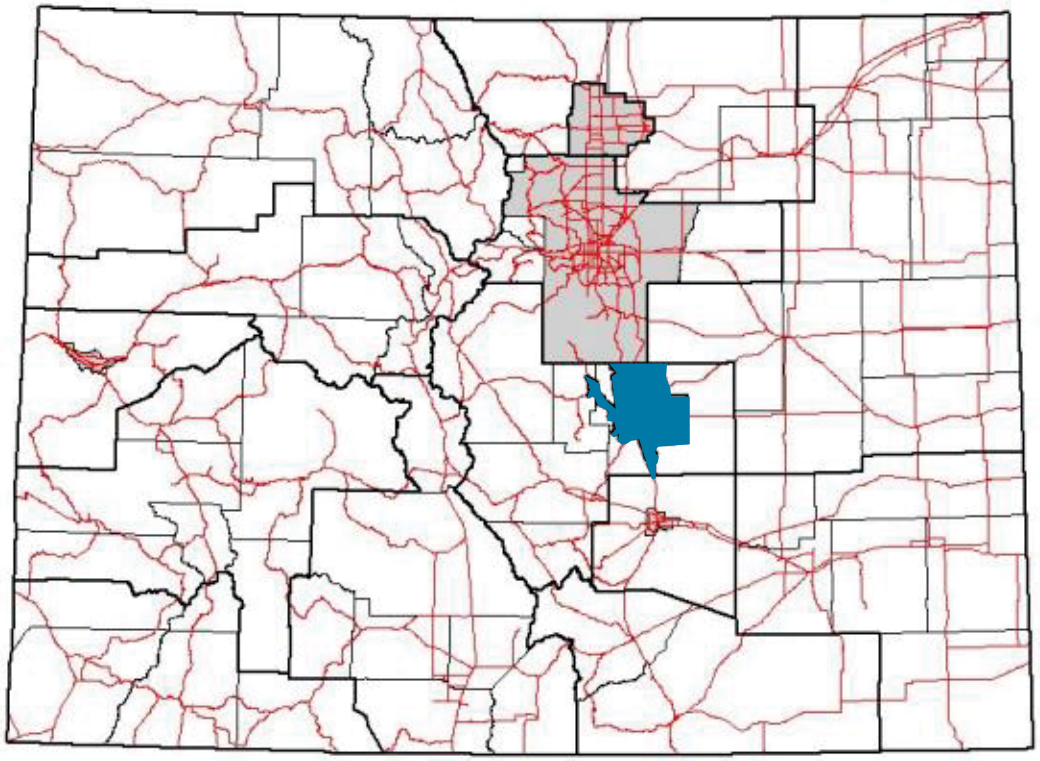
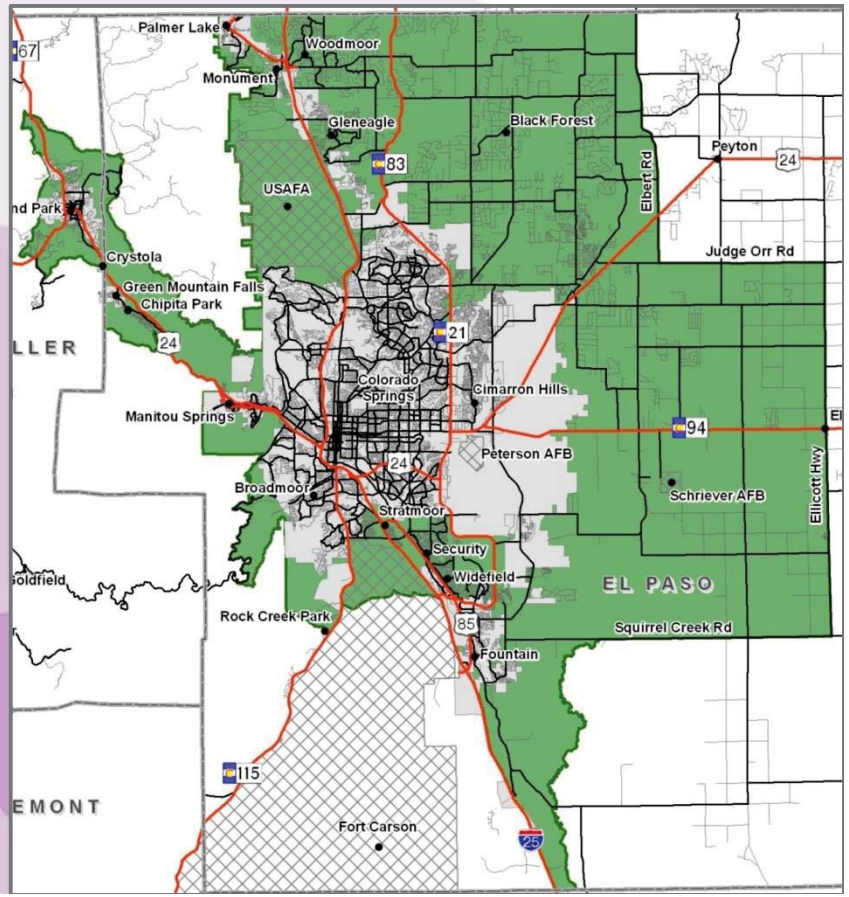
Performance Reporting
Transportation Liaison CoP
Programmatic Categorical Exclusion Agreements
STEP 3
Create a regional ecosystem framework (conservation strategy + transportation plan)
Photo courtesy of CH2M HILL
Eco-Logical Approach
Agencies Implementing the Eco-Logical Approach
Technical Assistance Activities
Request Technical Assistance
Eco-Logical at Meetings and Conferences
Library
Contact Us
The goals of Step 3 are:
1. Create the regional ecosystem framework, based on mapping and prioritization of resources and transportation and land use plans.
2. Create transportation program scenarios that address short- and long-term improvements and include all features that may cause impact to natural resources.
3. Obtain a shared understanding of the current and planned/proposed locations, quantities, and patterns of all development, uses, and resource impacts in the region.
Create the Regional Ecosystem Framework. The regional ecosystem framework (REF) is the consolidation of the data collected in Step 2 into a geospatial database, with land use plans, including the long range transportation plan.
Creating Planning Scenarios. At this step, the stakeholders overlay the current plans with resources. Alternative scenarios could be developed depending on factors such as near-term versus long-term and low growth versus high growth assumptions. The transportation planning organization would provide its plan for the planning region and its assumptions. Other land use planning, such as community land use and management plans from the major local, state, and federal regulatory, land management and planning agencies in the region, could be included for a cumulative view. The combination of the plans defines the "footprint" of consideration of impacts.
The alternate scenarios can be overlaid on the resource mapping. It is likely that locations where planned improvements overlie important resources will be readily visible.
Eco-Logical
Library Resources
Eco-Logical Webinar on Step 3
Summary of Step 3 from Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects
Practitioner summary of Step 3 from Practitioner's Guide to the Integrated Ecological Framework, Volume 3
SHRP 2

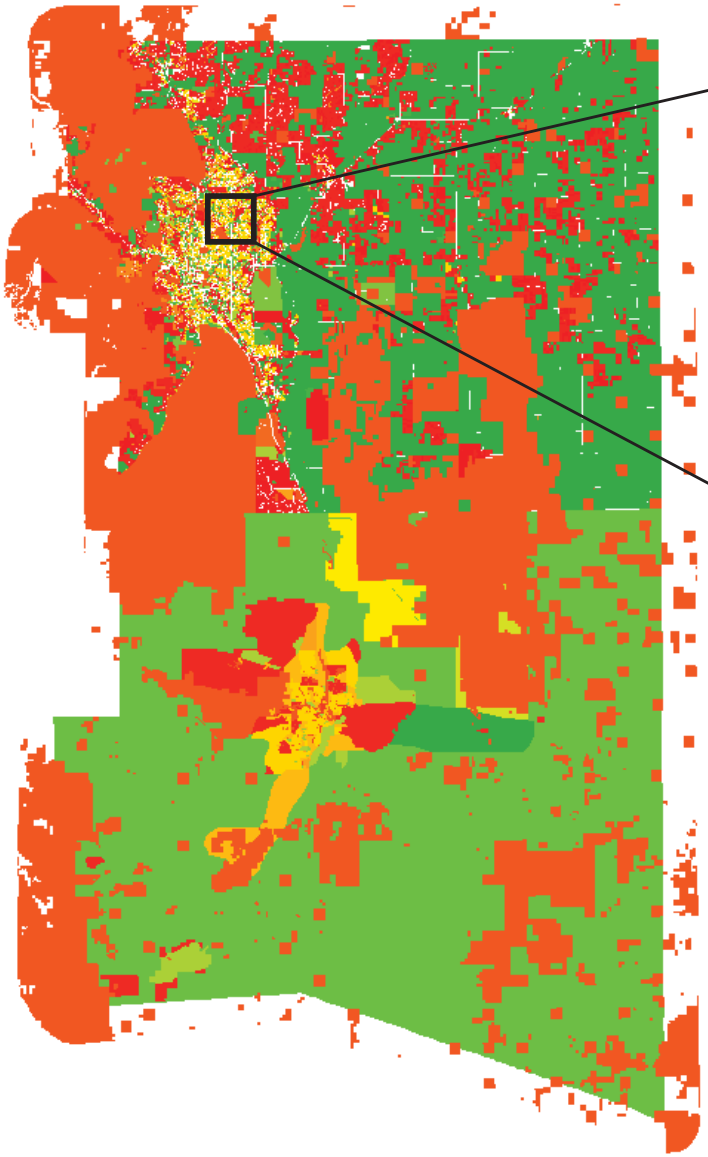


Colorado

Colorado Springs MPO Planning Boundary



2006-2008 Process



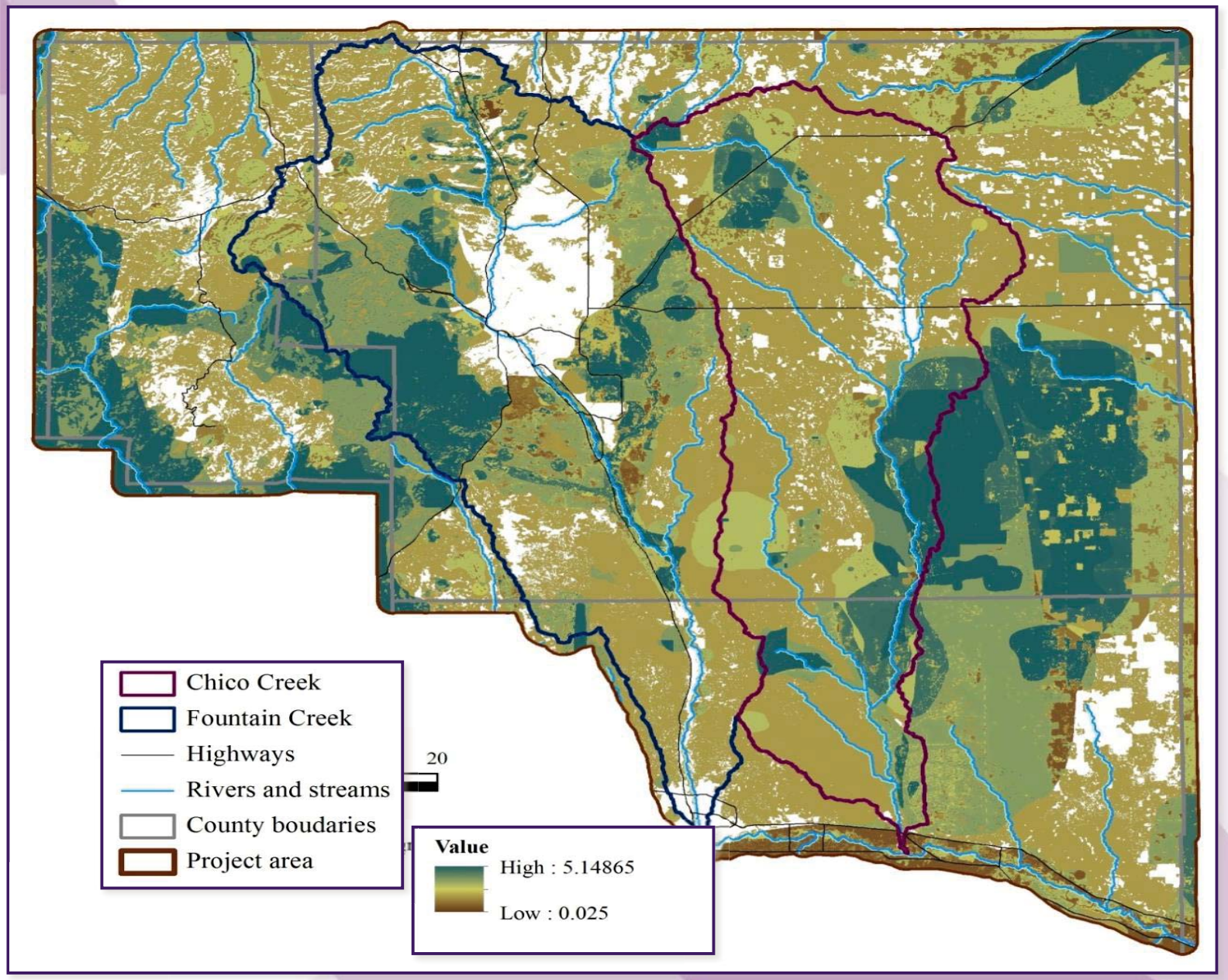
Produce a single land use classification and compatibility scheme that would meet all analysis needs.

Forecast growth to year 2035.

59 conservation targets were chosen for the project: 23 plants, 2 amphibians, 3 reptiles, 12 mammals, 9 birds, 3 fish, 5 insects, 1 mollusk, plus CNHP Potential Conservation Areas (PCAs).

Create 3 scenarios: Existing, and 2 futures.

2009-2012


Chico Creek
Fountain Creek
Highways
Rivers and streams
County boudaries
Project area
20
Value
High : 5.14865
Low : 0.025

SHRP2 - 2013-2015
Development of Regional Advance Mitigation Plan

"I'll gladly repay you Tuesday , for a hamburger today" - Wimpy

Project Purpose

- Identify potential conservation impacts and opportunities
- Provide a framework to collaborate on mitigation needs
- Conserve and connect important habitats
- Streamline permitting processes
- Integrate planning and decision making between agencies
- Consider both on-site and off-site mitigation opportunities
- Apply the regional ecosystem framework in decision making process

Agency Involvement

State Agencies

- Colorado Department of Local Affairs
- Colorado Parks and Wildlife
- Colorado Open Lands
- Colorado Department of Natural Resources
- Colorado Department of Public Health and Environment

Federal Agencies

- United States Environmental Protection Agency
- United States Fish and Wildlife Service
- Housing and Urban Development
- Bureau Land Management
- Army Corps of Engineers
- Colorado Department of Transportation
- Military Installations - Fort Carson

Local Agencies and Organizations

- Fountain Creek Watershed Flood Control and Greenway District
- Sierra Club
- Palmer Land Trust
- Rocky Mountain Field Institute

Resource Agency Roles

- Identify potential project opportunities
- Review and identify critical areas
- Identify potential opportunities to collaborate with existing sponsors of other projects
- Identify potential regulatory and non regulatory hurdles and barriers.

Environmental Ecosystem Framework Methodology

Develop a database consisting of:

- Transportation data – projects included in the 2040 RTP.
- External project data - projects being proposed by other agencies.
- Mitigation data – includes conservation targets such as wildlife, plants, and habitats.

Classify Mitigation Targets

- Bin 1 – Federally listed candidate species
- Bin 2 - Critically imperiled rangewide species
- Bin 3 – Imperiled rangewide species and wetland and riparian areas

External Project Data

- Projects proposed by Advisory Committee Members and other agencies.

Identified Projects

PROJ_ID	Project Name	Actual Impact Acres	Total Project Acres	% of Project Creating Impact	% Target Ac in Bin1	% Target Ac in Bin2	% Target Ac in Bin3	Impact Importance
10	Academy Blvd. widening: Drennan Rd to Hwy 115	0.30	377.39	0.1%	0%	0%	100%	0.0
21	Black Forest Road Improvements: Woodmen Rd. to Hodgen Rd.	46.98	793.01	5.9%	0%	0%	100%	4.5
27	Briargate Pkwy./Stapleton Rd. Connection	182.29	765.84	23.8%	0%	0%	100%	17.3
44	Eastonville Rd. South Improvements: Meridian Ranch Rd. to Londonderry Dr.	11.58	40.90	28.3%	0%	0%	100%	1.1
52	Fontaine Blvd. Improvements: Easy St. to Marksheffel Rd.	175.31	377.78	46.4%	0%	0.1%	100%	16.7
55	Fountain Creek Regional Trail (#16) Construction	122.74	553.64	22.2%	11%	0%	89%	19.0
57	Fountain Creek Trail Bridge Repair	0.19	0.72	26.1%	100%	0%	0%	0.1
69	Historic Bridges Repair and Restoration	2.10	8.43	24.9%	100%	0%	0%	1.3
70	Hodgen Rd. Improvements: Black Forest Rd. to Meridian Rd. and from Eastonville Rd. to Elbert Rd.	4.20	562.14	0.7%	0%	0%	100%	0.4

Results Summary

No of species identified	No of species impacts from RTP	Bin #	Description
7	5	1	Federally listed & Candidate Species
14	4	2	Critically imperiled rangewide
116	25	3	Imperiled rangewide
137	34		Total Number of Mitigation Targets Impacted

- 52 RTP projects impacted one or more conservation targets
- 148 RTP projects did not impact any conservation targets

Benefits Using Regional Ecosystem Framework

1. Provides a framework to develop and prioritize projects that incorporates economic, community and environmental interests
2. Allows for better collaboration, improved understanding and buy in, and increased trust
3. Leads to integrated projects and improved outcomes
4. Provides a structure to identify and address complex issues early on in the planning process
5. Allows for streamlined permitting process for transportation projects

Lessons Learned Using Regional Ecosystem Framework

- Make sure all interests are represented
- Use web based conferencing
- Define the roles of participants and goals of the project during kick off meeting
- Learn from past mistakes
- Identify milestones and decision points
- Cost of data and license agreements
- On line mapping tools

Measures of Success

- Strengthen Collaborative Partnerships
- Getting resource agencies to agree on Regional Advance Mitigation Plan
- Develop agreements with resource agencies
- Eventual development of a Green Infrastructure Plan

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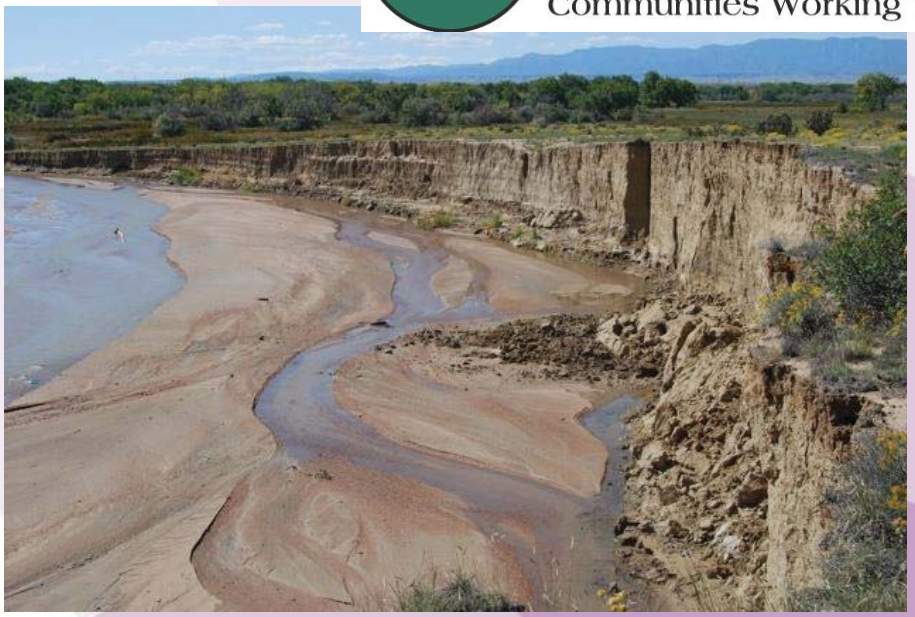
Pikes Peak Area Council of Governments

Communities Working Together

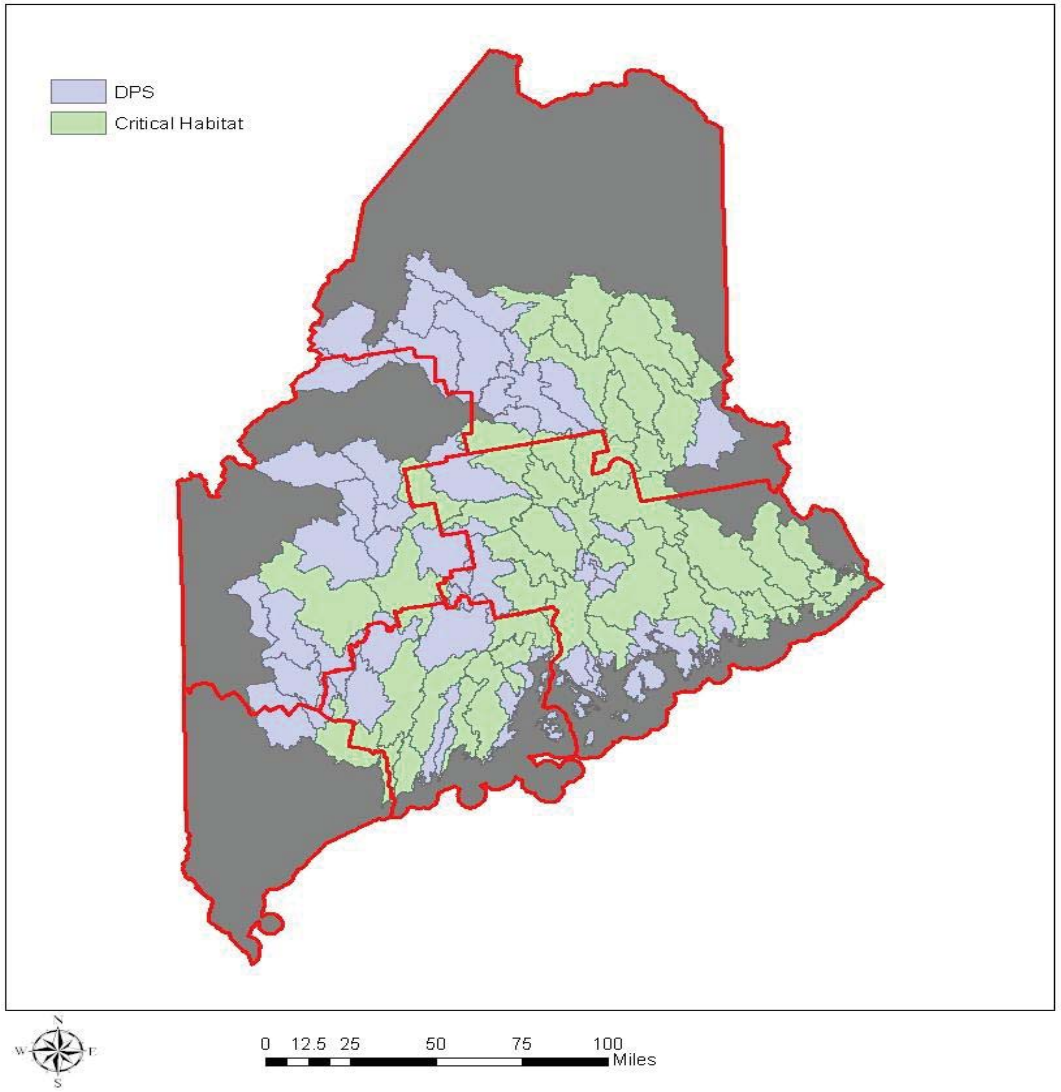


Implementing Eco-Logical in a World of Schedules and Salmon

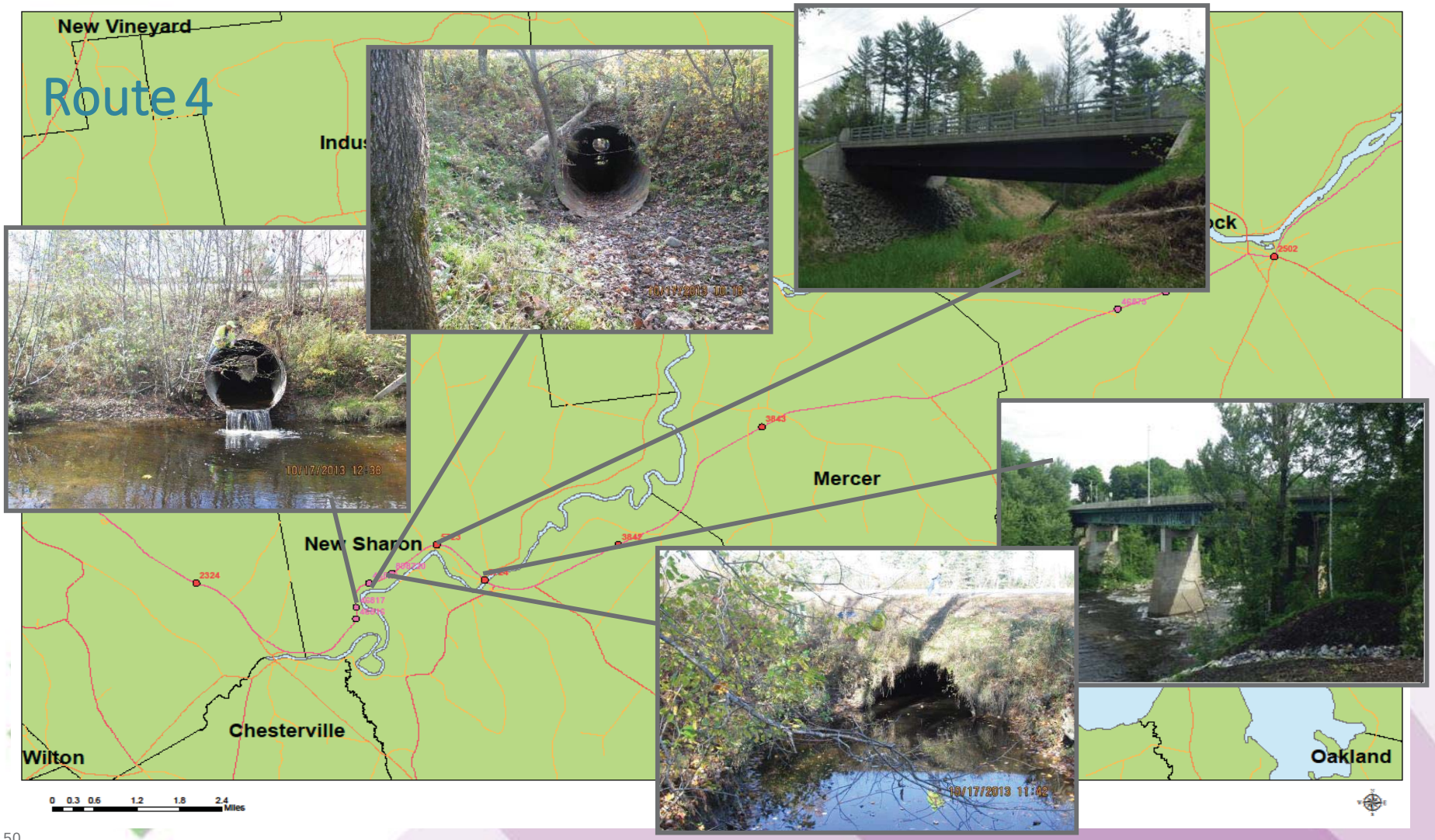
Judy Gates, Director, Environmental Office
Maine Department of Transportation

MaineDOT

Atlantic Salmon



MaineDOT Culvert or Bridge Projects



The Facts

- Schedule (>85% on time) & budget (< 10% vs. award) are two of MaineDOT's "Capstone" performance measures
- Approximately 25% of stream projects per work plan year (~50) require consultation for Atlantic salmon
- Of those 50, about 10 require formal consultation with USFWS
- MaineDOT transportation liaison in place
- 7 consultations were completed by USFWS in 2014
- Section 7 is critical path on 100% of projects intersecting with Atlantic salmon
- Expectations vary widely ; design & construction methods do not
- ~98% of projects qualify for Categorical Exclusions

How did we apply the Eco-Logical Approach?

1. Build/strengthen collaborative partnerships
2. Integrate ecosystem status, data, and goals
3. Create a regional ecosystem framework
4. Assess regional ecosystem framework
5. Establish and prioritize ecological actions
6. Develop a crediting strategy
7. Develop programmatic agreements and consultations
8. Implement agreements and deliver projects
9. Update regional ecosystem framework

The Plan 3.0

Deliverable/Activity	Timeframe
Gap analysis	6/2013 – 8/2013
Draft modified REF	8/2013 – 9/2013
Draft work flow map	9/2013 – 10/2013
Design and construction BMPs	7/2013 – **12/2016**
Programmatic Agreement	1/2014 – **3/2016**
Draft ecosystem crediting strategy	10/2013 – 6/**2016**
Implementation Assistance	**3/2015, 7/2015, 8/2015**
Rank features along a corridor according to risk (Decision Support Tool)	**3/2015 - 9/2015**
Benefit-cost analyses of stream crossing sizing for habitat and hydrology using T-COAST	**3/2015 - 10/2015**
Automate DST Determine environmental risk gradient	~~**9/2015 - 11/2015**~~ **2017**
Implementation schedule for full work plan	~~**10/2015 – 12/2015**~~ **2017**
Final work flow map, crediting vehicle, and Programmatic Biological Assessment	~~**11/2015 – 6/2016**~~ **2017**

U.S. Department of Transportation
Federal Highway Administration

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FHWA > HEP > Environment > Toolkit Home

Environmental Review Toolkit

Home | Planning and Environment | NEPA and Project Development | Accelerating Project Delivery | Historic Preservation | Section 4(f) | Water, Wetlands, and Wildlife

Accelerating Project Delivery

- Program Overview
- Environmental Provisions
- Programmatic Agreements
- SHRP2 C19 Expediting Project Delivery
- Conflict Resolution
- State Practices Database
- Newsletter
- Eco-Logical
  - Agencies Implementing the Eco-Logical Approach
  - Technical Assistance Activities
  - Request Technical Assistance
  - Eco-Logical at Meetings and Conferences
  - Library
  - Eco-Logical Report
  - Grant Program
  - Webinar Series
- Performance Reporting
- Transportation Liaison CoP

Eco-Logical Approach | Agencies Implementing the Eco-Logical Approach | Technical Assistance Activities | Request Technical Assistance | Eco-Logical at Meetings and Conferences | Library | Contact Us

The goals of Step 7 are:

1. Reach agreement on resource management roles and methods.
2. Set outcome-based performance standards incorporated within programmatic agreements.
3. Create programmatic ESA Section 7 consultation, Special Area Management Plan for wetlands, Regional General Permit, or agreements that enable the transportation agency to proceed with conservation or restoration action with maximum assurance that their investments will count and will be sufficient.

This step is about developing the Memorandums of Agreement and project-level permitting procedures in concert with the resource agencies. It will include:

1. Specifying coordination protocols for the regulated resources, such as Section 404 permits and Section 7 consultation. These protocols will define responsibilities, document agreements at the project level, and set performance standards for mitigation.
2. Developing standard procedures and designs for projects to minimize impacts.
3. Specifying mitigation ratios and priority sites (where possible).

Library Resources

Eco-Logical Webinar on Step 7

Summary of Step 7 from Eco-Logical: An Ecosystem Approach to Developing Infrastructure Projects

Practitioner summary of Step 7 from Practitioner's Guide to the Integrated Ecological Framework, Volume 3 SHRP 2

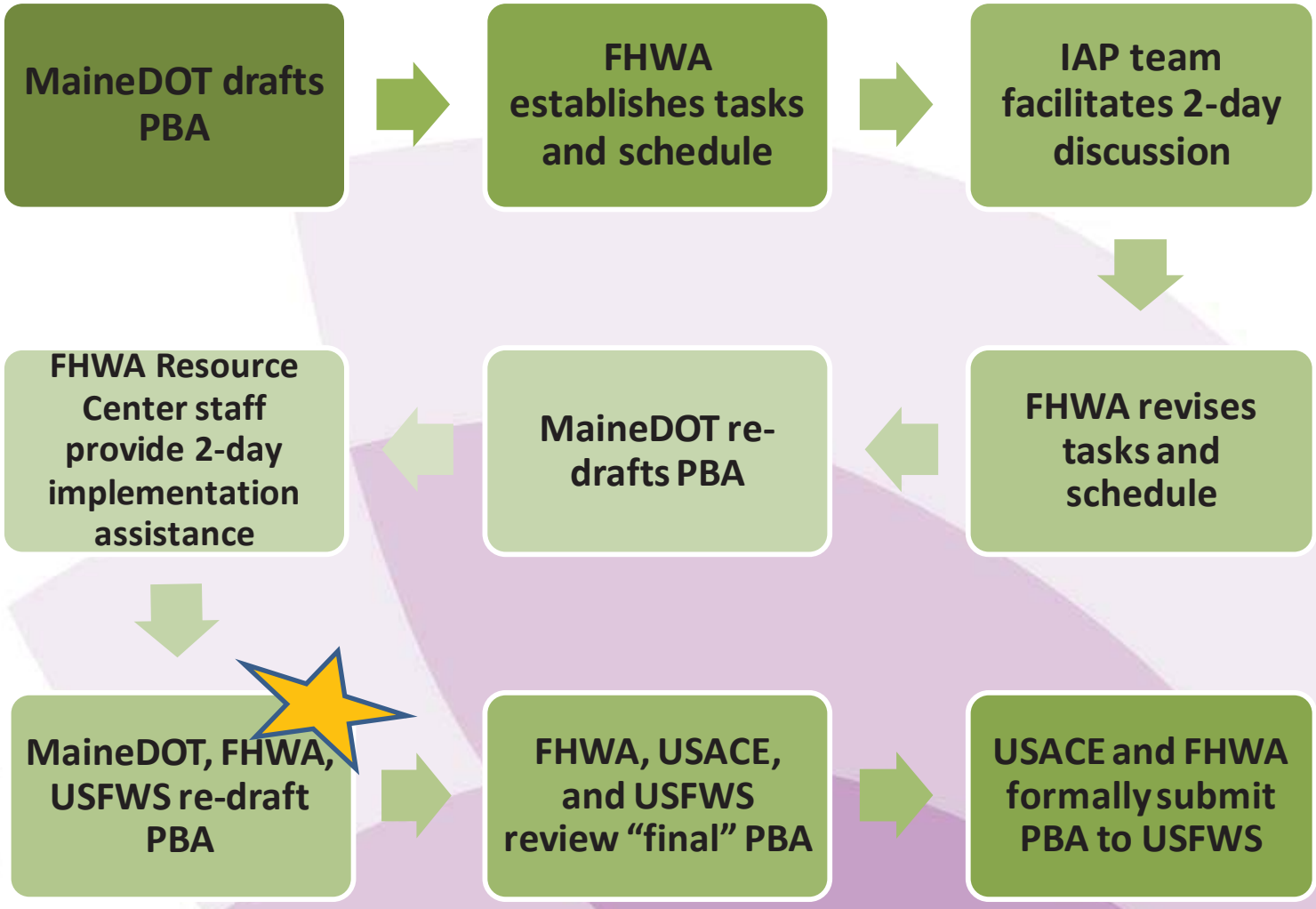
Step 7 | Develop Programmatic Consultation, Biological Opinion, or Permits

The goals of this step are to:

1. Reach agreement on resource management roles and methods.
2. Incorporate outcome-based performance standards within programmatic agreements.
3. Create programmatic ESA Section 7 agreement, Special Area Management Plan for wetlands, Regional General Permit, or agreements that enable the transportation agency to proceed with conservation or restoration action with maximum assurance that their investments will count and will be sufficient.

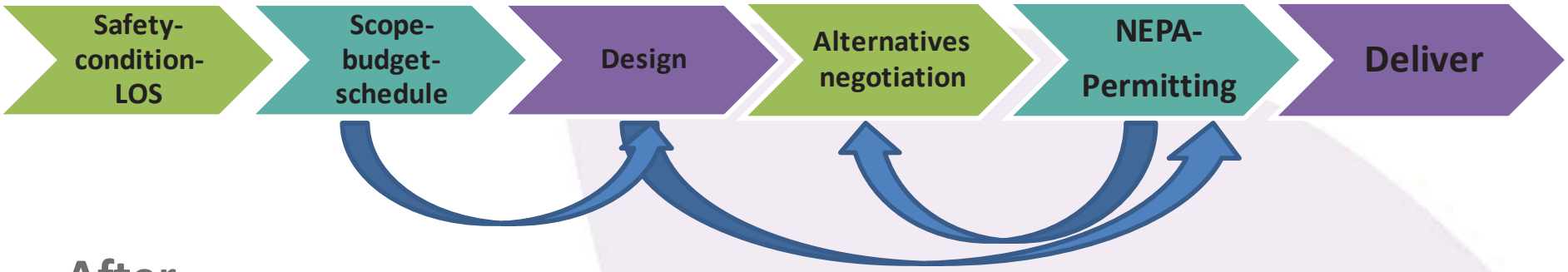
This step is about developing the MOAs and project-level permitting procedures in concert with the resource agencies. MOAs are legal agreements that must be signed by a representative of each participating agency. MOAs and standard procedures will provide a substantial benefit for expediting project-level permitting and consultation, making these processes and outcomes

Implementation Assistance Process

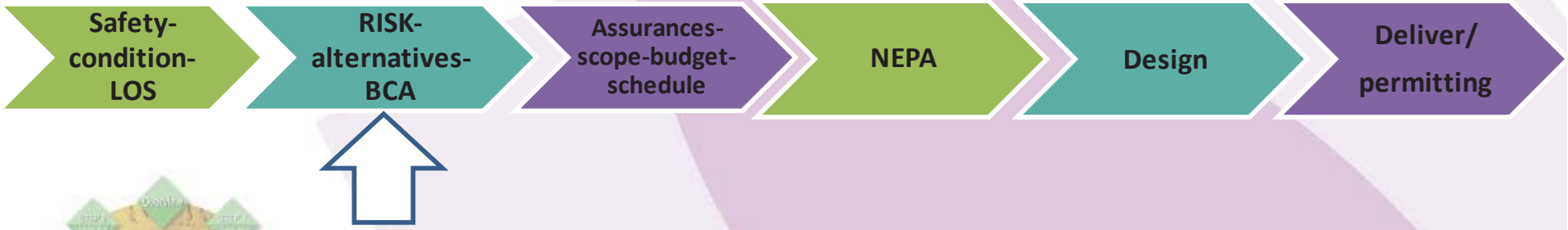


How Implementing Eco-Logical Improved our Delivery

Before…



After…



- We are now planning for a more sequential delivery process.

What were the key factors of our success?

- Understood our need through clear metrics
- Focused, shared goal of a programmatic approach
- Engaged our partners in a meaningful way
- Dedicated staff advocates to see it through
- MaineDOT management support – Chief Engineer
- Dedicated Liaison Position (now two!)
- USFWS management engagement from the middle

What using Eco-Logical delivered…

- ~60% of the 17-18-19 work plan projects intersecting with ATS will qualify to use the PBO
- Consultation time under PBO cut from >8 mo to ≤15 days
- Including USACE means not having to decide prematurely on the flavor of funding
- Project candidates screened face-to-face 3 years prior to work plan
- MaineDOT management support means we don't argue internally about money
- Room left for discussions on locations and activities
- Generate funding for meaningful species-specific habitat restoration

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Recently Updated Practitioner's Handbooks

- 01 Maintaining a Project File and Preparing an Administrative Record for a NEPA Study
- 02 Responding to Comments on an Environmental Impact Statement
- 03 Managing the NEPA Process for Toll Lanes and Toll Roads
- 06 Consultation Under Section 106 of the National Historic Preservation Act
- 07 Defining the Purpose and Need and Determining the Range of Alternatives for Transportation Projects
- 12 Assessing Indirect Effects and Cumulative Impacts Under NEPA
- 14 Applying the Section 404(b)(1) Guidelines in Transportation Project Decision-Making

Next Practitioner's Handbooks: Coming Soon!

- *Complying with Section 7 of the Endangered Species Act for Transportation Projects* – November 2016
- *Air Quality* – January 2017

Questions for the Panel?

- All attendees are on mute.
- To submit a question:
  - In GoTo Webinar control panel on the right of your screen.
  - Type your question in the “Question” box.
  - Press “Send.”

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