

Linking the Integrated Ecological Framework & the Transportation Decision Guide

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Linking the Integrated Ecological Framework & the Transportation Decision Guide

Transportation for Communities – Advancing Projects through Partnerships (TCAPP) is an on-line source of knowledge and tools that support collaboration among resource specialists and transportation agencies.

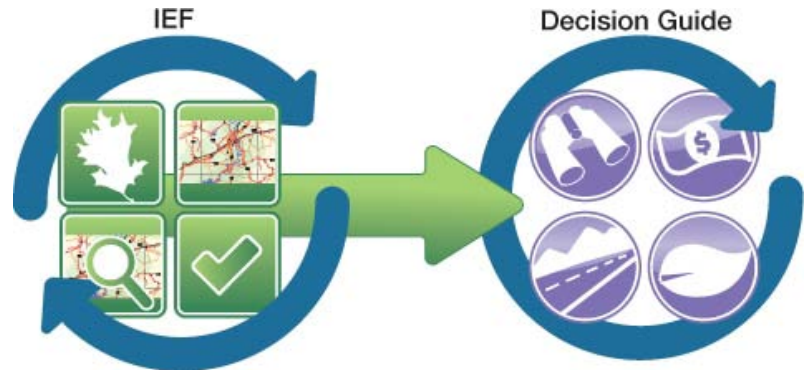
The goal is streamlined transportation decisions with better outcomes for the natural environment.

The approach is straightforward: identify conservation and restoration priorities at ecosystem scales and step up the level of collaboration to: (1) avoid impacts to priority conservation areas; (2) locate mitigation for the greatest benefit to multiple resources and (3) better achieve the goals of resource protection laws.

Within TCAPP, there are two key tools relevant to integrating transportation decision making with the natural environment:

1. The **Decision Guide** is the key decisions in transportation and the data behind them to support collaboration. The Decision Guide can help resource specialists and other partners in transportation decision making understand what information is being collected, how that information is being used and how they can have an impact.

2. The **Integrated Ecological Framework** (IEF) is a nine step process designed to bring about efficient, integrated consultation on natural resources to inform transportation and mitigation decisions.



Data, analysis and decisions from the IEF inform the key decisions described in the Decision Guide. The Decision Guide and IEF can be entered at any point in the transportation or ecological decision making processes.

Information about both the Decision Guide and the IEF is available on the TCAPP site and should be referenced to understand the details of each step or key decision. The purpose of this document is to identify the linkages between the steps in the IEF and the key decisions in the Decision Guide. Integration of this information into TCAPP is underway.

The Transportation Decision Guide

The TCAPP approach to transportation decision making is inclusive, transparent, and collaborative. The Decision Guide is the foundation of TCAPP. It consists of all of the key decisions in four phases of transportation (long range planning, programming, corridor planning and environmental review). For each key decision TCAPP provides:

- The purpose and outcome
- Connections between transportation decision making and other processes like ecological planning
- Connections between the phases of transportation decision making
- Data inputs
- Technology and tools
- Questions that decision makers ask

Learn more at
transportationforcommunities.com
under Decision Guide

Integrated Ecological Framework (IEF)

The IEF is a step-by-step, peer-reviewed, and science-based process that guides transportation and resource specialists in the integration of transportation and ecological decision making.

**Learn more at
transportationforcommunities.com
 under My Agency Is > Resource
 Agency**

The IEF responds to two critical needs:

- Identify potential impacts to regulated resources very early in the planning process – so they can be avoided or minimized.
- Assure that any mitigation that must occur will provide effective, measurable, and high quality environmental outcomes.

The IEF process addresses key questions:

- What areas and resources will be directly impacted by transportation?
- How will those resources be impacted cumulatively?
- What areas could be used for mitigation? Which areas would maximize benefits for multiple resources?
- How can anticipated long-range regional mitigation needs be aggregated for maximum ecological benefit?

The nine steps in the IEF are depicted below. Detailed information about implementation of the steps is available in TCAPP’s Library.

Table 1. Steps of the Integrated Ecological Assessment Framework

Step	Purpose
Step 1: Build and Strengthen Collaborative Partnerships and Vision	Build a vision of what is most needed for natural resources in the region and commit to integrate and utilize transportation and environmental regulatory processes to address these greatest conservation and restoration needs and goals.
Step 2: Characterize Resource Status and Integrate Natural Environment Plans	Develop an overall conservation/restoration strategy that integrates conservation/restoration priorities, data, and plans , with input from and adoption by all conservation and natural resource stakeholders identified in Step 1, addressing all species, all habitats, and all relevant environmental issues.
Step 3: Create Regional Ecosystem Framework (Conservation Strategy + Transportation Plan)	Integrate the conservation and restoration strategy (data and plans) prepared in Step 2 with transportation and land use data and plans (LRTP, STIP, and TIP) to create the Regional Ecosystem Framework (REF).
Step 4: Assess Effects on Conservation Objectives	Identify preferred alternatives that meet both transportation and conservation goals by analyzing transportation and/or other land use scenarios in relation to resource conservation objectives and priorities utilizing the REF developed in Step 3 and models of priority resources.
Step 5: Establish and Prioritize Ecological Actions	Establish mitigation and conservation priorities and rank action opportunities using assessment results from Steps 3 and 4.
Step 6: Develop Crediting Strategy	Develop a consistent strategy and metrics to measure ecological impacts, restoration benefits, and long-term performance , with goal of having analyses throughout the life of the project be in the same units.
Step 7: Develop Programmatic	Develop Memoranda of Understanding (MOUs), agreements, programmatic

Step	Purpose
Consultation, Biological Opinion or Permit	404 permits or ESA Section 7 consultations for transportation projects in a way that documents the goals and priorities identified in Steps 5 & 6 and the parameters for achieving these goals.
Step 8: Implement Agreements, Adaptive Management and Deliver Projects	Design transportation projects in accordance with ecological objectives and goals identified in previous steps (i.e., keeping planning decisions linked to project decisions), incorporating as appropriate the programmatic agreements, performance measures and ecological metrics to improve project outcomes.
Step 9: Update Regional Ecosystem Framework and Plan	Update the effects assessment to determine if resource goal achievement is still on track. If goal achievement gaps are found, reassess priorities for mitigation, conservation, and restoration in light of new disturbances that may impact the practicality/utility of proceeding with previous priorities. Identify new priorities if warranted.

Linking the Decision Guide and the IEF

The IEF describes the technical process taking place between the key decisions identified in the Decision Guide and providing data and analysis to inform them.

The IEF is intended to be scalable to the time, resources, data, and expertise available. Ideally, the IEF process is conducted in conjunction with long range planning; however, it can be used to inform long-range planning, corridor planning, programming or environmental review. Within this process, it is possible to begin at any key decision and use the IEF to help identify and incorporate the necessary questions, data, and analysis needed to support better environmental and transportation decision making.

Two tables below depict how the IEF process steps link to each key decision in the Decision Guide. **Table 2** is a summary version, generally describing how the IEF informs, or is informed by, each key decision. More specific information related to each IEF step is provided in **Table 3**. This table also includes a description of whether data, analysis or decisions are connecting the IEF step and key decision, and the flow of information (i.e., to the IEF or to the transportation decision making process).

Table 2. Summary of Linkages between IEF Steps and Transportation Key Decisions

Key Decision		Summary of Linkages with the IEF
LRP-1	Approve Scope of LRTP Process	Available data, goals and relationships from ecological planning are gathered. Resource and transportation specialists decide to work together and determine a supporting process.
LRP-2	Approve Vision & Goals	Identified goals and priorities from ecological planning are considered and a shared transportation and ecological vision is approved.
LRP-3	Approve Evaluation Criteria, Methods & Measures	Evaluation criteria, methods and performance measures identified in ecological planning, including associated with a crediting strategy, inform this key decision.
LRP-4	Approve Transportation Deficiencies	This key decision is not associated with any IEF steps.
LRP-5	Approve Financial Assumptions	Funding strategies and mitigation costs identified through ecological planning inform this key decision.

Key Decision		Summary of Linkages with the IEF
LRP-6	Approve Strategies	Priority areas for conservation and restoration identified through the IEF support the avoidance of transportation strategies that would impact these areas.
LRP-7	Approve Plan Scenarios	Transportation plan scenarios and ecological data are mapped together to identify potential impacts and opportunities for joint action on conservation and restoration priorities.
LRP-8	Adopt Preferred Plan Scenario	A preferred scenario from an ecological perspective is identified. Analysis and information about potential direct and cumulative effects and mitigation needs inform the adoption of a preferred scenario.
LRP-9	Adopt Finding of Conformity by MPO	This key decision is not associated with any IEF steps.
LRP-10	Adopt LRTP by MPO	A joint decision is made about a conservation and mitigation strategy for the preferred scenario. Agreements are put in place.
LRP-11	Approve Conformity Analysis	This key decision is not associated with any IEF steps.
PRO-1	Approve Revenue Sources	Both the IEF and key decision consider how advance mitigation would be funded.
PRO-2	Approve Methodology for Identifying Project Tools & Criteria for Allocating Revenue	The IEF provides information about the cost and value of mitigation and conservation.
PRO-3	Approve Project List drawn from adopted Plan Scenario	The project list should inform any updates to the ecological plan.
PRO-4	Approve Project Prioritization	Prioritized mitigation projects from the IEF inform this key decision.
PRO-5	Reach Consensus on Draft TIP	A decision is made about the funding plan for the mitigation strategy.
PRO-6	Adopt TIP by MPO	The adopted TIP should inform updates to the ecological plan.
PRO-7	Approve TIP by Governor & Incorporate into Draft STIP	This key decision is not associated with any IEF steps.
PRO-8	Reach Consensus on Draft STIP	This key decision is not associated with any IEF steps.
PRO-9	Approve STIP with Respect to Conformity and Fiscal Constraint	This key decision is not associated with any IEF steps.
COR-1	Approve Scope of Corridor Planning Process	Available data, goals and relationships from ecological planning are gathered. Resource and transportation specialists decide to work together and determine a supporting process.
COR-2	Approve Problem Statements & Opportunities	Opportunities to enhance the natural environment identified through ecological planning that are relevant in the corridor.
COR-3	Approve Goals for the Corridor	Identified goals and priorities from ecological planning are considered and a shared transportation and ecological vision is approved.
COR-4	Reach Consensus on Scope of Environmental Review	Analysis takes place to determine the availability of data from the ecological plan to support the scope of environmental review and analysis.

Key Decision		Summary of Linkages with the IEF
	and Analysis	
COR-5	Approve Evaluation Criteria, Methods & Measures	Evaluation criteria, methods and performance measures identified in ecological planning, including associated with a crediting strategy, inform this key decision.
COR-6	Approve Range of Solution Sets	Priority areas for conservation and restoration identified through the IEF support the avoidance of transportation solution sets that would impact these areas.
COR-7	Adopt Preferred Solution Set	A preferred solution set from an ecological perspective is identified. Analysis and information about potential direct and cumulative effects and mitigation needs inform the adoption of a preferred solution set. A joint decision is made about a conservation and mitigation strategy for the preferred solution set.
COR-8	Approve Evaluation Criteria, Methods & Measures for Prioritization of Projects	Input on the evaluation criteria, methodology and performance measures from ecological planning inform priority ecological actions that could be tackled in the context of the preferred solution set.
COR-9	Adopt Priorities for Implementation	Prioritized ecological actions inform this key decision. Agreements are put in place.
ENV-1	Reach Consensus on Scope of Environmental Review	Available data, goals and relationships from ecological planning are gathered. Resource and transportation specialists decide to work together and determine a supporting process and/or decide to implement earlier agreements.
ENV-2	Approve Notice of Intent	This key decision is not associated with any IEF steps.
ENV-3	Approve Purpose & Need/Reach Consensus on Project Purpose	Ecological goals and priorities are analyzed to inform a compatible and/or complementary project purpose and need.
ENV-4	Reach Consensus on Study Area	The ecological planning region and IEF inform the study area for environmental review.
ENV-5	Approve Evaluation Criteria, Methods & Measures	Evaluation criteria, methods and performance measures identified in ecological planning, including associated with a crediting strategy, inform this key decision.
ENV-6	Approve Full Range of Alternatives	Priority areas for conservation and restoration identified through the IEF support the avoidance of transportation strategies that would impact these areas.
ENV-7	Approve Alternatives to be Carried Forward	Through joint analysis, determine amount and relative degree of potential impacts of alternatives in relation to resource conservation priorities.
ENV-8	Approve Draft EIS with Conceptual Mitigation	Ecological impacts and mitigation needs for alternatives carried forward for detailed study and validation of any advance mitigation strategies implemented according to early agreements.
ENV-9	Approve USACE Public Notice	This key decision is not associated with any IEF steps.
ENV-10	Approve Preferred Alternative/LEDPA	This key decision is not associated with any IEF steps.
ENV-11	Approve Final Jurisdictional Determination	The final jurisdictional determination, and identification of resources subject to the Clean Water Act, should be used to update ecological plans.
ENV-12	Reach Consensus on Avoidance & Minimization for the LEDPA	Avoidance and minimization should be consistent with the conservation priorities identified in the ecological plan.

Key Decision		Summary of Linkages with the IEF
ENV-13	Approve Final EIS	This key decision is not associated with any IEF steps.
ENV-14	Approve the ROD	Update the ecological plan and ensure any early agreements are reflected in special conditions.
ENV-15	Render Permit Decision & Approve Avoidance & Minimization	Update the ecological plan and ensure any early agreements are reflected in permit conditions.

Table 3. Detailed Description of Linkages between IEF Steps and Transportation Key Decisions

Key Decision #	Key Decision	IEF Step	Transfer Direction (To...)	Transfer Type	Detailed Description of Transfer
LRP-1	Approve Scope of LRTP Process	1 - Build & Strengthen Collaborative Relationships, Develop a Vision	Transportation Ecological	Data	<p>Any relationships formed between resource agencies, conservation NGOs and transportation agencies as part of either LRP-1 or IEF Step 1 are recognized, reinforced and strengthened.</p> <p>At IEF Sub-step 1a a preliminary ecological planning region is developed. This region may take into consideration the transportation planning region and informs transportation decision making.</p> <p>Information from IEF Sub-step 1c around high-level, broad ecological goals is gathered here, for consideration at LRP-2.</p> <p>At IEF Sub-step 1d, memoranda of understanding are developed around potential new processes for increasing conservation efficiency and predictability. These MOUs could affect the long range planning process and should be identified and considered at LRP-1.</p> <p>IEF Sub-step 1e is to "Initially explore funding and long-term management options to support conservation and restoration actions and long-term management." The data collected here can inform the decision making question at LRP-1, "Have potential funding partners been identified?" Data is identified & shared here. It will inform LRP-5 and PRO-1.</p>

Key Decision #	Key Decision	IEF Step	Transfer Direction (To...)	Transfer Type	Detailed Description of Transfer
		1 - Build & Strengthen Collaborative Relationships, Develop a Vision	Transportation Ecological	Decision	A joint decision is made between the decision makers in long range planning and the partners from the ecological planning process to work together to maximize the ecological benefit and regulatory process efficiencies that can be achieved. Using the IEF approach, this would include identifying where DOT conservation or restoration investments could make the greatest difference for watershed, species or ecoregional health and sustainability.
		2 - Characterize Resources Status & Integrate Natural Environment Plans	Transportation	Data	A combined map of conservation, restoration and enhancement priorities is a key output of IEF Step 2 and should be considered at the earliest stages of the transportation planning process. These priorities are gathered here and become an important part of the vision and goals in LRP-2.
		9 - Update regional integrated plan/ecosystem framework	Transportation	Data	Information from the ecological plan is continually updated and should be an input into any ongoing or upcoming LRTP process.
LRP-2	Approve Vision and Goals	1 - Build & Strengthen Collaborative Relationships, Develop a Vision	Transportation Ecological	Analysis	Data around ecological goals and priorities was collected at LRP-1. The ecological vision and goals coming from IEF Step 1 will be broad and high-level. The result of IEF Sub-step 2h is a combined map of ecological plans with conservation and restoration priorities identified. Both the high-level vision and goals, and more specific conservation and restoration priorities coming from these two IEF steps, should be analyzed here in order to develop a shared vision of compatible, complimentary regional goals for transportation and the environment and to identify where DOT conservation or restoration investments could make the greatest difference for watershed, species or ecoregional health and sustainability.
	2 - Characterize Resources Status & Integrate Natural Environment Plans				

Key Decision #	Key Decision	IEF Step	Transfer Direction (To...)	Transfer Type	Detailed Description of Transfer
		1 - Build & Strengthen Collaborative Relationships, Develop a Vision	Transportation Ecological	Decision	IEF Sub-step 1d is to "Develop a shared vision of regional goals for transportation, restoration, recovery and conservation." This is a shared decision - the ecological framework takes into account transportation goals and vice versa.
LRP-3	Approve Evaluation Criteria, Methodology & Performance Measures	4 - Assess Transportation Effects on Resource Conservation Objectives Stated in the REF	Transportation Ecological	Data	The key point demonstrated by this link between the Decision Guide and IEF is that environmental factors are considered in the evaluation criteria, methodology and performance measures that are part of the LRTP. At IEF Sub-step 4a the relative importance of resource types are weighed. Information should be shared between LRP-3 and Sub-step 4a to inform the evaluation criteria in transportation decision making or the weighting criteria in ecological planning.
		6 - Develop Crediting Strategy	Transportation Ecological	Analysis	At Step 6 in the IEF, the environmental setting is evaluated and a determination is made about the type of credit or debit tool (measurement system) to use. The primary goal for any crediting system is to capture the environmental impacts or benefits in a common unit that bridges different activities, times and geographies. The crediting strategy should inform evaluation criteria and performance measures in long range planning and later phases of decision making.
LRP-4	Approve Transportation Deficiencies				

Key Decision #	Key Decision	IEF Step	Transfer Direction (To...)	Transfer Type	Detailed Description of Transfer
LRP-5	Approve Financial Assumptions	1 - Build & Strengthen Collaborative Relationships, Develop a Vision	Transportation Ecological	Data	IEF Sub-step 1f is to "Initially explore funding and long-term management options, how conservation and restoration actions can be funded in advance of transportation projects, as well as for long-term management." Data generated through this process should inform the financial assumptions in the LRP. How will advance mitigation be paid for? This data was collected at LRP-1 and will also be used at PRO-1.
		6 - Develop Crediting Strategy	Transportation	Data	If a crediting strategy has been developed using the IEF approach, there could be data available associated with the costs of mitigation credits. This data should inform financial assumptions in long range planning.
LRP-6	Approve Strategies	2 - Characterize Resources Status & Integrate Natural Environment Plans	Transportation	Data	The map of conservation, restoration and enhancement priorities should inform the strategies developed in LRP and approved in LRP-6. Partners would be using this data to avoid transportation strategies that would impact priority areas for conservation, restoration and enhancement.
LRP-7	Approve Plan Scenarios	3 - Create Regional Ecosystem Framework (Conservation Strategy + Transportation Plan)	Transportation Ecological	Analysis	<p>This is a key link between ecological and transportation planning. Here a combined map of conservation priorities, other land uses and LRTP scenarios is created. A technical process that occurs as an input to this decision is where transportation/development plan scenarios are compared with the Regional Ecosystem Framework from ecological planning.</p> <p>These substeps listed in the IEF comprise the integrated analysis at this key decision: Sub-step 3a - Overlay LRTP plan scenarios and combined map of conservation, restoration and enhancement priorities; Sub-step 3b and c - Show and record areas and resources potentially impacted by transportation improvements and potential opportunities for joint action on conservation or restoration priorities; Sub-step 3d - Distribute combined conservation and transportation priorities map layer. This integration cannot occur until there are</p>

Key Decision #	Key Decision	IEF Step	Transfer Direction (To...)	Transfer Type	Detailed Description of Transfer
					some transportation plan scenarios, but it is possible that plan scenarios could be fatally flawed and eliminated through this analysis.
LRP-8	Adopt Preferred Plan Scenario	4 - Assess Transportation Effects on Resource Conservation Objectives Stated in the REF	Transportation Ecological	Analysis	Analysis that takes place at IEF Sub-step 4c-4e requires the input of the plan scenarios and informs the selection of a preferred scenario. The analysis that takes place is the determination of the amount and relative degree of potential impacts of plan scenarios in relation to resource conservation priorities and the identification of plan level cumulative effects, via assessment of different packages/alternative scenarios.
		4 - Assess Transportation Effects on Resource Conservation Objectives Stated in the REF	Transportation Ecological	Decision	IEF Sub-step 4e - A decision is made about the preferred plan scenarios from an ecological perspective. IEF Sub-step 4f - Through the IEF process, preferences are identified regarding avoidance, minimization, potential conservation and restoration investments. Identification and quantification of mitigation needs.
		5 - Establish and Prioritize Ecological Actions	Ecological	Data	The preferred transportation scenario is an input from long range planning to this IEF Step where analysis and recommendations will be made about mitigation options. Sets of alternative mitigation/conservation actions are compared, to identify the best investment options.
LRP-9	Adopt Finding of Conformity by MPO				
LRP-10	Adopt LRTP by MPO	5 - Establish and Prioritize Ecological Actions	Transportation Ecological	Decision	Transportation and resource agency partners make a joint decision about the conservation and mitigation strategy for the preferred scenario in the long range plan.

Key Decision #	Key Decision	IEF Step	Transfer Direction (To...)	Transfer Type	Detailed Description of Transfer
		6 - Develop Crediting Strategy	Transportation Ecological	Decision	Review and approve use of identified crediting strategies.
		7 - Develop Programmatic Consultation, BO or Permit	Transportation Ecological	Decision	MOUs, agreements, programmatic 404 permits or programmatic ESA section 7 consultation (Note that individual permits would have to be issued during project development). Agreed upon performance monitoring strategy for mitigation sites.
LRP-11	Approve Conformity Analysis				
PRO-1	Approve Revenue Sources	1 - Build & Strengthen Collaborative Relationships, Develop a Vision	Transportation Ecological	Data	IEF Sub-step 1f is to "Initially explore funding and long-term management options, how conservation and restoration actions can be funded in advance of transportation projects, as well as for long-term management." The data collected here can inform and be informed by the approval of revenue sources at PRO-1. Consider how advance mitigation would be funded.
PRO-2	Approve Methodology for Identifying Project Tools and Criteria for Allocating Revenue	5 - Establish and Prioritize Ecological Actions	Transportation	Data	IEF Sub-step 5c includes a comparison of the cost of conservation and restoration opportunities. The data and methods used in this sub-step should inform PRO-2 to account for the cost of mitigation.
		6- Develop Crediting Strategy	Transportation	Data	In IEF Step 6, a specific crediting strategy is developed for mitigation, along with data that can be used to determine the cost and value of mitigation. This data should inform PRO-2 to account for the cost of mitigation.
PRO-3	Approve Project List drawn from adopted Plan Scenario	9 - Update Regional Integrated Plan/Ecosystem Framework	Ecological	Data	The project list drawn from the adopted plan scenario should inform any updates to the ecological plan.
PRO-4	Approve Project Prioritization	8 - Implement Agreements and Adaptive Management	Transportation	Data	Prioritized mitigation projects, per benefit and cost. This data will inform the prioritization of mitigation projects at PRO-4.

Key Decision #	Key Decision	IEF Step	Transfer Direction (To...)	Transfer Type	Detailed Description of Transfer
PRO-5	Reach Consensus on Draft TIP	8 - Implement Agreements and Adaptive Management	Transportation Ecological	Decision	Determination of funding plan for mitigation strategy.
PRO-6	Adopt TIP by MPO	9 - Update regional integrated plan/ecosystem framework	Ecological	Data	The prioritized project list drawn from the adopted TIP should inform any updates to the ecological plan.
PRO-7	Approve TIP by Governor and Incorporate into Draft STIP				
PRO-8	Reach Consensus on Draft STIP				
PRO-9	Approve STIP with Respect to Conformity and Fiscal Constraint				
COR-1	Approve Scope of Corridor Planning Process	1 - Build & Strengthen Collaborative Relationships, Develop a Vision	Transportation Ecological	Data	<p>Any relationships formed between resource agencies, conservation NGOs and transportation agencies as part of either long range planning or IEF Step 1 are recognized, reinforced and strengthened. Relationships formed as part of corridor planning can also strengthen ecological planning.</p> <p>The ecological planning region is identified at IEF Sub-step 1a and should inform transportation decisions. If the long range planning process and IEF were integrated, this data was collected and considered in LRP-1 and would be carried forward. At the corridor and site level, some additional considerations could enter the picture if particular populations were known to be present.</p> <p>The ecological goal data from IEF Sub-step 1d is collected here. This data should be collected and considered in LRP-1, but a confirmation of that link can be made here and consideration</p>

Key Decision #	Key Decision	IEF Step	Transfer Direction (To...)	Transfer Type	Detailed Description of Transfer
					<p>should be made as to whether the data has been updated or if there is more specific information relevant to the corridor. A shared decision around goals occurs at COR-3.</p> <p>At IEF Sub-step 1d, memoranda of understanding are developed around potential new processes for increasing conservation efficiency and predictability. These MOUs could affect the corridor planning process and should be identified and considered at COR-1.</p>
		1 - Build & Strengthen Collaborative Relationships, Develop a Vision	Transportation Ecological	Decision	A joint decision is made between the decision makers in corridor planning and the partners from ecological planning to work together to maximize the ecological benefit and regulatory process efficiencies that can be achieved.
		2 - Characterize Resources Status & Integrate Natural Environment Plans	Transportation	Data	A combined map of conservation, restoration and enhancement priorities is a key output of IEF Step 2 and should be considered at the earliest stages of the transportation planning process. These priorities become an important part of the problem statement and opportunities (COR-2) and goals for the corridor (COR-3).
		8 - Implement Agreements and Adaptive Management. Deliver Conservation and Transportation Project.	Transportation	Data	Documentation and agreements from the integrated ecological process, if completed. Relationships, planning region, information about goals, REF, conservation opportunities, mitigation strategy.
		9 - Update regional integrated plan/ecosystem framework	Transportation	Data	Information from the ecological plan is continually updated and should be an input into any ongoing or upcoming corridor planning process.
COR-2	Approve Problem Statements and Opportunities	2 - Characterize Resources Status & Integrate Natural Environment Plans	Transportation	Analysis	The input from the IEF to this key decision is the identified priority opportunities to enhance the natural environment. Depending on the status of ecological planning, this data and analysis could be coming from the combined map of natural environment plans (Step

Key Decision #	Key Decision	IEF Step	Transfer Direction (To...)	Transfer Type	Detailed Description of Transfer
		3 - Create Regional Ecosystem Framework (Conservation Strategy + Transportation Plan)	Transportation	Analysis	2), combined map of natural environment plans and transportation plans (Step 3), or the completed ecological plan (Step 8). The purpose is to determine what priority opportunities to enhance the natural environment could be relevant in the corridor.
		8 - Implement Agreements and Adaptive Management. Deliver Conservation and Transportation Project.	Transportation	Analysis	
COR-3	Approve Goals for the Corridor	1 - Build & Strengthen Collaborative Relationships, Develop a Vision	Transportation Ecological	Analysis	Data around ecological goals and priorities was collected at COR-1. The ecological vision and goals coming from IEF Step 1 will be broad and high-level. The result of IEF Sub-step 2h is a combined map of ecological plans with conservation and restoration priorities identified. Both the high-level vision and goals, and more specific conservation and restoration priorities coming from these two IEF steps should be analyzed here in order to develop a shared vision of compatible, complimentary regional goals for transportation and the environment and to identify where DOT conservation or restoration investments could make the greatest difference for watershed, species or ecoregional health and sustainability.
		2 - Characterize Resources Status & Integrate Natural Environment Plans			
		1 - Build & Strengthen Collaborative Relationships, Develop a Vision	Transportation Ecological	Decision	

Key Decision #	Key Decision	IEF Step	Transfer Direction (To...)	Transfer Type	Detailed Description of Transfer
		8 - Implement Agreements and Adaptive Management. Deliver Conservation and Transportation Project.	Transportation Ecological	Data	If completed, utilize the shared transportation and ecological goals and priorities identified in the ecological plan and long range plan.
COR-4	Reach Consensus on Scope of Environmental Review and Analysis	8 - Implement Agreements and Adaptive Management. Deliver Conservation and Transportation Project.	Transportation	Analysis	Availability of data from the ecological plan to support the scope of environmental review and analysis.
COR-5	Approve Evaluation Criteria, Methodology & Performance Measures	4 - Assess Transportation Effects on Resource Conservation Objectives Stated in the REF	Transportation Ecological	Data	<p>Sub-step 4a is to weigh the relative importance of resource types. Information should be shared between COR-5 and Sub-step 4a to inform the evaluation criteria in transportation decision making or the weighing criteria in ecological planning.</p> <p>The key point demonstrated by this link between the Decision Guide and IEF is that environmental factors are considered in the evaluation criteria, methodology and performance measures that are part of the corridor plan. At IEF Sub-step 4a the relative importance of resource types are weighed. Information should be shared between COR-5 and Sub-step 4a to inform the evaluation criteria in transportation decision making or the weighting criteria in ecological planning.</p>

Key Decision #	Key Decision	IEF Step	Transfer Direction (To...)	Transfer Type	Detailed Description of Transfer
		6 - Develop Crediting Strategy	Transportation Ecological	Analysis	At Step 6 in the IEF, the environmental setting is evaluated and a determination is made about the type of credit or debit tool (measurement system) to use. The primary goal for any crediting system is to capture the environmental impacts or benefits in a common unit that bridges different activities, times and geographies. The crediting strategy should inform evaluation criteria and performance measures through the phases. If this was done at LRP-3, this analysis can be carried forward from long range planning, but may need to be updated.
		8 - Implement Agreements and Adaptive Management. Deliver Conservation and Transportation Project.	Transportation	Analysis	Determine what evaluation criteria, methodology and performance measures from the ecological plan are relevant in the corridor.
COR-6	Approve Range of Solution Sets	3 - Create Regional Ecosystem Framework (Conservation Strategy + Transportation Plan)	Transportation	Data	The combined map of conservation, restoration and enhancement priorities from IEF Step 3 should inform the solution sets developed in corridor planning and approved in COR-7.
		3 - Create Regional Ecosystem Framework (Conservation Strategy + Transportation Plan)	Transportation Ecological	Analysis	These sub steps listed in the IEF are the integrated analysis involving this key decision: Sub-step 3a - Overlay solution sets and combined map of conservation, restoration and enhancement priorities; Sub-step 3b and c - Show and record areas and resources potentially impacted by transportation improvements and potential opportunities for joint action on conservation or restoration priorities; Sub-step 3d - Distribute combined conservation and transportation priorities map layer. This integration cannot occur until there are some solution sets, but it is possible that plan solution sets could be fatally flawed and eliminated through this analysis.

Key Decision #	Key Decision	IEF Step	Transfer Direction (To...)	Transfer Type	Detailed Description of Transfer
					Note that the IEF specifies the integration of long range plan scenarios at this step. This link has been revised here to demonstrate that this could be done during corridor planning.
COR-7	Adopt Preferred Solution Set	4 - Assess Transportation Effects on Resource Conservation Objectives Stated in the REF	Transportation Ecological	Analysis	Analysis that takes place at IEF Sub-step 4c-4e require the input of the solution sets and inform the selection of a preferred solution set. The analysis that takes place is the determination of the amount and relative degree of potential impacts of solution sets in relation to resource conservation priorities and the identification of plan level ecological cumulative effects, based on conservation and transportation development scenarios.
		4 - Assess Transportation Effects on Resource Conservation Objectives Stated in the REF	Transportation	Data	IEF Sub-step 4e - A decision is made about the preferred solution set from an ecological perspective. IEF Sub-step 4f - Through the IEF process, preferences are identified regarding avoidance, minimization, potential conservation and restoration investments, as well as identification and quantification of mitigation needs. The preferred solution set from an ecological perspective and data around mitigation needs should be provided to transportation partners.
		5 - Establish and Prioritize Ecological Actions	Ecological	Data	The preferred transportation solution set from corridor planning informs ecological planning in order to inform the mitigation strategy selected by the resource agencies.
		5 - Establish and Prioritize Ecological Actions	Ecological Transportation	Analysis	Mitigation options and priorities for the preferred transportation solution set.
		5 - Establish and Prioritize Ecological Actions	Ecological Transportation	Decision	Conservation and mitigation strategy for preferred transportation solution set.
COR-8	Approve Evaluation Criteria,	5 - Establish and Prioritize Ecological Actions	Transportation	Data	At this key decision, input on the evaluation criteria, methodology and measures are coming from ecological planning in order to identify priority ecological actions that could feasibly be tackled in

Key Decision #	Key Decision	IEF Step	Transfer Direction (To...)	Transfer Type	Detailed Description of Transfer
	Methodology & Performance Measures for Prioritization of Projects	8 - Implement Agreements and Adaptive Management. Deliver Conservation and Transportation Project	Transportation	Data	the context of the preferred solution set for the corridor. This data could come from IEF Step 5 or IEF Step 8, depending on the status of the ecological planning process.
COR-9	Adopt Priorities for Implementation	5 - Establish and Prioritize Ecological Actions	Transportation	Data	Prioritized conservation/restoration/mitigation actions from the ecological plan.
		7 - Develop Programmatic Consultation, BO or Permit	Ecological Transportation	Decision	MOUs, agreements, programmatic 404 permits or ESA section 7 consultation for transportation projects. Agreed upon performance monitoring strategy for mitigation sites. If this step was done in LRP-8, this may be a check-back to concur that the agreed-upon mitigation strategy is sufficient.
		8 - Implement Agreements and Adaptive Management. Deliver Conservation and Transportation Project	Transportation	Data	Documented methods for prioritizing conservation/restoration/mitigation from the ecological plan, to inform the establishment of criteria for prioritization of transportation projects.
		9 - Update regional integrated plan/ecosystem framework	Ecological	Data	Final decisions from corridor planning should be used to update the ecological plan.
ENV-1	Reach Consensus on Scope of Environmental Review	1 - Build & Strengthen Collaborative Relationships, Develop a Vision	Transportation Ecological	Data	<p>Any relationships formed between resource agencies, conservation NGOs and transportation agencies as part of transportation planning or IEF Step 1 are recognized, reinforced and strengthened.</p> <p>Information about the ecological planning region identified at IEF Sub-step 1a is gathered and will inform the development of a study area at ENV-4.</p> <p>The ecological goal data from IEF Sub-step 1d is collected. This data</p>

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					should have been considered during scoping in long range planning and/or corridor planning, but partners can confirm that ecological goals were appropriately considered and can determine whether the data has been updated or if there is more specific information relevant to the project.
		1 - Build & Strengthen Collaborative Relationships, Develop a Vision	Transportation Ecological	Decision	A joint decision is made between transportation and resource agency partners to work together to maximize the ecological benefit and regulatory process efficiencies that can be achieved. If an ecological plan has been completed, this decision could be to implement the agreements consistent with IEF Step 8 (Implement Agreements and Adaptive Management. Deliver Conservation and Transportation Projects).
		2 - Characterize Resources Status & Integrate Natural Environment Plans	Transportation	Data	Combined map of conservation, restoration and enhancement priorities.
		3 - Create Regional Ecosystem Framework (Conservation Strategy + Transportation Plan)	Transportation	Data	Combined map of conservation, restoration and enhancement priorities with transportation plan informed by long range planning and/or corridor planning.
		8 - Implement Agreements and Adaptive Management. Deliver Conservation and Transportation Project.	Transportation	Data	Ecological plan and embedded REF; vision and goals; evaluation criteria, methodology and performance measures; crediting method; mitigation strategy.
ENV-2	Approve Notice of Intent	This key decision is not associated with any IEF Steps.			

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ENV-3	Approve Purpose and Need/Reach Consensus on Project Purpose	1 - Build & Strengthen Collaborative Relationships, Develop a Vision	Transportation	Analysis	Data around ecological goals and priorities was collected at ENV-1. The ecological vision and goals coming from IEF Step 1 will be broad and high-level. The result of IEF Sub-step 2h is a combined map of ecological plans with conservation and restoration priorities. Both the high-level vision and goals, and more specific conservation and restoration priorities coming from these two IEF steps should be analyzed in order to develop a purpose and need for the transportation project that is compatible with or complimentary of ecological goals. If the IEF process is complete, the goals incorporated from the completed plan (at IEF Step 8) would inform ENV-3.
		2 - Characterize Resources Status & Integrate Natural Environment Plans			
		8 - Implement Agreements and Adaptive Management. Deliver Conservation and Transportation Project.			
ENV-4	Reach Consensus on Study Area	1 - Build & Strengthen Collaborative Relationships, Develop a Vision	Transportation	Data	The ecological planning region from Sub-step 1a of the IEF would have been acquired at ENV-1. The region should inform the study area for environmental review. If additional data is known at the site level (e.g., if specific information is known about species populations or other important resources), this could affect the ecological study area and should be taken into consideration.
		3 - Create Regional Ecosystem Framework (Conservation Strategy + Transportation Plan)	Transportation	Data	The combined map of conservation, restoration and enhancement priorities with transportation plans from IEF Step 3 should also inform the study area for environmental review.
ENV-5	Approve Evaluation Criteria, Methods and Measures	4 - Assess Transportation Effects on Resource Conservation Objectives Stated in	Transportation Ecological	Data	At IEF Sub-step 4a, the relative importance of resource types are weighed. Information should be shared between ENV-5 and Sub-step 4a to inform the evaluation criteria in transportation decision making or the weighting criteria in ecological planning.

Key Decision #	Key Decision	IEF Step	Transfer Direction (To...)	Transfer Type	Detailed Description of Transfer
		the REF			
		6 - Develop Crediting Strategy	Transportation Ecological	Data Analysis	The purpose of IEF Step 6 (Develop Crediting Strategy) is to develop a consistent strategy and metrics to measure ecological impacts, restoration benefits, and long term performance – with the goal of having the analyses throughout the life of the project be in the same language. Evaluation criteria, methods and performance measures used in environmental review should inform/be informed by the crediting strategy in ecological planning. Analysis may be required to determine how the two approaches are related and to ensure consistency. This connection to the IEF was also made at LRP-3 and COR-5 and should be consistent with the evaluation criteria, methods and performance measures used in planning.
		8 - Implement Agreements and Adaptive Management. Deliver Conservation and Transportation Project.	Transportation	Analysis	Determine what evaluation criteria, methodology and performance measures from the ecological plan are relevant to the project.
ENV-6	Approve Full Range of Alternatives	3 - Create Regional Ecosystem Framework (Conservation Strategy + Transportation Plan)	Transportation Ecological	Data Analysis	<p>The full range of alternatives from environmental review will inform the combined map of conservation priorities, other land uses and potential alternatives developed in ecological planning. The IEF is designed for this integration to take place at LRP-3. The integration is included at ENV-6 as well for users who "enter" the Decision Guide/IEF at environmental review without completing the IEF process.</p> <p>These sub steps listed in the IEF are the integrated analysis at this key decision: Sub-step 3a - Overlay alternatives and combined map of conservation, restoration and enhancement priorities; Sub-step 3b and c - Show and record areas and resources potentially impacted by transportation alternatives and potential opportunities for joint action on conservation or restoration priorities;</p>

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					Sub-step 3d - Distribute combined conservation/restoration and transportation priorities map layer. This integration cannot occur until there are some alternatives, but it is possible that transportation alternatives could be fatally flawed and eliminated through this analysis. Note that the IEF is designed for this integration to occur using scenarios in long range planning, and has been modified here to reflect how the same approach could be used if the process is entered during environmental review.
ENV-7	Approve Alternatives to be Carried Forward	4 - Assess Transportation Effects on Resource Conservation Objectives Stated in the REF	Transportation Ecological	Analysis	There is joint analysis that takes place between the IEF process and transportation decision making that informs the decision to approve alternatives to be carried forward: determine amount and relative degree of potential impacts of alternatives in relation to resource conservation priorities consistent with the evaluation criteria, methods, and performance measures for ecological factors developed through ENV-5.
		6- Develop Crediting Strategy	Transportation Ecological	Analysis	The crediting strategy developed in IEF Step 6 can be used to measure ecological impacts.
ENV-8	Approve Draft EIS with Conceptual Mitigation	4 - Assess Transportation Effects on Resource Conservation Objectives Stated in the REF	Transportation	Data	Ecological impacts for the alternatives carried forward to the DEIS. Mitigation needs and quantities for alternatives.
		4 - Assess Transportation Effects on Resource Conservation Objectives Stated in the REF	Transportation Ecological	Analysis	Develop cumulative effects scenarios.
		4 - Assess Transportation Effects on Resource Conservation Objectives Stated in	Transportation	Decision	Identified preferences regarding avoidance, minimization, and potential conservation and restoration investments. Identification and quantification of mitigation needs. Preferred alternative(s) from an ecological perspective.

Key Decision #	Key Decision	IEF Step	Transfer Direction (To...)	Transfer Type	Detailed Description of Transfer
		the REF			
		6- Develop Crediting Strategy	Transportation Ecological	Analysis	The crediting strategy developed in IEF Step 6 can be used to measure ecological impacts and to identify the potential cost of anticipated mitigation needs.
		8 - Implement Agreements and Adaptive Management. Deliver Conservation and Transportation Project.	Transportation Ecological	Decision	If a programmatic agreement, MOU or other strategy around advance mitigation had been reached/implemented through the integration of the IEF with long range planning or corridor planning, a decision is made, using the detailed information in the Draft EIS about impacts of alternatives and conceptual mitigation, as to whether any advance mitigation implemented per earlier agreements is sufficient, excessive or insufficient. This decision is made now in order to inform the selection of a preferred alternative.
ENV-9	Approve USACE Public Notice	This key decision is not associated with any IEF Steps.			
ENV-10	Approve Preferred Alternative/LEDPA	This key decision is not associated with any IEF Steps.			
ENV-11	Approve Final Jurisdictional Determination	9 - Update regional integrated plan/ecosystem framework	Ecological	Data	The REF should be updated using the data from the jurisdictional determination.
ENV-12	Reach Consensus on Avoidance and Minimization for the LEDPA	8 - Implement Agreements and Adaptive Management. Deliver Conservation and Transportation Project.	Transportation Ecological	Decision	Avoidance and minimization should be consistent with the conservation priorities identified in the ecological plan.
ENV-13	Approve Final EIS	This key decision is not associated with any IEF Steps.			

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ENV-14	Approve the ROD	9 - Update regional integrated plan/ecosystem framework	Ecological	Data	Final decisions from the environmental review process should be used to update the ecological plan.
ENV-15	Render Permit Decision and Approve Avoidance & Minimization	7 - Develop Programmatic Consultation, BO or Permit	Ecological Transportation	Decision	MOUs, agreements, programmatic 404 permits or ESA section 7 consultation for transportation projects. Agreed upon performance monitoring strategy for mitigation sites.
		8 - Implement Agreements and Adaptive Management. Deliver Conservation and Transportation Project.	Ecological Transportation	Analysis	If an MOU, programmatic agreement or other strategy related to advance mitigation was reached as part of the long range or corridor planning process, ensure agreements are implemented and determine whether any special conditions need to be included in the individual permit.