

ESA, Transportation and Development

Assessing Indirect Effects

Introduction

Under Section 7 of the Endangered Species Act (ESA), the Federal Highway Administration (FHWA) and other federal action agencies, must consult with the National Marine Fisheries Service (NMFS) and the United States Fish and Wildlife Service (USFWS) to determine the effects of their proposed project actions on threatened and endangered species. The Washington State Department of Transportation (WSDOT) is designated to consult on behalf of the FHWA for informal consultations. The consultation process includes an analysis of direct and indirect effects of the action as well as the effects of any interrelated or interdependent activities on listed species. During the Section 7 consultation, questions may arise regarding the relationship of a transportation project to development in adjacent or nearby areas and whether such development is considered an “indirect effect” as defined under the ESA. This document provides general guidance for reviewing and analyzing *only* the indirect effects relationship between transportation and land use development during the consultation process. .

This document has resulted from discussions between the USFWS, NMFS, FHWA, Washington state agencies, including WSDOT with input from local agencies and stakeholder groups in 1999 and 2000. This document was updated as a result of coordination with NMFS, USFWS FHWA and WSDOT in 2003 and again in 2008. It is assumed that any project undergoing section 7 consultation would also be evaluated for direct, other indirect and cumulative effects using ESA regulations and other guidance. General guidance on indirect effects and ESA consultation are also found in *ESA Section 7 Consultation Handbook*, March 1998, p 4-27 to 4-29. This document is not intended for NEPA cumulative effects analysis. While there are overlaps, with ESA consultation there are important distinctions between the two regulatory processes. Although this document is created for use in Washington State and focuses on areas covered by the Growth Management Act (GMA), the principles and analyses described below to determine linkages between land uses and transportation facilities will still apply to areas outside the State and outside the jurisdiction of the GMA.

Within the state of Washington, development is managed through the Growth Management Act (GMA). Cities and counties planning under the GMA are required to develop transportation-related plans, as specified in RCW 36.70A.070 (6). The text of RCW 36.70A.070 (6) can be found in Appendix A.

Preparing Land Use Indirect Effects Analysis for Biological Assessments

This document describes a step-by-step approach to assess indirect effects by posing a series of questions about the project being reviewed. Appendix B shows this approach in a flow chart. It is recommended that the BA writer work closely with the Service's biologist from the beginning of the consultation to help clarify whether indirect land use effects to listed species will occur as a result of the proposed action.

Definitions

The Action: Analysis for ESA consultation must address the proposed action including any interrelated and interdependent actions. Interrelated actions are those that are part of the larger action and dependent on the larger action for their justification. Interdependent actions are those that have no independent utility apart from the action under consideration.

The Effect: According to ESA rules and regulations, *direct effects* occur at or very close to the time of the action itself. Examples could include construction noise disturbance, loss of habitat, or sedimentation that results from construction activity. *Indirect effects* are those that are caused by or result from the proposed action and are later in time but are still reasonably certain to occur. Examples include, changes to ecological systems such as predator/prey relationships, long-term habitat changes, or anticipated changes in human activities including changes in land use. Indirect effects may occur outside of the area directly affected by the action. The geographic extent of these effects is the *action area*, defined as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action".

Indirect effects from transportation projects can include the development or redevelopment of either undeveloped or developed areas when that change is induced by the action or can reasonably be expected to result from the action which is the subject of consultation.

Land Use Indirect Effects Evaluation Process

The first steps in the process are to determine whether the proposed project has a potential land use indirect effect.

Step 1. Will the project create a new facility (e.g. new road, new interchange etc.)? If the answer to this question is yes, go to step 3

To answer this question, it is helpful to understand the potential linkage between a New Facility and land use.

New Facilities have the potential for indirect effects to listed species and their habitat, because they can potentially cause changes in land development by altering the access to land or significantly changing capacity. Other examples would be the addition of lanes to a roadway, or

the creation of new land access (such as new intersections or interchanges) from an existing road. New interchanges on limited access roads where access does not exist may also lead to changes in land development.

Step 2. Will the project improve a level of service of an existing facility as established in local GMA plans? If the answer to this question is yes, go to step 3

To answer this question, it is helpful to refer to the project's Purpose and Need statement and consult the project design office to determine what changes in Level of Service the project is expected to provide.

Level of Service standards are adopted by local or state government, depending on who owns the facility. The standards (from A being the best traffic flow, to F being the worst) can be found in the transportation element of the comprehensive plan for local governments and in the state transportation plan for WSDOT/FHWA facilities.

Projects that improve the operation of the transportation system will either maintain or improve the LOS for that facility. This in turn, could allow further development or redevelopment to occur as identified in the local comprehensive plan. For these types of projects, the indirect effects analysis needed to adequately document this may be brief, but it is important to consider the specific facts of the project being evaluated. Improving or maintaining LOS does not necessarily mean that land use change will result. To help determine whether a LOS change will result in an indirect effect related to land use, go to step 3.

Step 3. Determine if the transportation project has a causal relationship to a land use change by answering the following questions: if yes to any of the following criteria, continue with the indirect effect analysis. If no to all of the following criteria, then no further indirect effect analysis is needed.

- a) Is there a building moratorium in place that is contingent on the proposed road improvements?
- b) Are there any land use changes tied by permit condition to the proposed project?
- c) Do the project's NEPA documents identify other actions or land use changes caused by or resulting from the project that are reasonably certain to occur?
- d) Do development plans include scenarios for the planning area where land use differs based on a "build" and "no build" outcome related to the proposed project?
- e) Is there land use change that is likely to occur at a different rate as a result of the project?

Answering the questions in Step 3 will require obtaining information about land use planning in the area. The focus should be determining the extent to which the proposed project would

influence grown patterns and/or rates in the planning area. Some potential sources of this information are:

- 1) Applicable sections of municipal/county comprehensive plans that reference the proposed project under consultation.
- 2) Interviews with local jurisdiction planners.
- 3) Applicable local and county building permits.
- 4) Metropolitan Planning Organization (MPO) population forecast models such as Puget Sound Regional Council's DRAM/EMPAL
- 5) Funding applications (can be obtained via internet search)
- 6) NEPA documents including discipline reports
- 7) Regional Transportation Investment District
- 8) Port Planning Documents (Port of Tacoma, Port of Chehalis, Port of Seattle, etc.)

Step 4: Recheck the size and location of the action area

Indirect effects occur later in time than the original action and may occur outside of the area directly affected by the action. The entire area that is evaluated in the BA for potential project effects on the listed species is called the action area. When defining the action area it is important to include the area that is directly and indirectly affected by the proposed action. The extent of the action area is based on the physical, chemical and biotic extent of the project effects.

In some more complex cases, determining an action area for a transportation project may involve analysis of surface water, traffic patterns, and local land development. Appropriate expertise in traffic engineering, transportation land use planning, and other areas may need to be consulted as the BA is prepared. The purpose is to determine if a project may ultimately affect a listed species by affecting land use.

Defining this action area can be complex for development related indirect effects. An overly generous definition for action area leads to more complexity for cumulative effects analysis and a potential to over estimate effects. This can lead to unnecessary complications, particularly for formal consultation. An undersized action area may fail to adequately characterize the extent of potential impacts. For the BA, the objective is to identify the geographic extent of the effect of land use changes which are caused by the action, and which may ultimately affect the species or their habitat. In some cases, the action area may not be one contiguous area, but could be a patchy distribution.

Several methods are suggested below for help in determining the action area. These may be tailored with respect to project specifics and the available information. Alternative methods may be used, however an explanation of the methodology may be necessary. It is recommended that such alternatives be discussed with the Services before significant work is accomplished.

Characterize the potential “zone of influence” for change in traffic caused by the project

- A. The zone could be estimated for traffic using projected traffic volumes and focusing on any projected changes in traffic patterns due to the proposed action (i.e. the area accessed through a new interchange).
- B. In some cases, this could be generally defined as a corridor along the road including the project and continuing to the closest intersection with a major transportation route such as a state highway.
- C. Existing planning units (i.e. travelsheds) exist in some jurisdictions as part of land use planning documents and traffic mitigation analysis. These could be utilized as the action area or in conjunction with subwatershed boundaries as an action area).
- D. Detailed analyses of traffic patterns such as origin-destination studies or other studies may be performed as part of planning for certain actions. These may be used where available from project planning materials.

Factor in the watershed

To define the action area, overlay the “zone of influence” boundary with the subwatershed (watershed administrative unit - WAU) that coincides. For aquatic species, the BA analysis should cover the geographic area defined by the overlap, plus any downstream portions of the subwatershed.

Step 5: Determine the presence of proposed or listed species or designated critical habitat in the action area.

In most cases, the immediate project area probably includes designated critical habitat for salmonid ESUs/ DPSs or other ranges of listed species. In some cases, a project might involve listed species only because of its indirect effects.

Once the action area is determined, re-check the listing information to ensure it is still adequate for the analysis. The species list should apply to the entire action area, not just the project area. Obtain additional species information if needed. The use of countywide species lists to start with is one way to avoid having to revisit a species list request.

Step 6: Identify the potential for impacts to the species and habitat from the development.

The BA author should evaluate the development in the action area that is contingent on or likely to occur, because of the proposed project. This may include an evaluation of the local jurisdictions comprehensive plan, likely project dependent changes in the existing level of development, likely project dependent growth boundary changes, etc. This information may be available through the local RTPO or MPO.

The key question here: Does it appear there will be adverse effects to the species and/or its habitat? Consider potential impacts to aquatic habitats, adjacent riparian zones, creation of

impervious surfaces and properly functioning conditions as well as direct effects to listed species.

The analysis for the effects of the development should cover the same elements as the analysis of the original project, though there will likely need to be some estimations made if future land use actions are involved.

Step 7: Identify what rules or measures are in place to help minimize the potential effects.

The BA author should note any protection for listed species and habitat provided by existing local Critical Areas Ordinances (CAO) in the action area. This may include protection for riparian or wetland buffers, stormwater regulations, and the implementation and enforcement of existing CAOs

In the BA, address the following questions: What are the protective measures available to minimize project impacts. Identify any factors that would help reduce or minimize the potential effect of development caused by the project. These might include plans or commitments by agencies or project proponents outside the critical areas ordinances. Other protective regulations such as the HPA should be included where applicable. The results of this assessment will have to be incorporated in the discussion of the effects of the proposed action on the environmental base line.

Step 8: Describe how this development would affect the environmental baseline conditions.

The potential effects of the action should be compared to the environmental baseline conditions. NMFS guidance documents and any appropriate guidance from USFWS should be used. Measures in place to protect the species or habitat should be considered in this assessment.

As part of the effect determination, describe the existing environmental baseline condition and describe how the direct and indirect effects of the action would likely affect it. Would it degrade, maintain or improve the existing conditions?

Step 9: After the consideration of conservation measures above, identify any of the remaining, potential effects to the species and habitat from the associated land use development.

If the project has any effects on the species (including designated critical habitat), even if they are small or temporary, then a biological assessment will need to be prepared and consultation will need to be conducted.

If there is no effect from any development that is likely to result from the action AND there are no other direct or indirect effects, then the project as a whole will have no effects. Combine this analysis with the evaluation of direct effects and proceed with the appropriate no effects documentation for the project. Adequate information must be provided to explain and support the conclusions of the analysis

If the project does have potential effects, and the answer is yes, then proceed with the biological assessment to determine if the effects are significant or discountable.

Step 10: Identify whether the development will be likely to adversely affect the species or critical habitat.

In this step, a determination is made as to the significance of any potential effects on the species (including designated critical habitat). This differentiation will lead either to formal or informal consultation, based on whether the effect is considered insignificant or discountable (informal consultation) or adverse (formal consultation).

Insignificant is generally an effect that is very small in scale, does not reach the level of “take” and cannot be meaningfully measured, detected or evaluated. **Discountable** effects are those which are extremely unlikely to occur.

An adverse effect occurs when the effect cannot be considered insignificant or discountable. If an action significantly degrades the baseline conditions it may be considered an adverse effect by the Services. Actions that result in a “take” of individuals or modify critical habitat, are considered an adversely affect the species under consideration. The extent of any adverse effect is considered in the consultation.

If your answer is “No”- then consider this a “Not likely to adversely affect” (NLTAA) for the indirect effects part of the BA. *If the direct effects of the project are also NLTAA-* then proceed with informal consultation.

If your answer is “Yes”- then consider this a “Likely to adversely affect” (LTAA); the project will need formal consultation. This analysis must be combined with an analysis of the project’s direct effects to complete the biological assessment.

If the consultation results in a no jeopardy opinion, the Services will issue an incidental take statement for take that cannot be avoided. The Service does not have to authorize take for indirect effects over which FHWA has no jurisdiction. The incidental take statement will include Reasonable and Prudent Measures (RPM’S) to minimize take, together with terms and conditions. If the consultation results in a jeopardy opinion, reasonable and prudent alternatives may be provided to avoid jeopardy to the species or adverse modification of critical habitat. Also there may be voluntary conservation recommendations by the Services to help further reduce potential effects.

As part of formal consultation the effects the action must be evaluated in the context of the cumulative effects. These are defined in the ESA as the effects of future state, tribal, local or private activities that are reasonably certain to occur in the foreseeable future within the action area. The larger the action area of the project, the more extensive this aspect of the consultation becomes. Once identified, the cumulative effects are evaluated with the direct and indirect effects of the action for the services Jeopardy/adverse modification determination to provide the context under which the effects of the action are evaluated. Project impacts in areas where the baseline is severely degraded would be more significant than those where the baseline is functioning well.

NOTE: These effect determinations are for the indirect effects only and will need to be combined with analysis of the direct effects to complete the biological assessment.

Table 1: Project Screening for Indirect Effects and Effect Calls in Light of Indirect Effects

Project Category	Project Description	Potential Land Use Changes	Analysis Need for BA	Effect Call considering Indirect Effects only.
A) Design Standards Upgrade	Improve roadway design to engineering standards in terms of lane width, curb, gutter and sidewalk, and other geometrics.	Very limited potential to cause land use change	Assessment in BA that details why project will not result in indirect effects.	Mostly NE
B) Operations and Safety Improvements	Improvements to enhance traffic operations and safety that include: signalization, traffic control, channelization, median treatments, turn pockets/lanes, and other benefits to traffic flow.	May be insignificant potential to cause land use change	Assessment in BA that details why project has insignificant potential to result in indirect effects.	Mostly NE but may be NLAA or LAA
C) Pavers (Preservation)	Repaving not providing an increase in capacity	No potential to cause land use change	Assessment in BA that details why project has insignificant potential to result in indirect effects.	Mostly NE
D) Bridge replacements	Replacing bridges without providing an increase in capacity	Very limited potential to cause land use change	Assessment in BA that details why project has insignificant potential to result in indirect effects.	Mostly NE but may be NLAA
Increased lane capacity, improvements to existing interchanges	Add physical through lane capacity to an existing roadway	Potential to cause land use change	Detailed analysis of indirect effects	NLAA or LAA, depending on specific impacts
Roadway Extension, New Roadway, new interchange	Construct extension of roadway, or new roadway on new alignment.	Potential to cause land use change.	Detailed analysis of indirect effects	NLAA or LAA, depending on specific impacts

Appendix A

RCW 36.70A.070 (6):

A transportation element that implements, and is consistent with, the land use element.

(a) The transportation element shall include the following subelements:

(i) Land use assumptions used in estimating travel;

(ii) Estimated traffic impacts to state-owned transportation facilities resulting from land use assumptions to assist the department of transportation in monitoring the performance of state facilities, to plan improvements for the facilities, and to assess the impact of land-use decisions on state-owned transportation facilities;

(iii) Facilities and services needs, including:

(A) An inventory of air, water, and ground transportation facilities and services, including transit alignments and general aviation airport facilities, to define existing capital facilities and travel levels as a basis for future planning. This inventory must include state-owned transportation facilities within the city or county's jurisdictional boundaries;

(B) Level of service standards for all locally owned arterials and transit routes to serve as a gauge to judge performance of the system. These standards should be regionally coordinated;

(C) For state-owned transportation facilities, level of service standards for highways, as prescribed in chapters [47.06](#) and [47.80](#) RCW, to gauge the performance of the system. The purposes of reflecting level of service standards for state highways in the local comprehensive plan are to monitor the performance of the system, to evaluate improvement strategies, and to facilitate coordination between the county's or city's six-year street, road, or transit program and the department of transportation's six-year investment program. The concurrency requirements of (b) of this subsection do not apply to transportation facilities and services of statewide significance except for counties consisting of islands whose only connection to the mainland are state highways or ferry routes. In these island counties, state highways and ferry route capacity must be a factor in meeting the concurrency requirements in (b) of this subsection;

(D) Specific actions and requirements for bringing into compliance locally owned transportation facilities or services that are below an established level of service standard;

(E) Forecasts of traffic for at least ten years based on the adopted land use plan to provide information on the location, timing, and capacity needs of future growth;

(F) Identification of state and local system needs to meet current and future demands. Identified needs on state-owned transportation facilities must be consistent with the statewide multimodal transportation plan required under chapter [47.06](#) RCW;

(iv) Finance, including:

(A) An analysis of funding capability to judge needs against probable funding resources;

(B) A multiyear financing plan based on the needs identified in the comprehensive plan, the appropriate parts of which shall serve as the basis for the six-year street, road, or transit program required by RCW [35.77.010](#) for cities, RCW [36.81.121](#) for counties, and RCW [35.58.2795](#) for public transportation systems. The multiyear financing plan should be coordinated with the six-year improvement program developed by the department of transportation as required by ****RCW [47.05.030](#)**;

(C) If probable funding falls short of meeting identified needs, a discussion of how additional funding will be raised, or how land use assumptions will be reassessed to ensure that level of service standards will be met;

(v) Intergovernmental coordination efforts, including an assessment of the impacts of the transportation plan and land use assumptions on the transportation systems of adjacent jurisdictions;

(vi) Demand-management strategies;

(vii) Pedestrian and bicycle component to include collaborative efforts to identify and designate planned improvements for pedestrian and bicycle facilities and corridors that address and encourage enhanced community access and promote healthy lifestyles.

(b) After adoption of the comprehensive plan by jurisdictions required to plan or who choose to plan under RCW [36.70A.040](#), local jurisdictions must adopt and enforce ordinances which prohibit development approval if the development causes the level of service on a locally owned transportation facility to decline below the standards adopted in the transportation element of the comprehensive plan, unless transportation improvements or strategies to accommodate the impacts of development are made concurrent with the development. These strategies may include increased public transportation service, ride sharing programs, demand management, and other transportation systems management strategies. For the purposes of this subsection (6) "concurrent with the development" shall mean that improvements or strategies are in place at the time of development, or that a financial commitment is in place to complete the improvements or strategies within six years.

(c) The transportation element described in this subsection (6), and the six-year plans required by RCW [35.77.010](#) for cities, RCW [36.81.121](#) for counties, RCW [35.58.2795](#) for public transportation systems, and ****RCW [47.05.030](#)** for the state, must be consistent.

(RCW 36.70A.070 Comprehensive plans -- Mandatory elements).

Appendix B – Flow Chart

