Chapter One Purpose and Need for Action

Interstate 90 (I-90) spans 300 miles in Washington State from the Port of Seattle to the Idaho State line, and then continues east across the United States to Boston, Massachusetts. I-90 is the main east-west transportation corridor across Washington and is vital to the state's economy. The Washington State Department of Transportation (WSDOT) proposes to improve a 15-mile portion of I-90, east of Snoqualmie Pass from Hyak to the West Easton Interchange by constructing an additional lane in each direction. Figure 1-1 depicts I-90 as it traverses the State of Washington.

This chapter presents an overview of the proposed project. This chapter also includes a discussion of the scope of the environmental analysis, including a summary of the environmental impact analysis process and the decisions to be made.

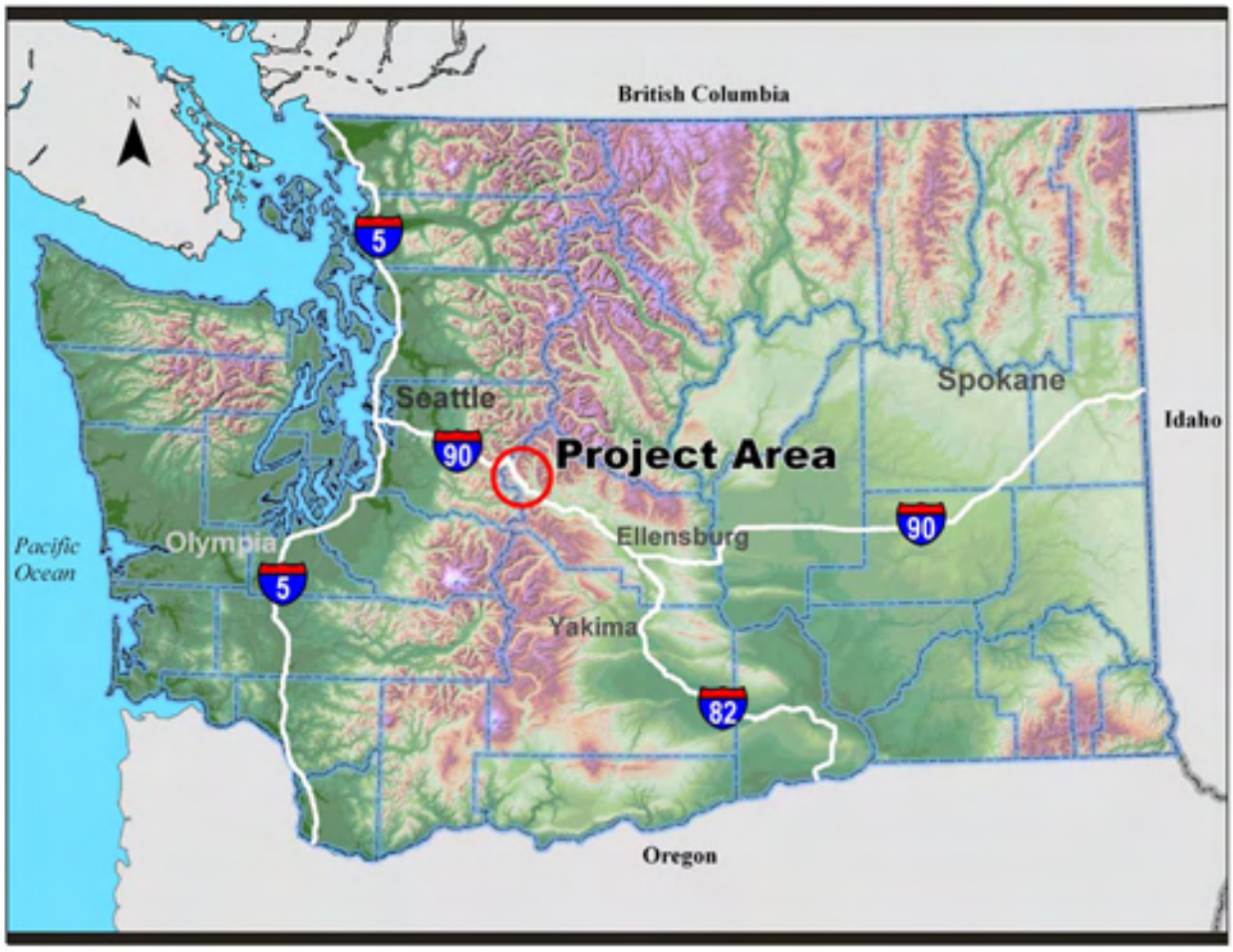

Figure 1-1. Vicinity Map

1.1 What is the purpose of the I-90 Snoqualmie Pass East Project?

Improvements to I-90 are necessary to address avalanches and rockslides.

The purpose of this project is to meet projected traffic demands, improve public safety, and meet the identified project needs in a 15-mile stretch of I-90 between the communities of Hyak and Easton in Kittitas County, Washington. The project corridor commences on the eastern side of Snoqualmie Pass at Milepost (MP) 55.1 just east of the Hyak Interchange and ends at MP 70.3 at the West Easton Interchange near the unincorporated community of Easton (see Figure 1-2).

1.2 Why do we need the I-90 Snoqualmie Pass East Project?

This project proposes to resolve a convergence of critical traffic safety, pavement deficiencies, and ecological needs within its relatively short 15-mile corridor.

An improved six-lane 15-mile corridor would meet the following needs.

1.2.1 Avalanches

I-90 is frequently closed due to avalanches and associated control work. These closures strand motorists and freight on the pass resulting in substantial safety hazards to the traveling public, travel delays, and impacts to the state's economy. The traveling public and movement of goods remains at risk as long as the problem is not addressed. The risk will increase proportionally to traffic growth.

1.2.2 Slope Instability

I-90 has several unstable slopes which result in rock and debris falling onto the roadway causing damage to property and loss of life. These slopes will continue to pose a threat to property and safety if they are not addressed.

1.2.3 Structural Deficiencies

The pavement on I-90 is beyond its design life and the roadway is in a state of rapid deterioration. If it is not fixed, continual deterioration of the roadway will result in unsafe driving conditions, increased vehicle damage, travel delay, and eventual failure of the roadway.

1.2.4 Traffic Volume

Traffic volumes on I-90 are growing at an estimated three and one half percent per year. Currently, these traffic volumes exceed the highway design capacity during peak travel period. During the 20-year design period of the proposed action, traffic volumes are expected to double and this condition is expected to worsen. The worsened traffic situation will lead to higher accident rates, adverse economic impacts, and increased travel times, which greatly reduces the ability of the interstate to function as a safe and efficient roadway.

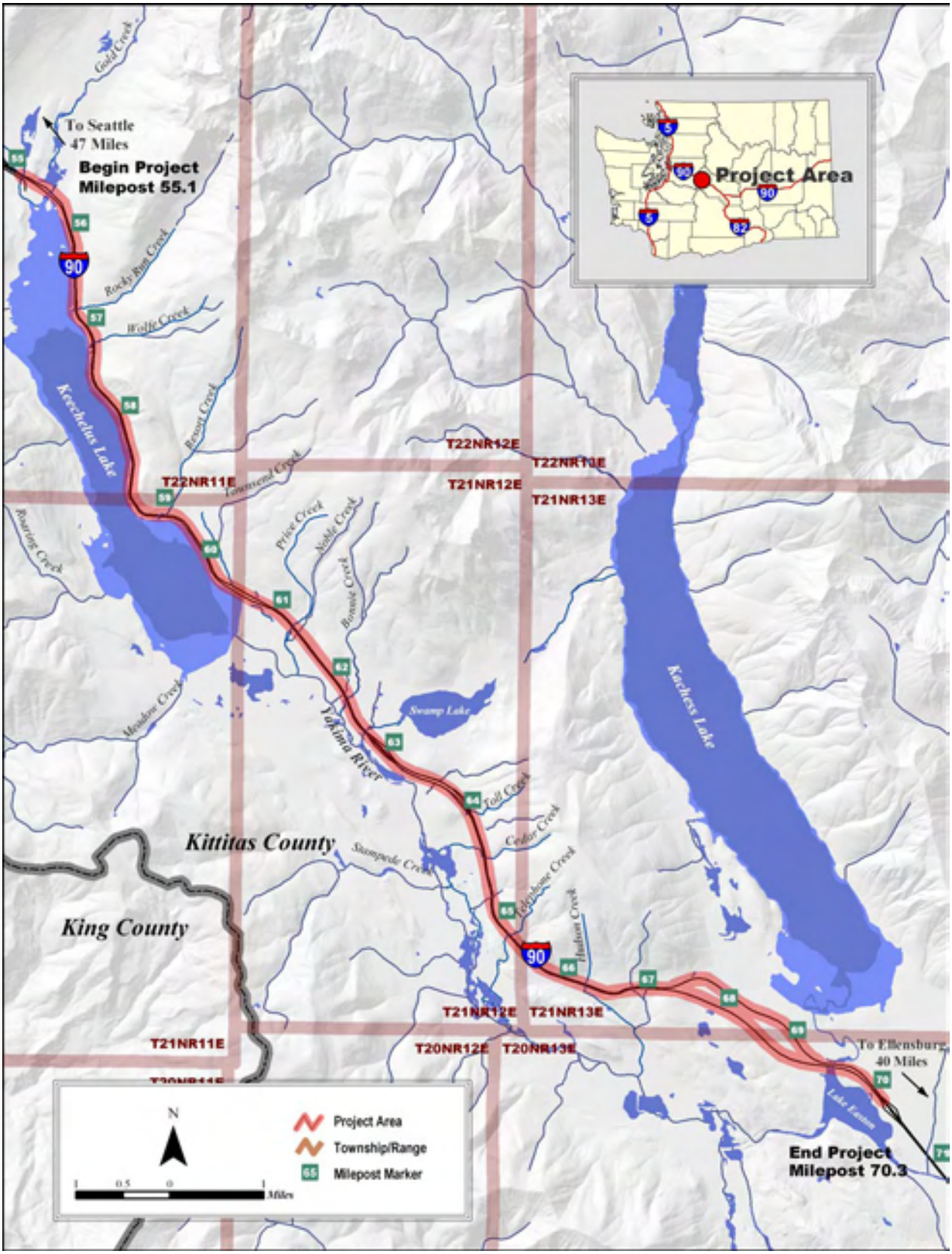

Figure 1-2. Project Corridor

1.2.5 Ecological Connectivity

Previous studies have identified the need to correct ecological connectivity barriers created by the existing I-90 facility in the vicinity of the proposed project. Enhancing and improving the biological permeability of the roadway corridor will help achieve the goals of the Northwest Forest Plan for improving ecological connectivity within the Snoqualmie Pass Adaptive Management Area. Improving connectivity across the I-90 corridor will help reduce demographic and genetic isolation of species and reduce the risks to wildlife and the public from vehicle/wildlife encounters.

1.3 What is "Ecological Connectivity"?

Ecological connectivity refers to the ability of organisms to move freely within their natural range, as well as the occurrence of physical processes across an ecosystem over time. This would include the movement of large, highly mobile animals, such as bear and elk, across the highway, but also the passage of small animals such, as squirrels and mice, and even the passage of slow-moving species, such as snails and salamanders. In addition, ecological connectivity refers to the physical processes important in the environment, such as the movement of water from wetlands on one side of the highway to the other, or the passage of gravel and woody debris down a stream channel.

According to *Landscape Ecology* (Forman and Godron 1986), "Connectivity is a measure of how connected or spatially continuous a corridor is…" The opposite of connectivity is habitat fragmentation — ever-smaller "islands" of habitat, located at ever-increasing distances from one another.

The concept of ecological connectivity is based in part on the theory of island biogeography, developed in the late 1960s (MacArthur and Wilson 1967). Island biogeography theory proposes that both the number and distribution of species on true islands may also apply to figurative habitat islands surrounded, for example, by harvested forest lands, human development, and other isolating effects. There are two key principles underlying island biogeography theory: *distance effect* and *area effect*, as described here:

Distance effect: Species extinction rates are reduced as distance decreases between an island and its larger source of colonizing species.

Area effect: Species extinction rates increase with decreasing island area.

Why are ecological connectivity, habitat fragmentation, and island biogeography important to the I-90 project? Because these concepts define much of the environmental framework of the project.

As human land use trends lead to reduced habitat areas (area effect) and increasing distances between those habitat areas (distance effect), fragmentation worsens. Fragmentation results from forest management, transportation and utility corridors, and land development practices. If left unchecked, fragmentation leads to smaller species populations, declines in reproduction rates, and reduced ability to move across the landscape (Harris 1984). This demographic isolation then makes these populations more likely to suffer effects of inbreeding and genetic isolation, and lowered resistance to disease, predation, or the ability to rebound from catastrophic losses such as large wildfires. Species isolation can start a domino effect, where local extinctions lead to the loss of

these species from much larger areas. These effects apply primarily to species that require adjoining habitat of a single type. Species that prefer edge habitat or patchy habitat, such as elk, may be less affected by fragmentation, or may actually benefit, depending on the extent of human development.

Ecological connectivity is also nested within the field of conservation biology theory, which advocates corridors between habitat patches or reserves as a remedy to fragmentation. The concept of ecological connectivity suggests that connecting corridors of habitat be maintained over time to ensure the productive function of the plants and animals that contribute to the overall health of the area.

In its role as steward of the state's transportation system, WSDOT has a vested interest in considering projects as more than simply transportation. WSDOT recognizes that the integration of a highway into a community can have far-reaching impacts (positive and negative) beyond its transportation function. This philosophy is known as context sensitive solutions, and is one of the most significant concepts to emerge in highway project planning, design, and construction in recent years (www.fhwa.dot.gov/csd/). The following section describes the unique context of the I-90 project at Snoqualmie Pass.

1.3.1 Why is ecological connectivity important for this project?

The project's location within federal land holdings, adjacent to one of the lower passes in the central Cascades Mountains, provides additional context regarding the need to improve connectivity. Multiple United States Department of Agriculture forest management plans have identified the need to reduce the barrier effect of the highway. Some of these plans led to land acquisitions in order to more coherently manage the "checkerboard lands" that resulted from the Northern Pacific Railroad Land Grant of 1864 (Jensen and Draffan 1995). Public and private partnerships secured approximately $79 million in publicly funded acquisitions (personal communication, Raines 2005). Supplementary information on federal land planning and land acquisition efforts within the Wenatchee and Mount Baker-Snoqualmie National Forests can be found in the introduction to Chapter 3.

The 1994 Northwest Forest Plan and the 1997 Snoqualmie Pass Adaptive Management Area Plan identified the need to improve the permeability of I-90.

Several large tracts of designated wilderness areas are located to the north and south of the project in the Cascades Range. These areas, as well as the larger National Forests and private lands adjacent to them, provide habitat for a number of wildlife species. Deer and elk are known to cross I-90, most frequently at Gold Creek, the south end of Keechelus Lake, and at Easton Hill. Past surveys done by Peter Singleton and others (2000) indicate active crossings by smaller mammals as well.

As discussed in the preceeding section, connected tracts of wildlife habitat, or wildlife corridors, are needed by many species to connect habitat patches and to maintain their viability in a region. According to the *Snoqualmie Pass Adaptive Management Area Final Environmental Impact Statement*, the area between Mount Rainier and the Alpine Lakes is the "critical connective link in the north-south movement of animals in the Cascades Range."

Gold Creek as it enters Keechelus Lake

A swath of federally managed forested land approximately 30 miles wide exists between North Bend and Easton to link Mount Rainier to the Alpine Lakes. It may be useful to visualize the central Cascades Mountain Range as an hourglass, with the area on both sides of I-90 in the project location as the thinnest portion of the hourglass (Mount Rainier National Park to the south and Alpine Lakes to the north) (Figure 1-3). Forest-dependent wildlife moving between habitats on both sides of I-90 may be constrained by the narrowing of federal landholdings. Private lands adjacent to this narrow, federally managed area should be considered suitable habitat, although they could be fragmented further by future development. However, it is both reasonable and prudent to improve the permeability of the interstate for 15 miles through a federally managed portion of this corridor.

Given the land planning and land acquisition efforts over the last 10 years in the Snoqualmie Pass area, WSDOT included ecological connectivity in the project's purpose and need in order to reduce the interstate's barrier effect on this "critical connective link."

1.4 What is the history of I-90?

I-90 has historically provided an east-west connection for Washington State.

Highway 10 was constructed in the 1920s as the first paved roadway to replace the Snoqualmie Pass Road. In the 1950s, Highway 10 was widened to four lanes from North Bend to Hyak by constructing another two-lane road parallel to the then-existing Highway 10. At that time, a snowshed to protect traffic from avalanches was constructed in the vicinity of present-day MP 58.

During the late 1950s and early 1960s, Highway 10 was increased to four lanes from Hyak to Cle Elum by either widening the existing facility or by constructing an additional roadway parallel to the existing Highway 10. The snowshed continued to protect the westbound lanes, but nothing was built to protect the eastbound lanes in the avalanche-prone area near MP 58.

In the late 1960s and early 1970s, the portions of Highway 10 that did not meet interstate design standards were realigned, and Highway 10 became I-90 as part of the country's Interstate Highway System. Portland Cement Concrete Pavement (PCCP) was used to construct the roadway in the 1950s. In the 1970s, pavement was replaced as realignment projects occurred. In the early 1980s, pavement cracking and panel settlement became apparent, and by 1994, virtually the entire pavement structure from Hyak to Easton showed signs of deterioration.

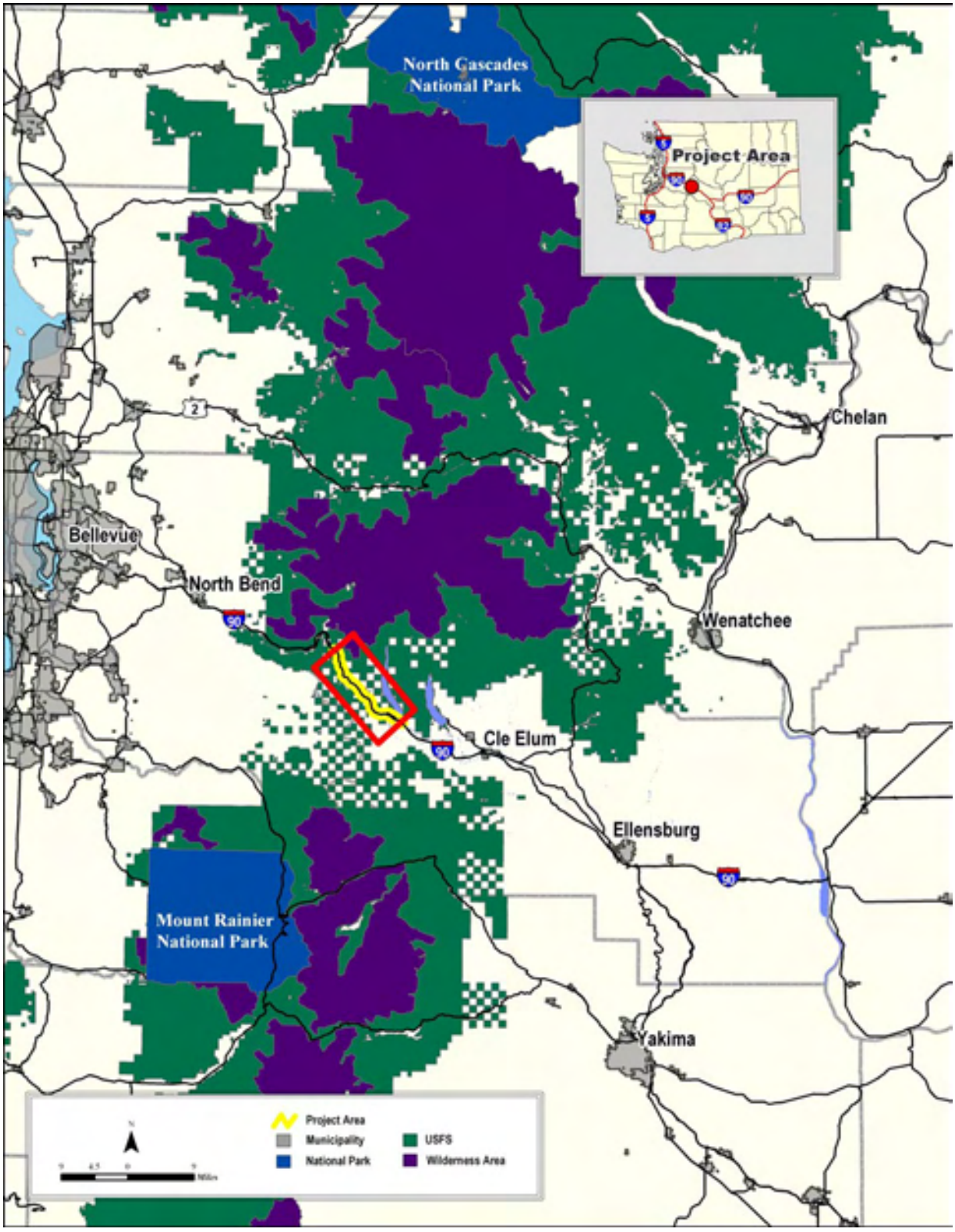

Figure 1-3. Federally Managed Lands Within the Project Area

More than 27,000 vehicles cross Snoqualmie Pass daily.

Some of the panels were so cracked and deteriorated that dowel bars could not be installed to repair the pavement. These areas were overlaid with Asphalt Concrete Pavement (ACP). The areas that received dowel bars have begun to show significant wear, the ride is becoming rough, and the ACP overlays are showing a need for repair or replacement.

Today, I-90 is the main east-west transportation corridor across the State of Washington and is vital to the state's economy; traffic includes shipping, recreation, and business travel. More than 27,000 vehicles cross Snoqualmie Pass daily.

1.5 What are the project termini, and why are they logical?

As depicted on Figure 1-2, the beginning and ending points of the project area are located just east of the Hyak Interchange at MP 55.1 and at the West Easton Interchange (MP 70.3). The eastern project boundary was extended from MP 67.4 to MP 70.3 during the scoping period in 2000. These termini were chosen because they define a distinct major highway corridor, with unique operational characteristics and a high concentration of problem areas. As required under Federal Highway Administration's (FHWA's) National Environmental Policy Act (NEPA) rules [23 Code of Federal Regulations [CFR] § 771.11(f)], the proposed project does not require or preclude future adjacent highway projects if the I-90 Snoqualmie Pass East project is constructed.

The beginning (western) terminus is located where the existing facility transitions from six lanes to four lanes. The ending (eastern) project terminus (MP 70.3) occurs outside the National Forest boundary where the terrain becomes flatter, there are no avalanche or rock fall problems, and the need for snow removal is substantially less than that required at Hyak. East of the ending termini, the facility functions efficiently because of better alignment and greater sight distances.

Between the termini, the terrain transitions from mountainous in the west to rolling hills in the east. Within the project area, operational characteristics and maintenance of the roadway varies because of avalanche zones, chain-on and chain-off areas, snow and ice removal practices, localized flooding, and high amounts of rock fall.

1.6 Who is the project proponent and lead agency?

U.S. Department of Transportation Federal Highway Administration

Washington State Department of Transportation

For the environmental review process, a federal agency is required to be the lead agency although a state or local agency may share the lead with the federal agency. A lead agency is the agency with the primary responsibility for preparing the Environmental Impact Statement (EIS). For the I-90 Snoqualmie Pass East project, that federal lead agency is the FHWA. Under Washington's State Environmental Policy Act (SEPA), any agency that proposes to take an

official action is required to perform a series of environmental analyses to disclose environmental impacts that would result from that action. WSDOT is the SEPA lead agency. The United States Forest Service (USFS) and United States Department of the Interior Bureau of Reclamation (USBR) are cooperating agencies. This document is a combined NEPA/SEPA EIS.

To satisfy both NEPA and SEPA requirements, FHWA and WSDOT are the project proponents and have developed this combined NEPA document. This Draft EIS evaluates the environmental impacts of alternative projects. It addresses direct (including construction-related) impacts, as well as indirect and cumulative impacts. Based on this environmental analysis, and resource agency and public input into this document, a preferred alternative (action) will be identified in the Final EIS.

1.7 Who participated in developing this EIS?

In order to fully address the purpose and needs for this action, to provide special expertise and to comply with applicable NEPA requirements, WSDOT has two cooperating agencies, the USFS and the USBR. Furthermore, WSDOT engaged two key teams to assist in preparing this EIS.

WSDOT created the **Interdisciplinary Team** (**IDT**) to provide guidance and direction to WSDOT in preparing the *I-90 Snoqualmie Pass East EIS*. The purposes of this team are to 1) encourage public involvement and 2) ensure that a systematic interdisciplinary approach is an essential part of the development process for a project. Participation on the I-90 Snoqualmie Pass East IDT is balanced between WSDOT staff and representatives from the FHWA, United States Fish and Wildlife Service (USFWS), USFS, and Washington Department of Fish and Wildlife (WDFW). While not a member of the IDT, the United States Environmental Protection Agency (USEPA) and the United States Army Corps of Engineers (USACE) occasionally participate in the team's discussions. The Washington State Parks and Recreation Commission (WSPRC), although not IDT members, are regular meeting participants.

US Army Corps of Engineers

Washington Department of Fish and Wildlife

The IDT has helped WSDOT determine the screening criteria used to evaluate alternatives, determine the different routes or alignments the project could take, and participated in the selection of the different alternatives. The IDT's role on the project is ongoing, and they will review advance copies of the project's environmental documents as well as recommend a preliminary preferred alternative, following issuance of the Draft EIS and receipt of comments.

WSDOT determined that the issue of ecological connectivity within the project area needed greater attention and specific expertise. Realizing that some of the IDT member agencies could provide this expertise in the fields of biology and hydrology, WSDOT invited some IDT members, other experts from IDT agencies, together with WSDOT's experts, to participate on a team that would focus specifically on ecological connectivity issues within the project area. The result was a multi-agency **Mitigation Development Team** (**MDT)**, an advisory subcommittee to the IDT.

1.7.1 Why was the Mitigation Development Team created?

"Where should WSDOT/FHWA build new or larger bridges and culverts to allow wildlife passage?" "What size should those structures be?" The answers to these questions have proven to be the most elusive to the I-90 project team. Unlike the other project needs, methods of identifying the "right" bridge or culvert at the "right" location within the I-90 Snoqualmie Pass East corridor are much less defined[1]. For example, there are no established wildlife connectivity standards, in contrast to the accepted and well-documented solutions for solving problems such as rockslides or deteriorating pavement.

Recognizing this challenge, WSDOT and FHWA assembled technical staff from the natural resource agencies serving on the I-90 Interdisciplinary Team (IDT), to create the Mitigation Development Team (MDT). A group of eight biologists and hydrologists from the WSDOT, USFS, United States Fish and Wildlife Service (USFWS), and Washington Department of Fish and Wildlife (WDFW) serve on the MDT. The team developed a "Recommendation Package" (see Appendix A) as an additional tool for use by the IDT and decisionmakers when they consider where and to what extent new or enlarged bridges and culverts might enhance ecological connectivity.

1.7.2 What did the MDT do?

The MDT's primary goal is to define and deliver an ecological connectivity strategy to the I-90 IDT. The strategy includes a set of bridge/culvert options (a "package") that enhances opportunities for the movement of wildlife and water. Three improvement packages were developed, resulting in a range of options for connecting habitats under and over the freeway.

The MDT reviewed technical information on the natural resources and ecological functions within the project area. Following that review, the team agreed that the water crossings within the project corridor represent logical locations to target connectivity investments. Accordingly, the MDT focused their attention on 14 water crossings and one upland site. These sites are presented in the Draft EIS as Connectivity Enhancement Areas (CEAs).

Multiple factors converged at seven of these enhancement areas, leading the project team and the MDT to collaboratively develop multiple bridge and culvert options at each of these locations. Those converging factors include locations with a high number of observed wildlife crossings, and high numbers of vehicle/wildlife collisions (Singleton and Lehmkuhl 2000), and high natural resource values, including streams or wetlands and unique wildlife communities. The primary differences between each option are the numbers and sizes of the bridges or culverts proposed, and their specific locations, within each enhancement area.

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[1] For an excellent summary of the research and knowledge gaps in the study of wildlife/freeway interactions, see pp. 157-161 of *Road Ecology*; 2003, Island Press.

The MDT developed performance standards to guide designers in the freeway design process, and provided WSDOT with best management practices[2] to be used as appropriate. The team created a working definition of connectivity to provide the context for their recommendations. They also developed a set of recommended objectives, which were used in their evaluation of design options. The team identified options that did not meet all of their recommended objectives and provided this information to assist decisionmakers. The results of this evaluation are presented in Table 2-4.

1.7.3 How will the MDT's work be used?

The MDT is currently "fine-tuning" their Recommendation Package. To assist them, WSDOT hired three recognized experts in the fields of wetland science, wildlife crossing structures, and hydrology to review and evaluate the MDT's recommendations, and to assure the scientific integrity of the document. The MDT is integrating the results of this review into the final recommendation package, which will be finished this summer.

The MDT's recommendation package will be considered, together with public and agency comments, and other pertinent information, by the IDT as they recommend a preferred alternative to WSDOT/FHWA. The MDT's final Recommendation Package will be included with other technical reports as an appendix to the Final EIS. The USFS has indicated that the data assembled in the MDT Recommendation Package will assist them in determining whether the project is consistent with the current land management plan (Section 1.11). As with the other supporting technical reports prepared for this project, WSDOT and FHWA will implement the recommendations of the MDT when and where it is feasible and prudent to do so.

1.8 What are the steps in the environmental analysis process?

This Draft EIS has been prepared in accordance with NEPA and its implementing regulations, SEPA and its implementing regulations, applicable FHWA regulations and guidance (23 CFR 771 *FHWA Environmental Impact and Related Procedures, FHWA Technical Advisory T6640.8 Guidance for Preparing and Processing Environmental and Section 4[f]) Documents*), and WSDOT regulations and *Environmental Procedures Manual*.

NEPA established a national environmental policy, and established a Council on Environmental Quality (CEQ). NEPA and its implementing regulations ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. An EIS is prepared as a tool for compiling all the information about a proposed action, and providing a full and

[2] Best Management Practices (BMPs) are effective, practical, structural or nonstructural methods that prevent or reduce the negative effects of construction practices on surface or ground water, or that otherwise protect water quality from the potential adverse effects of construction activities.

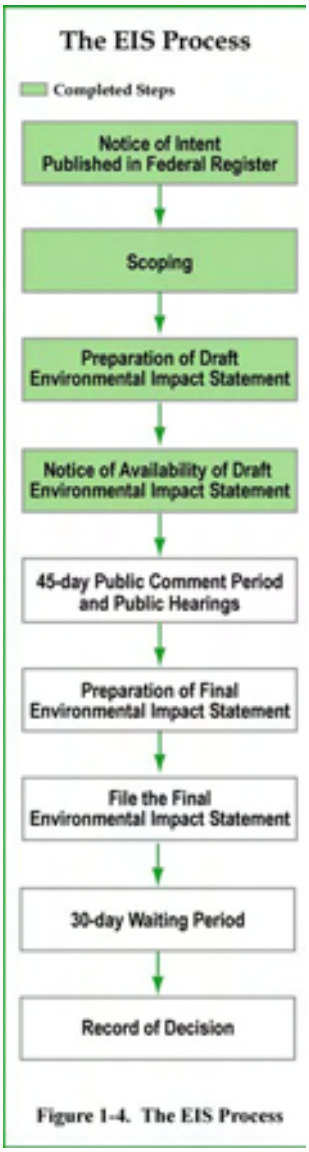

Figure 1-4. The EIS Process

fair discussion of significant impacts to the natural and human environment. Reasonable alternatives to the proposed action are also evaluated in an EIS, as well as a No-Action Alternative.

In this Draft EIS, the No-Action or No-Build Alternative means that new lanes or improvements will not be constructed; however, it does include periodic maintenance and minor safety improvements. The No-Build Alternative also represents the baseline from which the environmental impacts of the build alternatives would be predicted. The environmental baseline and project impacts are described in greater detail in Chapter 3.

By analyzing multiple alternatives, WSDOT and FHWA ensure that fully informed decisions are made after reviewing a comprehensive, multi-disciplinary analysis of potential environmental consequences. As depicted on Figure 1-4, compliance with NEPA guidance for preparation of an EIS involves several critical steps.

Notice of Intent Published in Federal Register. For this EIS, a Notice of Intent was published in the *Federal Register* on December 28, 1999.

Scoping. Scoping is the first major step to identify the relevant issues to be analyzed in depth and eliminate issues that are not relevant. Scoping for this EIS ran from January 2000 through March 2000. Within that period, WSDOT actively solicited comments from the public, local governments, federal and state agencies, Native Americans, and environmental groups to ensure their concerns and comments about the proposed project were included in the analyses. In addition to receiving verbal and written comments at the scoping meetings and on the 1-800 telephone message line, WSDOT also received written comments through the mail and email from the public and agencies. Issues and concerns received during scoping are summarized in Table 1-1. Section 6.1.3 provides more information on the scoping process.

Preparation of Draft Environmental Impact Statement. The Draft EIS is a comprehensive document for public and agency review. Scoping comments were used to focus the preparation of this Draft EIS. The Draft EIS presents the existing conditions for the I-90 corridor. Analysis of the environmental consequences of each alternative is also presented. This information is derived from reports prepared for WSDOT to address all key environmental resources. To ensure the widest dissemination possible, this Draft EIS has been distributed to agencies, numerous libraries, and members of the public who have requested copies.

Notice of Availability of Draft Environmental Impact Statement. The 45-day public comment period began when the Notice of Availability for this Draft EIS was filed in the *Federal Register*.

In developing this Draft EIS, expert reports or technical memoranda were prepared for the following environmental disciplines and topics. These documents are available on the enclosed compact disc of appendices.

Table 1-1. Summary of Scoping Issues and Concerns

What concerns were raised by the public?	*Which section(s) of the EIS consider(s) this concern?*
Environmental Process	
Concerns about public involvement efforts; request for a Seattle public meeting; concern about notification to easement holders.	1.8; 5.1
More clearly identify the EIS process, management, and studies required for the proposed project.	1.8; 5.1; 5.2
Work closely and consult with other agencies and additional entities. Include some as contributing agencies.	1.8; 5.1; 5.2
Alternative Selection or Design	
Opposition to constructing an alignment west of Keechelus Lake (Rampart/Roaring Ridge Routes).	2.1 to 2.3
Various preferred alternatives including the "no-build" alternative, the common route alternative, and the tunnel alternative were recommended.	2.1 to 2.4; Table 2-5
Request for EIS to consider more alternatives or modify alternatives. Requests to look at: different routes to eliminate the loss of lake storage or to ease construction; an all-weather tunnel across Snoqualmie Pass or across the Cascades; maximizing the use of the existing alignment; or using multi-modal options. Request for easier transportation access between upper Kittitas County and the Puget Sound metro area.	2.1 to 2.4
Comment that No Action alternative should not consider reconstruction to handle avalanche and slide issues.	2.1, 2.4 to 2.6 (but not directly addressed)
Comment that No Action alternative should include actions required for compliance with the Endangered Species Act (ESA).	2.1, 2.4 to 2.6 (but not directly addressed)
Concerns regarding impacts from split route alternative.	2.3
Suggestions Pertinent to all Alternatives	
Clearly state the purpose and need, ensure project meets the need (including solving wildlife issues).	Ch. 1
Enhance/improve wildlife connectivity; improve the environment.	1.2; 1.3; Ch. 3; 3.3
Improve I-90, the road, existing surface, and delineation. Start construction now.	1.1 to 1.3; 1.10; 2.1 to 2.4; 3.7
Eliminate road closures due to avalanche.	1.2; 2.4; 3.1; 3.7
Analyze impacts to old growth (late successional forests) and minimize removal.	Intro to Ch. 3; 3.6
Environmental Consequences	
Potential negative impacts to the quality of life in Hyak community.	3.2; 3.3; 3.7; 3.8; 3.10; 3.11; 3.13; 3.12; 3.14
Minimize area impacted by construction. Employ construction mitigation measures.	3.1.3; 3.2.3; 3.3.3; 3.8.3; 3.10.3; 3.13.4; 3.14.3; 3.15.3; 4.1; 4.2
Air quality concerns from dust and exhaust.	3.2
Water quality impacts should be analyzed. Stormwater runoff impacts should be analyzed and storm water discharge permits obtained during construction, if required.	Intro to Ch. 3.0; 3.3; 3.5; 3.6
Concerns regarding water flows and legal water rights.	Intro to Ch. 3.0; 3.2.3; 3.5
Concerns regarding project impacts and cumulative effects to ESA candidate, listed, and sensitive species and other fish and wildlife and their habitat upstream and downstream from the project footprint. Request that wildlife issues be corrected and be part of the decision, not just researched.	Intro to Ch. 3.0; 3.5; 3.6
Analyze impacts to wetlands, riparian areas, and aquatic resources.	Intro to Ch. 3.0; 3.5, 3.6
Conduct noise study. Investigate noise abatement. Study noise affects to recreation as well as wildlife.	3.6; 3.8; 3.10
Thoroughly investigate impacts to cultural and historical resources.	3.9
Thoroughly investigate impacts to recreation. Improve recreation opportunities. Ensure year-round access.	3.10
What is proposed to be done with the Sno-parks?	2.4.7.3; 3.10; 3.12; 3.16
Improve this scenic by-way. Concerns regarding aesthetic/visual impacts to park users. Preserve natural beauty of countryside, public parks, recreational lands, and historic sites.	3.2; 3.9; 3.10; 3.12
Consider economic impacts from congestion, construction, and pass closure.	3.13
Fund the project by charging tolls. Mitigation funding should be paid for by Department of Transportation funds.	3.14.3
Cumulative Impacts	
Make proposal consistent with surrounding transportation and other government agency plans. Consider cumulative impacts from this and other highway and dam projects.	3.11; 3.16

- Air Quality Discipline Report
- Aquatic Species Discipline Report
- Aquatic Species Discipline Report Supplement
- Energy Discipline Report
- Environmental Justice Discipline Report
- Evaluative Testing of Eleven Sites for the Washington State Department of Transportation's I-90: Snoqualmie Pass East Project
- Geology and Soils Discipline Report
- Hazardous, Toxic, or Radiological Waste (HTRW) Discipline Report
- Hydrologic Systems, Water Quality, and Floodplains Discipline Report
- Land Use Discipline Report
- Noise Discipline Report
- Public Services Discipline Report
- Recreation and Section 4(f) Evaluation Discipline Report
- Socioeconomics Discipline Report
- Terrestrial Species Analysis Supplemental Report
- Transportation Discipline Report
- Utilities Discipline Report
- Visual Impact Assessment Discipline Report
- Water Resources Discipline Report Supplement
- Wetland/Biology Report

45-day Public Comment Period. Written and oral comments are invited on this Draft EIS. Public hearings will give citizens and agencies an opportunity to comment on the Draft EIS. The hearings provide a direct mechanism for the public and agencies to submit oral or written comments to WSDOT.

Preparation of Final Environmental Impact Statement. The Final EIS will be prepared following the public comment period, will include all comments on the Draft EIS, and will address all of the issues raised during the public comment period or presented at the public hearings. As appropriate to the analysis, these issues will be included in the Final EIS. The Final EIS will revise the Draft EIS to reflect public and agency comments, WSDOT's responses, and additional information received from reviewers. The Final EIS will provide the decisionmaker with a comprehensive review of the potential environmental consequences of selecting a particular preferred alternative from among the action alternatives, and the consequences of the No-Build Alternative.

File the Final Environmental Impact Statement. The final steps in the NEPA process are filing the Final EIS in the *Federal Register* and issuing the Record of

Decision (ROD). The Notice of Availability will announce that the Final EIS has been published.

30-day Waiting Period. After the Final EIS has been announced, this begins a 30-day waiting period before the ROD is signed.

Record of Decision. The ROD will identify which alternative has been selected by the decisionmakers, and what management actions or other measures would be carried out to reduce, where possible, adverse impacts to the environment.

1.9 What decisions must be made?

This EIS presents a single proposed action to improve the 15-mile corridor of I-90. However, there are two elements of the proposed action that require the decisionmaker's distinct analysis and consideration. These two decisions can be made independent of each other; however, a decision must be made on both elements to create a true "build" alternative.

Which alternative should be applied at the Keechelus Lake Alignment? The proposed Keechelus Lake alignments consist of the following (see Section 2.4.3, *The Keechelus Lake Alignment Alternatives,* for more information):

- No-Build Alternative
- Keechelus Lake Alignment Alternative 1: Long Tunnels
- Keechelus Lake Alignment Alternative 2: Short Tunnels
- Keechelus Lake Alignment Alternative 3: Short Tunnel Westbound, No Tunnel Eastbound
- Keechelus Lake Alignment Alternative 4: Both Directions of Traffic Along Keechelus Lake Around Slide Curve

FHWA/WSDOT Decisions to be Made:

1) *Which proposed Keechelus Lake Alignment Alternative would be constructed?*
2) *Which proposed connectivity enhancement option would be constructed in combination with other improvements at each CEA?*

Which combination of connectivity options should be selected, together with other improvements to I-90 within the corridor? The CEAs and connectivity options developed by WSDOT represent a range of permeability across the highway and were typically organized in order from "more permeable" to "less permeable." All of the connectivity options would result in a substantial investment towards crossing structures for multiple species. There are numerous combinations of connectivity options, but to facilitate the analysis of consequences and to more simply present an array of options, three combinations were designed. Referred to as Improvement Packages in this EIS, they represent examples of combinations of connectivity options. The Improvement Packages subsequently refined by the IDT consist of the following (see Section 2.4.7 for more information):

- Improvement Package A
- Improvement Package B
- Improvement Package C

The decisionmaker can choose to combine the connectivity options in different ways to form a preferred package.

The decisions to be made by FHWA and WSDOT under this EIS include the following:

1. Which proposed Keechelus Lake Alignment will be constructed in the vicinity of the Keechelus Lake Snowshed and Slide Curve (MP 56.4 to MP 60.0)?
2. How will connectivity be provided at each CEA and combined with other improvements to I-90?

Since any one of the improvement packages can be "mixed and matched" with any one of the proposed alignment alternatives, it is unnecessary to tie any improvement package to a specific alignment alternative in this Draft EIS.

The answer to each of the preceding questions is independent of the other, and the solutions developed to address them are likewise independent. Since any one of the improvement packages can be "mixed and matched" with any one of the proposed alignment alternatives, it is unnecessary to tie any improvement package to a specific alignment alternative in this Draft EIS. Once a preferred alignment alternative is chosen, it will be tied with a preferred improvement package to form the "comprehensive preferred alternative." This will occur with the publication of the Final EIS.

1.10 How long will it take to build?

The I-90 Snoqualmie Pass East project is anticipated to require 5 to 15 years to complete, depending upon availability of funding. Possible funding scenarios are discussed in Section 3.13.3. Because of limited funding and the amount of construction involved to complete the project, it is likely that construction would occur in several phases. These phases would be independent contracts that would complete construction on a specific portion of the corridor.

Weather and work restrictions will affect the timing of construction activities. Maintenance of traffic will also require detours and staged construction. Each phase of the corridor will be constructed in multiple stages. For more information about staged construction, see Section 3.7.2.2.

1.11 How is this project consistent with USFS standards and guidelines?

When the I-90 facility was first constructed, USFS granted WSDOT (via the FHWA) an easement for the portion of the facility that runs through National Forest System land. Most of the land on either side of this segment of I-90 is National Forest lands. Reconstruction of the highway will require additional land outside the current right-of-way (ROW) and would require a new easement from the USFS. In order to grant FHWA's land transfer request, USFS will need to

determine whether the preferred alternative is consistent with relevant USFS planning documents. The planning document hierarchy for this project is, first, consistency with the *Snoqualmie Pass Adaptive Management Area Plan*; and second, consistency with the 1990 *Wenatchee National Forest Land and Resource Management Plan*, as amended by the 1994 Northwest Forest Plan Record of Decision.

Given the potential transportation and ecological benefits of the proposed project, the agencies agree that rejecting the proposal is not an option.

The USFS has indicated that a determination of consistency cannot be made until design work on a preferred alternative is completed and the level of specificity of available information is greater. Consultation between the FHWA, USFS, and WSDOT has resulted in agreement that a determination of consistency will be made following the project ROD.

To guide the consistency analysis, a 1998 Memorandum of Understanding between USFS and FHWA, which amended a 1981 Memorandum of Understanding between the two agencies, described 12 procedural steps for streamlining federal land transfers for public projects. The first step involves a meeting between the agencies "to discuss the proposal and to determine if the appropriation of the lands or interest in lands for the highway is consistent with the appropriate National Forest Land Resource Management Plan" (Forest Plan). Although no such formal consistency meeting occurred, the USFS has been actively involved in the project since scoping began in 2000. Other meetings and telephone calls have occurred between the agencies throughout the process.

For FHWA projects over National Forest lands, FHWA submits a detailed request to the USFS for lands needed for the proposed project after an EIS is completed and a ROD is issued. The USFS then has four months to evaluate the request. A key factor in the USFS's evaluation is to determine if the appropriation of lands or interest in lands for the highway is consistent with the *Wenatchee National Forest Land and Resource Management Plan*, as amended. The USFS has indicated that such a simple determination is not possible. Consequently several meetings have been held to discuss Forest Plan requirements. Furthermore, a USFS representative has been present at all I-90 IDT meetings and USFS professional staff have contributed to the MDT recommendations. This coordination has guided the project alternatives and is expected to result in a favorable determination.

If the I-90 project is determined to be inconsistent, it may be corrected in one of three ways: a) modify the proposal to make it consistent with the Forest Plan; b) reject the proposal; or c) amend the Forest Plan to permit the proposal (USFS 1992). An amendment may require additional NEPA analysis and a decision document under the USFS regulations. Given the potential transportation and ecological benefits of the proposed project, and the national attention given to it, FHWA, WSDOT, and the USFS agree that rejecting the proposal is not an

option. Correspondingly, these agencies will work together to either modify the proposal to make it consistent, or amend the Forest Plan.

1.12 What permits, actions, or approvals are required?

Numerous federal, state, and local permits, approvals, and notifications would be required to construct any one of the alternatives. Appendix E is a summary table of applicable legal and regulatory requirements and coordination, including the following:

- The regulatory entity, grantor, or issuing or approving agency.
- The applicable regulation, permit, or approval required.
- A summary of the regulation, activity, action, condition, or impact triggering the compliance with the regulation, permit, or approval.
- Identification of the resource area or topic that the regulation, permit, or approval is intended to cover or address.

Upon selection of a preferred alternative, the list of specific federal, state, and local permits and approvals will be refined and finalized. Subsequent to the ROD, WSDOT/FHWA will seek a land transfer request from the USFS.

The USFS has indicated that it will provide connectivity crossing structures of similar size and function on USFS roads adjacent to I-90. The USFS manages roads that also act as a barrier to some species. Forest Service Road (FSR) 4832 crosses Gold Creek, Rocky Run Creek, and Wolfe Creek directly upstream of I-90. FSR 54 crosses Swamp Creek directly downstream of I-90.

In addition, the USFS has indicated that changes in land management are necessary to ensure that crossing structures function as intended. Several recreation areas, both developed and dispersed, are located adjacent to I-90. If a large investment is made by WSDOT for crossing structures on I-90, the USFS will need to evaluate existing incompatible uses of Forest Lands adjacent to these structures and adjust the management plan. A formal commitment to provide structures on adjacent roads and to manage adjacent lands consistent with investments in highway connectivity structures will be needed prior to the ROD. The decision on I-90 connectivity enhancements will be made consistent with the Forest Plan direction at the time.

Other specific federal, state, and local permits and approvals anticipated include:

- USFWS/National Oceanic and Atmospheric Administration Fisheries – Endangered Species Act (ESA) Section 7 Consultation
- United States Army Corps of Engineers – Section 404 Individual permit
- Washington Department of Ecology (WDOE) – 401 Water Quality Certification, National Pollutant Discharge Elimination System stormwater permit, stormwater site plan
- WDFW – Hydraulic Project Approval
- Kittitas County – Shorelines and Critical Areas permits

- Magnuson-Stevens Essential Fish Habitat Consultation
- National Historic Preservation Act (NHPA) Section 106 Consultation

1.13 What information is contained in this environmental document?

- The purpose of and need for the I-90 Snoqualmie Pass East Project is presented in Chapter 1.
- Chapter 2 discusses alternatives to address the purpose and need.
- Chapter 3 presents the affected environment and environmental consequences of the I-90 Snoqualmie Pass East alternatives.
- Chapter 4 discusses potential mitigation measures.
- Chapter 5 is the Section 4(f) Evaluation.
- Chapter 6 provides a summary of consultation and coordination efforts.
- Chapter 7 presents a list of references cited in this document.
- Chapter 8 presents a document distribution list.
- Chapter 9 provides a list of preparers and contributors.
- Chapter 10 is a glossary of terms commonly used in this document.
- Appendices are provided on a CD at the back of this document.
  - Appendix A MDT Draft Recommendation Package
  - Appendix B Design Appendix
  - Appendix C Planning Aid Report
  - Appendix D Consultation and Coordination
  - Appendix E Relevant Statutes, Regulations, and Guidelines
  - Appendix F Air Quality Discipline Report
  - Appendix G Aquatic Species Discipline Report
  - Appendix H Aquatic Species Discipline Report Supplement
  - Appendix I Energy Discipline Report
  - Appendix J Environmental Justice Discipline Report
  - Appendix K Evaluative Testing of Eleven Sites for the Washington State Department of Transportation's I-90: Snoqualmie Pass East Project
  - Appendix L Geology and Soils Discipline Report
  - Appendix M Hazardous, Toxic, or Radiological Waste (HTRW) Discipline Report
  - Appendix N Hydrologic Systems, Water Quality, and Floodplains Discipline Report
  - Appendix O Land Use Discipline Report
  - Appendix P Noise Discipline Report
  - Appendix Q Public Services Discipline Report

- Appendix R Recreation and Section 4(f) Discipline Report
- Appendix S Socioeconomics Discipline Report
- Appendix T Terrestrial Species Analysis Supplemental Report
- Appendix U Transportation Discipline Report
- Appendix V Utilities Discipline Report
- Appendix W Visual Impact Assessment Discipline Report
- Appendix X Water Resources Discipline Report Supplement
- Appendix Y Wetland/Biology Report