

Chapter 1 Introduction

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 (US) to Boston, Massachusetts. I-90 is the major east-west transportation corridor across Washington and is vital to the state's economy.

The Federal Highway Administration (FHWA) and the Washington State Department of Transportation (WSDOT) are improving a 15-mile portion of I-90. The I-90 Snoqualmie Pass East Project (I-90 project) area begins on the eastern side of Snoqualmie Pass near the Hyak Interchange at milepost (MP) 55.1, and ends at the West Easton Interchange at MP 70.3 near the unincorporated community of Easton. Exhibit 1-1 shows the I-90 project area.

Activities evaluated in this Draft Supplemental Environmental Impact Statement are located within a small portion of the 15-mile I-90 project area, between MP 57.9 and MP 58.4.

Exhibit 1-1
I-90 Project Area



1.1 What is the current status of the I-90 project?

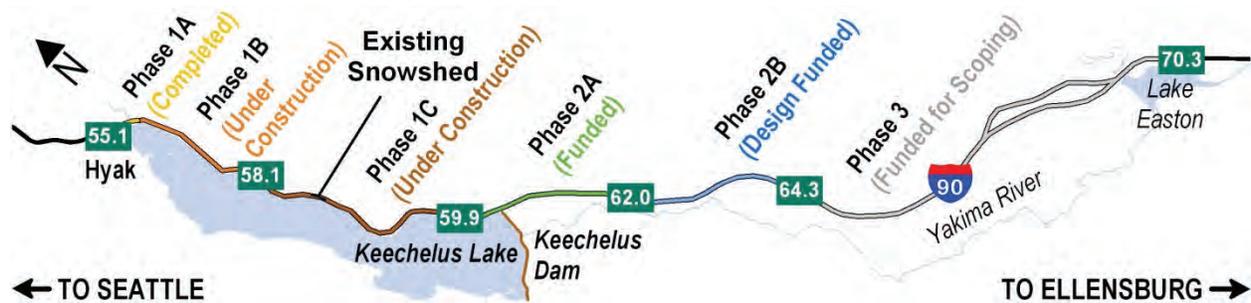
WSDOT published a Final Environmental Impact Statement (EIS) for the I-90 project in July 2008 (WSDOT 2008a). The 2008 Final EIS evaluated alternatives in support of two decisions: how to rebuild the highway along 3.3 miles of I-90 on the east shore of Keechelus Lake, and how to improve habitat connections along the remainder of the I-90 project corridor. The Preferred Alternative included widening the existing highway from four lanes to six in the same approximate alignment (Keechelus Lake Alignment Alternative 4) and implementing a multi-agency-approved subset of the connectivity emphasis area options. In October 2008, FHWA issued the Record of Decision (ROD), which identified the Preferred Alternative from the 2008 Final EIS as the Selected Alternative for construction.

To facilitate design and construction, WSDOT divided the I-90 project into three main phases (Exhibit 1-2). Phase 1 extends from Hyak (MP 55.1) to Keechelus Dam (MP 59.9) and is fully funded and under construction. Phase 2 extends from Keechelus Dam to the Cabin Creek interchange (MP 64.3) and is partially funded. Phase 3 is funded for scoping only and covers the remaining portion of the I-90 project to Easton at MP 70.3.

The **Selected Alternative** in the 2008 ROD is Keechelus Lake Alignment Alternative 4, which includes construction of three lanes in each direction around Slide Curve and demolition and replacement of the Existing Snowshed with a new, expanded snowshed that would cover all eastbound and westbound lanes in an avalanche hazard area.

Connectivity emphasis areas are locations within the I-90 project corridor that could benefit from ecological connectivity improvements.

Exhibit 1-2
Construction Phases of the I-90 Project



Each phase of the I-90 project is divided into smaller sub-phases for construction purposes, as funding becomes available. Construction of Phase 1A began in 2009, which involved construction of a detour bridge, excavation of material from Keechelus Lake, and stockpiling at Crystal Springs Sno-Park. Construction of Phase 1B (from

MP 55.1 to MP 58.1) began in 2010, and is improving the first three miles of the I-90 project by constructing a new six-lane highway and extending chain-up and -off areas. Construction of Phase 1C (MP 58.1 to MP 59.9) began in 2011, and is upgrading and adding lanes to I-90 between the existing snowshed at MP 58.1 (Existing Snowshed) and Keechelus Dam. Pre-design work is under way on Phase 2A (MP 59.9 to MP 62.0) and Phase 2B (MP 62.0 to MP 64.3), which includes new chain-up areas, the first wildlife overcrossing, and replacement of two interchanges. It should be noted that construction sub-phases often overlap due to temporary ties to facilitate traffic movement between the old and new sections of I-90.

In fall 2011, the contractor selected to construct Phase 1C, Guy F. Atkinson Construction, proposed a design modification to construct eastbound and westbound avalanche bridges (Proposed Bridges) instead of the expanded snowshed that was included as part of the Selected Alternative (Selected Snowshed) in the 2008 ROD. The Selected Snowshed and Proposed Bridges are described in more detail in Chapter 2.

1.2 Why is this design modification being evaluated?

The construction contractor proposed this design modification through the Cost Reduction Incentive Proposal process. This process encourages contractors to be innovative in planning and performing work for the state. WSDOT granted concept approval of the Proposed Bridges because they introduce several benefits to the I-90 project, including the following:

- Reduction of long-term operations and maintenance costs by eliminating many of the electrical, mechanical, and fire suppression systems required for the Selected Snowshed;
- Implementation of industry-standard engineering designs and construction methods for bridge structures that avoid uncertainties associated with the non-standard techniques and components required for the more complicated, unique Selected Snowshed;
- Transfer of risk associated with structural design from the state to the contractor; and

Cost Reduction Incentive Proposals are intended to promote innovative ideas involving improved work methods, new products, and improved equipment. Once the Cost Reduction Incentive Proposal is approved, WSDOT and the contractor split the construction cost savings.

- Improvement in traffic movement during construction by increasing the distance between the construction area and the traveling public.

After preliminary evaluation and refinement of the proposed design modification, FHWA and WSDOT decided to consider this proposed change in the I-90 project scope by preparing this Avalanche Structures Draft Supplemental EIS (Supplemental EIS).

1.3 Why is this Supplemental EIS necessary?

According to the regulations implementing the National Environmental Policy Act (NEPA) for Federal-aid projects and similar requirements in the State Environmental Policy Act (SEPA), an agency must prepare a Supplemental EIS when:

- “Changes to the [Selected Alternative] would result in significant environmental impacts that were not evaluated in the [2005 Draft and 2008 Final EIS]; or
- New information or circumstances relevant to environmental concerns and bearings on the [Selected Alternative] or its impacts would result in significant environmental impacts not evaluated in the [2005 Draft and 2008 Final EIS]” [Title 23 Code of Federal Regulations (CFR), Section 771.130(a)].

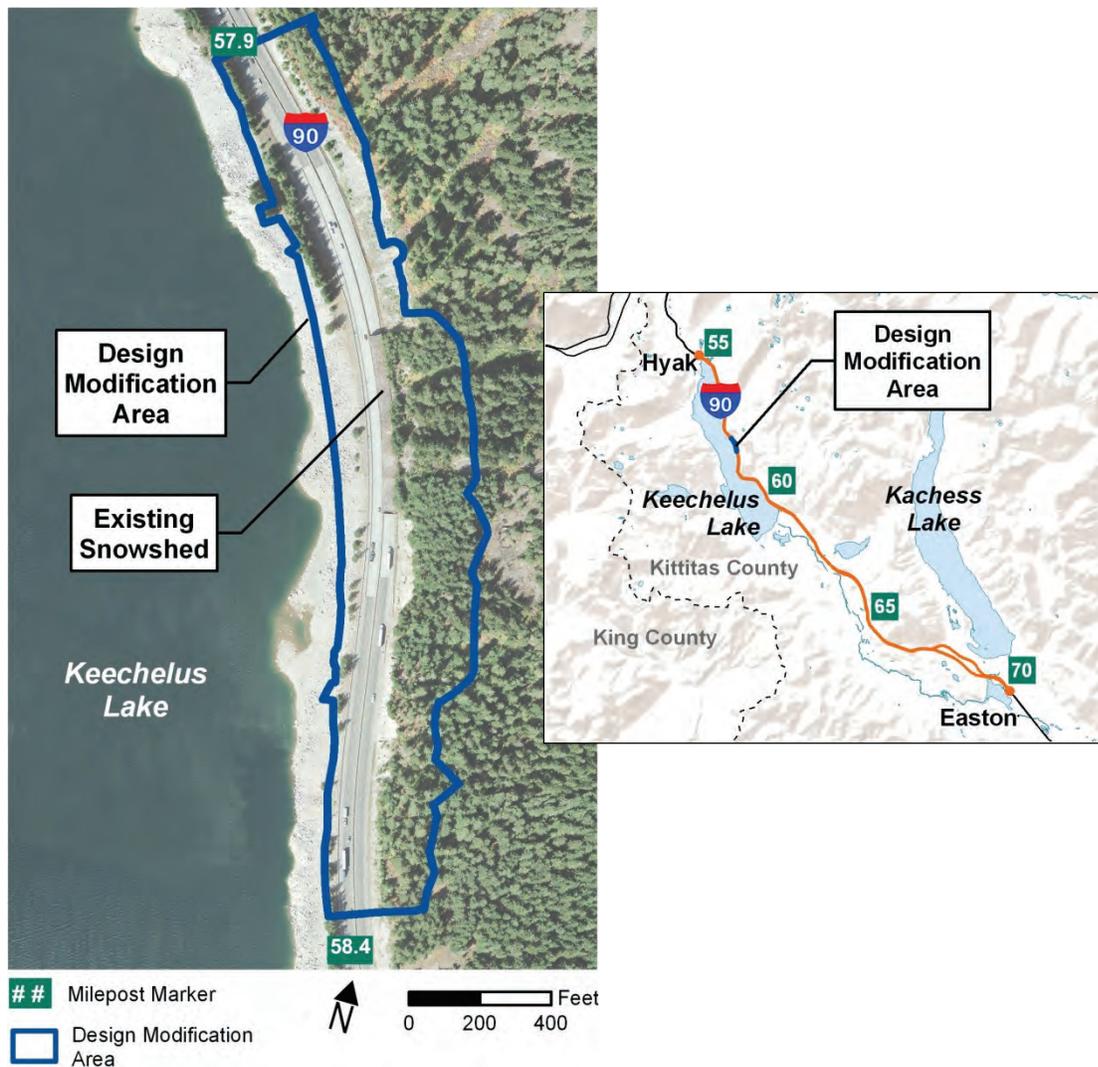
FHWA and WSDOT reevaluated the NEPA analysis conducted for the I-90 project’s 2005 Draft EIS (WSDOT 2005) and 2008 Final EIS. Uncertainty regarding the design and potential impacts of the Proposed Bridges led to the determination that a limited-scope Supplemental EIS was appropriate. As of the publication of this Draft Supplemental EIS, most of the uncertainty has been resolved.

1.4 How does this limited-scope Supplemental EIS differ from the 2005 Draft EIS and 2008 Final EIS?

The 2005 Draft EIS and 2008 Final EIS evaluated potential social, economic, and environmental impacts associated with a full range of reasonable alternatives within the entire 15-mile I-90 project

corridor. The scope of this Supplemental EIS is limited to comparing and contrasting the potential impacts of constructing, operating, and maintaining two options that replace and improve on the function of the Existing Snowshed: the Selected Snowshed and the Proposed Bridges. This Supplemental EIS evaluates activities associated with each option located between MP 57.9 and MP 58.4, within the area labeled “design modification area” in Exhibit 1-3. The limited-scope nature of this Supplemental EIS allows WSDOT to continue with construction of Phase 1C of the I-90 project, consistent with Title 23 CFR, Section 771.130(f)(3).

Exhibit 1-3
Design Modification Area



This Supplemental EIS is being developed using the same process as a typical EIS. However, since issues and concerns related to the I-90 project are well known from the extensive public involvement conducted for the 2005 Draft and 2008 Final EIS, it was determined that additional public scoping comments would not be required or solicited. This approach is consistent with Title 23 CFR, Section 771.130(d). Public comments received on this Draft Supplemental EIS will be addressed in a Final Supplemental EIS to be published in early 2013. Issuance of the ROD is expected in spring 2013. A detailed description of the typical EIS process is provided in Section 1.10 of the 2008 Final EIS, and Exhibit 1-4 defines the steps of the Supplemental EIS process.

1.5 Do both options meet the I-90 project purpose and need?

The purpose and need for a project drives the process of alternative identification, analysis, and selection. The purpose of the I-90 project is to meet projected traffic demands, improve public safety, and meet the identified project needs for a 15-mile stretch of I-90 between the communities of Hyak and Easton, in Kittitas County, Washington (WSDOT 2008a).

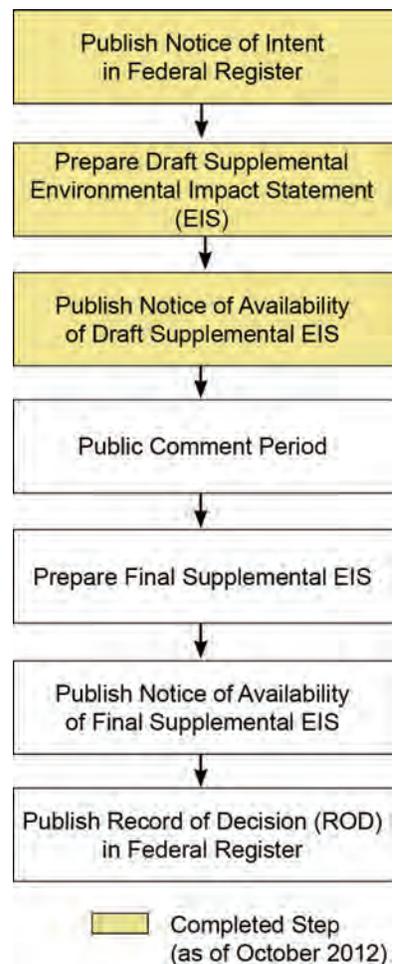
Both the Selected Snowshed and the Proposed Bridges support the I-90 project purpose and meet the identified project needs, as described below.

Avalanches

I-90 is frequently closed due to avalanches and associated control work. These closures strand motorists and freight on Snoqualmie 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 remain at risk as long as the avalanche problem is not resolved. The risk will increase with growth in traffic volumes.

Both options are designed to provide a similar level of protection from avalanches (see Section 2.3), improving public safety and reducing avalanche-related road closures. The Selected Snowshed would reduce avalanche-related road closures by covering the highway and allowing avalanches to pass over the top of the structure without impacting traffic. The Proposed Bridges would

**Exhibit 1-4
Supplemental EIS Process**



Avalanches in the I-90 project area regularly close I-90.

reduce closures by elevating and separating the highway from the hillside, allowing avalanches to pass under the highway without impacting traffic. Each structure is designed to withstand impact by avalanches. Reduced visibility for drivers during powder avalanches is addressed by the enclosed nature of the Selected Snowshed and the height of the Proposed Bridges.

Slope Instability

I-90 has several unstable slopes, which results 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 stabilized or if the highway is not realigned to avoid areas of slope instability.

The Selected Snowshed and Proposed Bridges would both address safety risks from falling rock and greatly reduce the number of road closures because of rock fall. Both options would include removal of overburden and excavation of the adjacent hillside to remove loose rock and boulders. The two options would also use similar techniques to stabilize the new rock face on the adjacent hillside and further minimize the potential for rock fall, including the use of rock anchors (dowels and bolts), wire mesh, or cable net slope drapery. Both structures are designed to protect the traveling public from falling rock, but differ in their approach. The enclosed Selected Snowshed structure would support the hillside and cover traffic lanes to protect drivers from falling rocks. The Proposed Bridges would elevate and separate the highway from the hillside, allowing debris to pass under the highway without impacting traffic. The placement of the bridge piers on raised benches and the creation of avalanche chutes help protect the structure by directing falling rock and debris between the piers.



Unstable slopes in the I-90 project area lead to rock fall.

Structural Deficiencies

The pavement on I-90 is beyond its design life and the roadway is rapidly deteriorating. If it is not repaired or replaced, continued deterioration of the roadway will result in unsafe driving conditions, increased vehicle damage, travel delay, and eventual failure of the roadway.

The Selected Snowshed and the Proposed Bridges would remove and replace the deteriorated highway surface from MP 57.9 to MP 58.4, bringing the roadway up to current WSDOT design standards.



Cracked and deteriorated pavement on I-90.

Traffic Volumes

Traffic volumes on I-90 are increasing at an estimated rate of 2.1 percent per year and are expected to increase at a similar rate well into the future. Traffic volumes already exceed the highway's design capacity during peak travel periods. The worsening traffic situation may lead to higher numbers of accidents, adverse economic impacts, and increased travel times.

Both the Selected Snowshed and Proposed Bridges would meet capacity needs for projected traffic volumes by accommodating three lanes of traffic in each direction from MP 57.9 to MP 58.4.

Ecological Connectivity

Federal land management plans have documented that I-90 forms a barrier to fish and wildlife movement, and have identified the need to increase ecological connectivity across the highway. Improving ecological connectivity will advance federal land management goals by reducing fish and wildlife population isolation. It also will reduce the risks to wildlife and the public from collisions between vehicles and wildlife.

The need for improving ecological connectivity would not be affected by the design modification. All of the proposed wildlife crossings, intended to reconnect habitats and reduce collisions between vehicles and wildlife, are located outside the design modification area, as are all of the habitat linkage areas identified in the 2008 Final EIS.

1.6 Who are the lead agencies and what decisions do they need to make?

Under both NEPA and SEPA, the project proponent is the person or agency that proposes to carry out the project, and the lead agency or agencies are responsible for preparing the environmental document. As in the 2005 Draft EIS and 2008 Final EIS, WSDOT is the project proponent, FHWA and WSDOT are the joint lead agencies, and WSDOT is the lead agency for SEPA. FHWA is responsible for ensuring the continued safe and efficient operation of the Interstate System, and ensuring compliance with all Federal laws and



Recreational vehicles and freight traveling on I-90 during a holiday weekend.



Elk killed in collision with vehicle near a proposed wildlife overcrossing structure.



regulations, including NEPA. WSDOT is leading the environmental analysis, highway design, and construction efforts.

FHWA and WSDOT will address comments made on this Draft Supplemental EIS in the Final Supplemental EIS, expected to be published in early 2013. Following this, FHWA and WSDOT will make an informed decision based on a critical examination and comparison of impacts to natural resources and long-term operations and maintenance costs. The decision will be published in a ROD issued by FHWA, expected in spring 2013. WSDOT can then complete SEPA requirements by adopting the FHWA-issued ROD.

1.7 Who are the cooperating agencies and what decisions do they need to make?

Under NEPA, a cooperating agency has jurisdiction by law over an aspect of the project or special expertise related to the project or the environmental analysis. As in the 2005 Draft EIS and 2008 Final EIS, the US Forest Service (USFS) and the US Bureau of Reclamation (USBR) are cooperating agencies with FHWA and WSDOT in the preparation of this Supplemental EIS. Both agencies concurred with the decision to prepare a Supplemental EIS.

The USFS and USBR jointly manage public land within the design modification area. The USFS manages the shoreline above the ordinary high water mark (OHWM) of Keechelus Lake. As the lake is drawn down, the land managed by USFS expands below the OHWM, down to the low pool elevation. Portions of the design modification area are located within the USFS Riparian Reserves buffer area, as defined by the USFS Aquatic Conservation Strategy (ACS). USFS issued a consistency determination for the I-90 project on August 18, 2009, indicating that the I-90 project is consistent with USFS land management documents (Appendix A). The consistency determination was issued in support of a highway easement, also known as a Federal Land Transfer. A subsequent consistency determination will be required if FHWA and WSDOT select the Proposed Bridges for construction in the ROD (see Section 4.2).



The USBR has jurisdiction over Keechelus Dam and water in Keechelus Lake. As such, USBR concurrence is required to place fill or excavate in Keechelus Lake, which would occur under either option. As co-managers of the land surrounding Keechelus Lake, the USBR will also review and concur with the permits and approvals issued by the USFS for the Proposed Bridges.

FHWA and WSDOT have consulted continuously with the USFS and USBR on the I-90 project, as described in Chapter 4, Consultation and Coordination. The USFS and USBR are also engaged as members of the multi-agency project Interdisciplinary Team (IDT). The IDT provides a forum for communication between the lead agencies and the cooperating and permitting agencies.

1.8 What permits and approvals are required?

If FHWA and WSDOT select the Proposed Bridges in the ROD, Phase 1C approvals and permits listed in Exhibit 1-5 would require modification or amendment. The Selected Snowshed is already permitted and approved. WSDOT intends to proceed with construction of the Selected Snowshed if the Proposed Bridges are not selected in the ROD. Construction of either option is expected to begin in spring 2013, after the ROD is issued.

Exhibit 1-5
Permits and Approvals for the Proposed Bridges

Agency	Statute	Permit/Approval
Federal		
US Fish and Wildlife Service/ National Oceanic and Atmospheric Administration Fisheries	Endangered Species Act Section 7 consultation and concurrence (impact to listed species) Migratory Bird Treaty Act	Consultation and Biological Opinion (<i>re-initiation of consultation based on new design information</i>)
US Army Corps of Engineers	Clean Water Act	Section 404 Individual Permit (<i>regulatory update and/or reissuance</i>)
US Forest Service	Acquisition of Rights-of-Way – Interstate System [Title 23 US Code 107(d)]	Consistency determination with the US Forest Service Forest Plan(s) (<i>review and update</i>)
US Forest Service	Organic Act of 1897, National Forest Management Act of 1976	Access Permit(s) and Special Use Permit(s) (<i>review and update</i>)

The **Interdisciplinary Team (IDT)** is an advisory body consisting of cooperating and permitting agencies formed to incorporate both relevant science and the concerns of agency stakeholders. I-90 project IDT member agencies include:

- Federal Highway Administration
- US Forest Service
- US Bureau of Reclamation
- National Oceanic and Atmospheric Administration Fisheries
- US Environmental Protection Agency
- US Fish and Wildlife Service
- US Army Corps of Engineers
- Washington State Parks and Recreation Commission
- Washington State Department of Ecology
- Washington Department of Fish and Wildlife
- Washington State Department of Transportation
- Kittitas County

Exhibit 1-5
Permits and Approvals for the Proposed Bridges

Agency	Statute	Permit/Approval
US Bureau of Reclamation	Use of Bureau of Reclamation Land, Facilities, and Waterbodies (Title 43 CFR Part 429) Reclamation Act of 1902 (Public Law 57-161) Reclamation Reform Act of 1982 (Title II of Public Law 97-293)	Use Authorization (<i>review and update</i>) US Forest Service Permit(s) (<i>review and concur</i>)
State		
Washington State Department of Ecology	Clean Water Act Section 401	Water Quality Certification (<i>modification</i>)
Washington State Department of Ecology	Shoreline Management Act (RCW 90.58)	Consider administrative appeals
Washington Department of Fish and Wildlife	Construction Projects in State Waters (RCW 77.55)	Hydraulic Project Approval (<i>modification</i>)
Local		
Kittitas County	County Code (Title 17 and 18) and Shoreline Management Act (RCW 90.58)	Substantial Development Permit(s) and/or exemption, Critical Areas Ordinance review, and limited zoning review (<i>review and update</i>)

CFR – Code of Federal Regulations

RCW – Revised Code of Washington