WFLHD Facility Roof Replacement and Structural Improvements Project

Environmental Assessment

Source: FHWA

Photo: Front entrance to the WFLHD Main Office Building

FOVA_XX2_WFL
Western Federal Lands Highway Division Facility

Prepared for
U.S. Department of Transportation
Federal Highway Administration
Western Federal Lands Highway Division

Prepared by
Western Federal Lands Highway Division

December 6, 2023

Western Federal Lands Highway Division (WFLHD)
Roof Replacement and Structural Improvements Project
Vancouver, WA
Environmental Assessment

FOVA_XX2_WFL

Submitted
Pursuant to Public Law 91-190
National Environmental Policy Act

U.S. Department of Transportation
Federal Highway Administration
Western Federal Lands Highway Division

In Cooperation with
National Park Service, Fort Vancouver National Park

Dan Donovan — December 6, 2023
Chief of Business Operations
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Western Federal Lands Highway Division

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Acronyms and Abbreviations

APE	Area of Potential Effect
BMPs	Best Management Practices
DOT	Department of Transportation
EA	Environmental Assessment
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FHWA	Federal Highway Administration
FOVA	Fort Vancouver National Park
NEPA	National Environmental Policy Act
NPS	National Park Service
NRHP	National Register of Historic Places
Project	WFLHD Roof Replacement and Structural Improvements Project
SHPO	State Historic Preservation Office
USFWS	United States Fish and Wildlife Service
VNHR	Vancouver National Historic Reserve
WFLHD	Western Federal Lands Highway Division

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Chapter 1 Introduction

1.1 Background

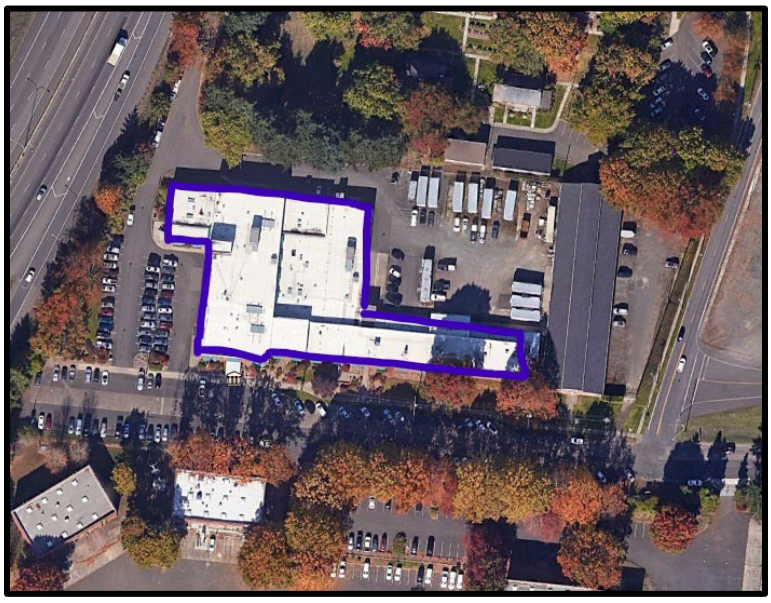
The Western Federal Lands Highway Division (WFLHD) of the Federal Highway Administration (FHWA), in cooperation with the National Park Service (NPS) is proposing the WFLHD Facility Roof Replacement Structural Improvements Project (the Project) located at 610 East Fifth Street, Vancouver, Washington. The WFLHD Facility (the Facility) is within the Vancouver National Historic Reserve (VNHR). See Figure 1-1 for an aerial photo of the Facility.

WFLHD intends to replace the existing roof in combination with seismic upgrades to address identified seismic deficiencies for the main office building (the Building). Proposed construction would begin in late Spring/early Summer 2024 and is anticipated to take approximately 6 months to complete.

The Building is composed of three interconnected structures that were constructed separately. The oldest structure is the 1932 west wing which includes the only two-story portion (with two levels of office space) and an extant tower portion housing the original, abandoned elevator shaft. A single-story east wing was constructed in 1952, originally a separate structure on the site, and joined with the 1932 west wing through a high ceiling, two-story (with one level of office space) bridging structure added in 1977. A second structure, referred to as the Mule Barn, was built in 1910 and will not be impacted by the proposed project.

The National Environmental Policy Act of 1969 (NEPA) requires that federal agencies consider the environmental impacts of their actions in their decision-making process. This Environmental Assessment (EA) is part of the NEPA process. This EA evaluates a Preferred Alternative and a No Build Alternative.

Figure 1-1. WFLHD Facility Aerial Photo



Aerial Photo: WFLHD Facility, with the Building Outlined in Blue

1.2 Purpose and Need

The following identifies the purpose of the Project and the needs to be addressed.

1.2.1 Purpose

The purpose of the Project is to reduce future maintenance and repair costs of the roof and address seismic deficiencies in the Building.

1.2.2 Need

The roof of the Building is leaking in several locations and is at the end of its useful lifespan. Maintenance and repair costs related to the roof have been increasing in recent years. The roof assembly consists of metal decking with cover board, insulation and thermoplastic membrane. While the Building exhibits a consistent appearance from the street, there are a variety of wall and roof conditions resulting from the different building campaigns including roof levels, roof slopes, parapet heights and coping styles.

The primary construction of the Building is unreinforced concrete masonry walls clad with brick veneer supporting steel joists and girders. Floors are cast-in-place concrete on grade at the ground floor, and on metal pan decking at the second floor. Windows are typically aluminum sash retrofits within the original openings. A seismic evaluation conducted in October 2021 identified seismic deficiencies of the Building (Robert Peccia & Associates, 2022). The assessment was conducted in accordance with "ICSSC Recommended Practice 8 (RP 8) – Standards of Seismic Safety for Existing Federally Owned and Leased Buildings," utilizing the current standard "ASCE 41-17, Seismic Evaluation and Retrofit of Existing Buildings," by the American Society of Civil Engineers. The report identified areas determined non-compliant for the above-referenced seismic standards. The report stated that the Building was observed to be in overall good condition. Reported deficiencies included the following: unreinforced concrete masonry walls and lack of anchorage of walls to roof structure, insufficient shear wall strength, and shear walls not sufficiently connected to the roof structure.

1.3 NEPA Compliance and Applicable Regulations

National Environmental Policy Act

This EA was prepared by FHWA as the lead agency for compliance with NEPA. NPS is a cooperating agency.

This EA analyzes the impacts of both the Preferred and the No Build Alternative in the context of the existing environmental conditions and, if needed, proposes measures to avoid, minimize or mitigate potential impacts.

Tribal Consultation

NPS is the lead agency for Tribal Consultation. As part of that effort, NPS submitted a letter to the Vancouver Intertribal Consortium dated September 15, 2023. No tribal concerns were raised related to the Project.

Section 106

NPS is the lead agency for Section 106 compliance. The WFLHD is not a legislatively assigned partner in the VNHR, but the Facility is within the boundaries of the VNHR. The WFLHD and the NPS have a Memorandum of Understanding (MOU) that the NPS will act as lead agency on Section 106 reviews under the National Historic Preservation Act (NHPA) for projects on the WFLHD property within VNHR.

The NPS determined that the Project will have *no adverse effect* to the Mule Barn and National Register of Historic Places (NRHP)-contributing archaeological resources within the APE. The State Historic Preservation Officer (SHPO) concurred with the finding on September 26, 2023. In addition, the SHPO concurred that Property ID: 55507 FHWA WFLHD Facilities (the Building) located at 610 E 5th St, Vancouver, Washington, 98661, is not eligible for listing in the NRHP.

Section 4(f)

FHWA is the lead agency for Section 4(f) compliance. Section 4(f) of the U.S. Department of Transportation Act of 1966 does not apply to the Project, because it is not a transportation project. In addition, there are no properties impacted that would qualify as a Section 4(f) property under the regulations.

Endangered Species Act (ESA)

FHWA is the lead agency for ESA compliance. No federally listed, threatened, or candidate species are known to occur within the area impacted by the Project, in Clark County, Washington. Therefore, it has been determined that the Project will have *no effect* on any of these species.

Wetlands and Waters

The Project will not adversely affect wetlands and floodplains, as none exist adjacent to the Building. This activity will not impact the functional value of any waterway and will not have negative impacts on wetlands, as defined by Executive Order 11990. The Project is not within a Federal Emergency Management Agency-regulated floodplain.

Permits

No permits will be required for the Project.

Chapter 2 Alternatives

This chapter provides a description of the two alternatives that are being considered, which are the No Build and the Preferred Alternatives.

2.1 No Build Alternative

With the No Build Alternative, no work would be done to repair the Building. The existing issues with the roof, and seismic structural deficiencies, will persist.

The No Build Alternative would not address the purpose and need of the Project because it would not address the leaking roof and increased maintenance and repair costs associated with the roof. WFLHD would continue to fix and repair areas of the roof that are currently leaking. In addition, the No Build Alternative would not implement seismic upgrades. Identified seismic deficiencies would not be addressed, which could result in seismic related impacts to the Building in the event of an earthquake in the region.

2.2 Preferred Alternative – Roof Replacement and Structural Improvements

The Preferred Alternative includes replacement of the existing roof assembly in combination with seismic upgrades to the Building to address identified seismic deficiencies.

The roof replacement scope of work includes complete removal and replacement of all existing roof assembly components, including membrane covering, insulation, cover board, drains, termination bars, and associated flashings. Abandoned roof penetrations, curbs, and utilities will be removed along with replacement of curbs at active rooftop equipment associated with metal decking replacement. Existing to remain rooftop mechanical equipment will be removed to facilitate roof work and reinstalled after completion of membrane installation. Select mechanical equipment will be replaced, new skylights and pre-manufactured curbs will be installed, and new access hatches with ladder safety cages will be installed. The existing abandoned brick elevator tower will be demolished down to the roof decking level and the opening in the roof's metal decking will be filled in with new metal decking. Terracotta coping will be repaired at the location of the demolished tower on the Building's west elevation.

To achieve the desired life safety performance (Rick Category II equivalent), the targeted seismic performance levels shall conform to the Basic Performance Objective for Existing Buildings using ASCE Standard 41-17. Seismic upgrades include selective demolition of existing construction for installation of new concrete foundations and shear walls, new roof metal decking, repaired existing metal decking, new steel collectors, and new metal stud strongback walls at existing unreinforced concrete masonry walls. Interior ceiling, wall, and floor finishes will be removed at areas of structural work and replaced with new finishes at completion of structural work.

Ground disturbing activities are expected within the excavations for the new footings (anticipated to total approximately 2,500 square feet of disturbance) and associated with geotechnical testing of selected areas (anticipated to be up to six borings) using 2-3-inch-wide bores to 20-40 feet in depth. Excavation for new footings will occur in the interior of the building, while geotechnical testing will occur outside of the building footprint.

Construction of the Preferred Alternative would be restricted to the Building. No proposed construction activities are planned for the Mule Barn, and the Mule Barn will be protected from impacts during construction.

Chapter 3 Affected Environment, Environmental Consequences and Mitigation Measures

This chapter describes the current conditions of the environment and documents the potential adverse, beneficial, or negligible effects (environmental consequences) to environmental resources associated with the No Build Alternative and the Preferred Alternative. No Build Alternative effects are discussed in terms of the direct effects and indirect effects (which are caused by the action at a later time or farther removed in distance but still reasonably foreseeable) that would occur as a result of not replacing the roof or addressing seismic deficiencies at the Building. Since no Project-related construction would occur with the No Build Alternative, temporary effects are not discussed. Preferred Alternative effects are discussed in terms of temporary effects during construction, direct effects resulting from Project implementation and associated with the operation and maintenance of the Building, and indirect effects. If applicable, mitigation measures are proposed to address potential adverse effects from the Preferred Alternative.

Due to the scope of the Project, it is not anticipated that there will be impacts to transportation, land use, utilities, air quality, energy, social/economical changes and environmental justice, visual quality, water resources/quality/floodplains, wetlands, fish, vegetation, and recreation. Potential impacts to noise, hazardous materials, historical/archeological resources, and seismic hazards will all be discussed further in detail in the sections below.

3.1 Noise

3.1.1 Affected Environment – Existing Conditions

The Facility is located in a highly developed urban area, adjacent to a major freeway (Interstate 5). Ambient noise levels outside of the building are high due to constant traffic on the freeway. Noise levels inside the building are typical of office environments.

3.1.2 Environmental Consequences – No Build Alternative

No noise-producing construction activities would occur with the No Build Alternative, so there would be no changes to the facility and no potential impacts to noise levels, either outside or inside the Building.

3.1.3 Environmental Consequences – Preferred Alternative

The proposed Project would not result in long-term changes to noise levels in the Project area. Some mechanical equipment on the roof will be replaced, but no new noise-producing equipment will be added. Seismic upgrade activities will occur inside the Building and no noise impacts outside of the Building will result from those construction activities.

Noise produced during construction would be temporary in nature. Construction activities will occur during the daytime and are not anticipated to be higher than ambient background noise due to traffic noise from Interstate 5. The Building will be vacated during construction to complete construction efficiently, to maintain Building operations, and to avoid impacts to Building staff.

Mitigation Measures

- Operate equipment according to local noise restrictions.

3.2 Hazardous Materials

3.2.1 Affected Environment – Existing Conditions

In July 2023, RCP Environmental performed a physical inspection of the Building. The purpose of this inspection was to locate, identify, and quantify asbestos-containing materials in and on the Building prior to renovation activities. In September 2023, additional surveys were done to identify if lead was present on paint samples from the underside of the metal roof deck. Information related to the presence of hazardous materials is provided in further detail in the *Pre-Renovation Asbestos Survey Report* prepared on October 13, 2023 (RCP Environmental 2023).

Of the 69 samples taken of suspect asbestos-containing materials, 9 samples contained asbestos including 4" pipe insulation, floor tiles and mastic, joint compound on gypsum wallboard, and gray built-up roofing layers. Three paint samples were collected during this survey. Lead was reported in all three of the samples collected from the Building. Two samples contained greater than 0.5% lead, which the United States Environmental Protection Agency (EPA) defines as lead-based paint.

Light fixtures with potential PCB-containing fluorescent light ballasts and mercury-containing fluorescent light tubes were observed throughout the Building. The ballasts should be inspected for "NO PCB" labelling. Unless such labels are found, all fluorescent light fixture ballasts will be presumed to contain PCBs.

3.2.2 Environmental Consequences – No Build Alternative

No construction would occur with the No Build Alternative and hazardous material would remain in the Building. WFLHD staff have the possibility of exposure to hazardous materials during maintenance activities, but if known hazardous materials will be impacted by maintenance activities, then contaminated materials would be handled and disposed of appropriately.

3.2.3 Environmental Consequences – Preferred Alternative

The Preferred Alternative is for a roof replacement and seismic upgrades to the Building. This will affect the roof and many interior surfaces and finishes. The Project would impact hazardous materials, including asbestos containing materials, lead-based paint, and PCB-containing fluorescent light bulbs. All hazardous materials encountered during construction would be removed as required according to all applicable regulations and safety guidelines. Mitigation measures included below must be followed to reduce potential negative impact to workers during construction. Long-term impacts are not anticipated, if all hazardous materials are handled and disposed of appropriately. Long-term health and safety of WFLHD staff will be improved by the Project because known hazardous materials will be removed from the building, ensuring no exposure to these materials after the Project is completed.

Mitigation Measures

- Notify all contractors of the presence and location of asbestos, lead paint, and PCBs present in the Building.
- Disposal of contaminated material generated during construction at a permitted facility and following all federal, state, and local regulations.
- Asbestos removal must be removed by a Washington Labor & Industries (L&I) licensed full scale asbestos abatement contractor utilizing L&I certified asbestos workers under the direct supervision of an L&I certified asbestos supervisor prior to any renovation or demolition activities that could disturb asbestos-containing materials.
- If additional suspect asbestos-containing material is subsequently discovered during renovation or demolition activities, either stop work and have the suspect material tested, or presume it is asbestos and have it removed by a licensed asbestos-abatement contractor.
- Impact of painted surfaces with detectable concentrations of lead requires construction activities to be performed according to Washington L&I regulations for Lead in Construction (WAC 296-62155). Workers impacting LCP should be provided the proper personal protective equipment and use proper work methods to limit occupational and environmental exposure to lead until an initial exposure assessment has been conducted.
- Inspect all fluorescent light fixtures prior to removal and replacement. Look for "NO PCB" labels on the light ballast. If the ballast does not display a NO PCB label, presume it contains PCBs and handle appropriately. Remove and properly recycle mercury-containing light tubes prior to demolition activities that would disturb or damage the lamps.
- Develop health and safety plans that identify potential contaminates of concern, required personal protective equipment, and emergency response procedures.
- Avoid materials that can leach toxic chemicals into ground water. Do not allow toxic chemicals to enter sewers or storm drains or contaminate land or any body of water.

3.3 Historical/Archeological Resources

3.3.1 Affected Environment – Existing Conditions

The Facility is located within the boundaries of the VNHR and includes the Building and the Mule Barn. Both were evaluated during the NRHP nomination process for the VNHR National Historic District (DT-191). The Building was identified as non-historic and non-contributing. The Mule Barn, built in 1910, is a contributing building to DT-191. A determination of eligibility (DOE) was prepared in 2008 for the 1932 and 1952 structures in the Building, which determined that the structures were not eligible (Cromwell 2008). The 1977 additions were not evaluated in the 2008 DOE. The 1977 additions were evaluated as part of this Project by Avery Historical Consulting as a technical amendment to the 2008 DOE, following the guidance of the NRHP (Avery 2023; NRHP 2023).

The Building is composed of three interconnected structures that were constructed separately. The oldest structure is the 1932 west wing, which includes the only two-story portion (with two levels

of office space) and an extant tower portion housing the original, abandoned elevator shaft. A single-story east wing was constructed in 1952, originally a separate structure on the site, and joined with the 1932 west wing through a high ceiling, two-story (with one level of office space) bridging structure added in 1977. The technical amendment recommended that the 1977 additions to the Building are non-contributing (Avery 2023).

Historical archaeology associated with the NRHP-listed Vancouver Barracks National Historic District, has identified intact, NRHP-significant archaeological resources below fill within the Project area. These include remains of the St. James Mission and Cathedral Complex. The result of archaeological work is summarized in Wilson (2022) that identifies the depth of fill, disturbance across the site, and areas likely to contain buried, intact archaeological resources below the fill. Fill documented on the site ranges from 51 cm (20 in.) in the northern portion of the property to 76 cm (30 in.) in the southern portion of the property.

3.3.2 Environmental Consequences – No Build Alternative

No ground disturbing activities or construction will occur with the No Build Alternative, so there will be no changes to the Facility and no potential impacts to archaeological or historical resources.

3.3.3 Environmental Consequences – Preferred Alternative

The Project would not result in impacts to historical buildings, since the Building was identified as non-historic and non-contributing.

The Project has the potential to impact archaeological resources as a result of geotechnical drilling and excavation activities associated with the seismic upgrades within the Building. The drilling will consist of up to six borings in areas with low sensitivity for archaeological resources. If drilling uncovers any artifacts, the drilling will be halted, and no further activities will occur in that location. All other work, including the excavation work at footings and shear walls, will occur inside the footprint of the Building and is not anticipated to impact historic or archaeological resources.

Mitigation Measures

- An Archeological Monitor will be present at the work site and will follow the Monitoring Plan to ensure that ground disturbing construction activities that will excavate below the fill do not inadvertently impact significant archaeological resources that contribute to the NRHP-significance of DT-191 (Wilson 2023).

- Construction will avoid use of heavy equipment, including equipment which creates vibration, outside the protection zone of the Mule Barn as identified in Project drawings. Construction will limit vibration from equipment within 30 feet of the Mule Barn to a maximum Peak Particle Velocity (PPV) of 2 mm/sec. (0.08 inches/sec.).

3.4 Seismic Hazards

The Facility is in an area with known seismic activity, and a high risk of potential earthquakes. A relative earthquake hazard map of Vancouver was created in 1994 and identified the area around the Facility as being in Zone A, which has the greatest relative hazard for damage during an

earthquake. This map took into consideration soil liquefaction, amplification of ground shaking, and earthquake-induced landslides (Mabey et. al, 1994). The Washington Geologic Information Portal shows that the Facility is located on the border of moderate to high liquefaction susceptibility and low to moderate liquefaction susceptibility (accessed October 16, 2023: Washington Geologic Information Portal).

Executive Order (EO) 13717: Establishing a Federal Earthquake Risk Management Standard, requires each agency that owns or leases an existing federal building to adopt the ICSSC Recommended Practice 10 (RP 10-22) Standards as a minimum level acceptable for managing earthquake risks associated with that building. As such, the Standards provide the minimum requirements for a seismic evaluation of federally owned buildings (mandatory process) and provides guidance for when an evaluation should be prioritized by an agency (screening process).

A previous seismic evaluation of the building was performed in 2021 (Robert Peccia & Associates, 2022). Per the report, a mandatory evaluation was not triggered and therefore the evaluation was classified as voluntary. The evaluation found several seismic deficiencies throughout the Building, which are being addressed as part of the Project.

3.4.1 No Build Alternative

No construction will occur with the No Build Alternative, so there will be no changes or seismic upgrades to the Building. If an earthquake were to occur, then damage to the structure would be anticipated and repairs would likely need to occur.

3.4.2 Preferred Alternative

The Project would address seismic deficiencies with the Building that currently puts it at a higher risk of damage during an earthquake. The Project would have no impact on the liquefaction risk at the Building location, but the upgrades would mitigate for risk associated with shaking and liquefaction by addressing the seismic deficiencies throughout the Building.

3.5 Cumulative Effects

Cumulative effects are the combination of a project's impacts on a particular resource with the impacts of other past, present, and future human activities on that same resource. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 Code of Federal Regulations [CFR] 1508.7). The scope of the cumulative effects analysis is related to the magnitude of the impacts of the proposed action. The resources analyzed individually in this Chapter (Noise, Hazardous Materials, Historical/Archaeological Resources, and Seismic Hazards) were each found to not have any reasonably foreseeable permanent adverse impact because of the Preferred Alternative. Therefore, no cumulative adverse effect will result from constructing the Preferred Alternative.

3.6 Irreversible and Irretrievable Commitment of Resources

Irreversible commitments are those that cannot be regained, such as the extinction of a species, the expenditure of federal funds, or the removal and use of fossil fuels. Irretrievable commitments are those that are lost for a period of time, such as the loss of production, harvest, or use of renewable resources.

Fossil fuels, labor, and construction materials such as building supplies would be irreversibly expended by construction of the Pproject. In addition, labor and natural resources would be used in the fabrication and preparation of construction materials. Construction would also require an expenditure of federal funds that could not be used for any other projects.

Chapter 4 Consultation and Coordination

4.1 Public Notice and Comment Period

FHWA prepared and will issue public notices dated December 19 and 26, 2023 in The Columbian, the daily newspaper serving the Vancouver, Washington, and Clark County, Washington area, providing a 30-day public comment period from December 19, 2023, to January 18, 2024.

4.2 Agency Involvement

FHWA and NPS coordinated the environmental compliance for the Project. NPS, lead agency for Section 106 compliance, coordinated directly with the Washington SHPO. No other agencies are impacted by the proposal, and therefore no additional agency coordination occurred.

4.3 Tribal Outreach

NPS conducted tribal outreach and coordination on behalf of the Project. A letter was sent by FOVA dated September 15, 2023, requesting consultation with the Vancouver Intertribal Consortium. One response letter was received by the Nisqually Indian Tribe dated September 26, 2023, stating the Tribe had no specific comments or concerns. No other tribes responded with comments or concerns.

4.4 List of Preparers

This EA was prepared by FHWA. Supporting documentation, reports, and compliance was completed by the NPS and consultant support.

Table 4-1. List of EA Preparers

Name	Organization	Project Role
Jennifer Chariarse	FHWA	Environmental Specialist
Mike Schurke	FHWA	Archaeologist

Chapter 5 Permits and Approvals Needed

Required permits and approvals would be obtained prior to Project construction. The following permits and approvals are expected to be required for implementation of any build alternative:

- NEPA decision/approval
- National Historic Preservation Act and Section 106 Review and Concurrence with No Adverse Effect – Completed September 26, 2023 (2023-09-05797)
- Endangered Species Act – No Effect Determination
- Southwest Clean Air Agency (SWCAA) Notice of Intent to Remove Asbestos

Chapter 6 Project Commitments and Conservation Measures

For each resource that was discussed in Chapter 3, Table 6-1 provides a list of the commitments and conservation measures that would be a part of the Preferred Alternative to further avoid, minimize or mitigate for potential impacts.

Table 6-1. List of Project Commitments and Conservation Measures

Resource	Commitment and/or Conservation Measure
Noise	• Operate equipment according to local noise restrictions.
Hazardous Materials	• Notify all contractors of the presence and location of asbestos, lead paint, and PCBs present in the Building • Disposal of contaminated material generated during construction at a permitted facility and following all federal, state, and local regulations. • Asbestos removal must be removed by a Washington L&I licensed full scale asbestos abatement contractor utilizing L&I certified asbestos workers under the direct supervision of an L&I certified asbestos supervisor prior to any renovation or demolition activities that could disturb asbestos-containing materials. • If additional suspect asbestos-containing material is subsequently discovered during renovation or demolition activities, either stop work and have the suspect material tested, or presume it is asbestos and have it removed by a licensed asbestos abatement contractor. • Impact of painted surfaces with detectable concentrations of lead requires construction activities to be performed according to Washington Labor and Industries regulations for Lead in Construction (WAC 296-62155). Workers impacting LCP should be provided the proper personal protective equipment and use proper work methods to limit occupational and environmental exposure to lead until an initial exposure assessment has been conducted. • Inspect all fluorescent light fixtures prior to removal and replacement. Look for "NO PCB" labels on the light ballast. If the ballast does not display a NO PCB label, presume it contains PCBs and handle appropriately. Remove and properly recycle mercury-containing light tubes prior to demolition activities that would disturb or damage the lamps. • Develop health and safety plans that identify potential contaminates of concern, required personal protective equipment, and emergency response procedures.

Resource	Commitment and/or Conservation Measure
	• Avoid materials that can leach toxic chemicals into ground water. Do not allow toxic chemicals to enter sewers or storm drains or contaminate land or any body of water.
Historical/Archeological Resources	• An Archeological Monitor will be present at the work site and will follow the Monitoring Plan to ensure that ground disturbing construction activities that will excavate below the fill do not inadvertently impact significant archaeological resources that contribute to the NRHP-significance of DT-191. • Construction will avoid use of heavy equipment, including equipment which creates vibration, outside the protection zone of the Mule Barn as identified in project drawings. Construction will limit vibration from equipment within 30 feet of the Mule Barn to a maximum Peak Particle Velocity (PPV) of 2 mm/sec. (0.08 inches/sec.).
Seismic Hazards	• None

Chapter 7 References

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