MUKILTEO MULTIMODAL PROJECT
FINAL ENVIRONMENTAL IMPACT STATEMENT

Prepared for:

U.S. Department of Transportation
Federal Transit Administration

Washington State
Department of Transportation

Washington State Ferries

June 2013
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MUKILTEO MULTIMODAL PROJECT
SNOHOMISH COUNTY, WASHINGTON

FINAL ENVIRONMENTAL IMPACT STATEMENT

PREPARED PURSUANT TO:


by the

FEDERAL TRANSIT ADMINISTRATION
U.S. DEPARTMENT OF TRANSPORTATION

and the

WASHINGTON STATE DEPARTMENT OF TRANSPORTATION

with the cooperation of

CITY OF MUKILTEO
CITY OF EVERETT
SNOHOMISH COUNTY
PORT OF EVERETT
SOUND TRANSIT
COMMUNITY TRANSIT
SAMISH INDIAN NATION
STILLAGUAMISH TRIBE
SUQUAMISH TRIBE
TULALIP TRIBES
U.S. AIR FORCE
U.S. ARMY CORPS OF ENGINEERS

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5/21/13
Date of Approval

5/22/13
Date of Approval
ABSTRACT

The Washington State Department of Transportation, Ferries Division proposes the Mukilteo Multimodal Project to improve the operations, safety, and security of facilities serving the mainland terminus of the Mukilteo-Clinton ferry route in Washington State. The ferry route is part of State Route 525, the major transportation corridor crossing Possession Sound, which separates Island County from the central Puget Sound mainland. The proposed project is located in the city of Mukilteo and the city of Everett in Snohomish County, Washington. This environmental impact statement (EIS) evaluates the No-Build Alternative, a Preferred Alternative and two other Build alternatives for their potential effects on the natural and built environments. Mitigation measures to avoid, reduce, or compensate for anticipated impacts are also discussed in this EIS.

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Fact Sheet

Project Title
Mukilteo Multimodal Project

Proposed Action

The Washington State Department of Transportation (WSDOT), Ferries Division (also known as Washington State Ferries [WSF]) proposes the Mukilteo Multimodal Project to improve the operations, safety, and security of facilities serving the mainland terminus of the Mukilteo-Clinton ferry route in Washington State. The Federal Transit Administration (FTA) has provided funding during the project's planning phase and may be a source of construction funding. FTA and WSDOT are making this proposal available for public review in compliance with the National Environmental Policy Act (NEPA) and the State Environmental Policy Act (SEPA).

The proposed project is located in the city of Mukilteo and the city of Everett in Snohomish County, mostly west of the Mukilteo/Everett city line. The area under consideration begins on the eastern edge of Mukilteo Lighthouse Park and extends to the eastern edge of the U.S. Air Force's Mukilteo Tank Farm in the city of Everett and adjacent to the Port of Everett Mount Baker Terminal. In a separate action, the U.S. Air Force would need to transfer property rights or otherwise make the property available before any alternative on the Mukilteo Tank Farm could be developed.

This environmental impact statement (EIS) documents the analysis of the No-Build Alternative and three Build alternatives. These alternatives are summarized below.

The No-Build Alternative includes what would reasonably be needed to maintain the existing ferry terminal at a functional level. Under the No-Build Alternative, an improved multimodal transportation facility to meet future demand or operational needs would not be developed. Instead, the No-Build Alternative assumes that maintenance and structure replacements would occur in accordance with legislative direction to maintain and preserve ferry facilities. WSF would make no major facility investments to improve the operation, safety, security, or capacity at the terminal.

The Preferred Alternative relocates the ferry terminal from its current location to the western portion of the Mukilteo Tank Farm as part of an integrated multimodal facility. This alternative would remove the current terminal and the Mukilteo Tank Farm Pier, and develop terminal marine facilities. Passenger and maintenance buildings would be on land, with the passenger building located parallel to the shoreline. An overhead passenger loading ramp would extend from the second story of the new passenger building. Roadway improvements would include a realignment and extension of First Street to provide access to the central section of the Mukilteo Tank Farm. The Sound Transit commuter rail parking would be retained adjacent to the Mukilteo Station, and a new bus transit center and parking areas would be built on the Mukilteo Tank Farm site. The alternative would also develop sidewalks, bike lanes, and a shoreline promenade on each side of the new ferry dock.
The **Existing Site Improvements Alternative** reconstructs, expands, and realigns the terminal and its related facilities on and around the current site. A new transit center would be constructed and the existing vehicle holding area would be reconfigured. New toll booths, operations buildings, and a new passenger building would be constructed. New overhead passenger loading ramps would connect to the second story of a new passenger building.

The **Elliot Point 1 Alternative** relocates the ferry terminal from its current location to the eastern portion of the Mukilteo Tank Farm in both Mukilteo and Everett. This alternative also provides a transit center near the ferry terminal. A new passenger building and a maintenance building would be located overwater upon a new concrete trestle. An overhead passenger loading ramp would connect to the second story of a new passenger building. The Tank Farm Pier and the existing ferry terminal would be removed. First Street would be realigned and extended as a four-lane roadway from SR 525 to the Mount Baker Terminal in the city of Everett. The alternative also includes modified intersections; a modification to the Sound Transit Mukilteo Station; the development of sidewalks and bike lanes, parking areas, toll booths, ferry vehicle holding areas, and a shoreline promenade on each side of the new ferry dock; and the restoration of part of Japanese Creek to an open stream.

**Project Proponent and Co-Lead Agencies**

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Anticipated Permits and Approvals

Federal
- Federal Transit Administration, U.S. Department of Transportation
  - National Historic Preservation Act, Section 106
  - Section 4(f) Impact to Historic and Recreation Resources
- U.S. Army Corps of Engineers
  - Rivers and Harbors Act, Section 10 Permit
  - Clean Water Act, Section 404 Permit
- U.S. Fish and Wildlife Service
  - Endangered Species Act, Section 7(a)(2) Biological Opinion
  - Disturbance Permit (Bald and Golden Eagle Protection Act)
- National Marine Fisheries Service
  - Endangered Species Act, Section 7(a)(2) Biological Opinion
  - Incidental Harassment Authorization (Marine Mammal Protection Act)
Biological Opinion
Magnuson-Stevens Fishery Conservation and Management Act Consultations

State
- Washington State Department of Fish and Wildlife
  - Hydraulic Project Approval
- Washington State Department of Natural Resources
  - Authorization for use of state-owned aquatic lands
- Washington State Department of Ecology
  - Clean Water Act, Section 401 Permit
  - Coastal Zone Management Consistency Determination
  - National Pollution Discharge and Elimination System (NPDES) Construction Stormwater General Permit
- Washington Department of Archaeology and Historic Preservation
  - National Historic Preservation Act, Section 106 Consultation

Local
- City of Mukilteo and City of Everett
  - Substantial Shoreline Development Permit
  - Critical Area Application
  - Essential Public Facility Permit
  - Engineering Permit
    - Shoreline Variance
    - Zoning Variance
    - Grading and Clearing Permit
    - Right of Way Permit
  - Building Permit

Authors and Principal Contributors
This Final EIS was prepared under the direction of the United States Department of Transportation FTA and WSDOT. The list of individual authors and contributors is included in Appendix D, List of Contributors.

Date of Issue of Final Environmental Impact Statement
June 7, 2013

Date of Final Action
Anticipated July 2013
Final Agency Action

After the publication of the Final EIS, WSDOT will make a final decision on the location and features of the multimodal terminal to be built for the project. Also, not less than 30 days after the Final EIS publication date, FTA is expected to issue its Record of Decision (ROD) on the project. The ROD is expected to allow WSDOT to move forward with securing funding, completing final design, obtaining required permits, and building the selected facility.

Location of Background Data

In addition to the Final EIS, technical reports and other supporting documentation are available for review at the following locations:

WSDOT Ferries Division
2901 Third Avenue, Suite 500
Seattle, WA 98121

Clinton Library
4781 Deer Lake Rd
Clinton, WA 98236

Edmonds Library
650 Main St
Edmonds, WA 98020

Everett Public Library – Main Library
9512 Evergreen Way
Everett, WA 98204

Mukilteo Library
4675 Harbour Pointe Blvd
Mukilteo, WA 98275

or

http://www.wsdot.wa.gov/projects/ferries/mukilteoterminal/multimodal/

Cost of Document and Availability for Review and/or Purchase

Additional copies of the Final EIS can be obtained in CD-ROM or print format by contacting Paul W. Krueger, Project Environmental Manager at the contact address listed above. Electronic files are also available at:
http://www.wsdot.wa.gov/projects/ferries/mukilteoterminal/multimodal/

Consistent with the Paperwork Reduction Act and FTA policy to minimize taxpayer costs, FTA will print and distribute the executive summary of the Final EIS together with a CD-ROM of the complete Final EIS. Printed copies of the complete Final EIS are available for $25.00, which does not exceed the cost of printing and mailing. Copies of this document in CD-ROM are free and available upon request. Printed copies of the Final EIS are available for viewing at selected Everett and Sno-Isle public libraries and the City of Mukilteo public library (for library locations see Appendix F, Distribution List). Readers may view the Final EIS online at:
http://www.wsdot.wa.gov/projects/ferries/mukilteoterminal/multimodal/
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Discipline Reports
The discipline reports are available on the project’s website (www.wsdot.wa.gov/projects/ferries/mukileoterminal/multimodal), on CD (free), or in print (for the cost of reproduction).

- Cultural Resources Discipline Report
- Ecosystems Discipline Report
- Hazardous Materials Discipline Report
- Noise and Vibration Discipline Report
- Transportation Discipline Report
## Acronyms and Abbreviations

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<td>ACHP</td>
<td>Advisory Council on Historic Preservation</td>
</tr>
<tr>
<td>ADA</td>
<td>Americans with Disabilities Act</td>
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<td>AHERA</td>
<td>Asbestos Hazard Emergency Response Act</td>
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<td>APE</td>
<td>Area of Potential Effects</td>
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<td>National Environmental Policy Act</td>
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<tr>
<td>NESHAP</td>
<td>National Emission Standards for Hazardous Air Pollutants</td>
</tr>
<tr>
<td>Acronym</td>
<td>Definition</td>
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<td>National Highway Traffic Safety Administration</td>
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<td>National Oceanic and Atmospheric Administration</td>
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<td>NOx</td>
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<td>NO2</td>
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<td>NOI</td>
<td>Notice of Intent</td>
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<td>NPDES</td>
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<td>NWFSC</td>
<td>Northwest Fisheries Science Center</td>
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<td>ordinary high water mark</td>
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<tr>
<td>PAH</td>
<td>polycyclic aromatic hydrocarbon</td>
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<tr>
<td>PCBs</td>
<td>polychlorinated biphenyls</td>
</tr>
<tr>
<td>PFMC</td>
<td>Pacific Fishery Management Council</td>
</tr>
<tr>
<td>PGIS</td>
<td>pollution-generating impervious surface</td>
</tr>
<tr>
<td>PM$_{2.5}$</td>
<td>particulate matter with a diameter of less than 2.5 microns</td>
</tr>
<tr>
<td>PM$_{10}$</td>
<td>particulate matter with a diameter of less than 10 microns</td>
</tr>
<tr>
<td>ppt</td>
<td>parts per trillion</td>
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<td>Puget Sound Air Pollution Control Agency</td>
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<td>PSCAA</td>
<td>Puget Sound Clean Air Agency</td>
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<td>sulfur dioxide</td>
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<td>Spill Prevention, Control and Countermeasures (Plan)</td>
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<td>Skagit River System Cooperative</td>
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<td>TESC</td>
<td>Temporary Erosion and Sediment Control (Plan)</td>
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<td>Transportation Improvement Plan</td>
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<td>total maximum daily load</td>
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<td>Toxic Substances Control Act</td>
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<td>United States</td>
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<td>urban growth area</td>
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<td>U.S. Department of Transportation</td>
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<td>USGS</td>
<td>U.S. Geological Survey</td>
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<tr>
<td>VdB</td>
<td>vibration velocity level</td>
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<tr>
<td>VMT</td>
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<td>Washington State Department of Fish and Wildlife</td>
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<td>Washington Industrial Safety and Health Act</td>
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<td>Water Resource Inventory Area</td>
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SUMMARY
S. SUMMARY

S.1 The Mukilteo Multimodal Project

The Washington State Department of Transportation (WSDOT), Ferries Division (also known as Washington State Ferries [WSF]) proposes the Mukilteo Multimodal Project to improve the operations and facilities serving the mainland terminus of the Mukilteo-Clinton ferry route in Washington State. The Federal Transit Administration (FTA) has provided funding during the project’s planning phase and may be a source of construction funding.

WSDOT and FTA are preparing this Environmental Impact Statement (EIS) for the project in compliance with the National Environmental Policy Act (NEPA) and the State Environmental Policy Act (SEPA). FTA is the federal lead agency for the NEPA environmental review process. WSDOT is the state lead agency for SEPA.

The ferry route is part of State Route (SR) 525, the major transportation corridor across Possession Sound, which separates Island County (Whidbey Island) from the central Puget Sound mainland. In 2012, the Mukilteo-Clinton route had the most vehicle trips and the second-highest total ridership in the system. Figure S-1 shows the regional setting and Figure S-2 shows the general project area.

S.2 The Mukilteo Ferry Terminal Area

The existing Mukilteo ferry terminal is located in the city of Mukilteo in Snohomish County, Washington, west of the Mukilteo/Everett city line. The shoreline in this area faces north to northwest and runs predominantly east-west within the project area. West of the existing terminal are Elliot Point and Mukilteo Lighthouse Park.

To the east of the existing terminal is the Mukilteo Tank Farm, a 20-acre area previously used by the U.S. Air Force, and featuring lands, buildings, and a large pier formerly used for fuel storage and loading. A research facility operated by the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service is on the west and north portion of the Mukilteo Tank Farm; the research facility is also known as the NOAA Mukilteo Research Station. The Mukilteo/Everett city line is at the eastern end of the Mukilteo Tank Farm. The Mount Baker Terminal, a marine-to-rail intermodal facility operated by the Port of Everett, is located just east, in the city of Everett.

Elliot Point and its original shoreline area have several important historic and archaeological sites, including a buried shell midden created by Native American peoples, with deposits dating back over 1,000 years. In fact, the name Mukilteo is derived from a Salish word meaning “a good place to camp.”

BNSF owns and operates a railroad that runs south of the Mukilteo ferry terminal and adjacent to the southern boundary of the Mukilteo Tank Farm. The BNSF tracks mostly follow the shoreline between Seattle and Everett. East of where the railroad crosses under SR 525, it borders the Mukilteo Tank Farm, and a rail spur connection extends to the Mount Baker Terminal. Sound Transit’s Sounder commuter rail also uses the BNSF tracks. Its Mukilteo Station is located southeast of Park Avenue, between the Mukilteo Tank Farm and the BNSF railroad tracks.
See Figure S-2 Project Vicinity

Figure S-1. Regional Setting

Data Sources: (Cities of Mukilteo and Everett, Snohomish County, WSDOT)
Figure S-2. Project Vicinity
S.3 Purpose and Need

The following purpose and need statement will guide decisions about the project.

S.3.1 Project Purpose

The purpose of the Mukilteo Multimodal Project is to provide safe, reliable, and efficient service and connections for general-purpose transportation, transit, high-occupancy vehicles (HOVs), pedestrians, and bicyclists traveling between Island County and the Seattle-Everett metropolitan area and beyond. The project is intended to:

• Reduce conflicts, congestion, and safety concerns for pedestrians, bicyclists, and motorists by improving local traffic and safety at the terminal and the surrounding area that serves these transportation needs.

• Provide a terminal and supporting facilities with the infrastructure and operating characteristics needed to improve the safety, security, quality, reliability, and efficiency of multimodal transportation.

• Accommodate future demand projected for transit, HOV, pedestrian, bicycle, and general-purpose traffic.

S.3.2 Project Need

The existing facility is deficient in a number of aspects, including safety, multimodal connectivity, capacity, and the ability to support the goals of local and regional long-range transportation and comprehensive plans, including future growth in travel demand. Those factors, which are further described below, demonstrate the need for an improved multimodal facility.

Safety and Security

Safety is WSDOT’s top priority, and security at transportation facilities is a national concern. Safety and security come into play with this project in several ways: at the pedestrian/vehicle interface, with the general traffic flow in the SR 525/Front Street vicinity, and in maintaining safety and security for the facility itself. Safety and security improvements are needed because:

• The Mukilteo ferry terminal has received few improvements since it was built in 1957. The existing timber structures, including the docking facilities, are beyond the end of their useful lives.

• The existing terminal does not meet current seismic standards. The existing facility is underlain by deep, potentially liquefiable soils that are highly susceptible to lateral spreading during an earthquake.

• Changed U.S. Coast Guard and U.S. Department of Homeland Security protocols now require the ability to secure terminal areas when there is a natural disaster, heightened security alert, or other emergency. The existing facility has city streets within the terminal area and does not allow for a physical separation between the terminal and open public areas, which increases safety and security concerns, and could require WSDOT to
interrupt service or close the terminal to respond to an emergency or a heightened security alert.

- Collisions near the SR 525/Front Street intersection have included sideswipes, vehicle/pedestrian collisions, and collisions with parked vehicles.

- Because of congestion caused by ferry traffic, pedestrians often make high-risk decisions to cross the SR 525/Front Street intersection during breaks in ferry traffic; near misses between vehicles and pedestrians are common. Pedestrians who access the terminal area, transit facilities, surrounding businesses, and Mukilteo Lighthouse Park compete with vehicles for access to this intersection.

- Other inadequate facilities include a lack of passenger drop-off/pick-up areas and poor bus access to the bus bay; both increase congestion and the risk of accidents.

- Passengers who are loading and unloading from the ferry or going between the toll booth and the passenger building must traverse routes that do not meet the requirements of the Americans with Disabilities Act (ADA).

Transit Connectivity and Reliability

The current facility provides poor connections between transit, rail, and ferry modes, which significantly hamper the quality and reliability of the transportation system in this area and add to the overall transportation and safety problems related to the terminal. The major concerns are:

- Transit connections at the Mukilteo ferry terminal cannot adequately serve current or future needs. There are only two bus bays, located 200 feet away, uphill and across a major local street. The limited transit facilities are inadequate to support the current service, including staging and layover needs for transit operations, and there are limited boarding areas and amenities for transit riders. The current configuration would not allow bus service to be expanded. In addition, the Sounder commuter rail stops at the Mukilteo Station, approximately 2,000 feet from the existing terminal, and the streets between the ferry terminal and the station have missing or substandard pedestrian and bicycle facilities.

- Keeping the ferry on schedule is integral to multimodal connectivity and the ability of the system to meet growing demand by allowing passengers to make on-time connections to scheduled bus and train service. Inefficient vehicle staging slows fare collection, which delays departures. Lack of a dedicated HOV access lane makes it difficult to implement WSDOT’s preferential program for carpools, and worsens operating efficiency. Also, pedestrians walking on and off the ferry use the same span that vehicles use. This requires passengers and vehicles to be loaded at separate times, which leads to system inefficiency and can cause delays that last throughout the day.
Growth in Travel Demand

The Mukilteo-Clinton route connects the two segments of SR 525—the major transportation corridor between Island County (Whidbey Island) and the Seattle-Everett metropolitan area. SR 525 is classified as a Highway of Statewide Significance. In addition to serving ongoing travel demand, SR 525 is needed to connect the communities and military facilities on the island for evacuations, disaster relief, and medical emergencies.

WSDOT’s travel forecasts highlight the higher future demand for improved multimodal facilities serving the Mukilteo-Clinton route: WSDOT predicts the total number of annual riders (vehicle drivers, vehicle passengers, and walk-on passengers) on the Mukilteo-Clinton route to grow to about 5,939,000 riders in 2030, compared to 3,835,000 riders in 2012 (WSDOT 2012a).

The Mukilteo-Clinton route serves a high number of commuter trips, and growth in employment on both Whidbey Island and on the mainland is a primary reason for the predicted growth in trips by ferry. In response, the Washington State Department of Transportation Ferries Division Final Long-Range Plan: 2009–2030 calls for meeting the growing travel needs at the Mukilteo ferry terminal primarily through increasing the share of walk-on trips. This reinforces the need for improved connections and facilities between ferries and other modes, including transit, bicycle, and walking (WSDOT 2009).

Other Related Objectives

Through its public planning and outreach efforts, including public scoping comments, WSDOT has also identified environmental and project development goals to help guide the project:

- The project should be fiscally responsible and supportive of state, regional, and local transportation plans including, but not limited to, the Washington State Department of Transportation Ferries Division Final Long-Range Plan: 2009–2030 (WSDOT 2009), as well as regional and local land use plans.

- The project should be sensitive to the rich cultural and environmental resources of the vicinity in a manner that respects and enhances these resources.

- The project should not preclude development of a second slip at the terminal in the future to provide operational flexibility or additional capacity.
S.4 Alternatives

The project is considering four alternatives:

- The No-Build Alternative, which maintains the existing facility but does not improve it; this alternative provides a basis against which to compare the effects of the “Build” alternatives.
- The Preferred Alternative (a modified Elliot Point 2 Alternative), which would relocate the terminal to the western portion of the Mukilteo Tank Farm as part of an integrated multimodal center, and it would remove the existing terminal.
- The Existing Site Improvements Alternative, which would construct an improved multimodal facility by replacing the existing Mukilteo ferry terminal with an expanded terminal and multimodal center at the current site.
- The Elliot Point 1 Alternative, which would relocate the terminal to the eastern portion of the Mukilteo Tank Farm as part of an integrated multimodal center, and it would remove the existing terminal.

The three Build alternatives are the result of several years of planning by WSDOT and FTA, in coordination with other agencies, tribes, and the public. They represent three approaches to develop the project within a physically constrained waterfront area in a manner that supports the project’s purpose and need while avoiding or minimizing impacts, particularly to the site of a shell midden that extends along much of the western waterfront.

S.4.1 No-Build Alternative

The No-Build Alternative provides a baseline against which to compare the effects of the Build alternatives. It includes what would be needed to maintain the existing ferry terminal at a functional level. Figure S-3 shows the key parts of a typical ferry terminal.

Maintenance and structure replacements would occur in accordance with legislative direction to maintain and preserve ferry facilities, but WSDOT would make no major investments for improvements. Figure S-4 illustrates the elements that would be replaced as part of planned maintenance activities.

Nearly all of the ferry docking, loading, and unloading facilities would need to be replaced because they will have reached the end of their lifespan by 2040. The existing vehicle holding area would remain at its current location. The terminal supervisor’s building, passenger and maintenance building, and the three existing toll booths would be replaced at their current locations. This alternative would not improve substandard conditions related to congestion, vehicular and pedestrian conflicts, poor sight distance, and security.

The estimated cost range for the No-Build Alternative is projected to be $60 to $65 million in 2015 dollars, assuming 2015 as year of expenditure, and includes construction, right-of-way costs, and engineering.
Key parts of a typical ferry terminal

**fixed dolphin** – an assembly of steel piles or concrete drilled shafts supporting a concrete cap and a fendering system.

**floating dolphin** – concrete or wooden barge structures located offshore clad with a perimeter fendering system and anchored to the seabed; used to help guide the ferry into the slip.

**wingwall** – an assembly of steel piles or concrete drilled shafts supporting a steel or concrete cap and a fendering system to guide and stop the ferry at its loading and unloading position.

**tower** – currently used to house and support the cable and counter weight system that supports, raises, and lowers the outboard end of the transfer span. (The tower system will be replaced by hydraulic lifts regardless of the alternative chosen.)

**apron** – adjustable ramp at the end of the transfer span that accommodates varying water heights.

**transfer span** – movable bridge that allows the vehicles and pedestrians access on and off the ferry; it is the link between the ferry and the trestle.

**trestle and bridge seat** – over-water stationary pile-supported bridge structure that serves as a connection between land and the nearshore end of the transfer span for both vehicle and pedestrian traffic (pedestrians do not use the trestle if overhead passenger loading is available).

Figure S-3. *Key Parts of a Typical Ferry Terminal*
Figure S-4. No-Build Alternative
S.4.2 Preferred Alternative (Elliot Point 2)

Following the release of the Draft EIS and after considering comments received on it, WSDOT concluded the Elliot Point 2 Alternative best meets the project’s purpose and need. The team considered suggestions from commenters and refined Elliot Point 2’s design to further improve its ability to meet the purpose and need, reduce environmental impacts, or enhance other benefits. WSDOT collaborated with interested tribes and others to determine a culturally sensitive design approach to guide the project. The modified alternative is called the “Preferred Alternative” in this Final EIS.

This alternative would develop the project on the western portion of the Mukilteo Tank Farm. Its key features are shown on Figure S-5.

The Preferred Alternative would construct in-water facilities that include the features needed for the ferry berth, including wingwalls and fixed dolphins. A floating dolphin would be relocated from the existing ferry terminal. The alternative would construct a new transfer span, including hydraulic-lifting mechanisms and structures and a bridge seat foundation, as well as a new concrete trestle and bulkhead. Because there is no beach and the water is deeper at this location, the ferry slip would be close to the shore, which would allow the trestle to be shorter than other alternatives, requiring fewer piles to support the trestle. The Tank Farm Pier, which includes approximately 3,900 piles, would be removed. A channel about 500 feet wide by 100 feet long would be dredged through part of the area currently occupied by the pier to provide a navigation depth of -28 feet at an average lowest tide, which would require dredging to a depth of -30 feet. Under the pier, current depths are -15 to -35 feet. Approximately 19,500 cubic yards of material would be dredged for the channel.

The existing ferry berth and all of its marine structures would be removed, including the Port of Everett fishing pier and day moorage. The Preferred Alternative would reconstruct the fishing pier and day moorage as part of the new multimodal facility.

A new passenger building and a maintenance building would be combined as a two-story building and aligned parallel to the shoreline. The building would bridge over the vehicle driveway to the ferry trestle, and an overhead passenger loading ramp would connect to the second story of the building.

Culturally Sensitive Design

Recognizing the historic significance of the Elliot Point area, the project will be developed with cultural elements in its design. For example:

- Traditional motifs and objects, and narrative content
- Building and facility design, such as landscaping, materials, and form
- Commemorative signs, drawings, and photography
- Public educational displays

The pictures below show examples of a traditional motif and cultural identity features in a design.
Figure S-5. Preferred Alternative (Elliot Point 2)

Mukilteo Multimodal Project
The vehicle holding area would have a 266-vehicle capacity. The terminal supervisor’s building would be west of the vehicle holding area, as the second floor of a building that would also house the new toll booths. A new transit center with six new bus bays and a transit passenger area would be on the eastern part of the site, and it would have an area for ferry employee parking.

First Street would be realigned and extended as a four-lane roadway, beginning on a retained fill structure from the new signalized intersection with SR 525, descending to near the existing grade at Front Street, and continuing to a signalized entrance to the new ferry terminal. First Street would continue as a two-lane road to a new bus transit and paratransit center. This alternative would also develop a public parking area between the BNSF railroad and the new First Street extension, near SR 525, to replace some displaced street parking. It also would modify the access road and the parking for the Mukilteo Station. A stormwater treatment facility would be located between Front Street and the First Street extension east of Park Avenue.

The First Street improvements also would include a reconstructed intersection with Park Avenue. The extended roadway would generally be along the southern portion of the Mukilteo Tank Farm. First Street would feature sidewalks and bicycle lanes.

A pedestrian pathway from First Street would connect to a waterfront promenade and on to the passenger building, which would include a passage allowing continuous pedestrian access along the waterfront. Other sidewalks and crosswalks would link the Mukilteo Station and the transit center. This alternative would include new security fences and gates surrounding the holding area and terminal.

The estimated cost range for the Preferred Alternative is projected to be $125 to $135 million in 2015 year of expenditure dollars, including the costs of construction, right-of-way, and engineering.

S.4.3 Existing Site Improvements Alternative

The Existing Site Improvements Alternative would construct an improved multimodal facility by replacing the existing Mukilteo ferry terminal with an expanded terminal on and around the current site. Its key features are shown on Figure S-6.

All of the existing ferry facility marine and upland features would be replaced. The ferry dock and trestle would be rebuilt facing due north to provide a straighter alignment with SR 525. The Port of Everett existing fishing pier and seasonal day moorage would be removed and need to be relocated.

The existing vehicle holding area would remain at the same general location and would still store approximately 216 vehicles, the equivalent of one-and-one-half 144-vehicle vessels. Toll booths and a supervisor’s building would be constructed nearby. A new passenger and maintenance building would be constructed east of the ferry access driveway expanding into areas currently occupied by other uses. Overhead passenger loading ramps would connect to the second story of the new passenger building.

Front Street and Park Avenue would become one-way streets, and First Street would be extended west to a new signalized intersection with SR 525. A new transit center would be constructed east of the vehicle holding lanes, combined with a parking area for ferry employees.
Figure S-6. Existing Site Improvements Alternative

- Possession Sound
- Mukilteo
- Front St. Eastbound Only
- Toll booths
- Signalized intersection
- Existing passenger building
- New passenger and maintenance building
- Fixed dolphin
- Wingwalls
- Transfer span
- Trestle
- Bulkhead and bridge seat
- Existing terminal supervisor’s building
- New terminal supervisor’s building
- Existing terminal
- WSF employee parking
- Transit center
- Park Ave
- Southbound Only
- NOAA
- Sounder Commuter Rail Station
- Mukilteo Lighthouse Park
- Possession Sound

Legend:
- Existing Site Improvements
- Ferry
- To be removed
- Ferry Traffic Control Light

Mukilteo Multimodal Project
The estimated cost range for the Existing Site Improvements Alternative is projected to be $130 to $140 million in 2015 year of expenditure dollars, including costs for construction, right-of-way, and engineering.

### S.4.4 Elliot Point 1 Alternative

The Elliot Point 1 Alternative would develop the Mukilteo Multimodal Project on the eastern portion of the Mukilteo Tank Farm. Its key features are shown on Figure S-7.

Because the shoreline slopes more gradually in this location, the ferry slip would need to be located about 250 feet offshore, which would require a longer pier and trestle. A new passenger building and a maintenance building would be located over water on the new concrete trestle; this shortens walk distances and allows the nearby shoreline area to be developed for open space and stream restoration purposes. An overhead passenger loading ramp would connect to a second story of the new passenger building. A stormwater treatment facility would be located between Front Street and the First Street extension east of Park Avenue.

As with the Preferred Alternative, this alternative would remove the Tank Farm Pier and its piles, and it would dredge a navigation channel approximately 500 feet wide under where the pier is now located.

WSDOT would remove the existing ferry terminal, including buildings and marine structures, and the Port of Everett fishing pier and day moorage would be relocated. The current vehicle holding area would be vacated.

The Elliot Point 1 Alternative would also provide parking for commuter rail, the Mount Baker Terminal shoreline access area, and ferry employees. The alternative includes toll booths, ferry vehicle holding areas, and shoreline promenades on each side of the new ferry dock. Japanese Creek, which currently runs in a pipe culvert below the Mukilteo Tank Farm, would be restored to an open stream north of the extended First Street, with a 50-foot buffer on either side. The stream would be crossed by a pedestrian bridge near the shoreline.

The vehicle holding areas would hold about 216 vehicles. A terminal supervisor’s building would be constructed above four new toll booths east of the holding area. This 35-foot-high structure would be oriented north-south. New lighting would illuminate First Street and the terminal facilities, including the vehicle holding areas.

First Street would be realigned and extended as a four-lane roadway from SR 525 to the Port of Everett’s Mount Baker Terminal, with sidewalks and bicycle lanes. A new signalized intersection with SR 525 would be constructed. A rebuilt First Street/Park Avenue intersection would provide access to a reconfigured parking and access area for Mukilteo Station.

A new transit center with six bus bays would be built west of the new terminal. Access and parking for Mukilteo Station would be configured to connect to the First Street extension. New security fences and gates would secure the holding and terminal area during periods of heightened security, as required by the U.S. Coast Guard.

The estimated cost range for the Elliot Point 1 Alternative is projected to be $150 to $165 million in 2015 year of expenditure dollars, including the costs of construction, right-of-way, and engineering.
Figure S-7. Elliot Point 1 Alternative

Mukilteo Multimodal Project
S.5 Transportation Impacts

Future demand for travel is expected to increase through the year 2040 on the Mukilteo-Clinton ferry route. All alternatives, including the No-Build Alternative, would be served by the same vessels and on the same schedule. For this reason, the volume of vehicle trips is expected to be similar regardless of alternative. Still, the alternatives would have different effects on traffic based on ferry reliability, wait times, ferry queues, and other traffic movements.

S.5.1 Ferry Terminal Operations

Ferry Loading and Unloading Times

To maintain the 30-minute headways between Mukilteo and Clinton, there is an approximate 15-minute threshold to unload and load passengers and vehicles at either terminal. When the turnaround time exceeds this threshold, ferry vessels start to run behind schedule, creating two operating challenges: reduced connection reliability and reduced cross-Sound capacity.

As illustrated in Figure S-8, field observations found existing ferry terminal unloading and loading times can exceed the 15-minute threshold in the PM peak period. These observations occurred in winter 2010 and the results were used to predict future unloading and loading times for the alternatives. In 2040, it is estimated that the No-Build terminal configuration would take PM peak period ferries, on average, approximately 17 minutes to unload and load passengers and vehicles before leaving for Clinton. This would affect the overall ferry schedule during the PM peak period.

Figure S-8. Mukilteo Ferry Terminal Unloading and Loading Times (Observed Winter 2010, PM Peak Period)
All three Build alternatives would provide overhead passenger loading, which would allow vehicles and walk-on passengers to load simultaneously and reduce turnaround time. For the Preferred Alternative and the Elliot Point 1 Alternative, the average load and unload time would be approximately 10 minutes, which would enable the ferries to maintain their schedules. The Existing Site Improvements Alternative would load and unload each ferry in about 11 minutes, but because ferry traffic would still cross Front Street, it would be less reliable and still conflict with local vehicle and pedestrian traffic.

Connections to Transit

As shown in Figure S-9, the Preferred Alternative would provide the shortest distance for connections between the ferry passenger building and both the commuter rail station and transit center. For connections between downtown Mukilteo and the ferry passenger building, the shortest distance would result from the No-Build and Existing Site Improvements alternatives.

Figure S-9. Walk Distances to Passenger Buildings

S.5.2 Traffic Operations

Ferry Shoulder Queuing

Figure S-10 shows future queue lengths on a typical weekday evening in 2040 for all alternatives, compared to 2010 conditions. Elliot Point 1 is the only alternative where vehicle queues from the toll booth would not extend to SR 525 during the PM peak period on a daily basis. Under all alternatives, higher weekend and seasonal travel would continue to create longer queues. The Preferred Alternative provides more holding lane capacity, while the Elliot Point 1 Alternative has a longer First Street extension, which also helps to
store vehicles. When vehicles queue on the shoulder of SR 525, there are more gaps for driveways and intersections, lengthening the queue for the other alternatives.

Figure S-10. Ferry Queue Lengths (Typical PM Peak Period)

Roadway Network

The projected 2040 roadway volumes would be the same for the No-Build Alternative and the Build alternatives because the capacity of the ferries would be the same under all scenarios. The EIS looked at intersections along SR 525 between 5th Street and Harbour Pointe Boulevard and also looked west to the Mukilteo Boulevard/Glenwood Avenue intersection. While vehicle delay at intersections would increase by 2040 for all alternatives compared to 2010, this reflects areawide traffic growth rather than growth in traffic to the ferry. Table S-1 shows the future level of service (LOS) in the PM peak hour at the intersections analyzed.
### Table S-1. 2040 Level of Service (PM Peak Hour)

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Control Type</th>
<th>LOS</th>
<th>2010 Existing Delay (seconds/vehicle)</th>
<th>LOS</th>
<th>2040 No-Build and Build Alternatives Delay (seconds/vehicle)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR 525/1Harbour Pointe Boulevard</td>
<td>Signal</td>
<td>C</td>
<td>21</td>
<td>D</td>
<td>51</td>
</tr>
<tr>
<td>SR 525/88th Street SW</td>
<td>Stop sign</td>
<td>E</td>
<td>43</td>
<td>F</td>
<td>&gt; 200</td>
</tr>
<tr>
<td>SR 525/84th Street SW/SR 526</td>
<td>Signal</td>
<td>C</td>
<td>28</td>
<td>D</td>
<td>52</td>
</tr>
<tr>
<td>SR 525/76th Street SW</td>
<td>Stop sign</td>
<td>C</td>
<td>20</td>
<td>D</td>
<td>29</td>
</tr>
<tr>
<td>SR 525/5th Street</td>
<td>Signal</td>
<td>D</td>
<td>51</td>
<td>E</td>
<td>55</td>
</tr>
<tr>
<td>West Mukilteo Boulevard/ Glenwood Avenue</td>
<td>Signal</td>
<td>B</td>
<td>14</td>
<td>C</td>
<td>24</td>
</tr>
</tbody>
</table>

LOS = level of service, with A representing lowest delay, and D, E, or F higher levels of delay.

For No-Build and Build alternatives, the SR 525/88th Street and SR 525/5th Street intersections would continue to operate with longer delays than the standard set by the City of Mukilteo of LOS D or better.

### Parking

The project area includes on-street and off-street parking supporting a variety of uses, including businesses, general waterfront activities, ferry terminal employees, and the commuter rail station. The existing parking supply (not counting the parking at Lighthouse Park) consists of more than 200 off-street spaces, including those at the Sounder Mukilteo Station, and about 70 on-street spaces. The City of Mukilteo also maintains a parking area west of the terminal that is used for longer term parking (all day or overnight) by ferry patrons.

All of the Build alternatives would remove nearly 30 on-street parking spaces, mostly along First Street, related to the First Street extension. However, the Preferred Alternative would mitigate the impact by providing a new parking lot southwest of the First Street/Park Avenue intersection, which would increase the current parking supply by about 28 spaces. Elliot Point 1 also provides replacement parking in a new lot adjacent to the new terminal, for a net gain of about 22 spaces.

None of the alternatives alter the limited supply of spaces the City and others make available for ferry patrons who park in Mukilteo and ride the ferry. The Elliot Point alternatives would move the terminal farther away from areas that are typically used by ferry patrons. During scoping and the Draft EIS public comment period, a number of public comments requested more spaces to allow ferry users to park and ride. WSDOT considered these and other public comments as well as the project’s purpose and need, WSDOT’s Long-Range Plan objectives, the limited waterfront area land available, and cost and environmental factors. WSDOT found that alternatives that improved safety, security, transit, and non-motorized connections best met the project’s purpose and need while minimizing environmental impacts. Additional commuter parking, which might be more convenient for some ferry patrons, is not needed to meet the project’s purpose and need, given its emphasis on reducing vehicle trips to the ferry and encouraging other modes of travel.
### S.6 Environmental Impacts

Table S-2 summarizes the potential environmental impacts that would result under each alternative, followed by a discussion of major impacts by environmental topic.

**Table S-2. Summary of Environmental Impacts by Alternative**

<table>
<thead>
<tr>
<th>Area of the Environment</th>
<th>No-Build</th>
<th>Preferred Alternative</th>
<th>Existing Site Improvements</th>
<th>Elliot Point 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Permanent Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Land Use and Economics</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full acquisitions (parcels)</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Displaced residences</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Displaced businesses</td>
<td>0</td>
<td>6^1</td>
<td>7^1</td>
<td>6^1</td>
</tr>
<tr>
<td>Acres of Mukilteo Tank Farm property occupied</td>
<td>0</td>
<td>9</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>Compatibility with local land use/shoreline management plans</td>
<td>Low Compatibility</td>
<td>High to Moderate Compatibility</td>
<td>Low to Moderate Compatibility</td>
<td>High to Moderate Compatibility</td>
</tr>
<tr>
<td><strong>Noise and Vibration</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Human Environment)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Properties with noise impacts</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Properties with vibration impacts</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Visual Resource Impacts</strong></td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Social Environment and Environmental Justice</strong></td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Historic and Cultural Resources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identified archaeological sites with potential adverse effects</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td><strong>Air Quality</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAAQS criteria exceeded</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Hazardous Materials</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Redeveloped acres of previously remediated sites</td>
<td>0</td>
<td>9</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td><strong>Energy and Climate Change</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction energy required (MBtu)</td>
<td>807,000</td>
<td>1,203,000</td>
<td>1,564,000</td>
<td>1,516,000</td>
</tr>
<tr>
<td><strong>Geology and Soils</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to address seismic and liquefaction risks</td>
<td>Limited</td>
<td>Improved</td>
<td>Improved</td>
<td>Improved</td>
</tr>
<tr>
<td><strong>Water Resources Impacts</strong></td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td><strong>Ecosystems</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net change in over-water cover (square feet)</td>
<td>+3,000</td>
<td>-129,100</td>
<td>+12,000</td>
<td>-116,300</td>
</tr>
<tr>
<td>Removal of creosote-treated piles</td>
<td>Existing facility only</td>
<td>Existing facility and about 3,900 piles at Tank Farm Pier</td>
<td>Existing facility only</td>
<td>Existing facility and about 3,900 piles at Tank Farm Pier</td>
</tr>
</tbody>
</table>
### Table S-2. Summary of Environmental Impacts by Alternative

<table>
<thead>
<tr>
<th>Area of the Environment</th>
<th>No-Build</th>
<th>Preferred Alternative</th>
<th>Existing Site Improvements</th>
<th>Elliot Point 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Construction Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Built Environment</td>
<td>High due to multiple terminal closures; closures could range from 3 to 9 months</td>
<td>Low to moderate, with greater levels of construction activity but away from public areas; little to no closure of ferry service</td>
<td>Moderate due to terminal closure and area disruptions; terminal closed 1 to 2 months</td>
<td>Low to moderate, with greater levels of construction activity but away from public areas; little to no closure of ferry service</td>
</tr>
<tr>
<td>Potential for encountering hazardous materials during construction</td>
<td>Low</td>
<td>Moderate</td>
<td>Low to Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>Natural Environment</td>
<td>Moderate due to in-water construction</td>
<td>High due to in-water construction, pier removal, dredging</td>
<td>Moderate due to in-water construction</td>
<td>High due to in-water construction, pier removal, dredging</td>
</tr>
<tr>
<td>Use of Section 4(f) Properties</td>
<td>Four uses</td>
<td>Four uses</td>
<td>Four uses</td>
<td>Five uses</td>
</tr>
</tbody>
</table>

NAAQS = National Ambient Air Quality Standards; MBtu = million British thermal units

1 There are approximately six tenants located in the Mongrain Building.

### S.6.1 Land Use and Economics (including Acquisitions and Displacements)

The project would acquire between one and five properties. The acquisitions include a building that would be affected by all Build alternatives. The Existing Site Improvements Alternative would affect a waterfront restaurant as well.

The Preferred Alternative generally conforms with the City of Mukilteo *Comprehensive Plan* and Shoreline Management Program policies. WSDOT would continue to coordinate with the City of Mukilteo during final design and permitting.

The Preferred Alternative and Elliot Point 1 Alternative would reduce congestion and help support increased economic activity in the waterfront commercial area. All Build alternatives would also involve a major construction project, which would generate jobs and increase economic activity over the short term.

By continuing use of the current ferry terminal site, the No-Build and Existing Site Improvements alternatives would not be consistent with the City’s plans outlined in Mukilteo Vision 2020 in its *Comprehensive Plan* nor with its Shoreline Master Program. The City’s plans for the waterfront presume that the existing terminal will be relocated to the Mukilteo Tank Farm.
S.6.2 Noise and Vibration

No noise- or vibration-sensitive locations were identified during the screening process for the No Build, Preferred, and Elliot Point 1 alternatives, but six noise-sensitive locations were identified with the Existing Site Improvements Alternative. Analysis using FTA’s *Transit Noise and Vibration Impact Assessment* guidance manual and the Federal Highway Administration (FHWA) traffic noise model indicate that none of the project alternatives would result in increased long-term noise or vibration impacts exceeding acceptable limits at noise-sensitive properties such as hotels or residences. Construction noise related to existing terminal removal or replacement could temporarily affect noise-sensitive residences and a hotel, but would be less with the Preferred Alternative and Elliot Point 1 Alternative because most construction would be farther away.

S.6.3 Visual Quality

The No-Build and Existing Site Improvements alternatives would occupy the same site as the existing ferry terminal and would therefore have few effects on the visual environment, except for the Existing Site Improvements Alternative’s overhead passenger loading structure, which would obstruct some views from private waterfront properties. The Preferred Alternative and Elliot Point 1 Alternative would redevelop the currently abandoned industrial area of the Mukilteo Tank Farm, resulting in changes to the visual conditions at the Mukilteo Tank Farm and possibly at the existing terminal location. These changes would be largely beneficial to the visual environment. They would remove the remnants of the Mukilteo Tank Farm operations and replace it with new transportation infrastructure, including paved areas, buildings, lighting, and landscaping. They would expand opportunities for public views along the waterfront, at SR 525, and along Front Street.

S.6.4 Social Environment and Environmental Justice

Minority and low-income population would not bear disproportionately high and adverse impacts from the Preferred Alternative. None of the project alternatives would displace housing, social service providers, or ethnic or cultural establishments serving low-income or minority populations. The alternatives would be constructed either at a location where the ferry terminal exists today, or on a currently vacant site. The Preferred Alternative and the Elliot Point 1 alternative would displace the businesses at the Mongrain Building. The Existing Site Improvements Alternative would displace a restaurant, the businesses at the Mongrain Building. The Preferred Alternative and Elliot Point 1 Alternative would remove the Tank Farm Pier, which is not open to public access; however, boaters access the surrounding waters and crab fishing is popular. In the long term, crabbing and fishing would be available in much of the shoreline area, except in the immediate terminal vicinity.

The Preferred Alternative and Elliot Point 1 Alternative would increase public access to waterfront areas at the existing site and the Mukilteo Tank Farm. The No-Build and Existing Site Improvements alternatives would not increase public access to the waterfront.

All of the alternatives have some potential to affect one or more historic and prehistoric archaeological resources. Tribes in the region today trace their ancestry back
to the pre-historic inhabitants of the study area, and these resources are a link to their heritage.

The Preferred Alternative and the Elliot Point 1 Alternative would open the new terminal on the Mukilteo Tank Farm before demolishing the existing terminal, avoiding an interruption in ferry service. The Existing Site Improvements Alternative would need to temporarily close ferry service at Mukilteo during construction, which would affect businesses, individuals, and others depending on the ferry for travel.

All of the Build alternatives would remove the Port of Everett fishing pier and seasonal day moorage. The Preferred Alternative would relocate the fishing pier and moorage to the new terminal area before the existing pier is removed, which would avoid a temporary loss of access to public fishing. Similarly, the Elliot Point 1 Alternative could relocate the fishing pier and moorage to the tank farm. With the Existing Site Improvements Alternative, the pier and moorage would be removed before a replacement could be built; this would result in a temporary loss of access to public fishing and moorage at the waterfront.

If any of the Build alternatives are determined to interfere with treaty-protected tribal fishing rights, which would be an impact disproportionately borne by Native Americans, mitigation would be developed through government-to-government consultation with affected tribes.

### S.6.5 Cultural, Archaeological, and Historic Resources

The project team has identified five historic and/or archaeological resources in the area of potential effects. These properties are listed on or recommended as eligible for listing on the National Register of Historic Places (NRHP):

- Mukilteo Light Station, a NRHP-listed early 20th century lighthouse complex
- Point Elliott Treaty Site, a NRHP-eligible site where the 1855 treaty between the U.S. government and Puget Sound Native American tribes was signed
- Japanese Gulch Site, a NRHP-eligible site holding archaeological deposits associated with early 20th century Japanese mill workers
- Old Mukilteo Townsite, a NRHP-eligible site holding archaeological remains of the early Mukilteo business district
- Mukilteo Shoreline Site, a NRHP-eligible archaeological site with a shell midden and other deposits dating back more than 1,000 years

Although the alternatives have been designed to avoid excavating within these archaeological sites, some construction would occur on or near at least one site for all alternatives. If construction activities disrupt previously undisturbed archaeological resources, WSDOT and FTA anticipate there would be adverse effects on the resources listed in Table S-3.

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Site(s) Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>No-Build</td>
<td>Mukilteo Shoreline Site</td>
</tr>
<tr>
<td>Preferred Alternative</td>
<td>Mukilteo Shoreline Site¹, Old Mukilteo Townsite</td>
</tr>
<tr>
<td>Existing Site</td>
<td>Mukilteo Shoreline Site, Old Mukilteo Townsite</td>
</tr>
<tr>
<td>Improvements</td>
<td>Japanese Gulch Site</td>
</tr>
<tr>
<td>Elliot Point 1</td>
<td>Old Mukilteo Townsite, Japanese Gulch Site</td>
</tr>
</tbody>
</table>

¹ No elements disturb the midden but potential for encountering resources may remain.
S.6.6 Air Quality

The project will meet air quality conformity requirements. It is included in the region’s transportation plan and transportation improvement plan. It would not cause or contribute to any new violations of the National Ambient Air Quality Standards (NAAQS), and it would not delay the ability of the state or the region to attain the NAAQS.

S.6.7 Hazardous Materials

All Build alternatives have the potential for encountering contaminated materials during construction. The Preferred Alternative and Elliot Point 1 Alternative would construct the project on the Mukilteo Tank Farm. The Existing Site Improvements Alternative would place a transit center on a site with past contamination.

Construction within the tank farm site could encounter some areas where hazardous materials may remain from past site use by the U.S. Air Force, although the Washington State Department of Ecology issued a 2006 letter stating that the U.S. Air Force satisfied the provisions of its enforcement order and no further groundwater monitoring was required. Construction could also encounter metal tanks, piping, and other potential sources of hazardous materials associated with the former Mukilteo Tank Farm operation. Other hazardous materials may be present in aboveground structures. However, in most areas WSDOT proposes to remove only aboveground structures and would place fill above the existing surfaces to avoid disturbing potentially contaminated soils. Pavement or other treatments would also prevent the potential spread of hazardous materials through infiltration of stormwater, if contamination remains in underlying soils. Any hazardous materials found during construction would require handling and appropriate treatment in accordance with applicable regulations. Overall, environmental impacts would be low, and any further work to manage hazardous materials would be an environmental benefit.

All alternatives would remove creosote-treated piles used for the current terminal. The Preferred Alternative and Elliot Point 1 Alternative would also remove the Tank Farm Pier and its 3,900 piles. Although this action would permanently remove a large volume of hazardous materials, construction activities such as the pier and pile removal, or dredging of potentially contaminated sediments, could release some hazardous materials.

S.6.8 Energy and Climate Change

A comparison of long-term impacts among the alternatives showed no major differences among the alternatives. Some alternatives would reduce energy use and emissions, but the reductions would be modest compared to total regional emissions. Construction energy use and emissions of greenhouse gases would be higher for the Existing Site Improvements and Elliot Point 1 alternatives than for the No-Build Alternative and Preferred Alternative (Table S-4). The energy required would not markedly affect energy supply or demand, considering available energy resources for the region.
Table S-4. Potential Construction Impacts on Energy Use and Emissions by Alternative

<table>
<thead>
<tr>
<th></th>
<th>No-Build</th>
<th>Preferred Alternative</th>
<th>Existing Site Improvements</th>
<th>Elliot Point 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy (MBtu)</td>
<td>807,000</td>
<td>1,203,000</td>
<td>1,564,000</td>
<td>1,516,000</td>
</tr>
<tr>
<td>Greenhouse gas emissions (MT CO₂e)</td>
<td>62,000</td>
<td>91,000</td>
<td>120,000</td>
<td>115,000</td>
</tr>
</tbody>
</table>

$M = millions dollars  
MBtu = million British thermal units  
MT CO₂e = metric tons of carbon dioxide equivalents

S.6.9 Geology and Soils

The No-Build Alternative would have more potential for adverse impacts related to soils and geologic risks than the Preferred Alternative or other Build alternatives, which would develop completely new facilities meeting current seismic standards and applying current engineering design and construction techniques. The No-Build Alternative’s replacements or upgrades to vulnerable older structures would be more gradual, leaving some structures susceptible to damage during an earthquake.

The existing terminal site would have more potential to experience earthquake-induced liquefaction and lateral spreading that could cause structural damage or failure. A large submarine landslide has been identified near the existing site. A new submarine landslide could undermine foundation structures or reduce the lateral capacity of the sediments, leading to damage or collapse of offshore structures. This risk would be greatest for the Existing Site Improvements Alternative because it would be closest to the submarine landslide area. The risk would be a less for the Preferred Alternative and Elliot Point 1 Alternative. However, deep foundations and designs meeting current seismic standards would reduce the risk for all three Build alternatives.

S.6.10 Water Resources

All alternatives could affect water resources as a result of stormwater runoff from impervious surfaces (roadways and parking areas), shading of vegetated shoreline areas, and accidental spills of hazardous material. The Preferred Alternative and Elliot Point 1 Alternative create the most new impervious surfaces, although many portions of the Mukilteo Tank Farm are partly impervious already. All of the Build alternatives would upgrade stormwater management systems to meet current requirements, and would result in a net decrease in pollutant concentrations. The No-Build Alternative would have minimal stormwater management improvements.

The Elliot Point 1 Alternative would include more over-water structures than the other alternatives because of the distance from the shore to its deep-water slip location, but all alternatives would develop new over-water structures on piles. The Elliot Point 1 Alternative would restore Japanese Creek to an open stream with a 50-foot buffer on each side of the stream, which would be beneficial.

The Preferred Alternative and Elliot Point 1 Alternative would improve water quality by removing creosote-treated piles and timber at the existing terminal and the Tank Farm Pier. Both alternatives would dredge and remove potentially contaminated sediments within the footprint of the Tank Farm Pier. Short-term construction impacts during pier removal, dredging, and in-water construction could increase turbidity; however, with protective measures in place, impacts would be minimized.
S.6.11 Ecosystems

Each alternative would remove creosote-treated piles and decking from the existing terminal, which would help to reduce potential contamination to sediments, water quality, and marine organisms. In addition, the Preferred Alternative and Elliot Point 1 Alternative would demolish the Tank Farm Pier and remove its associated 3,900 creosote-treated timber piles. If contaminated sediments are present, they would also be removed or managed to reduce potential impacts to water quality and ecosystems. While this would restore conditions to a more natural state, it would remove habitat that attracts Dungeness crab to this location. The Mukilteo Multimodal Project Biological Assessment (WSDOT 2012b) provided in Appendix L contains more information about the impacts to benthic habitat.

Each alternative would change the amount of over-water cover due to the replacement or construction of wingwalls, dolphins, transfer spans, and passenger and maintenance facilities, as well as the demolition of the existing trestle. The Preferred Alternative and Elliot Point 1 Alternative would also remove the over-water coverage of the Tank Farm Pier, as noted above. The proposed alternatives would result in the following approximate changes in over-water cover:

- No-Build Alternative: gain of 3,000 square feet
- Preferred Alternative: net removal of 129,100 square feet
- Existing Site Improvements Alternative: gain of 12,000 square feet
- Elliot Point 1 Alternative: net removal of 116,300 square feet

Potential construction impacts that are common to all alternatives include habitat disturbance due to construction activities, temporary impacts due to grading and staging, temporarily impaired water quality, and impacts on aquatic species due to underwater noise (pile-driving and pile removal).

S.6.12 Section 4(f)

Section 4(f) refers to a U.S. Department of Transportation statute protecting significant parks, recreation resources, fish and wildlife refuges, and historic properties or resources. It restricts FTA’s ability to approve a project that uses land from or has adverse impacts to a potential resource. The Preferred Alternative would impact or “use” one recreational resource, the Port of Everett fishing pier, and three archaeological resources: the Mukilteo Shoreline Site, Old Mukilteo Townsite, and the Point Elliott Treaty Site. The other Build alternatives would affect the same or more resources. In the project’s Section 4(f) Evaluation, FTA concludes there are no “prudent and feasible” alternatives to avoid a Section 4(f) use. With the Preferred Alternative and its accompanying mitigation measures, FTA finds the project has conducted all possible planning to minimize harm, and that the Preferred Alternative is the “least harm” alternative.
## S.7 Evaluation of Alternatives

Table S-5 describes how each alternative meets the elements of the purpose and need related to transportation performance, while Table S-6 summarizes the areas where the alternatives have notably different environmental impacts.

### Table S-5. Ability to Address Purpose and Need

<table>
<thead>
<tr>
<th>Purpose and Need Element</th>
<th>No-Build</th>
<th>Preferred Alternative</th>
<th>Existing Site Improvements</th>
<th>Elliot Point 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety and Security</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reduces conflicts between local and ferry vehicle traffic</td>
<td>No</td>
<td>Yes</td>
<td>Partially, through one-way street configurations</td>
<td>Yes</td>
</tr>
<tr>
<td>Reduces conflicts between vehicles and pedestrians/bicyclists</td>
<td>No</td>
<td>Yes</td>
<td>Partially, with street revisions and overhead loading</td>
<td>Yes</td>
</tr>
<tr>
<td>Provides a securable facility as required by U.S. Department of Homeland Security</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Addresses seismic and structural deficiencies</td>
<td>Partially over time, as facilities replaced</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Transit Connectivity and Reliability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ferry schedule reliability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Timely and reliable loading and unloading</td>
<td>No</td>
<td>Yes</td>
<td>Yes, due to overhead passenger loading; delays due to traffic impacts still occur</td>
<td>Yes</td>
</tr>
<tr>
<td>Walk Distances (feet)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rail station/ passenger building</td>
<td>1,730</td>
<td>745</td>
<td>1,650</td>
<td>1,610</td>
</tr>
<tr>
<td>Transit center/ passenger building</td>
<td>190</td>
<td>225</td>
<td>590</td>
<td>540</td>
</tr>
<tr>
<td>Transit center/rail station</td>
<td>1,850</td>
<td>970</td>
<td>1,190</td>
<td>1,080</td>
</tr>
<tr>
<td>Reliable connections (on-time bus, rail, and ferry connections)</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Transit facilities to support growth in travel demand</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Pedestrian and bicycle improvements</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Local transportation system backups on SR 525</td>
<td>Worse than today</td>
<td>Improved: Reduced queuing on SR 525</td>
<td>Worse than today</td>
<td>Improved: No queuing on SR 525</td>
</tr>
</tbody>
</table>
Table S-6. Key Environmental Differences

<table>
<thead>
<tr>
<th>Type of Environmental Impact</th>
<th>No-Build</th>
<th>Preferred Alternative</th>
<th>Existing Site Improvements</th>
<th>Elliot Point 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Land Use</strong></td>
<td>Conflicts with City of Mukilteo’s plans to reconnect waterfront areas</td>
<td>More consistent with City’s plans for waterfront areas, but conflicts with some shoreline elements</td>
<td>Conflicts with City of Mukilteo’s plans to reconnect waterfront areas</td>
<td>More consistent with City’s plans for waterfront areas, but conflicts with some shoreline elements</td>
</tr>
<tr>
<td><strong>Historic and Cultural</strong></td>
<td>Impacts a 1,000-year-old archaeological site and a site from Old Mukilteo</td>
<td>Impacts a 1,000-year-old archaeological site</td>
<td>Impacts a 1,000-year-old archaeological site and a site from Old Mukilteo</td>
<td>Impacts a 1,000-year-old archaeological site, a site from Old Mukilteo, and the site of an immigrant settlement</td>
</tr>
<tr>
<td><strong>Hazardous Materials</strong></td>
<td>Few impacts; possibility of encountering contamination during construction</td>
<td>Few long-term impacts; could encounter hazardous materials during construction; removes Tank Farm Pier with approx. 3,900 creosote-treated piles and existing terminal</td>
<td>Few long-term impacts; could encounter hazardous materials during construction</td>
<td>Few long-term impacts; could encounter hazardous materials during construction; removes Tank Farm Pier with approx. 3,900 creosote-treated piles and existing terminal</td>
</tr>
<tr>
<td><strong>Ecosystems</strong></td>
<td>Aquatic ecosystems benefit from replacing existing ferry facility that has creosote-treated piles; some in-water construction impacts</td>
<td>Aquatic ecosystems benefit from removal of creosote-treated piles at Tank Farm Pier and existing terminal. Impacts due to loss of habitat for Dungeness crabs; higher in-water construction impacts includes removing about 20,000 cubic yards of sediment under Tank Farm Pier to create a sufficiently deep channel</td>
<td>Aquatic ecosystems benefit from replacing existing ferry facility that has creosote-treated piles; some in-water construction impacts</td>
<td>Aquatic ecosystems benefit from removal of creosote-treated piles at Tank Farm Pier and existing ferry terminal. Impacts due to loss of habitat for Dungeness crabs; higher in-water construction impacts includes removing about 20,000 cubic yards of sediment under Tank Farm Pier to create a sufficiently deep channel</td>
</tr>
<tr>
<td><strong>Protected Park, Recreation and Historic Properties – Section 4(f)</strong></td>
<td>Temporary impacts to public fishing pier; impacts on archaeological site; requires mitigation agreements</td>
<td>Removal (use) of public fishing pier, but pier would be relocated; impacts on archaeological sites; requires mitigation agreements</td>
<td>Removal (use) of public fishing pier; impacts on archaeological sites; requires mitigation agreements</td>
<td>Removal (use) of public fishing pier, but pier could be relocated; impacts on public shoreline access area; impacts on archaeological sites; requires mitigation agreements</td>
</tr>
</tbody>
</table>

S.8 Public Involvement and Agency and Tribal Coordination

Since the Mukilteo Multimodal Project was initiated in 2004, WSDOT and FTA have provided frequent opportunities for interested members of the public, agencies, and tribes to engage, share concerns, and discuss specific project details with WSDOT staff. Public involvement activities to date have included public meetings, agency and tribal meetings, online meetings, and stakeholder briefings. For more information, see Chapter 7 Agency, Tribal, and Public Involvement.

The environmental review process for the Mukilteo Multimodal Project began with a NEPA Environmental Assessment (EA) in 2004. WSDOT held two public EA
scoping meetings in the fall of 2004. On February 17, 2006, FTA published a Notice of Intent (NOI) to prepare an EIS for the Mukilteo Multimodal Project, and announced a 30-day public comment period that ended on April 5, 2006. FTA and WSDOT requested public comments on the scope of the alternatives and the impacts to be considered, and held two public meetings in March 2006. FTA and WSDOT also held an agency scoping meeting for the EIS on March 21, 2006.

The Washington State Legislature put the project on hold in 2007 due to funding and constructability issues associated with the previously identified alternatives and to allow time for WSDOT to prepare a long-range plan for the ferry system.

WSDOT and FTA reinitiated the environmental review process in February 2010, and conducted a second scoping period, including a public comment period. WSDOT and FTA conducted another round of public scoping meetings in October 2010, hosting four in-person open houses to serve directly affected populations, and one online open house to increase participation among the broader community. Approximately 160 people attended the meetings in Whidbey Island, Mukilteo, Edmonds, and Everett; 15 people participated in the virtual online open house. WSDOT received approximately 365 public comments during the scoping period at public meetings, by mail, e-mail, and online using the Google map comment tool.

Following publication of the Draft EIS in January 2012, WSDOT and FTA hosted public meetings with hearings on February 22 and 23, 2012. The meetings in Mukilteo and Clinton included an informal open house, an overview presentation, and a formal hearing for public comment. Approximately 175 people attended the meetings.

After the close of the Draft EIS public comment period, WSDOT identified a Preferred Alternative, and FTA and WSDOT formally consulted with other agencies and tribes in accordance with the requirements of Section 106 of the Historic Preservation Act and Section 7 of the Endangered Species Act. These consultations, as well as related agency and tribal meetings on natural resource impacts, helped define additional environmental protections to be implemented as part of the project.

WSDOT and FTA involved agencies and tribes early in the environmental review process and have continued to consult since then. FTA, working with the WSDOT Mukilteo Multimodal Project Tribal Liaison, formally contacted potentially affected tribes to assess their interest in the Mukilteo Multimodal Project. In particular, FTA participated in government-to-government consultations with all the tribes who signed the Point Elliott Treaty, because the Mukilteo shoreline is recognized as the area where the treaty was signed. FTA and WSDOT have offered each potentially affected tribe the opportunity to participate in the development of the EIS. Four tribes have accepted cooperating agency status (a higher level of participation): Samish Indian Nation, Stillaguamish Tribe of Indians, Suquamish Tribe, and Tulalip Tribes. WSDOT and FTA participated in over 50 meetings with tribes from 2010 to 2013. These meetings have covered a range of environmental and project implementation issues of interest to the tribes, including the Section 106 Memorandum of Agreement (MOA). As the EIS process has continued, the key topics of discussion have been cultural resources, ecosystems, fishing, and the treaty rights of the tribes.
S.9 Next Steps

This Final EIS represents one of the final steps in the environmental review process before the lead agencies decide on the project action. To complete the NEPA process, FTA must issue a Record of Decision, which would allow WSDOT to move forward with securing funding, completing final design, obtaining required permits, construction, and beginning operations at the improved multimodal facility.
1 PURPOSE AND NEED

1.1 The Mukilteo Multimodal Project

The Washington State Department of Transportation (WSDOT), Ferries Division (also known as Washington State Ferries [WSF]) proposes the Mukilteo Multimodal Project to improve the operations and facilities serving the mainland terminus of the Mukilteo-Clinton ferry route in Washington State. The Federal Transit Administration (FTA) may fund part of the proposed project.

WSDOT and FTA are preparing an Environmental Impact Statement (EIS) for the project in compliance with the National Environmental Policy Act (NEPA) and the State Environmental Policy Act (SEPA). As a source of funds for this project, FTA is the federal lead agency for the NEPA EIS process. WSDOT is the state lead agency for SEPA.

The ferry route is part of State Route (SR) 525, the major transportation corridor crossing Possession Sound, which separates Island County (Whidbey Island) from the central Puget Sound mainland. In 2011, the Mukilteo-Clinton route had the most vehicle trips and the third-highest total ridership in the system. The route connects to local and regional transportation systems serving many modes of travel, including bus and rail transit, freight, and vehicles, as well as bicycle and pedestrian use. Figure 1-1 shows the regional setting and Figure 1-2 shows the general project area.

1.2 The Mukilteo Ferry Terminal Area

The existing Mukilteo ferry terminal is located in the city of Mukilteo in Snohomish County, west of the Mukilteo/Everett city line. The shoreline in this area faces north to northwest and runs primarily east-west within the project area. A variety of land uses surround the terminal, including private properties holding residences and businesses, as well as large publicly owned properties. Elliot Point and Mukilteo Lighthouse Park are to the west of the current terminal. To the east is an approximately 20-acre property currently owned by the U.S. Air Force (Mukilteo Tank Farm), which holds a research facility operated by the National Oceanic and Atmospheric Administration (NOAA) Fisheries Service (the research facility is also known as NOAA Mukilteo Research Station). The Mukilteo Tank Farm consists of lands and a long pier formerly used by the U.S. Army and later used by the U.S. Air Force. East of the Mukilteo Tank Farm is the Port of Everett’s Mount Baker Terminal, a marine-to-rail intermodal facility, which also includes a small public shoreline access area with parking that is largely on the Mukilteo Tank Farm and currently not accessible to the public.
See Figure 1-2 Project Vicinity

Figure 1-1. Regional Setting
Figure 1-2. Project Vicinity
The BNSF Railway owns and operates the railroad that runs south of the terminal. The BNSF tracks mostly follow the shoreline between Seattle and Everett. East of where the railroad crosses under SR 525, it borders the Mukilteo Tank Farm and has a rail spur connection to the Mount Baker Terminal. Sound Transit’s Sounder commuter rail also uses the BNSF tracks. Its Mukilteo Station is located partially on the Mukilteo Tank Farm at the eastern end of First Street, north of the railroad.

**Existing Ferry Terminal Features and Operations**

The existing Mukilteo ferry terminal includes facilities for marine operations, and onshore (or upland) facilities that support operations for loading and unloading vehicles and passengers. Typical features of a ferry terminal are shown and described in Figure 1-3.

Features of the existing terminal include toll collection booths, holding areas for vehicles waiting to board the ferry, and non-motorized access facilities. Adjacent transportation facilities include a bus zone, SR 525, and the streets connecting to Mukilteo Station. Figure 1-4 shows the existing ferry terminal and its immediate surroundings. It also illustrates the common features of a ferry terminal and its individual components, using the current terminal as an example.

The marine components of the existing ferry terminal include structures used to guide and position berthing ferry vessels such as a floating outer dolphin, two fixed inner dolphins, and two wingwalls. The marine components also include structures used for vehicle loading, including the trestle, transfer span, and apron. A public fishing pier and day moorage owned and maintained by the Port of Everett is adjacent to the east side of the existing transfer span. It consists of a timber-supported platform and three floating docks.

The on-land components of the existing ferry terminal include three toll booths and vehicle holding lanes with the capacity for approximately 216 vehicles, which allows the current terminal to store vehicles for about one-and-a-half ferry vessels. (The number of vehicles that can be placed in the holding area or on the ferry depends on the types of vehicles that are being loaded and other operating factors.) South of the holding area, there is a small building that houses the terminal supervisor’s office. Ferry employee parking is located west of SR 525. The ferry passenger building is located west of the ferry dock.

Many destinations in downtown Mukilteo, including the terminal, are accessed through the intersection of SR 525 and Front Street. The other streets serving the ferry terminal and nearby properties include First Street and Park Avenue.
Key parts of a typical ferry terminal

**fixed dolphin** – an assembly of steel piles or concrete drilled shafts supporting a concrete cap and a fendering system.

**floating dolphin** – concrete or wooden barge structures located offshore clad with a perimeter fendering system and anchored to the seabed; used to help guide the ferry into the slip.

**wingwall** – an assembly of steel piles or concrete drilled shafts supporting a steel or concrete cap and a fendering system to guide and stop the ferry at its loading and unloading position.

**tower** – currently used to house and support the cable and counter weight system that supports, raises, and lowers the outboard end of the transfer span. (The tower system will be replaced by hydraulic lifts regardless of the alternative chosen.)

**apron** – adjustable ramp at the end of the transfer span that accommodates varying water heights.

**transfer span** – movable bridge that allows the vehicles and pedestrians access on and off the ferry; it is the link between the ferry and the trestle.

**trestle and bridge seat** – over-water stationary pile-supported bridge structure that serves as a connection between land and the nearshore end of the transfer span for both vehicle and pedestrian traffic (pedestrians do not use the trestle if overhead passenger loading is available).
Figure 1-4. Existing Ferry Terminal Components
Mukilteo Tank Farm

The Mukilteo Tank Farm and the Tank Farm Pier are located east of the Mukilteo ferry terminal. Chapter 2 Alternatives includes details about the Mukilteo Tank Farm and the congressional action that permits the U.S. Air Force to convey the property to the Port of Everett and NOAA.

1.3 Project Background

In 2004, WSDOT began studying ways to improve ferry operations, safety, transit connections, and access. It initiated the NEPA review process with the development of an environmental assessment (EA). Early in 2006, based on environmental analysis and public and agency comments, FTA and WSDOT determined an EIS was needed. In 2007, the Washington State Legislature put the project on hold due to funding and constructability issues associated with the previously identified alternatives.

In 2009, WSDOT completed the Washington State Department of Transportation Ferries Division Final Long-Range Plan: 2009–2030 (WSDOT 2009), which presents a vision for the future of the ferry system that maintains current levels of service and includes limited terminal improvements. The WSDOT Ferries Division Final Long-Range Plan is now a part of the latest Washington Transportation Plan 2030 (WTP), which was adopted by the Washington State Transportation Commission in December 2010.

WSDOT and FTA reinitiated this project’s environmental process in February 2010 with new project concepts for review and evaluation.

The first step in the NEPA/SEPA process was project scoping, which has included extensive agency and public outreach, and a public comment period. The most recent project scoping period started in February 2010 and the public comment period ran from September 29 through November 19, 2010. Commenters expressed support for the project and the need to improve the Mukilteo ferry terminal. Following publication of the Draft EIS, a public comment period was held from January 27 through March 12, 2012. See Chapter 6 Public Involvement for additional details about project scoping and other public involvement efforts for the project. Chapter 2 Alternatives describes how comments were considered and presents the development of alternatives studied in the EIS, including the Preferred Alternative.

1.4 The Purpose and Need for the Proposed Mukilteo Multimodal Project

The purpose and need statement for this project will guide decisions about the project. A purpose and need statement was originally drafted when the environmental process began in 2006. In 2010, when the project was reinitiated, WSDOT and FTA revised the statement and invited comment on it during environmental scoping. The comments expressed strong agreement with the stated reasons for advancing the project.
1.4.1 Project Purpose
The purpose of the Mukilteo Multimodal Project is to provide safe, reliable, and efficient service and connections for general-purpose transportation, transit, high-occupancy vehicles (HOVs), pedestrians, and bicyclists traveling between Island County and the Seattle/Everett metropolitan area and beyond. The project is intended to:

- Reduce conflicts, congestion, and safety concerns for pedestrians, bicyclists, and motorists by improving local traffic and safety at the terminal and the surrounding area
- Provide a terminal and supporting facilities with the infrastructure and operating characteristics needed to improve the safety, security, quality, reliability, and efficiency of multimodal transportation
- Accommodate future demand projected for transit, HOV, pedestrian, bicycle, and general-purpose traffic

1.4.2 Project Need
The existing facility is deficient in a number of aspects, including safety, multimodal connectivity, capacity, and the ability to support the goals of local and regional long-range transportation and comprehensive plans, including future growth in travel demand. Those factors, which are further described below, demonstrate the need for an improved multimodal facility.

Safety and Security
Safety is WSDOT’s top priority, and security at transportation facilities is a national concern. Safety and security come into play with this project in several ways: at the pedestrian/vehicle interface, with the general traffic flow in the SR 525/Front Street vicinity, and in maintaining safety and security for the facility itself. Safety and security improvements are needed because:

- The Mukilteo ferry terminal has received few improvements since it was built in 1952. The existing timber structures, including the docking facilities, are beyond the end of their useful lives.
- The existing terminal does not meet current seismic standards. The existing facility is underlain by deep, potentially liquefiable soils that are highly susceptible to lateral spreading during an earthquake.
- Changed U.S. Coast Guard and U.S. Department of Homeland Security protocols now require the ability to secure terminal areas when there is a natural disaster, heightened security alert, or other emergency. The existing facility has city streets within the terminal area and does not allow for a physical separation between the terminal and open public areas, which increases safety and security concerns, and could require WSDOT to interrupt service or close the terminal to respond to an emergency or heightened security alert.
- Collisions near the SR 525/Front Street intersection have included sideswipes, vehicle/pedestrian collisions, and collisions with parked vehicles.
• Because of congestion caused by ferry traffic, pedestrians often make high-risk decisions to cross the SR 525/Front Street intersection during breaks in ferry traffic. Near misses between vehicles and pedestrians are common. Pedestrians who access the terminal area, transit facilities, surrounding businesses, and Mukilteo Lighthouse Park compete with vehicles for access to this intersection.

• Other inadequate facilities include a lack of passenger drop-off/pick-up areas and poor bus access to the bus bay; both increase congestion and the risk of accidents.

• Passengers who are loading and unloading from the ferry or going between the toll booth and the terminal building must traverse routes that do not meet the requirements of the Americans with Disabilities Act.

Transit Connectivity and Reliability
The current facility provides poor connections among transit, rail, and ferry modes, which significantly hamper the quality and reliability of the transportation system in this area and add to the overall transportation and safety problems related to the terminal. The major concerns are:

• Transit connections at the Mukilteo ferry terminal cannot adequately serve current or future needs. There are only two bus bays, located 200 feet away, uphill and across a major local street. The limited transit facilities are inadequate to support the current service, including staging and layover needs for transit operations, and they have limited boarding areas and amenities for transit riders. The current configuration would not allow bus service to be expanded. In addition, the Sounder commuter rail stops at the Mukilteo Station, approximately 2,000 feet from the existing terminal, and the streets between the ferry terminal and the station have missing or substandard pedestrian and bicycle facilities.

• Keeping the ferry on schedule is integral to multimodal connectivity and the ability of the system to meet growing demand by allowing passengers to make on-time connections to scheduled bus and train service. Inefficient vehicle staging slows fare collection, which delays departures. Lack of a dedicated HOV access lane makes it difficult to fully implement WSDOT’s preferential program for carpools and worsens operating efficiency. Also, pedestrians walking on and off the ferry use the same span that vehicles use. This requires passengers and vehicles to be loaded at separate times, which leads to system inefficiency and can cause delays that last throughout the day.

Growth in Travel Demand
The Mukilteo-Clinton route connects the two segments of SR 525, the major transportation corridor between Island County (Whidbey Island) and the Seattle-Everett metropolitan area. SR 525 is classified as a Highway of Statewide Significance. In addition to serving ongoing travel demand, SR 525 is needed to connect the communities and military facilities on the island for evacuations, disaster relief, and medical emergencies. The ferry route needs to maintain reliable service to meet the needs of the people using this transportation corridor.
WSDOT’s travel forecasts highlight the higher future demand for improved multimodal facilities serving the Mukilteo-Clinton route. WSDOT predicts the total annual ridership (vehicle drivers, vehicle passengers, and walk-on passengers) on the Mukilteo-Clinton route to grow to about 5,939,000 riders in 2030 (WSDOT 2009), compared to 3,835,000 riders in 2012 (WSDOT 2012).

The Mukilteo-Clinton route serves a high number of commuter trips, and growth in employment on both Whidbey Island and on the mainland is a primary reason for the predicted growth in trips by ferry. In response, the WSDOT Ferries Division Final Long-Range Plan calls for meeting the growing travel needs at the Mukilteo ferry terminal (WSDOT 2009), primarily through increasing the share of walk-on trips. This reinforces the need for improved connections between ferries and other modes, including transit, bicycle, and walking.

**Other Related Objectives**

Through its public planning and outreach efforts, including public scoping comments, WSDOT has also identified environmental and project development goals to help guide the project:

- The project should be fiscally responsible and supportive of state, regional, and local transportation plans including, but not limited to, the Washington State Department of Transportation Ferries Division Final Long-Range Plan: 2009–2030 (WSDOT 2009), as well as regional and local land use plans.
- The project should be sensitive to the rich cultural and environmental resources in the vicinity in a manner that respects and enhances these resources.
- The project should not preclude development of a second slip at the terminal in the future to provide operational flexibility or additional capacity.

**1.5 Planning History**

The purpose and need for the project are supported and further reinforced by a long planning history that reflects more than 15 years of design and analysis completed by the City of Mukilteo, WSDOT, Sound Transit, and the Port of Everett to improve the safety, reliability, multimodal connectivity, and capacity at the Mukilteo ferry terminal. This history includes terminal area and project-level planning, WSDOT’s long-range planning for the ferry system, and local and regional transportation planning efforts to improve multimodal travel throughout the region.

To supplement the planning history summarized below, the project team has prepared the *Alternatives History through 2009* report (WSDOT 2010). Further details about specific alternatives considered are provided in *Chapter 2 Alternatives* of this EIS.

Improvements to the terminal have been discussed in various efforts since the 1970s. Major planning efforts began with the Mukilteo Multimodal Terminal and Access Study conducted by the City of Mukilteo in 1995. WSDOT began detailed master plan efforts with multiple concepts in the *Mukilteo Multimodal Terminal Master Plan Design Report* (WSDOT 2004). Further concepts were developed and refined in 2004. Based on information developed for the environmental review, FTA determined that the project had the potential to cause significant impacts on natural and cultural
resources and warranted preparation of an EIS. The EIS process began in 2006, which resulted in further development of potential alternatives.

During the initial EIS process, WSDOT and FTA evaluated two Build alternatives. They identified major challenges associated with potential effects on archaeological resources, the amount of over-water construction, and difficult geotechnical conditions, as well as concerns about high costs. The project was placed on hold in 2007 while additional planning and environmental investigations continued to address these areas of concern. Elements of the WSDOT Ferries Division Final Long-Range Plan (2009) also provided further direction on the goals and objectives for the project.

1.5.1 WSDOT Ferries Division Final Long-Range Plan

In 2009, WSDOT Ferries Division released its Final Long-Range Plan, which presents a cost-constrained vision for the future of the ferry system that maintains current levels of service and includes limited terminal improvements throughout the system. It also identifies vessel replacements needed to address the system’s aging ferry fleet. The Long-Range Plan identified the system’s needs in order to meet transportation demands, and established new operational and pricing strategies to meet those needs. It also identified vessel and terminal operations and capital requirements throughout the system. The plan’s horizon covers 22 years—2009 to 2030 (fiscal years 2010 to 2031). It also was designed to meet federal planning requirements and be consistent with regional transportation planning efforts.

For the Mukilteo-Clinton route, the Long-Range Plan identified vessel replacements for 2014 and 2027 and the need for Mukilteo terminal capital investments. It defined the essential preservation elements required through 2030 if the existing terminal were to remain in place. In addition, the plan noted that drive-on trips comprise a high proportion of the route’s traffic. This reinforces the project’s stated need to improve multimodal connections on this congested route in order to attract more walk-on trips, which would help to free up vehicle space and meet the projected increase in ferry ridership. The Long-Range Plan also noted the need for the Mukilteo ferry terminal to achieve an acceptable level of service in order to comply with the state’s Growth Management Act (GMA). For instance, Whidbey Island has requirements for transportation concurrency that could limit future growth on the island.

1.5.2 Other Related Planning Studies

Since the 1970s, a number of studies, feasibility reports, and plans of coordinating agencies called for relocating or expanding the terminal. They emphasized the need for continued ferry service from Whidbey Island to SR 525 on the mainland and also supported the need for effective connections between transportation modes. The primary studies included:

- *Advanced Planning Study SR 525 and SR 526* (Washington State Highway Commission, Department of Highways 1972)—Addressed transportation needs, access alternatives, environmental considerations, and other criteria.
- *Shoreline Master Program* (City of Mukilteo 1974, 2011)—Identified locations for the terminal and utilities and the existing Mukilteo Tank Farm in the context of the overall shoreline plan. The 2011 update included further
definition of requirements such as setbacks, landscaping, open space and other public amenities.


- **Mukilteo Ferry Terminal Study** (Puget Sound Council of Governments 1990)—Included surveys of ridership, destination, and demand/usage; provided traffic forecasts for 2010; and discussed Transportation Demand Management/Transportation System Management (TDM/TSM) alternatives and three possible terminal locations.

- **Waterfront Access Study** (City of Mukilteo 1993)—Completed in cooperation with the Washington State Department of Natural Resources (DNR), this study identified waterfront access areas and types.

- **Mukilteo North-South Bypass Feasibility Report** (City of Everett 1993)—Looked at highway system concepts, environmental considerations, and corridor engineering, and developed a project prospectus for Japanese Gulch that specifically described traffic alternatives for the SR 526/North-South Bypass/Paine Field Boulevard intersection.

- **Mukilteo Comprehensive Plan and Transportation Plan Element** (City of Mukilteo 1994, most recent update 2012)—The Comprehensive Plan and its transportation element have consistently assumed the ferry terminal would be relocated and the existing areas would be redeveloped.

### 1.5.3 Terminal Area Planning Studies

In 2002, WSDOT began developing the **Mukilteo Multimodal Terminal Master Plan Design Report**, which built on the earlier planning efforts and helped develop the alternatives considered in the 2004 environmental review that ultimately was put on hold in 2007. WSDOT took into account previous plans and studies; in particular, it considered the **Mukilteo Multimodal Terminal and Access Study Draft and Final Programmatic EIS** (City of Mukilteo 1995a, 1995b). This was a programmatic (or plan-level) SEPA environmental review led by the City of Mukilteo with the participation of FTA, WSDOT, BNSF Railway, City of Everett, and Community Transit. This City-led programmatic EIS considered 12 different alternatives for a new multimodal ferry terminal, including the existing site, a central waterfront area for the west part of the Mukilteo Tank Farm, an east Mukilteo Tank Farm alternative, and a systems management alternative. It identified the central waterfront as the preferred location for a new ferry terminal. The City’s Comprehensive Plan, Transportation Plan, and Shoreline Master Program were revised accordingly.

The City’s EIS also identified the need for improved multimodal connections, efficient capacity, and safety. Eighteen years later, these needs continue to be factors in the current proposal for an improved multimodal facility serving ferry, transit, and other connecting modes in downtown Mukilteo.
CHAPTER 2

Alternatives
2 ALTERNATIVES

This chapter describes the alternatives being evaluated in this EIS, and summarizes how they were developed. It discusses each alternative’s permanent facilities and operations, as well as temporary construction activities. It also briefly describes alternatives that are no longer being considered. The chapter concludes with a discussion of separate projects that are in this project’s vicinity, and the next steps in the project’s development.

2.1 Proposed Alternatives

The project is considering four alternatives, as shown on Figure 2-1:

- The No-Build Alternative maintains the existing facility but does not improve it; this alternative provides a basis for comparing the effects of the Build alternatives.
- The Preferred Alternative (a modified Elliot Point 2 Alternative) would relocate the terminal to the western portion of the Mukilteo Tank Farm as part of an integrated multimodal center; the existing terminal would be removed.
- The Existing Site Improvements Alternative would construct an improved multimodal facility by replacing the existing Mukilteo ferry terminal with an expanded terminal at the current site.
- The Elliot Point 1 Alternative would relocate the terminal to the eastern portion of the Mukilteo Tank Farm as part of an integrated multimodal center and remove the existing terminal.

The Preferred Alternative and the Elliot Point 1 Alternative assume transfer of the Mukilteo Tank Farm from the U.S. Air Force to the Port of Everett, consistent with federal legislation passed in 2001 (see Section 2.4).

2.1.1 No-Build Alternative

The No-Build Alternative provides a baseline against which to compare the effects of the Build alternatives. It includes what would be needed to maintain the existing ferry terminal at a functional level. Under the No-Build Alternative, an improved multimodal transportation facility to meet future demand or operational needs would not be developed. Instead, the No-Build Alternative assumes that maintenance and structure replacements would occur in accordance with legislative direction to maintain and preserve ferry facilities, but WSDOT would make no investments to improve the operation, safety, security, or capacity at the terminal. Figure 2-2 shows the key elements of the terminal and the areas that would be affected by planned maintenance and preservation activities.
Figure 2-1. Alternatives
Figure 2-2. No-Build Alternative
As called for by the Long-Range Plan, a system-wide vessel replacement will be implemented independent of the Mukilteo Multimodal Project. WSDOT plans to replace the current 124-vehicle vessels operating on this route with 144-vehicle vessels. This is assumed to occur with the No-Build Alternative or with any of the Build alternatives. For the Mukilteo-Clinton route, WSDOT plans to replace one vessel in 2014/2015 and the other in 2027.

Marine Components

Nearly all of the ferry docking, loading, and unloading facilities would need to be replaced over time because they will have reached the end of their lifespan by 2040. Replacement wingwalls and fixed dolphins would be constructed. A new transfer span, including hydraulic-lifting mechanisms and structures, and a bridge seat foundation would be constructed. A concrete trestle would replace the existing timber trestle extending from the land to over the water, and the existing bulkhead would be reconstructed. The replacements would include removal of existing creosote-treated timber piles supporting the structures, and installation of steel or concrete replacement piles.

The Port of Everett existing fishing pier and seasonal day moorage would remain at its current location near the ferry dock. During the replacement of the ferry docking facilities, when normal ferry service would be unavailable, WSDOT might use this facility to provide passenger-only service, which would require modification of the fishing pier and make it temporarily unavailable for fishing.

Land Components

The existing vehicle holding area would remain where it is today. The terminal supervisor’s building, passenger building, and the three existing toll booths would be replaced at their current locations. Employee parking would remain at its current location. This alternative does not provide a fully secured holding area connecting to the ferry, because the terminal area crosses public streets that must remain open.

Access by buses to the ferry terminal and by vehicles to waterfront businesses, parks, and the NOAA Mukilteo Research Station would be largely unchanged. A stoplight at the trestle would continue to be used to periodically insert gaps in the queue of vehicles leaving the ferry.

Transit Facilities

The two existing bus bays would remain at the same location near the SR 525/Front Street intersection. Access to the Sound Transit Mukilteo Station, approximately 2,000 feet away, would be unchanged. No terminal components would be located on the Mukilteo Tank Farm.

2.1.2 Preferred Alternative (Elliot Point 2)

Following the release of the Draft EIS and after considering comments received on it, WSDOT concluded the Elliot Point 2 Alternative best meets the project’s purpose and need. The team considered suggestions from commenters and refined Elliot Point 2’s design to further improve its ability to meet the purpose and need, reduce environmental impacts, or enhance other benefits. WSDOT collaborated with
interested tribes and others to determine a culturally sensitive design approach to guide the project. The modified alternative is called the “Preferred Alternative” in this Final EIS.

The Preferred Alternative (Figure 2-3) would remove the existing ferry terminal and relocate it to the western portion of the Mukilteo Tank Farm as part of an integrated multimodal facility. The alternative would construct a new roadway connection from SR 525 east to the ferry terminal, Mukilteo Station, and the transit center.

The changes to the Elliot Point 2 Alternative were designed to:

- Minimize queuing on SR 525
- Improve the layout of the ferry slip and passenger buildings while continuing to avoid any construction that could affect a shell midden—a sensitive archaeological site
- Avoid impacts to the Sound Transit Mukilteo Station’s existing parking
- Avoid reducing the general parking supply in Mukilteo’s central waterfront area
- Provide a continuous walkway along the shoreline from the First Street extension to the transit center
- Develop potential design features that reflect the site’s cultural and historic significance to Native American tribes
- Accommodate a relocated fishing pier and seasonal day moorage
- Extend First Street from SR 525 to the Mount Baker railroad crossing to improve emergency access and egress

Many of the elements of these design refinements are interconnected. The refinements would realign the initial section of the First Street extension to retain commuter rail parking immediately adjacent to the Mukilteo Station and create additional public parking spaces. They would also shift the layout of the transit center, ferry berth, and several terminal buildings to provide more room to store vehicles in holding lanes and help minimize queues back onto SR 525. The overall footprint of the alternative and its major elements remain similar to how Elliot Point 2 appeared in the Draft EIS.

**Culturally Sensitive Design**

Recognizing the historic significance of the Elliot Point area, the project will be developed with cultural elements in its design. For example:

- Traditional motifs and objects, and narrative content
- Building and facility design, such as landscaping, materials, and form
- Commemorative signs, drawings, and photography
- Public educational displays

The pictures below show examples of cultural identity features in a design.

*“Mother Salmon” by Si Low Leet Sa Limmi*  
Source: Jones and Jones

*Simulation of a concept for the terminal building interior with longhouse style design*  
Source: Jones and Jones
Figure 2-3. Preferred Alternative (Elliot Point 2)
By retaining the commuter rail parking near the station, the refinements avoid the need to replace commuter rail parking within the transit center. This allows a more compact footprint of the transit center and also accommodates a ferry employee parking area that was previously proposed at SR 525 and First Street.

Other modifications would shift the ferry slip west and refine the siting for the passenger building and overhead loading. This refinement improves the terminal layout, continues to avoid construction within the shell midden, and allows more room for vehicles in holding lanes. The passenger building would parallel the shoreline to bridge the approach to the ferry trestle and allow the building to incorporate a continuous pedestrian pathway along the shoreline, as called for in the City of Mukilteo’s Shoreline Master Plan (City of Mukilteo 2011). A terminal supervisor’s building would be located on top of the toll booths, instead of as a separate building.

Other modifications include measures to mitigate impacts identified in the Draft EIS. WSDOT initiated a collaborative planning and cultural design process with interested Native American tribes to guide further design efforts and explore opportunities for commemorative or interpretive sites or other design treatments. WSDOT also responded to requests suggesting the fishing pier and seasonal day moorage be relocated as a part of the new multimodal facility.

**Marine Components**

The Preferred Alternative would construct in-water facilities that include the features needed for the ferry berth, including new wingwalls and fixed dolphins. A floating dolphin would be relocated from the existing ferry terminal. The alternative would construct a new transfer span, including hydraulic-lifting mechanisms and structures and a bridge seat foundation, as well as a new concrete trestle and bulkhead. Because there is no beach and the water is deeper at this location, the ferry slip is near to the shore, which allows the trestle to be shorter than other alternatives, requiring fewer piles to support the trestle. The Preferred Alternative would install new concrete or steel piles for the trestle, the transfer span and overhead passenger loading, the fixed dolphins, the new passenger building, and the relocated fishing pier.

The Tank Farm Pier, which includes an estimated 3,900 piles, would be removed. The existing pier has accumulated a sediment mound beneath it, so a navigation channel about 500 feet wide would need to be dredged to provide an average lowest tide navigation depth of -28 feet, which would require dredging to a depth of -30 feet. Approximately 19,500 cubic yards of material would be dredged. The areas on either side of the existing pier are deeper and no dredging is needed elsewhere. The existing ferry berth and all of its marine structures, including the Port of Everett fishing pier and day moorage, would be removed. This would remove approximately 300 more piles.

**Land Components**

The land components of the Preferred Alternative are arranged to avoid excavation within a prehistoric archaeological site containing a shell midden. Fill and pavement would be used to avoid intersecting the midden, and buildings would be designed with foundations outside the midden. First Street would be realigned and extended as a four-lane roadway, beginning on a retained fill structure from a new signalized...
intersection with SR 525, descending to near existing grade at Park Avenue, and
continuing to a signalized entrance to the new ferry terminal. This extension would
then continue as a two-lane roadway to a new bus transit and paratransit facility and
the Mount Baker railroad crossing. Utilities would be extended to the terminal and
the Mount Baker crossing. The Preferred Alternative would modify the access road
to the Mukilteo Station and its parking, which would also be between the BNSF
railroad and the new First Street extension. It also would develop a public parking
area between the BNSF railroad and the new First Street, near SR 525, to replace
displaced street parking. This would require cutting into the existing hillside and
building retaining walls.

The extended roadway would provide sidewalks and bicycle lanes and generally
follow the southern portion of the Mukilteo Tank Farm. One section would have an
additional lane for transit layover.

The vehicle holding area would be on the eastern part of the Mukilteo Tank Farm site,
with a holding capacity of up to 266 vehicles. The holding area was expanded
compared to other alternatives to provide more capacity. This helps reduce queues
extending onto SR 525, compared to the Elliot Point 2 design used for the Draft EIS.
The terminal supervisor’s building would be on the second story above the toll booths
on the west end of the holding area.

A new two-story passenger and maintenance building would be aligned parallel to the
shoreline to avoid placing a building foundation into the shell midden. It would bridge
over the vehicle driveway to the ferry trestle, and an overhead passenger loading ramp
would connect to the second story.

A pedestrian walkway from First Street would connect to a waterfront promenade.
The walkway would connect to the passenger building and allow continuous
pedestrian access along the waterfront.

New overhead lighting would illuminate First Street and the terminal facilities,
including the vehicle holding area and the transit center. The site would also include
landscaped areas and viewpoints. A stormwater treatment facility would be located
near Front Street, east of Park Avenue.

Security fences and gates would surround the holding area and the paid passenger
areas of the terminal, which would allow WSDOT to meet U.S. Coast Guard
requirements during periods of heightened security.

The upland elements of the existing ferry terminal on the Mukilteo waterfront would
be removed, including its buildings. The existing vehicle holding area and existing
ferry employee parking areas near the current terminal would be vacated.

**Transit Facilities**

A transit center with six new bus bays serving scheduled routes and paratransit would
be constructed east of the new terminal, with an area near the transit facility for ferry
passenger drop-off and pick-up. The same area would also include designated ferry
employee parking.

The extended and realigned First Street would include an inbound bus and
paratransit stop for the existing Mukilteo Station, with transit vehicles continuing
their routes to the ferry terminal. Outbound transit routes would board at the new transit center east of the ferry terminal.

2.1.3 Existing Site Improvements Alternative

This alternative would construct an improved multimodal facility by replacing the existing Mukilteo ferry terminal with an expanded terminal and multimodal center on and around the current site. This expansion would improve some local traffic and safety features at the terminal facility as well as some of the multimodal transportation connections. It would provide capacity for growth in transit service at the terminal and would place buses closer to the Mukilteo Station than they are at the existing terminal. The key features of this alternative are shown on Figure 2-4.

Marine Components

All of the existing ferry facility features would be replaced. The new facility would be oriented nearly due north to allow for the potential development of a future second slip (in the existing footprint) and better alignment with SR 525. This orientation would address line-of-sight issues for Front Street traffic, pedestrians, and vehicles unloading from the ferry.

Construction of the new facility would include new wingwalls and fixed dolphins; a new concrete trestle; a transfer span, including hydraulic-lifting mechanisms; and a bridge seat foundation. New piles would be placed to support these components. The floating dolphin would be relocated from the current facility. WSDOT would also rebuild the bulkhead beneath the trestle and the bulkhead beneath the adjacent parcel to the east, where the new passenger building would be located.

To accommodate the new marine components, the Port of Everett existing fishing pier and day moorage would be removed.

Land Components

The existing vehicle holding area would remain at the same general location, and would still store the equivalent of one-and-a-half 144-vehicle vessels, or approximately 216 vehicles. WSDOT would purchase the currently leased holding area for permanent ferry use.

Four new toll booths would be constructed near the existing ones. Employee parking would be provided in an area east of the holding lanes. To make room for the new toll booths, a small building that holds the office for the terminal supervisor would be rebuilt slightly east of its current location.

A new passenger building would be constructed east of the trestle approach on property to be acquired for the project. Overhead passenger loading ramps would connect to the second story of the new passenger building.

Access and circulation to and from the ferry terminal would be revised. Front Street and Park Avenue would become one-way streets. First Street would be extended westward to a new signalized intersection with SR 525, providing an outlet for vehicles circulating from the waterfront area on Front Street and Park Avenue, and also providing a more direct route for vehicles, bicycles, and pedestrians to and from Mukilteo Station to the east. There would be minor improvements to SR 525, including continuous sidewalks.
Figure 2-4. Existing Site Improvements Alternative

- Existing Site Improvements
- Ferry
- To be removed
- Ferry Traffic Control Light
A new stoplight would remain on the trestle, which would continue to provide gaps in the queue of offloading ferry traffic, facilitating passenger vehicle access to the waterfront area. An area would be provided along Front Street near the new passenger terminal for ferry passenger drop-off and pick-up. This alternative also includes stormwater management improvements and other utility upgrades needed to accommodate transit and roadway improvements.

This alternative would not allow the terminal areas to be fully secured between the entrance and the ferry.

Transit Facilities

A new transit center would be constructed east of the holding lanes, combined with a parking area for ferry employees. It would include six new bus bays serving scheduled routes and paratransit service. Compared to the existing bus stops on SR 525, the new transit center would be closer to Mukilteo Station but farther from the ferry. The new transit center would be designed to meet the increased demand for transit expected in the future.

Inbound vehicles, bicycles, and pedestrians to the Mukilteo Station could follow the same path as today (over the SR 525 bridge and using Front Street and Park Avenue to reach First Street), but they could also use the new First Street extension and signalized intersection at SR 525.

2.1.4 Elliot Point 1 Alternative

This alternative would build a new ferry terminal at the eastern portion of the Mukilteo Tank Farm. Its key features are shown on Figure 2-5. This alternative was modified after the Draft EIS to reduce impacts to a public shoreline access area at the Port of Everett’s Mount Baker Terminal.

Marine Components

New wingwalls and fixed dolphins would be constructed, and the floating dolphin for the existing ferry dock would be relocated to serve this site. A new transfer span, including hydraulic-lifting mechanisms and a bridge seat foundation, would be constructed. In addition, a new concrete trestle and bulkhead would be constructed. Because the shoreline slopes more gradually in this location, the ferry slip would be a minimum of 250 feet away from the top of the current riprap shoreline. This constraint would require a longer trestle leading to the transfer span and towers, and new piles to support the trestle. The wingwalls and dolphins would also require new piles.

A new passenger building and a maintenance building would be built over water upon the new concrete trestle. An overhead passenger loading ramp would connect to the second story of the new passenger building.

The Tank Farm Pier, which contains an estimated 3,900 piles, would be removed. A channel approximately 500 feet wide would need to be dredged to provide an average lowest tide navigation depth of -28 feet, which would require dredging to a depth of -30 feet through part of the area currently occupied by the pier. Approximately 19,500 cubic yards of material would be dredged.
Figure 2-5. Elliot Point 1 Alternative

Mukilteo Multimodal Project
The existing ferry terminal on the Mukilteo waterfront would be removed, with its 300 piles. The fishing pier and day moorage at the current terminal site would be demolished as part of the ferry terminal removal and would be rebuilt.

**Land Components**

The alternative is largely designed to avoid excavation within the boundaries of a prehistoric archaeological site and to locate more of the facility’s footprint to the east of the archaeological site. Sited on the eastern portion of the Mukilteo Tank Farm, it would include parking areas, toll booths, ferry vehicle holding areas, and shoreline promenades. Pedestrians would not be able to cross in front of the trestle to travel between the two promenades and access along the waterfront would not be continuous. The site’s vegetated area would include an area east of the First Street/Park Avenue intersection that would be designed to help meet stormwater management requirements, and could also provide an opportunity to develop public open space. Japanese Creek, which currently runs in a pipe culvert below the Mukilteo Tank Farm, would be restored to an open stream north of the extended First Street, and this open space area would include a 50-foot buffer on either side of the stream. A pedestrian bridge would cross the creek near the shoreline. New lighting would illuminate First Street and the terminal facilities, including holding areas.

As with the No-Build and Existing Site Improvements alternatives, the vehicle holding areas would have capacity for approximately 216 vehicles. A terminal supervisor’s building would be constructed above four new toll booths east of the holding area. This structure would be oriented north/south and would be 35 feet high to provide vehicle clearance while accommodating all necessary facilities within the site.

First Street would be realigned and extended as a four-lane roadway from SR 525 to the Mount Baker Terminal. A new signalized intersection with SR 525 would be constructed at First Street. The First Street/Park Avenue intersection would be reconstructed to provide access to a reconfigured parking and access area for Mukilteo Station. The First Street extension, which would generally follow the southern portion of the Mukilteo Tank Farm, would also provide sidewalks and bicycle lanes, and two new signalized intersections at either end of the parking area for internal circulation.

Security fences and gates would be constructed to allow WSF to secure the holding area during periods of heightened security, as required by the U.S. Coast Guard.

The upland elements of the existing ferry terminal on the Mukilteo waterfront would be removed, including its buildings; in addition, the holding area and existing ferry employee parking area would be vacated.

**Transit Facilities**

A transit center with six bus bays serving scheduled routes and paratransit service would be constructed west of the new terminal. Compared to the existing bus stops on SR 525, the new transit center would be approximately the same distance to the Mukilteo Station, but slightly farther from the ferry. An area would be provided near
the transit facility for ferry passenger drop-off and pick-up. The transit facility would also provide an area for ferry employee parking.

Several elements of Mukilteo Station would be modified. Driveway access and parking stall striping would be reconfigured, but the total number of parking stalls would be the same. New driveways would be added to and from the realigned First Street. New sidewalks would connect to the new bus bays and ferry terminal to the east.

2.2 Construction Approach and Activities

The construction of any of the project alternatives would be a major activity that could last several years.

Despite its name, the No-Build Alternative would still involve construction activities for the replacement of the terminal’s aging infrastructure, as discussed above in Section 2.1.1. All of the Build alternatives would remove the existing terminal, and would construct an improved terminal and supporting facilities with either a different layout (Existing Site Improvements Alternative) or at a new site (Preferred Alternative and Elliot Point 1 Alternative). The Build alternatives would have more construction activities and the longest uninterrupted construction duration (up to 2 years), while the No-Build Alternative would have intermittent construction over a longer period, potentially decades. The length of construction could be either longer or shorter depending on design, permit conditions, phasing, and the contractor’s construction approach.

Preconstruction activities such as property acquisition, demolition, and utility relocations could occur soon after completion of the environmental process, which is expected by 2013. Construction would also depend on the availability of funding and other approvals, but major activities could begin by 2015, and a terminal could begin operation in 2018.

All of the alternatives were designed to avoid or limit excavation in areas known to contain archaeological resources. In many areas, the approach emphasizes using fill rather than excavating. Excavation is needed for some types of construction, such as foundations or utilities, but features requiring excavation have been located outside of sensitive areas as much as possible.

Typical Durations and Phasing

No-Build Alternative

Construction would remove and alter the features needed for vessel berthing, loading, and unloading. During initial construction, ferry service would be limited, possibly eliminating some late evening/night, weekend, or midday sailings. During the replacement of the tower, bridge seat, transfer span, and related structures, a full closure of 4 to 9 months is expected, and service would be re-routed to Edmonds. It is possible that passenger-only service could be provided to Mukilteo. The No-Build Alternative’s overall terminal preservation program could last about a year, if all elements were funded for completion during the same period.

Preferred Alternative (Elliot Point 2) and Elliot Point 1 Alternative

Both of these alternatives would largely be developed on a different site away from the existing terminal, minimizing the need to close the terminal prior to opening the
new terminal. The existing terminal would be removed after the new multimodal facility is in operation. The shift to the new terminal could occur overnight, or with a short closure at night or on a weekend.

**Existing Site Improvements Alternative**

This alternative would leave the current terminal operational until many of the replacement elements are constructed. Construction would still require schedule changes, including limited evening or weekend sailings, or weekend closures, but compared to the No-Build Alternative more of the site and facilities could be developed without affecting ongoing ferry operations. The terminal would still need to be closed for regular ferry service during final construction of the trestle elements, which would be directly in the path of current operations. It is possible that passenger-only service could be provided to Mukilteo. During final construction, regular ferry service would be re-routed to Edmonds for 1 or 2 months.

**Typical Construction Activities and Staging**

Except for the No-Build Alternative the major activities, such as demolition of existing buildings and the construction of new buildings, roadways, and other facilities, would occur for up to 2 years. Construction activities that would affect access would be planned, staged, and completed in a manner that would minimize disruption to the natural environment, transportation, businesses, and residents. The duration of heavy civil construction in front of any particular property is not anticipated to exceed 6 to 12 months.

The most complex structures being removed and constructed for the project are the in-water facilities. Structures to be removed (varying by alternative) include the existing pile-supported trestle and bulkhead (all Build alternatives), as well as the Tank Farm Pier (Preferred Alternative and Elliot Point 1), and the Port of Everett fishing pier and day moorage (all Build alternatives). A variety of techniques could be used to remove the existing marine structural components, depending on their condition, permitting requirements, and environmental conditions. The piles could be removed using vibratory methods, direct pulling of the piles, or cut at the mudline. The deteriorating condition of some of the piles may require capping or other partial removal methods.

The alternatives involving the Mukilteo Tank Farm would require dredging or other sediment removal for navigation.

Other major construction activities include:

- Demolition and disposal of Mukilteo Tank Farm facilities (pavement and structures, including buildings and foundations, concrete slabs and paving, light poles, power poles, tank containment walls and footings, utility lines and structures, and steel tank bottoms)—Preferred Alternative and Elliot Point 1 Alternative
- Trenching for relocation or replacement of utilities, including power, gas, sewer, water, stormwater, and communications
• Clearing, grubbing, excavation, fill, grading, and disposal of materials
• Construction of temporary in-water structures
• Construction or reconstruction of structures, including retaining walls, bulkheads, and the terminal buildings (including associated footings)
• Pile driving
• Drilled shaft or stone column installation (could require temporary roads or fill in shoreline and beach areas)
• Concrete casting
• Roadway construction, including intersections, signal systems, sidewalks, bicycle facilities, and trails
• Landscaping
• Transport of workers, equipment, materials, and debris
• Storage of equipment, including heavy trucks, cranes, and bulldozers, as well as storage of construction materials and debris

2.3 Alternatives Development Process

Nearly three decades of planning activities have focused on different approaches and alternatives to address the need for an improved multimodal facility serving travel between Whidbey Island and the Mukilteo area. Alternatives for improving the terminal have been discussed in various efforts since the 1970s. The City of Mukilteo completed a Mukilteo Multimodal Terminal and Access Study in 1995 (City of Mukilteo 1995). WSDOT began detailed master plan efforts with multiple concepts in the Mukilteo Multimodal Terminal Master Plan Design Report (WSDOT 2004). This was followed by additional planning, design, and environmental studies of a variety of concepts.

Appendix E, Alternatives No Longer Considered, identifies the previously considered alternatives developed throughout the planning process and summarizes the reasons why other alternatives are no longer being considered. The project has also produced an Alternatives History through 2009 report (WSDOT 2010), which provides additional detail on the alternatives and concepts previously considered.

Alternatives Considered for the Current EIS

The discussion below describes how WSDOT developed the alternatives now being considered. In 2010, WSDOT developed nine concepts, or initial alternatives, to meet the purpose and need of the project. The focus was on improved constructability and environmental performance compared to the alternatives considered in the 2004 EA and 2006 EIS processes, particularly in terms of impacts on cultural resources and marine and shoreline areas. These initial alternatives built on lessons learned through earlier efforts to address current terminal deficiencies, improve operating efficiency and safety, reduce costs, and develop more compact designs to reduce impacts on archaeological sites and natural resources.
Using transportation performance, constructability, policy, and environmental measures, FTA, WSDOT, and their stakeholders evaluated the initial alternatives.

The initial alternatives included modifying the current terminal site; relocating the terminal to Elliot Point north of the existing terminal; or relocating it entirely to Edmonds or Everett:

- Existing Mukilteo Terminal
  - No-Build Alternative
  - Existing Site Improvements Alternative

- Elliot Point (Mukilteo Tank Farm)
  - Elliot Point – Option 1
  - Elliot Point – Option 2
  - Elliot Point – Option 3
  - Mount Baker Terminal

- Edmonds
  - Edmonds – Existing Terminal
  - Edmonds – Existing Site Improvements
  - Point Edwards

- Everett
  - Port of Everett South Terminal

The alternatives were evaluated by WSDOT and FTA using a set of criteria based on the project’s purpose and need. These criteria included the ability of each alternative to meet the project’s design, operational, environmental, and technical objectives. The results were shared with agencies, tribes, and the public during the scoping period. At the conclusion of the scoping process in 2010, WSDOT and FTA found that the three Build alternatives in Mukilteo have the best potential to meet the project’s purpose and need and achieve regulatory and stakeholder approvals. The public comments during the scoping period overwhelmingly supported this direction.

Some public comments also suggested the project should include park-and-ride spaces to serve people who may want to drive to the terminal and then walk on to the ferry. WSDOT does not currently have spaces for this purpose at Mukilteo, although the City of Mukilteo has monthly permit spaces near the current terminal.

WSDOT considered the direction of the Long-Range Plan, as well as cost, environmental impacts, safety, transportation benefits, and the limited available waterfront land in evaluating the various concepts. WSDOT found that alternatives focusing on multimodal improvements, reducing vehicle trips, improving safety and security, and minimizing environmental impacts best met the purpose and need.

The alternatives that failed to advance for evaluation in the EIS included relocating the terminal to the Port of Everett South Terminal or Edmonds, and developing a ferry terminal at the Port of Everett Mount Baker Terminal. These alternatives failed to satisfy the project’s purpose and need because of worsened transportation performance, including traffic impacts, longer travel times, reduced service, and poor...
multimodal connections; environmental impacts stemming from the displacement or conflicts with existing marine-dependent uses; and socioeconomic impacts anticipated from the loss or reduction of service to the city of Mukilteo. During scoping, the project also received written comments from a large number of its participating and cooperating agencies opposing the Everett and Edmonds alternatives.

Appendix E, Alternatives No Longer Considered, details the rejected alternatives, shows the screening evaluation measures and results, and describes the extensive process FTA and WSDOT conducted with the public, the project’s cooperating and participating agencies, and interested tribes. All of these stakeholders reviewed the evaluation results and participated in the identification of the alternatives for inclusion in the EIS.

Other Alternatives Previously Considered

During the initial EIS process starting in 2006, another set of alternatives was also studied. These alternatives were removed from further consideration after they were determined to be no longer reasonable for WSDOT to pursue, based on potential impacts on archaeological resources, the amount of over-water construction, geotechnical conditions, and technical issues. The project at that time had a series of alternatives using the Mukilteo Tank Farm and a No-Build Alternative.

Project components under consideration in 2006 (see Appendix E Alternatives No Longer Considered) had some similarities to the current Mukilteo Tank Farm alternatives. The biggest differences were:

- A ferry dock with two ferry slips
- Incidental commercial space for retail and other services
- A 275- to 480-stall parking structure

2.4 Other Activities in the Area

The following actions are planned or have been recently completed by others in the project area. While WSDOT is coordinating with the other parties, the activities that are described in the following pages are separate actions that could be taken even if the Mukilteo Multimodal Project is not developed. The EIS sections on cumulative effects discuss the impacts of the Mukilteo Multimodal Project in combination with these and other past, current, or planned activities and projects.

U.S. Air Force Mukilteo Tank Farm

The nearly 20-acre parcel called the Mukilteo Tank Farm, east of the current ferry terminal, was used as a fuel storage and transfer facility, operated through McChord Air Force Base, from 1953 to 1973. The U.S. Air Force continued ownership after that, but operated the facility through the Defense Energy Support Center (DESC) within the Defense Logistics Agency (DLA). In 1972, the NOAA Mukilteo Research Station began operations on a portion of the property. Fuel storage and transfer operations on the site ceased in 1989 and the Air Force removed the ten bulk fuel aboveground storage tanks in 1999.
NOAA and Sound Transit already have facilities on the northwest and southwest corners of the property, respectively. A part of the Port of Everett Mount Baker Terminal is located on the east edge of the Mukilteo Tank Farm, and the Port uses a roadway through the property to access the terminal.

The U.S. Air Force conveyance of 18.85 acres of the Mukilteo Tank Farm to the Port of Everett is permitted by Section 2866 of the Military Construction Authorization Act for Fiscal Year 2001 (division B of the Spence Act; 114 Stat. 1654A-436), as amended by Section 2858 of the National Defense Authorization Act for Fiscal Year 2002 (PL 107-107). The same legislation directed the U.S. Air Force to transfer jurisdiction over the remaining 1.1 acres of the site to the U.S. Department of Commerce for continuing operation of the NOAA Mukilteo Research Station. The property includes lands, structures, pier, roadways, and other features. The transfer does not directly involve demolition or development actions. Any development would be subject to environmental review and permitting requirements under applicable federal, state, and local regulations.

In July 2010, the U.S. Air Force released a Draft EA for the transfer. In 2012, the U.S. Air Force released a second Draft EA and a Final EA with a Finding of No Significant Impact, which concluded the NEPA review of the transfer.

### Sounder Mukilteo Station Phase II, Sound Transit

Sound Transit’s Sounder commuter rail line between Seattle and Everett serves the Mukilteo Station. The station is located southeast of the existing ferry terminal, where First Street currently terminates. Sound Transit is developing the station in phases. The first phase, completed in 2008, included a platform on the north side of the tracks along with a dedicated surface parking lot located on the Mukilteo Tank Farm west of the station. A second phase, which will be under construction from mid-2013 to fall 2014, will provide a south platform and a pedestrian bridge over the tracks. Additional commuter parking is also planned. Sound Transit is coordinating with the City of Mukilteo to explore options to expand the supply of parking for the rail station in later phases of the station development program.

### NOAA Fisheries Service Mukilteo Research Station Expansion

NOAA Fisheries Service operates a laboratory on the Mukilteo Tank Farm and plans to expand this facility following a property transfer from the U.S. Air Force to the U.S. Department of Commerce (NOAA’s parent agency). NOAA’s planning is still in the early stages, but the expansion could include upgraded laboratories and the addition of a public outreach and education area on the waterfront, as well as a potential replacement of the NOAA pier to support laboratory and field work.

### Port of Everett Mount Baker Terminal

In 2006, the Port of Everett opened a new rail/barge transfer facility along the waterfront to allow oversize containers to be delivered to the Everett Boeing plant at Paine Field. This facility is immediately east of the Mukilteo Tank Farm on property owned by WSDOT within the city of Everett. It includes a pier and a rail spur to allow trains to directly offload large parts and materials that are shipped in for assembly at Boeing’s plant at Paine Field. It also includes a public shoreline access
area, largely on U.S. Air Force property, with parking, benches, and a paved walkway. This area has not yet been opened to the public because there is no public roadway for accessing the site. For operations and employee access, the Port uses a gated road that runs through the Mukilteo Tank Farm. A public access road is part of this facility, but the Port needs the U.S. Air Force property transfer to occur before it can build this improvement. The Port is now implementing the final improvements needed to open the shoreline access area to the public.

**City of Mukilteo Restoration of Japanese Creek**

The City of Mukilteo’s Shoreline Master Plan calls for removing a culvert that carries Japanese Creek to an outfall in Possession Sound. The creek’s culvert crosses under the BNSF tracks and separates into two culverts. A restoration project would allow Japanese Creek to be free-flowing as it meets the shoreline and would build upon other watershed and habitat restoration efforts the City has been undertaking for the creek and the surrounding open space area. The Preferred Alternative, the Existing Site Improvements Alternative, and the No-Build Alternative do not develop the shoreline area in front of the creek and therefore do not include creek restoration. The Elliot Point 1 Alternative would restore Japanese Creek to an open stream, with a 50-foot buffer on each side.

**2.5 Next Steps**

No sooner than 30 days after the Final EIS is released, the FTA is anticipated to issue a Record of Decision. This would allow WSDOT to move forward with securing funding, completing the final design, and starting construction.
CHAPTER 3

Transportation
3 TRANSPORTATION

This chapter summarizes the existing transportation conditions in the study area for the Mukilteo Multimodal Project. It describes the transportation characteristics in the study area and discusses the multimodal connections occurring at the ferry terminal. It also discusses current and future traffic conditions, including ferry, bus, and rail ridership; vehicle and non-motorized volumes; intersection and ferry levels of service (LOS); and safety.

The impact analysis considers long-term changes in terminal operations, the roadway network, non-motorized systems, public transportation, parking, and freight. This chapter also describes the long-term construction impacts associated with each alternative, and identifies planned projects in the vicinity of the Mukilteo ferry terminal that, when combined with the impacts of the Mukilteo Multimodal Project, could contribute to cumulative impacts. Potential mitigation activities are also described that would reduce the impacts of the effects associated with the Mukilteo ferry terminal alternatives.

3.1 Overview of Analysis and Regulatory Context

This section provides a brief overview of analysis methodology and regulatory context; the Transportation Discipline Report for this Final EIS contains additional information about the system and design standards assumed in the analysis.

The analysis of local traffic impacts was guided by the policy direction established in the numerous plans or policy documents adopted for the Mukilteo/Everett area. These include, but are not limited to, the Puget Sound Regional Council (PSRC) Transportation 2040 Plan (PSRC 2010), Comprehensive Plans for the cities of Mukilteo and Everett (City of Mukilteo 2012; City of Everett 2012), the Six-Year Transportation Improvement Program for the cities of Mukilteo and Everett (City of Mukilteo 2008; City of Everett 2011), and Community Transit’s Long Range Transit Plan (Community Transit 2011a).

The transportation analysis uses a variety of technical tools and approaches to evaluate transportation performance across all modes. This evaluation includes forecasts of future travel by mode, as well as travel times and delays, including intersection delays. Travel forecasts are an estimation of how many people will travel in a future year and how those people will choose to travel. To develop travel forecasts for a roadway and ferry network, two demand models were used:

1. WSDOT Ferries Division Final Long-Range Plan 2009-2030 model was used to determine ferry ridership and distribution of ferry passengers.
2. PSRC 2040 Regional model was used to determine traffic forecasts for the state and regional roadway network.

3.2 Affected Environment

This section summarizes existing transportation characteristics within the study area corridor along SR 525 and at the Mukilteo ferry terminal. It describes the existing road and non-motorized network, traffic volumes, bus and rail operations, parking,
ferry terminal operations and scheduling, ferry ridership, multimodal connections, and freight operations.

3.2.1 Mukilteo Ferry Terminal Facility

Sailings and Scheduling

Ferry service operates weekdays from 4:40 AM to 1:00 AM and weekends from 5:30 AM to 1:05 AM. Sailing time between Mukilteo and Clinton is approximately 15 minutes. Unloading and loading times vary based on the number of passengers and vehicles.

Ridership

Two ferry vessels operate at a time on the Mukilteo-Clinton route. Each vessel has the capacity to carry up to 1,200 walk-on passengers and approximately 124 vehicles. The number of vehicles permitted on the ferry depends on the size of the vehicles on the ferry as well as how closely they are parked to one another.

In 2012, the Mukilteo-Clinton route had the most vehicle trips and the second-highest total annual ridership in the system (WSDOT 2012). More than 2,090,400 vehicles and 3,835,000 riders (vehicle drivers, vehicle passengers, and walk-on passengers) take the Mukilteo ferry each year.

Ferry ridership on the Mukilteo-Clinton route fluctuates throughout the year, with the highest ridership during July and August and the lowest ridership in November, January, and February (Figure 3-1). The typical or average month for ferry ridership is May.

Total ridership varies only slightly throughout the week (Tuesday through Thursday) and generally increases during the weekend (Friday through Saturday); Sunday and Monday ridership varies. However, walk-on ridership decreases on weekends while vehicle volumes increase, primarily because there are fewer commute trips and more recreational trips on weekends.
Ferry Crossing Levels of Service (LOS)

As a way to identify the point at which demand management or additional capacity investments may be necessary, the WSDOT Ferries Division Final Long-Range Plan (WSDOT 2009) identifies a LOS performance standard based on the percentage of total sailings operating at full capacity. When capacity exceeds the Level 1 Standard, the plan recommends pricing and operational measures to spread demand; it recommends additional service when capacity exceeds the Level 2 Standard (see Table 3-1).

Northbound travel in the PM peak period is used to calculate the ferry crossing LOS because it has an overall higher travel demand than the southbound AM peak period. Table 3-1 summarizes the percentage of sailings that were full in 2010 and shows that August exceeded the Level 1 LOS performance threshold but not for Level 2.

Table 3-1. Percent of Sailings at Full Capacity for the Mukilteo-Clinton Ferry Route

<table>
<thead>
<tr>
<th>Month</th>
<th>2010 Observed Data</th>
<th>Level 1 Standard</th>
<th>Level 2 Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>8%</td>
<td>25%</td>
<td>65%</td>
</tr>
<tr>
<td>May</td>
<td>20%</td>
<td>25%</td>
<td>65%</td>
</tr>
<tr>
<td>August</td>
<td>35%</td>
<td>30%</td>
<td>75%</td>
</tr>
</tbody>
</table>

Sources: WSDOT 2009; 2010 WSF Fare Box Data
Note: Values are percent of total northbound sailings that are full.

Terminal Operations

The Mukilteo ferry terminal accommodates multiple modes of traffic, each of which arrives at the terminal, loads and unloads, and departs in different manners.
Terminal Arrival

Walk-on passengers include people walking or bicycling from where their trip starts, drivers who park and walk, and transit riders who use bus and commuter rail. All walk-on passengers have an associated walking travel time to the SR 525-Front Street intersection, as well as some level of delay at this intersection prior to entering the passenger loading area. Table 3-2 summarizes the modeled travel times for walking among the Mukilteo Station, bus zone, southern parking lots, and the Mukilteo ferry terminal. The modeled travel times assume a standard distribution of walking speeds, which does not fully account for passengers walking quickly to reach their destinations.

Table 3-2. Walk Travel Times to the Mukilteo Ferry Terminal (PM Peak Period)

<table>
<thead>
<tr>
<th>Location</th>
<th>To Terminal (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mukilteo Station</td>
<td>8.6</td>
</tr>
<tr>
<td>Bus Zone/Parking Lot South of Front Street</td>
<td>1.0</td>
</tr>
<tr>
<td>Parking Lot South of Second Street</td>
<td>4.8</td>
</tr>
</tbody>
</table>

Source: VISSIM Model 2012

Unlike most other ferry terminals, ferry and non-ferry vehicle traffic are not separated at the Mukilteo ferry terminal area. The Mukilteo ferry terminal transfer span connects directly to the SR 525-Front Street intersection. The intersection is stop-controlled except during ferry offloading when a signal is used to hold traffic on Front Street while WSF staff manage offloading. Front Street and SR 525 also serve non-ferry traffic traveling to destinations along the waterfront. These destinations include Mukilteo Lighthouse Park, Mukilteo Station, Mount Baker Terminal, NOAA Fisheries Service Mukilteo Research Station, park-and-ride lots, private residences, public access and waterfront facilities, and businesses along Front Street.

Ferry Unloading and Loading

Walk-on passengers are allowed to walk off the ferry first while the vehicles remain on board. It takes, on average, 19 seconds for all passengers to reach the passenger terminal (see Table 3-3). Walk-on passengers who do not quickly cross the SR 525-Front Street intersection experience additional delay while the motor vehicles unload. Unloading motor vehicles takes just over 4 minutes, on average.

Table 3-3. Ferry Unloading and Loading Average Duration at Mukilteo

<table>
<thead>
<tr>
<th>Ferry Arrival</th>
<th>Walk Off</th>
<th>Vehicle Unloading</th>
<th>Walk On</th>
<th>Vehicle Loading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minutes</td>
<td>0:19</td>
<td>4:10</td>
<td>0:47</td>
<td>8:24</td>
</tr>
</tbody>
</table>

Source: Field Survey, December 2010

During the ferry unloading and loading processes, which take approximately 14 minutes, queues tend to form in the ferry lane and along SR 525.
Ferry Shoulder Queuing

Figure 3-2 shows queue lengths from a field survey in December 2010, which provided a representative baseline for the analysis (queues can be longer at other times such as Fridays, holidays, and during the summer, when ferry shoulder queues can extend beyond Goat Trail Road). Queue lengths are a metric for evaluating the roadway operations and they indicate if the operations of one intersection affect an adjacent intersection. The Front Street queue length represents the maximum extent that vehicles spill back onto SR 525 from the Front Street intersection during the peak hour, which includes at least one ferry loading and unloading operation. The queue length on SR 525, south of Front Street, is not long enough to affect downstream intersections. The shoulder queuing from the toll booths along SR 525 affects a number of downstream intersections and driveways, as vehicles move slowly through the shoulder lane during times of higher ferry use.

Figure 3-2. 2010 Queue Lengths along SR 525 at the Mukilteo Ferry Terminal

Source: Field Survey, December 2010
Terminal Departure

Walk-off passengers departing the Mukilteo ferry terminal experience additional delay at the SR 525-Front Street intersection due to local (non-ferry) traffic, and vehicle ferry traffic during loading and unloading operations. Table 3-4 summarizes the travel times for the different destinations of walk-off passengers (similar to Table 3-2, these modeled travel times assume a standard distribution of walking speeds).

Table 3-4. Walk Travel Times from the Mukilteo Ferry Terminal (PM Peak Period)

<table>
<thead>
<tr>
<th>Location</th>
<th>From Terminal (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mukilteo Station</td>
<td>12.8</td>
</tr>
<tr>
<td>Bus Zone/Parking Lot South of Front Street</td>
<td>2.1</td>
</tr>
<tr>
<td>Parking Lot South of Second Street</td>
<td>8.4</td>
</tr>
</tbody>
</table>

Source: VISSIM Model, 2010

The walk times departing the terminal are longer than the arriving walk times because walk-off passengers crossing SR 525 typically have to wait for unloading vehicle traffic to pass.

Navigable Waterways

The Rivers and Harbors Act defines navigable waters of the United States. The existing Mukilteo ferry terminal is situated in navigable waters and ferries traveling to and from Clinton across Possession Sound pass through an existing shipping lane. The existing Mukilteo-Clinton ferry route does not impede other vessels operating within or outside the shipping lane under general navigation rules.

3.2.2 Traffic Operations

Study area intersections are illustrated in Figure 3-3. As summarized in Table 3-5, during the PM peak period, the SR 525-88th Street SW and SR 525-Front Street intersections operate at an LOS E, which indicates a high level of delay. This LOS fails to meet the City of Mukilteo LOS D standard, which is the maximum level of delay the City has defined as acceptable. All other study intersections operate at LOS D or better during the AM and PM peak hours.
Figure 3-3. Study Area Intersections

KEY
- Study Area Intersections

NOT TO SCALE

Possession Sound
Table 3-5. 2010 LOS Summary

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Control Type</th>
<th>LOS Standard</th>
<th>AM Peak</th>
<th>PM Peak</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>LOS Delay (sec/veh)</td>
<td>LOS Delay (sec/veh)</td>
<td></td>
</tr>
<tr>
<td>SR 525/Harbour Pointe Boulevard North</td>
<td>Signal</td>
<td>D C 23</td>
<td>C 21</td>
<td></td>
</tr>
<tr>
<td>SR 525/88th Street SW</td>
<td>Stop Sign</td>
<td>D C 21</td>
<td>E 43</td>
<td></td>
</tr>
<tr>
<td>SR 525/84th Street SW and SR 526</td>
<td>Signal</td>
<td>D A 6</td>
<td>C 28</td>
<td></td>
</tr>
<tr>
<td>SR 525/76th Street SW</td>
<td>Stop Sign</td>
<td>D C 20</td>
<td>C 20</td>
<td></td>
</tr>
<tr>
<td>SR 525/5th Street</td>
<td>Signal</td>
<td>D B 11</td>
<td>D 51</td>
<td></td>
</tr>
<tr>
<td>SR 525/Front Street</td>
<td>Stop Sign</td>
<td>n/a n/a</td>
<td>E 48</td>
<td></td>
</tr>
<tr>
<td>West Mukilteo Boulevard/Glenwood Avenue</td>
<td>Signal</td>
<td>D B 11</td>
<td>B 14</td>
<td></td>
</tr>
</tbody>
</table>

Sources: Existing 2010 Synchro Model and Existing 2010 VISSIM Model for SR 525-Front Street Intersection
n/a = not applicable; sec/veh = seconds per vehicle

3.2.3 Non-Motorized Conditions

Pedestrian Conditions

SR 525 is the only roadway link between the Mukilteo city center and the ferry terminal. The SR 525 pedestrian facilities crossing the BNSF tracks consist of 3-foot-wide sidewalks on both sides of the bridge. These facilities meet some but not all Americans with Disabilities Act (ADA) standards, and do not meet current WSDOT design standards for 4-foot-wide sidewalks.

Pedestrians accessing the ferry terminal or areas west of the terminal from the east side of the terminal must either wait for all vehicles to load or find a safe gap in the loading of vehicles.

Pedestrians who walk off the ferry prior to the vehicles have unrestricted access to cross Front Street. Common destinations include the parking lot behind Diamond Knot Brewery, the bus stop at the SR 525-Front Street intersection, the SR 525 bridge to Mukilteo and to other parking lots, and Mukilteo Station. Some passengers are picked up at the terminal.

The highest pedestrian flows between the Mukilteo ferry terminal and the bus stops occur during peak periods. Approximately 53 percent of all walk-off traffic in the AM peak period is from the ferry to the bus (compared to 12 percent that walk on), and 41 percent of walk-on traffic in the PM peak period is from the bus to the ferry (compared to 12 percent that walk off).

Bicycle Facility Conditions

There is limited bicycle use of the ferry terminal; most cyclists leave the Mukilteo ferry terminal in the AM peak period and return to board the ferry in the PM peak period. None of the streets to or from the ferry terminal has dedicated bicycle lanes. Cyclists can legally use the same roadway space as motorized vehicles. Cyclists disembarking from the ferry bound for Mukilteo or points to the east must ascend SR 525 in mixed vehicular traffic, sharing the outside travel lane. Some cyclists wait for all vehicles to finish unloading from the ferry before ascending SR 525.
3.2.4 Public Transportation Facilities

Community Transit, Everett Transit, Island Transit, and Sound Transit provide transit service in the study area, but only Island Transit operates service on Whidbey Island, serving the Clinton terminal. The primary transit corridors in the study area are SR 525, 5th Street and West Mukilteo Boulevard, SR 526, and the BNSF Railway line. In its *Transit Development Plan* (2012–2017), Community Transit has identified SR 525 as a *transit emphasis corridor*, which is a corridor intended for future service expansion (Community Transit 2011b).

Sound Transit operates Sounder commuter rail service with a station in Mukilteo. Although Amtrak rail service passes through Mukilteo, it does not stop at the Mukilteo Station. Bus service to and from the Mukilteo ferry terminal is operated by Community Transit and Everett Transit, which use a dedicated pull-out bus zone at the Front Street-SR 525 intersection. Community Transit operates a commuter express bus service and all-day local bus service, and Everett Transit operates local bus service. Vanpool service in Mukilteo is provided by Community Transit and Island Transit—there are currently four Community Transit vanpools and 36 Island Transit vanpools. Paratransit service is offered by Community Transit and Everett Transit, with an average of seven and two trips, respectively, to and from the Mukilteo ferry terminal.

Everett Transit and Community Transit have reported that transit buses regularly encounter deficiencies in the capacity of the bus zones. The primary bus zone, on southbound SR 525, just south of Front Street, accommodates only two buses at a time. Because six routes terminate at the Mukilteo ferry terminal and fare payment causes long wait times, arriving buses must proceed to Mukilteo Lighthouse Park to turn around, which is not a preferred location by the transit agencies or the City of Mukilteo.

Island Transit buses serve the Clinton ferry terminal on Whidbey Island and the park-and-ride lots nearby.

3.2.5 Parking

Near the Mukilteo ferry terminal, parking for various uses is provided at a number of locations, including on-street parking spaces, off-street parking lots that are for public or paid use, ferry employee parking, and dedicated Sound Transit parking for Sounder commuter rail. Figure 3-4 and Table 3-6 show the number and type of parking spaces in the Mukilteo ferry terminal vicinity.

On-street parking near the Mukilteo ferry terminal is regulated by two residential parking zones; parking permits are available to Mukilteo residents but not available to ferry commuters. The public parking area located in the southwest corner of the Front Street-Park Street intersection (Lot C) is reserved for Ivar’s restaurant patrons. On-street parking on First Street east of Park Avenue (Lot E) is restricted to Mukilteo Station patrons.
Figure 3-4. Designated Parking Areas near the Mukilteo Ferry Terminal

Table 3-6. Parking Areas near the Mukilteo Ferry Terminal

<table>
<thead>
<tr>
<th>Parking Location</th>
<th>Notes</th>
<th>Existing Parking at Mukilteo</th>
</tr>
</thead>
<tbody>
<tr>
<td>PARKING LOT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Off-Street private lot / paid (total does not include 5 vendor and 6 unmarked stalls)</td>
<td>98</td>
</tr>
<tr>
<td>B</td>
<td>Off-Street private lot / paid</td>
<td>40</td>
</tr>
<tr>
<td>C</td>
<td>This 45-space lot for Ivar's Mukilteo Landing is not included in totals because its use would be displaced</td>
<td>n/a</td>
</tr>
<tr>
<td>D</td>
<td>Combined Port of Everett and public lot</td>
<td>30</td>
</tr>
<tr>
<td>E</td>
<td>Sound Transit park-and-ride lot</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td><strong>Subtotal</strong></td>
<td><strong>231</strong></td>
</tr>
</tbody>
</table>

| ON-STREET        |                                                                     |                              |
| F                | On-street / time restrictions / parking passes                       | 25                           |
| G                | On-street / time restrictions / parking passes                       | 18                           |
| H                | On-street / time restrictions / parking passes                       | 26                           |
|                  | **Subtotal**                                                         | **69**                       |

| Total Parking Lot and On-Street Parking Spaces | 300 |

| WSF PARKING     |                                                                     |                              |
| I                |                                                                     | 20                           |
| J                | WSF employees only                                                  | 23                           |
|                  | **Subtotal**                                                         | **43**                       |
3.2.6 Freight

The BNSF Railway mainline runs generally along the eastern edge of Puget Sound and passes through the project area. This railway connects Seattle to British Columbia, Canada. Amtrak passenger rail and Sounder commuter rail share this railway with freight service. Only Sounder service stops at Mukilteo Station. The Port of Everett’s Mount Baker Terminal is located to the east of the Mukilteo ferry terminal.

Truck freight uses multiple roadways in the study area, most notably SR 525. Between 4 million and 10 million metric tons per year are carried on the SR 525 corridor.

3.3 Transportation Effects

This section summarizes the transportation effects within the study area corridor along SR 525 and at the potential ferry terminal locations in Mukilteo. It describes the project’s impacts on the existing motorized and non-motorized network, bus and rail operations, parking, ferry terminal operations and scheduling, multimodal connections, and freight operations.

3.3.1 Mukilteo Ferry Terminal

Sailings and Scheduling

For all alternatives, daily ferry service would continue, and sailing time between Mukilteo and Clinton would remain approximately 15 minutes each way. None of the alternatives would affect ferry scheduling for the Mukilteo-Clinton route.

Ridership

One set of future travel demand volumes was developed for all 2040 alternatives because none of the alternatives is likely to change the total number of people traveling or how they choose to travel.

Ferry Crossing Levels of Service

Table 3-7 summarizes the percentage of sailings that were full in 2010 and are estimated to be full in 2040. Forecasts were based on 2010 data and projected to 2040. By 2040, the travel forecasts indicate that capacity in all 3 analysis months (including January, a less busy month) would exceed the Level 1 Standard but not the Level 2 Standard. The impacts of this capacity forecast are longer travel times for passengers, longer peak periods, and longer queues on adjoining roadways.

The projected growth in travel led WSDOT to consider how best to address peak period travel demand and related impacts on this route, as described in Chapter 1 Purpose and Need. Because performance in 2040 is not anticipated to exceed the Level 2 Standard, the route does not warrant additional capacity investments above the already planned replacement of the current 124-vehicle ferries with new 144-vehicle ferries. Measures to manage demand to the Level 1 Standard are described in Section 3.7.2.
Table 3-7. Percent of Future Sailings at Full Capacity for the Mukilteo-Clinton Ferry Route

<table>
<thead>
<tr>
<th>Month</th>
<th>2010 Observed Data</th>
<th>2040 Forecast</th>
<th>Level 1 Standard</th>
<th>Level 2 Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>8%</td>
<td>32%</td>
<td>25%</td>
<td>65%</td>
</tr>
<tr>
<td>May</td>
<td>20%</td>
<td>48%</td>
<td>25%</td>
<td>65%</td>
</tr>
<tr>
<td>August</td>
<td>35%</td>
<td>58%</td>
<td>30%</td>
<td>75%</td>
</tr>
</tbody>
</table>

Sources: WSDOT 2009; 2010 WSF Fare Box Data; WSF Model Forecast
Note: Values are percent of total northbound sailings that are full in the PM peak period.

Terminal Operations

Access Lanes and Vehicle Holding Area

The No-Build, Existing Site Improvements, and Elliot Point 1 alternatives include a holding area that can accommodate approximately one and a half of the vehicle-holding capacity of the new ferries, which is approximately 216 vehicles. The Preferred Alternative includes a larger holding area, which accommodates approximately 266 vehicles and provides additional storage capacity during peak periods, particularly if all four toll booths are open.

Because the Preferred Alternative and Elliot Point 1 Alternative have fewer and longer holding area lanes plus a motorcycle bypass lane, HOV users and trucks may need to be mixed with other ferry traffic to maximize holding space during peak periods. All Build alternatives would permit registered HOV users to bypass some or all of the ferry shoulder queuing to access the toll booths. Elliot Point 1 Alternative would merge HOV users into the general vehicle queue before they reach the toll booths.

Overhead Passenger Loading

All Build alternatives include overhead passenger loading, which allows pedestrian and vehicle loading to occur simultaneously by separating vehicles and pedestrians. The No-Build Alternative does not include overhead passenger loading. Overhead passenger loading reduces unloading and loading times, which improves ferry schedule reliability. Overhead passenger loading would be provided by a structure connecting the upper ferry deck to an on-land passenger area and would maintain safe ADA grades during low and high tides, unlike the existing condition. Overhead passenger loading would also improve pedestrian safety by reducing conflicts with pedestrians and vehicles on the transfer span and where the transfer span meets the nearest roadway.

Ferry Loading and Unloading Times

The location of the ferry terminal in relation to the local street system and the presence of overhead passenger loading affect ferry turnaround time. To maintain the 30-minute headways between Mukilteo and Clinton, the ferries have about 15 minutes to unload and load passengers at either terminal. When the turnaround time exceeds this threshold, ferry vessels fall behind schedule, causing (1) reduced connection reliability, and (2) reduced cross-Sound capacity.
As illustrated in Figure 3-5, field observations found existing ferry terminal unloading and loading times can exceed the 15-minute threshold in the PM peak period. These observations occurred in winter 2010 and the results were used to predict future unloading and unloading times for other alternatives.

**Figure 3-5. Mukilteo Ferry Terminal Unloading and Loading Times**

(Observed Winter 2010, PM Peak Period)

Under the No-Build scenario, increased ferry ridership and the absence of overhead loading means that it would take longer to load and unload passengers. In 2040, it is estimated that the No-Build terminal configuration would take PM peak period ferries, on average, approximately 17 minutes to unload and load passengers before leaving for Clinton (see Figure 3-5). This would affect the overall ferry schedule during the PM peak period.

The Preferred Alternative and Elliot Point 1 Alternative eliminate the time required to stop ferry traffic at the SR 525-Front Street intersection to allow local traffic to clear. Providing a continuous off-loading process helps meet the objectives of reliability and efficiency. The average load and unload time is almost 7 minutes faster than the No-Build Alternative and would enable the ferries to maintain their schedules.

As illustrated in Figure 3-5, the addition of overhead passenger loading for the Existing Site Improvements Alternative would reduce the time to load and unload each ferry to approximately 11 minutes, almost 6 minutes faster than the No-Build Alternative, and would enable the ferries to better maintain their schedules. However, some conflicts with street traffic and pedestrian crossings would remain, which would affect reliability.

**Ferry Shoulder Queuing**

The ferry shoulder queues that typically occur during the weekday PM peak period are projected to increase for the 2040 No-Build, Preferred, and Existing Site Improvements alternatives, compared to 2010 conditions. Elliot Point 1 is the only alternative where vehicle queues from the toll booth would not extend to SR 525 during the PM peak period on a daily basis. Under all alternatives, higher weekend...
and seasonal travel would continue to create longer queues. The analysis assumed that three toll booths were operating and the fourth was held in reserve, which is typical for daily operations.

The differences in queue lengths during the weekday evening peak period among the alternatives result primarily from the ability of some of the alternatives to store vehicles before the queue extends back to the SR 525-5th Street intersection, as shown in Figure 3-6. After the queue extends back onto SR 525, the queue lengthens even more because vehicles must keep clear of driveways and intersections. For example, the Preferred Alternative queue on SR 525 is shorter than the No-Build and Existing Site Improvement alternatives because the typical peak period queue can be held within the extended First Street. The No-Build and Existing Site Improvements alternatives are generally similar, but the queue for the Existing Site Improvements Alternative is slightly longer because of a traffic signal added at the SR 525-First Street intersection just south of the toll booths.

**Navigable Waterways**

The effects on navigation for ferries crossing the shipping lane would be similar to existing conditions and would not vary significantly among alternatives. Other effects on navigable waterways would also be similar to existing conditions.

**Mukilteo Terminal Facility Safety and Security**

Overhead passenger loading, which separates vehicles and pedestrians during ferry passenger loading and unloading, reduces the risk of collisions. For the Preferred and Elliot Point 1 alternatives, passengers could travel between the ferry and the transit center without crossing a roadway, which would eliminate any conflict with vehicle traffic.

For the Build alternatives, the proposed transit center would provide space for six separate bus bays and would eliminate buses blocking roadways such as Front Street. Properly sized bus zones would ensure that bus passengers wait, load, and unload in designated areas.

The Preferred and Elliot Point 1 alternatives would include security fences and gates to allow the holding area to be secured during periods of higher security.
Figure 3-6. Typical Weekday Peak Period Ferry Shoulder Queue Length in Mukilteo

LEGEND

2010 EXISTING
2040 NO-BUILD
PREFERRED
EXISTING SITE IMPROVEMENTS
ELLIOT POINT 1

* Distances shown in feet from tollbooth. Weekend or holiday vehicle queue lengths could be significantly longer. However, the relative differences in queue lengths between the alternatives would be similar.
3.3.2 Traffic Operations

Conditions Common to All Alternatives

Roadway improvements occurring prior to 2040 that are common to all alternatives include a northbound right-turn lane at the stop-controlled SR 525-Front Street intersection. This is the primary intersection that would be affected differently among the alternatives. Because projected 2040 roadway volumes are the same for all alternatives, intersection operations are projected to be similar for intersections along SR 525 between 5th Street and Harbour Pointe Boulevard, and the Mukilteo Boulevard-Glenwood Avenue intersection. The LOS for the study area intersections south and east of 5th Street is summarized in Table 3-8. Also, the No-Build and Build alternatives would maintain a similar break in off-loading traffic to allow side street traffic to turn onto SR 525.

Table 3-8. 2040 Level of Service Summary (PM Peak Hour)

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Control Type</th>
<th>2010 LOS</th>
<th>2010 Existing Delay (sec/veh)</th>
<th>2040 LOS</th>
<th>2040 No-Build and Build Alternatives Delay (sec/veh)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR 525/Harbour Pointe Boulevard</td>
<td>Signal</td>
<td>C</td>
<td>21</td>
<td>D</td>
<td>51</td>
</tr>
<tr>
<td>SR 525/88th Street SW</td>
<td>Stop Sign</td>
<td>E</td>
<td>43</td>
<td>F</td>
<td>&gt; 200</td>
</tr>
<tr>
<td>SR 525/84th Street SW/SR 526</td>
<td>Signal</td>
<td>C</td>
<td>28</td>
<td>D</td>
<td>52</td>
</tr>
<tr>
<td>SR 525/76th Street SW</td>
<td>Stop Sign</td>
<td>C</td>
<td>20</td>
<td>D</td>
<td>29</td>
</tr>
<tr>
<td>SR 525/5th Street</td>
<td>Signal</td>
<td>D</td>
<td>51</td>
<td>E</td>
<td>55</td>
</tr>
<tr>
<td>West Mukilteo Boulevard/</td>
<td>Signal</td>
<td>B</td>
<td>14</td>
<td>C</td>
<td>24</td>
</tr>
<tr>
<td>Glenwood Avenue</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

As shown in Table 3-8, vehicle delay at intersections increases from 2010 to 2040, which is caused more by increases in background traffic volumes than by the small increase in ferry vehicle traffic. In 2040, the SR 525-88th Street SW and SR 525-5th Street intersections have a projected failing LOS service because they exceed the standard set by the City of Mukilteo of LOS D or better. Traffic turning from 88th Street SW or crossing SR 525 would experience a long delay because of insufficient gaps in traffic along SR 525.

No-Build Alternative

Roadway improvements occurring prior to 2040 include the relocation of the existing signal on the Mukilteo ferry terminal transfer span south towards the SR 525-Front Street intersection.

The No-Build Alternative LOS for the SR 525-Front Street intersection is summarized in Table 3-9 and is projected to remain at LOS E. The vehicle delay would increase slightly during the PM peak hour, which includes the time vehicles at the intersection are stopped during the ferry unloading and loading process.
Table 3-9. No-Build Alternative Level of Service Summary (PM Peak Hour)

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Control Type</th>
<th>Existing 2010</th>
<th>No-Build 2040</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR 525/Front Street</td>
<td>Stop Sign</td>
<td>E 48</td>
<td>E 52</td>
</tr>
</tbody>
</table>

Vehicle delay at the Park Avenue-Front Street and Park Avenue-First Street intersections would increase slightly due to increased pedestrian traffic between the Mukilteo ferry terminal and Mukilteo Station.

**Preferred Alternative**

People driving to the Mukilteo ferry terminal would turn at a new SR 525-First Street intersection and travel east to the toll booth entrance-First Street intersection. Vehicles would queue along the curb lane of SR 525, as they do today and along First Street. Authorized HOV users would drive in the inside lane, bypassing the shoulder queuing, and enter into mixed traffic immediately before the toll booths.

The LOS for intersections in the immediate vicinity of this alternative is summarized in Table 3-10. Delays at the SR 525-Front Street intersection would decrease almost 38 seconds compared to the No-Build Alternative because the ferry terminal would be relocated and the loading and unloading operations would no longer affect this intersection directly. The modified intersections resulting from the First Street extension would operate at an acceptable LOS.

Table 3-10. Preferred Alternative Level of Service Summary (2040 PM Peak Hour)

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Control Type</th>
<th>No-Build Alternative</th>
<th>Preferred Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR 525/Front Street</td>
<td>Stop Sign</td>
<td>E 52</td>
<td>B 14</td>
</tr>
<tr>
<td>SR 525/First Street</td>
<td>Signal</td>
<td>n/a n/a</td>
<td>A 7</td>
</tr>
<tr>
<td>Park Avenue/First Street</td>
<td>Stop Sign</td>
<td>n/a n/a</td>
<td>A 10</td>
</tr>
<tr>
<td>Toll booth/First Street</td>
<td>Signal</td>
<td>n/a n/a</td>
<td>B 11</td>
</tr>
</tbody>
</table>

**Existing Site Improvements**

Vehicle drivers going to the Mukilteo ferry terminal would enter the holding area after passing through a new signal at the SR 525-First Street intersection. Authorized HOV users, such as vanpools, would bypass the shoulder queuing lane and proceed to the short queue at the toll booths.

The LOS for intersections in the immediate vicinity of this alternative is summarized in Table 3-11. Overhead passenger loading would slightly reduce the duration of intersection blockage during ferry loading and unloading compared to the No-Build Alternative because pedestrian trips from the terminal to the bus stop would no
longer cross this intersection. The modified intersections resulting from the First Street extension would operate at an acceptable LOS.

Table 3-11. Existing Site Improvements Alternative Level of Service Summary (2040 PM Peak Hour)

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Control Type</th>
<th>No-Build Alternative</th>
<th>Existing Site Improvements Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR 525/Front Street</td>
<td>Stop Sign</td>
<td>E 52</td>
<td>E 48</td>
</tr>
<tr>
<td>SR 525/First Street</td>
<td>Signal</td>
<td>n/a n/a</td>
<td>B 17</td>
</tr>
<tr>
<td>Park Avenue/First Street</td>
<td>Stop Sign</td>
<td>n/a n/a</td>
<td>A 10</td>
</tr>
</tbody>
</table>

Elliot Point 1 Alternative

The route for drivers to the ferry terminal for the Elliot Point 1 Alternative would be very similar to the Preferred Alternative from SR 525 to the Mukilteo Tank Farm.

The LOS for intersections in the immediate vicinity of this alternative is summarized in Table 3-12. The delay at the SR 525-Front Street intersection would decrease by almost 38 seconds compared to the No-Build Alternative. This is because the ferry terminal would be relocated and the loading and unloading operations would no longer affect this intersection directly. The modified intersections resulting from the First Street extension would operate at an acceptable LOS.

Table 3-12. Elliot Point 1 Alternative Level of Service Summary (2040 PM Peak Hour)

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Control Type</th>
<th>No-Build Alternative</th>
<th>Elliot Point 1 Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR 525/Front Street</td>
<td>Stop Sign</td>
<td>E 52</td>
<td>B 14</td>
</tr>
<tr>
<td>SR 525/First Street</td>
<td>Signal</td>
<td>n/a</td>
<td>A 6</td>
</tr>
<tr>
<td>Park Avenue/First Street</td>
<td>Stop Sign</td>
<td>n/a</td>
<td>A 10</td>
</tr>
<tr>
<td>West driveway/First Street</td>
<td>Stop Sign</td>
<td>n/a</td>
<td>A 9</td>
</tr>
<tr>
<td>East driveway/First Street</td>
<td>Signal</td>
<td>n/a</td>
<td>A 1</td>
</tr>
</tbody>
</table>

3.3.3 Non-Motorized Transportation

Each Build alternative changes travel flows and travel distances for non-motorized users connecting to and from the Mukilteo ferry terminal, compared to the No-Build Alternative. Forecasted distributions for pedestrians and bicyclists are presented in the Transportation Discipline Report.

Pedestrian Connections

Tables 3-13 through 3-15 and Figure 3-7 show the distance and estimated average time for pedestrians to walk to and from the terminal and common destinations in
the project vicinity. The average walk time to the Mukilteo ferry terminal does not include the time to purchase a ticket or the time to travel from the passenger building to the ferry. The average walk time from the Mukilteo ferry terminal includes the time to exit the ferry via the overhead loading ramps to calculate the connection time (walk times) to other modes.

**Figure 3-7. Pedestrian Pathways to the Mukilteo Ferry Terminal**

![Pedestrian Pathways to the Mukilteo Ferry Terminal](image)

**Table 3-13. Estimated Walk Distances**

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Mukilteo Station to Passenger Building (feet)</th>
<th>Ferry to Mukilteo Station (feet)</th>
<th>Bus Stop /Transit Center to Passenger Building (feet)</th>
<th>Ferry to Bus Stop/Transit Center (feet)</th>
<th>Second Street to Passenger Building (feet)</th>
<th>Ferry to Second Street (feet)</th>
<th>Between Bus Stop/Transit Center and Mukilteo Station (feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing/No-Build</td>
<td>1,730</td>
<td>1,960</td>
<td>190</td>
<td>430</td>
<td>880</td>
<td>1,120</td>
<td>1,850</td>
</tr>
<tr>
<td>Preferred</td>
<td>745</td>
<td>1,040</td>
<td>225</td>
<td>545</td>
<td>2,325</td>
<td>2,660</td>
<td>970</td>
</tr>
<tr>
<td>Existing Site Improvements</td>
<td>1,650</td>
<td>2,040</td>
<td>590</td>
<td>990</td>
<td>840</td>
<td>1,240</td>
<td>1,190</td>
</tr>
<tr>
<td>Elliot Point 1</td>
<td>1,610</td>
<td>1,970</td>
<td>540</td>
<td>900</td>
<td>3,550</td>
<td>3,920</td>
<td>1,080</td>
</tr>
</tbody>
</table>
Table 3-14. Walk Travel Times to the Mukilteo Ferry Terminal (2040 PM Peak Period)

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Mukilteo Station to Passenger Building (minutes)</th>
<th>Bus Stop/Transit Center to Passenger Building (minutes)</th>
<th>Second Street to Passenger Building (minutes)</th>
<th>Between Bus Stop/Transit Center and Mukilteo Station (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td>8.6</td>
<td>1.0</td>
<td>3.5</td>
<td>9.3</td>
</tr>
<tr>
<td>No-Build</td>
<td>8.9</td>
<td>1.0</td>
<td>3.6</td>
<td>9.7</td>
</tr>
<tr>
<td>Preferred</td>
<td>3.8</td>
<td>0.9</td>
<td>11.1</td>
<td>4.9</td>
</tr>
<tr>
<td>Existing Site Improvements</td>
<td>8.5</td>
<td>3.0</td>
<td>4.6</td>
<td>6.1</td>
</tr>
<tr>
<td>Elliot Point 1</td>
<td>8.3</td>
<td>2.5</td>
<td>15.8</td>
<td>5.6</td>
</tr>
</tbody>
</table>

Table 3-15. Walk Travel Times from the Mukilteo Ferry Terminal (2040 PM Peak Period)

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Ferry to Mukilteo Station (minutes)</th>
<th>Ferry to Bus Stop and Transit Center (minutes)</th>
<th>Ferry to Second Street (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td>10.4</td>
<td>2.0</td>
<td>6.3</td>
</tr>
<tr>
<td>No-Build</td>
<td>10.6</td>
<td>2.1</td>
<td>6.6</td>
</tr>
<tr>
<td>Preferred</td>
<td>5.2</td>
<td>2.3</td>
<td>12.8</td>
</tr>
<tr>
<td>Existing Site Improvements</td>
<td>10.0</td>
<td>4.7</td>
<td>6.4</td>
</tr>
<tr>
<td>Elliot Point 1</td>
<td>10.3</td>
<td>4.8</td>
<td>17.8</td>
</tr>
</tbody>
</table>

No-Build Alternative
Pedestrian walk times under the No-Build Alternative would be similar to existing conditions. While walk times to the ferry would be similar to existing conditions, walk times from the ferry could increase due to higher pedestrian volumes leaving the ferry.

Preferred Alternative
The average walk time from Mukilteo Station to the passenger building would be approximately 4 minutes (see Table 3-14) and the return trip would be approximately 5 minutes (see Table 3-15); both are more than 4 minutes shorter compared to the No-Build Alternative.

Pedestrians walking from the proposed transit center, located east of the ferry terminal, to the passenger terminal would travel along a walkway on Possession Sound’s shoreline. Bus passengers would be provided with an overpass to cross the transfer span for access to the passenger terminal. Because the transit center would provide a long curb zone for buses to drop off passengers, the distance and associated walk time to the passenger building would depend on bus position. The average walk time from the transit center to the passenger building or from the ferry to the transit center would be slightly longer than the No-Build Alternative.
Pedestrians walking from upper Mukilteo would either cross the railroad using the SR 525 bridge to the First Avenue extension or use the Mount Baker crossing. The primary walk route would be along the First Avenue extension, which includes sidewalk, bicycle, and safety improvements. This alternative would increase the walk time between the Second Street parking lot and the Mukilteo ferry terminal by more than 6 minutes because the walk distance would increase by approximately 1,400 feet.

**Existing Site Improvements Alternative**

As shown in Table 3-14, walk times for pedestrians traveling to the passenger building from Mukilteo Station would decrease. Because the passenger building would be relocated to the east side of the SR 525-Front Street intersection, pedestrians walking from Mukilteo Station would no longer have to wait for the ferry vehicle loading and unloading process. The walk time between the transit center and the passenger building would increase because the distance between the destinations would increase by approximately 400 feet.

**Elliot Point 1 Alternative**

The average walk time between Mukilteo Station and the Mukilteo ferry terminal would increase because of the longer distance, but pedestrians would have improved facilities and fewer potential conflicts with vehicles.

Pedestrians walking from the proposed transit center, located west of the ferry terminal, to the passenger terminal would travel along a walkway on Possession Sound's shoreline. Bus passengers would not have to cross vehicle traffic to access the passenger terminal because it would be located on the western edge of the ferry dock. Because the transit center would provide a long curb zone for buses, the distance and associated walk time to the passenger building would depend on bus position.

Pedestrians walking from locations south of Second Street would likely use Mukilteo Lane and cross the railroad tracks at the existing Mount Baker crossing. The average walk time from these parking lots to the passenger building would be approximately 16 minutes, and from the ferry to the Second Street park-and-ride lot would be approximately 18 minutes. The increase in walk time for both directions would be about 11 minutes because the distance between these connections would increase by more than 2,600 feet.

**Bicycle Facility Conditions**

The addition of bicycle lanes to the roadway network varies by Build alternative. Under all alternatives, bicycles crossing the SR 525 bridge would share the lane with vehicle traffic, similar to existing conditions. Bicyclists would continue to use the vehicle toll booths to pay their ferry fare.

**No-Build Alternative**

The manner in which bicycles arrive at the Mukilteo ferry terminal, are processed through the toll booths, are directed to the managed holding area lanes, and are loaded onto the ferry for the No-Build Alternative would remain the same as existing conditions.
**Preferred Alternative**

This alternative would provide an eastbound bicycle lane on First Street between SR 525 and the west transit center driveway. A westbound bicycle lane would be provided along the terminal area exit lanes to First Street and continue west to SR 525.

**Existing Site Improvements Alternative**

Bicycle facility conditions for this alternative are similar to the No-Build Alternative.

**Elliot Point 1 Alternative**

This alternative would provide bicycle lanes in both directions along First Street between SR 525 and the Mount Baker crossing.

### 3.3.4 Public Transportation

Through 2040 and for all alternatives under consideration, Community Transit, Everett Transit, Island Transit, and Sound Transit are anticipated to continue providing bus and rail transit service connecting to the Mukilteo-Clinton ferry route.

**No-Build Alternative**

Access to the Mukilteo ferry terminal and the performance of transit facilities would remain essentially unchanged as shown by the transit travel times in Table 3-16.

#### Table 3-16. Transit Travel Times Serving Mukilteo Ferry Terminal (2040 PM Peak Period)

<table>
<thead>
<tr>
<th>Alternative</th>
<th>From First Street to Bus Stop/Transit Center (minutes)</th>
<th>From Bus Stop/Transit Center to First Street (minutes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing</td>
<td>0.6</td>
<td>0.2</td>
</tr>
<tr>
<td>No-Build</td>
<td>0.6</td>
<td>0.2</td>
</tr>
<tr>
<td>Preferred</td>
<td>1.7</td>
<td>1.8</td>
</tr>
<tr>
<td>Existing Site Improvements</td>
<td>0.6</td>
<td>0.9</td>
</tr>
<tr>
<td>Elliot Point 1</td>
<td>1.4</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Note: These travel times do not include additional time to serve a potential bus stop closer to the First Street-Park Avenue intersection.

**Preferred Alternative**

A new transit center on the waterfront east of the new terminal would have six bus bays and would serve scheduled routes and paratransit service. Its passenger amenities would include a waterfront promenade, benches, shelters, passenger information, and lighting. The facility would meet Everett Transit and Community Transit bus zone and layover space requirements.

This alternative would relocate the current bus stops at the SR 525-Front Street intersection to the new transit center. This relocation would increase the walking distance to Mukilteo Lighthouse Park and businesses along Front Street. Additional bus zones on First Street near Park Avenue are discussed in Section 3.7.3.
Transit signal priority would be provided at intersections along First Street. However, transit signal priority would not interrupt ferry vehicle unloading and may be of limited use where nearside bus stops are located. Because the transit center is farther than the existing stop location and buses pass through two new signals, the route time would increase by 1.1 minutes to the transit center and by 1.6 minutes away from the transit center compared to the No-Build Alternative.

The transit center would be approximately 770 feet closer to Mukilteo Station than the existing SR 525 bus stops near Front Street. Sounder passenger pick-up/drop-off would likely occur in the revised Mukilteo Station parking lot or along First Street.

**Existing Site Improvements Alternative**

A new transit center east of the holding lanes would include a ferry employee parking lot in between the bus stops. The transit center would serve scheduled bus routes. Paratransit service would use parking spaces on Front Street. The facility could include passenger amenities such as benches, shelters, passenger information, and lighting. Space for six buses would also be provided at the transit center. Because the site is constrained, only some of the buses would be able to depart before the bus in front departs.

Because the transit center would be slightly farther than the existing stop location and buses would pass through a new signal, the outbound route time would increase by 0.7 minute compared to the No-Build Alternative.

The transit center would be closer to Mukilteo Station than the existing SR 525 bus stops near Front Street (see Table 3-16). The facility would meet Everett Transit and Community Transit bus zone and layover space requirements. This alternative would have no impact on the Mukilteo Station parking area or passenger pick-up/drop-off area.

**Elliot Point 1 Alternative**

A new transit center on the waterfront west of the new terminal would have six bus bays and passenger amenities, including a waterfront promenade, benches, shelters, passenger information, and lighting. This transit center would serve scheduled routes and provide paratransit service. The facility would meet Everett Transit and Community Transit bus zone requirements, but separate layover space is not included on the site.

This alternative would relocate the current bus stops at the SR 525-Front Street intersection to the new transit center. This relocation would increase the walking distance to Mukilteo Lighthouse Park and businesses along Front Street. The potential for providing additional bus zones on First Street near Park Avenue is discussed in Section 3.7.3.

Transit signal priority would be provided at intersections along First Street; however, transit signal priority would not add time to the ferry vehicle unloading process. Because the transit center is farther than the existing stop location and buses would pass through three new signals, the route time would increase by 0.8 minute to the transit center and by 1.6 minutes away from the transit center compared to the No-Build Alternative.

The transit center would be located approximately 290 feet closer to Mukilteo Station than the existing SR 525 bus stops near Front Street. This alternative would not affect the Mukilteo Station parking lot because the roadway would be modified and the existing pick-up/drop-off area would be eliminated.
3.3.5 Parking

No increase in paid parking space is projected for the No-Build and Build alternatives, and on-street parking restrictions in Mukilteo were assumed to remain unchanged. Changes in parking by alternative are shown in Table 3-17. The projected increase in ferry-related park-and-ride demand from 2010 to 2040 was 43 percent or an additional 62 vehicles. Based on the December 2010 survey of how many spaces are typically occupied, adequate capacity would exist to accommodate this increase in demand.

Table 3-17. Parking Space Change by Alternative

<table>
<thead>
<tr>
<th>PARKING LOT</th>
<th>Parking Location</th>
<th>No-Build</th>
<th>Preferred</th>
<th>Existing Site Improvements</th>
<th>Elliot Point 1</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Southwest corner of SR 525 and Front Street</td>
<td>98</td>
<td>109</td>
<td>109</td>
<td>109</td>
<td>Off-Street private lot / paid (total does not include 5 vendor and 6 unmarked stalls)</td>
</tr>
<tr>
<td>B</td>
<td>Second Street between SR 525 and Park Avenue</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>40</td>
<td>Off-Street private lot / paid</td>
</tr>
<tr>
<td>C</td>
<td>Former Buzz Inn property (southwest corner of Front Street and Park Avenue)</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>This 45-space lot for Ivar’s Mukilteo Landing is not included in totals because its use would be displaced</td>
</tr>
<tr>
<td>D</td>
<td>Port of Everett Mount Baker Terminal</td>
<td>30</td>
<td>30</td>
<td>30</td>
<td>33</td>
<td>Combined Port of Everett and public lot</td>
</tr>
<tr>
<td>E</td>
<td>Mukilteo Station Parking</td>
<td>63</td>
<td>63</td>
<td>63</td>
<td>59</td>
<td>Sound Transit park-and-ride lot</td>
</tr>
<tr>
<td>K</td>
<td>New Lot at Terminal</td>
<td>--</td>
<td>--</td>
<td>--</td>
<td>43</td>
<td>Off-Street public lot</td>
</tr>
</tbody>
</table>

Net change compared to No-Build: 11 11 53

<table>
<thead>
<tr>
<th>ON-STREET/GENERAL PUBLIC PARKING</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
</tr>
<tr>
<td>G</td>
</tr>
<tr>
<td>H</td>
</tr>
</tbody>
</table>

Net change compared to No-Build: -17 -30 -31

| Total Parking Lot and On-Street Parking Spaces | 300 | 328 | 281 | 322 |

<table>
<thead>
<tr>
<th>WSF PARKING</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
</tr>
<tr>
<td>J</td>
</tr>
</tbody>
</table>

Subtotal: 43 40 53 40

Net change compared to No-Build: -3 10 -3
No-Build Alternative

This alternative would not change parking capacity near the Mukilteo ferry terminal (see Figure 3-8 and Table 3-17). The No-Build Alternative would provide slightly more than the minimum of 40 spaces needed for ferry employee parking.

Figure 3-8. No-Build Parking Area Map

Preferred Alternative

This alternative would increase the amount of public on-street parking and parking lot capacity by 28 spaces (see Table 3-17).

On-Street Parking

This alternative would remove approximately 26 on-street parking spaces (see Figure 3-9) due to the widening and realignment of First Street. This would reduce the number of on-street parking spaces along Park Avenue and eliminate parking on First Street between SR 525 and Park Avenue. This action could place additional parking demand on parking spaces west of Park Avenue, but replacement parking would be provided in a new parking lot south of the First Street-Park Avenue intersection.
Figure 3-9. Preferred Alternative Parking Area Map

Parking Lots
The number of parking spaces provided in parking lots would increase by up to 54 spaces. A new parking lot would be provided to the west of the Mukilteo Station parking lot. In addition, the parking spaces at the Mukilteo ferry terminal would be signed and managed for ferry employee parking only.

The Preferred Alternative would increase the walk time from parking areas to the Mukilteo ferry terminal, such as the Second Street parking lot, by approximately 6 minutes compared to the No-Build Alternative. However, ferry riders affected by this travel time increase represent a small portion of total ferry ridership. Potential business ramifications are discussed in Section 4.2 Land Use and Economics.

Ferry Employee Parking
Ferry employee parking would be co-located with the transit center east of the Mukilteo ferry terminal, and approximately 40 spaces would be provided. The existing holding area and the existing ferry employee parking area would be vacated. There are 11 parking spaces adjacent to Mukilteo Lighthouse Park that ferry employees currently use, and those could be converted to regular lot spaces, which would expand that lot’s capacity from 98 spaces to 109 spaces.

Existing Site Improvements Alternative
This alternative would reduce the amount of on-street and parking lot parking capacity by approximately 19 spaces.
**On-Street Parking**

This alternative would reduce the amount of on-street parking spaces near the Mukilteo ferry terminal by approximately 30 spaces (see Table 3-17).

**Parking Lots**

The parking capacity in lots would be increased by approximately 11 spaces. The removal of Ivar’s restaurant would reduce parking demand in the area.

**Ferry Employee Parking**

The parking area for ferry terminal employees could accommodate approximately 53 spaces. This amount exceeds the design criteria for 40 spaces but provides the flexibility to add capacity if needed, such as if a second slip is ultimately developed. Currently, ferry employees use 20 parking spaces in the existing parking lot (Lot A), which would no longer be needed. Eleven of the 20 parking spaces adjacent to Mukilteo Lighthouse Park would be converted to regular lot spaces, which would expand the parking lot (Lot A) from 98 spaces to 109 spaces. The other 9 spaces would likely revert to BNSF Railway use.

**Elliot Point 1 Alternative**

This alternative would increase the amount of on-street and parking lot parking capacity by approximately 22 spaces (see Table 3-17).

**On-Street Parking**

The Elliot Point 1 Alternative would result in a net loss of approximately 31 on-street parking spaces. The widening and realignment of First Street would reduce the number of on-street parking spaces along Park Avenue and eliminate parking in the area between SR 525 and Park Avenue. The loss of on-street parking could place additional parking demand on parking spaces west of Park Avenue.

Although some of the on-street parking would be replaced with the new parking lot at the Mukilteo ferry terminal, those spaces would be over 2,000 feet east of the Park Avenue-First Street intersection. This could increase the walk time to destinations by approximately 8 to 9 minutes. Because this parking lot would be used to access local businesses and the shoreline, there would be little impact on ferry passengers.

**Parking Lots**

The number of parking spaces provided in parking lots would increase by approximately 53 spaces. To improve safety, the Mukilteo Station parking lot would be redesigned to switch the orientation of the parking stalls and improve the vehicle approach angle to the driveway exit onto First Street. This would result in a loss of approximately four parking spaces. A new public parking lot at the Mukilteo ferry terminal would be constructed west of the holding area and Japanese Creek. ADA-compliant parking spaces would be provided at the adjacent transit center. The terminal parking would replace some of the lost on-street and Mukilteo Station parking. The Mount Baker Terminal parking area would be improved and provide
approximately 33 spaces for Port of Everett employees and the public. This area would provide parking spaces for the public to use when accessing the shoreline.

The Elliot Point 1 Alternative would increase the walk time from parking areas in Mukilteo, such as the Second Street parking lot, by approximately 11 to 12 minutes compared to the No-Build Alternative. However, ferry riders affected by this travel time increase represent a small portion of total ferry ridership. Potential business ramifications are discussed in Section 4.2 Land Use and Economics.

**Ferry Employee Parking**

Currently, ferry employees use 20 parking spaces in the existing parking lot (Lot A), which would no longer be needed. Ferry employee parking would be provided in a new parking lot at the Mukilteo ferry terminal, which would have 40 spaces. The existing 11 parking spaces adjacent to Mukilteo Lighthouse Park would be converted to regular lot spaces, which would expand the existing parking lot. The other 9 spaces would likely revert to BNSF Railway use.

### 3.3.6 Freight

**Rail Operations**

Rail operations would not be affected by any of the Build alternatives. The rail spur crossing Mukilteo Lane, which connects the Port of Everett and Paine Field, would experience an increased number of pedestrian crossings. However, it is used irregularly, and the indirect increase in foot traffic due to the opened shoreline access area would not affect rail operations.

**Truck Freight**

At the Mukilteo ferry terminal, truck freight traffic would continue to be directed to the designated holding area freight lanes for the No-Build and Existing Site Improvements alternatives. These lanes permit trucks to load independently of other ferry vehicle traffic. For the Preferred and Elliot Point 1 alternatives, truck freight could be required to mix with other ferry traffic in the holding area during peak periods because there would be fewer lanes to manage traffic.

### 3.4 Construction Impacts

This section describes the anticipated impacts from construction of the No-Build and Build alternatives. All project alternatives would involve both physical and operational changes to existing ferry terminal facilities and other facilities in the project area. Also, construction activities would sometimes increase congestion on SR 525 during peak travel periods.

#### 3.4.1 General Considerations for all Alternatives

**Limited Access to the Mukilteo Ferry Terminal**

An unavoidable challenge with construction activities for the Mukilteo ferry terminal is the limited access to the site; it can only be accessed from SR 525. Construction
access through the Mount Baker Terminal crossing is impossible because the roadway has load limit restrictions, is subject to landslides, is designated as a quiet zone, and would require trucks to use residential streets.

**Construction Timing and Activities**

The project would comply with WSDOT Ferries Division policy, which generally limits construction activities to the off-peak season. Although construction activities would have less impact during the off-peak season between September and May, the off-peak season still has substantial demands during evening commute periods. Ferry shoulder queuing on SR 525 could extend past Goat Trail Road and passengers could be waiting for over an hour to board the ferry during construction activities.

**Duration of Construction**

The No-Build Alternative would still involve construction activities for replacement of the Mukilteo ferry terminal’s aging infrastructure. The No-Build Alternative construction would consist of smaller projects lasting approximately 3 to 6 months over the next 20 years. All of the Build alternatives would remove the existing terminal and construct an improved terminal and supporting facilities with either a different layout (Existing Site Improvements Alternative) or at a new site (Preferred and Elliot Point 1 alternatives). The Existing Site Improvements Alternative would have construction activities lasting 1 to 2 years; the Preferred and Elliot Point 1 alternatives have more construction activities and would last about 3 to 4 years, although major activities would last only about 2 years.

The estimated length of construction could be either longer or shorter depending on design, permit conditions, phasing, and the contractor’s construction approach. Construction timing and duration would also depend on the availability of funding and other approvals. Site development and site preparation activities, such as property acquisition, demolition, and some utility relocation activities, could occur any time after the environmental process is complete. Major activities for any of the Build alternatives could begin by 2015, and the terminal could begin operation in 2018 or 2019.

**Duration of Mukilteo Ferry Terminal Closure**

The duration of the Mukilteo ferry terminal closure, which would divert ferry trips from Mukilteo to Edmonds during construction activities, varies by alternative. WSDOT could stage the No-Build Alternative to consolidate closures. While the smaller individual projects would last for 3 to 6 months, consolidating construction under the No-Build Alternative could close the terminal for 3 to 9 months. Construction activities for the Existing Site Improvements Alternative are anticipated to close the terminal for 1 to 2 months. The Preferred and Elliot Point 1 alternatives construction could occur without closure or with a short overnight or weekend closure.
3.4.2 No-Build Alternative

For this alternative, the construction activities associated with maintenance and structure replacements that would close the terminal are anticipated to last 3 to 9 months.

During initial construction, activities requiring temporary facility closure could be scheduled for weekends and nights to minimize disruptions to ferry users. During the ferry terminal closure, ferry service would be diverted to Edmonds. Passenger-only service could be maintained between Clinton and Mukilteo. Commuters would see an increase in their travel times and, potentially, need to change how they travel during this period.

Because the sailing time between Clinton and Edmonds is approximately 50 minutes compared to the 15-minute sailing time between Clinton and Mukilteo, travel time across Possession Sound would increase by approximately 35 minutes. This increased sailing time also means that fewer ferry trips per day would occur with the current number of ferries serving the routes. Currently, there are 37 ferry trips a day between Mukilteo and Clinton; the number of daily trips would be reduced to approximately 18 trips when sailing between Edmonds and Clinton. With fewer ferry trips, it is likely that more ferries would sail full, increasing the potential wait times for passengers who would need to wait for the next sailing.

In response, people would likely change their travel patterns in the following ways:

- **Driving**: Vehicles would be redirected to Edmonds, which would reduce the amount of traffic on SR 525 in Mukilteo and increase traffic on SR 524 and SR 104 in Edmonds. Cross streets connecting to SR 524 and SR 104 would experience negligible, if any, changes in traffic volumes. However, those streets would nevertheless experience delay because of the increased vehicular traffic on SR 524 and SR 104. Some of the people who previously chose to take their vehicles on the ferry may decide to drive around the north end of Whidbey Island on SR 20 or shift to a walk-on passenger mode because of the increase in ferry wait times.

- **Rail Passengers**: When the Mukilteo-Clinton route is diverted to Edmonds, passengers who continue their trip on the Sounder commuter rail would be able to connect at the Edmonds Station. The Sounder commuter rail would still provide service to Mukilteo.

- **Bus Passengers**: People making a connection between bus transit and the Mukilteo ferry terminal would need to alter their bus route to use existing Community Transit routes. This would require a transfer to complete the connection. People could also use Sounder train service to connect from Mukilteo to Edmonds during the AM peak and from Edmonds to Mukilteo during the PM peak. A direct bus shuttle service could also be provided between the two ferry terminals.

- **Park-and-Ride**: People who travel from Mukilteo to Clinton and leave their vehicles in parking lots in Mukilteo may not be affected if passenger-only service is maintained between Mukilteo and Clinton. The lack of passenger-
only ferry service could cause some people to seek park-and-ride space near the Edmonds ferry terminal.

- **Bicycles**: The distance between the Mukilteo and Edmonds ferry terminals is approximately 14 miles. Some bicyclists may choose alternative modes of travel.

- **Walk-on Passengers**: The majority of walk-on passengers would experience the effects described for rail, bus, and park-and-ride passengers. The remaining portion of walk-on passengers would need to use another mode of transportation because the distance between the Mukilteo and Edmonds ferry terminals is too far to walk.

- **Trip Avoidance or Disruption**: Some people may elect not to take some ferry trips during this time. These trips would tend to be elective and recreational trips and not work commute trips; however, work trips could also decrease. Closure during the peak summer season would have more impact on ferry users traveling in vehicles than the fall to spring season.

During the full closure periods, construction truck trips along SR 525 to the Mukilteo ferry terminal would peak for fill, asphalt, and concrete deliveries. These trips would likely be subject to travel restrictions during peak ferry times. This increase in truck traffic is not anticipated to greatly affect roadway operations because of the decrease in ferry vehicle traffic during the terminal closure.

Some of the on-street parking along Front Street closest to SR 525 would be temporarily removed during construction activities.

### 3.4.3 Preferred Alternative

The existing terminal would remain fully functional until the new multimodal facility is ready. The shift to the new terminal could occur overnight or with a short closure at night or on a weekend. Demolition of the existing facility would cause a short-term increase in truck traffic on SR 525. Construction-related truck traffic on SR 525 would primarily be for material deliveries and removal of demolition debris.

Depending on work phases, construction of the First Street extension could affect access to the Mukilteo Station parking lot and detours or route revisions would be needed, but access throughout the waterfront area would be maintained.

### 3.4.4 Existing Site Improvements Alternative

Although various portions of the existing site would need to be reconfigured and the area roadways would be modified, the Mukilteo ferry terminal would continue to operate during construction of most terminal replacement elements. Construction activities would still require schedule changes, including limited evening or weekend sailings, or weekend closures, but most of the site and facilities could be developed without affecting ferry operations. Full closure would be required for 1 to 2 months to replace the transfer span and other terminal elements. During this time, ferry service would be re-routed to Edmonds with effects similar to those described for the No-Build Alternative.
Some short-duration lane closures could occur; traffic operations would be maintained by a one-way flagger control. Because SR 525 provides the only access over the BNSF tracks, there are no detour options. Construction-related truck traffic on SR 525 would primarily be for material deliveries and removal of demolition debris.

Construction activities for the First Street extension would require temporary short-term closures of one or two lanes on SR 525, which would likely occur during non-peak ferry periods. This activity could be phased towards the end of the project to minimize disruption to the regular ferry operations. The First Street extension construction would last 3 to 4 months.

The transit center could be constructed early. Buses could then temporarily use Front Street and Park Avenue to access the relocated bus zones. Some parking along Front Street would be temporarily removed to accommodate the larger turning radius required for buses.

### 3.4.5 Elliot Point 1 Alternative

The construction impacts to transportation for the Elliot Point 1 Alternative would be similar to those described for the Preferred Alternative.

### 3.5 Indirect and Secondary Impacts

Indirect effects result from one project but, unlike direct effects, typically involve a chain of cause-and-effect relationships that can take time to develop and can occur at a distance from the project site. Induced growth or growth-inducing effects are terms used to mean indirect effects related to changes in land use, population density, or growth rate.

The base land use assumptions used to develop the future travel demand forecasts for this project (using the WSDOT Ferries Division Final Long-Range Plan model) are consistent with the GMA plans in Island County and Snohomish County. Therefore, the potential for “induced growth” is already incorporated into the forecasts as “planned growth” consistent with GMA plans. Also, because future vehicle volume increases are constrained by vessel capacity and there is a large estimated increase in walk-on passengers compared to vehicles in the future, the potential for any induced vehicle travel would be very small for this project.

### 3.6 Cumulative Impacts

Most cumulative transportation impacts are already assumed in the future year transportation projections used for the direct impact analysis in Section 3.4. This includes expectations for increased growth in local and regional population and employment, as well as the resulting increases in travel. Some of the other future development actions in the area could result in other impacts that could create different cumulative effects.
3.6.1 Sound Transit Mukilteo Station

Sound Transit’s Mukilteo Station is being developed in phases. A second phase of the project, which will be under construction from mid-2013 to fall 2014, will add a platform on the south side of the tracks, and provide a pedestrian bridge to connect the two platforms.

Sound Transit and the City of Mukilteo are continuing to study potential options for expanding parking; a specific site and layout designs have not yet been confirmed. More commuter parking for the Mukilteo Station would improve access to commuter rail service, which could increase local vehicle trips during the peak period.

To evaluate cumulative effects associated with parking at Mukilteo Station, the project team considered traffic impacts if parking is expanded by up to 130 stalls. Analysts assumed expanding parking would add 75 vehicle trips traveling to the parking area, and 20 vehicle trips leaving the parking area during the PM peak hour. The SR 525-5th Street intersection is anticipated to have slightly more delay but would operate better than the City’s LOS D standard with or without expanding parking.

3.6.2 NOAA Fisheries Service Mukilteo Research Station Expansion

NOAA Fisheries Service operates a laboratory immediately east of the Mukilteo ferry terminal and plans to upgrade the facility to include public outreach and education activities. These plans are not likely to result in a high number of vehicle trips to the facility beyond future levels already assumed in the traffic analysis in Section 3.4.

3.6.3 Port of Everett Mount Baker Terminal

The Preferred Alternative would extend First Street to the Mount Baker crossing. This extension would form part of a planned permanent public access road connecting to the Mount Baker Terminal. The Elliot Point 1 Alternative would extend completely to the Mount Baker Terminal. The Existing Site Improvements Alternative would not alter access to the Mukilteo Tank Farm or Mount Baker Terminal. If the Port of Everett improves access to the Mount Baker Terminal independent of the Mukilteo Multimodal Project, traffic conditions would be similar to those already assumed for this proposed project.

3.6.4 Mukilteo Tank Farm Land Transfer and Mount Baker Crossing

The transfer of the Mukilteo Tank Farm to the Port of Everett allows the Port to complete access improvements to the site. Chapter 2 Alternatives provides background on this site and its transfer from U.S. Air Force control to the Port of Everett and NOAA.

The Mount Baker crossing is an improved at-grade crossing of the BNSF tracks connecting Mukilteo Lane in the city of Mukilteo to the Mukilteo Tank Farm. This crossing is currently gated, but would be open for access to the public shoreline area near the Mount Baker Terminal when the Port has ownership of the tank farm and can complete the final roadway connection.
The City of Mukilteo intends for the Mount Baker crossing to be open to general-purpose traffic, but this could conflict with Elliot Point 1 Alternative operations. Project concerns would include intersection safety and potential ferry queue jumping. The Preferred Alternative would support the City’s plans without ferry operation conflicts because turn movements could be restricted; the Existing Site Improvements Alternative would not affect the crossing.

### 3.6.5 SR 525 Bridge

The SR 525 bridge over the BNSF railroad has been evaluated by WSDOT bridge engineers. Its current structural capacity and condition do not warrant rehabilitation or replacement at this time even though it does not fully meet ADA standards. The City of Mukilteo has expressed an interest in accelerating the replacement of the SR 525 bridge, but its replacement is not currently funded.

Eventually, construction of a new bridge with current ADA design standards could improve the safety and quality of pedestrian travel in the area. In addition, it would complement the other multimodal investments related to the Mukilteo Multimodal Project. Enhanced pedestrian facilities could increase walk trips by residents traveling from downtown to waterfront destinations, but volumes would likely remain similar to those assumed for the project alternatives. Construction of the bridge would likely require closure of SR 525, temporarily affecting access to the waterfront, Mukilteo ferry terminal, and Mukilteo Station.

### 3.7 Mitigation Measures

This section discusses measures that could mitigate the adverse effects identified above.

#### 3.7.1 Intersections Projected to Exceed Level of Service Standards

This section describes potential mitigation actions to improve the operations at intersections that would not meet the City of Mukilteo standards. Most of the delay at study area intersections is due to background growth and not the Mukilteo ferry terminal. Therefore, the proportionate share for mitigating the increase in delay is also small.

**SR 525-Front Street Intersection**

**No-Build and Existing Site Improvements Alternatives**

The 2040 forecast of LOS E for this intersection is for non-ferry traffic, which would experience most of its delay during the ferry loading and unloading process. When ferry traffic is not being loaded or unloaded, this intersection would operate at or better than the LOS D standard. The proportionate share of ferry vehicle traffic growth through this intersection for all 2040 traffic is 12 percent.

To reduce the delay to non-ferry traffic during ferry loading and unloading, the following mitigation actions could be taken:
• **Allow northbound SR 525 vehicles to turn left during ferry loading.**
  Currently, some vehicles are able to make this turn during the loading process; however, to be conservative in the intersection analysis, it was assumed the northbound left turn was prohibited. Evaluation of vehicle turning radii is needed to ensure there is adequate space for turning movements (two westbound right-turn lanes, one northbound left-turn lane, and an eastbound right-turn lane).

• **Provide additional breaks in the loading and unloading process.**
  Although this would benefit non-ferry traffic, adding time to the ferry turnaround process (loading and unloading) could cause some ferries to miss their scheduled sailings and passengers to miss their connections to the bus or train. When ferries miss scheduled sailings, the shoulder queuing length on SR 525 would increase and the amount of time ferry passengers wait for their ferry would increase.

**Preferred Alternative and Elliot Point 1 Alternative**
The SR 525-Front Street intersection is projected to operate at LOS B for these alternatives; therefore, no mitigation is needed.

**SR 525-88th Street SW Intersection**
The SR 525-88th Street SW intersection is a two-way stop-controlled intersection; only traffic on 88th Street SW is required to stop. By 2040, the operating conditions at this intersection are projected to degrade to LOS F for all alternatives because of the projected increase in vehicles passing through this intersection. The vehicle traffic from 88th Street SW represents 3 percent (65 vehicles) of this intersection’s volume during the 2040 PM peak hour. The estimated proportion of ferry traffic passing through this intersection is approximately 21 percent, but the growth in traffic from 2010 to 2040 attributed to ferry traffic would be approximately 5 percent.

**Preferred Alternative and All Other Alternatives**
WSDOT would work with the City of Mukilteo to develop final agreements on the improvements needed to reduce delay; potential measures to reduce delay for 88th Street SW movements include:

• **Convert lanes to right-turn pockets on 88th Street SW.**

• **Disallow left turns and through movements from 88th Street SW, diverting traffic to 92nd Street or 84th Street traffic light.** This would improve operations for eastbound and westbound right-turning vehicles from LOS F to LOS C.

**SR 525-5th Street Intersection**
The SR 525-5th Street intersection would operate at LOS E during the 2040 PM peak period for all alternatives. Delay for all movements at this intersection would be increased because the northbound ferry and non-ferry traffic movements have separate signal controls. Because ferry vehicle traffic would queue in the shoulder lane, a red
light would stop ferry traffic so northbound right turns could be completed safely. The estimated proportion of ferry vehicle traffic passing through this intersection is approximately 46 percent in the 2040 PM peak hour, but the growth in traffic from 2010 to 2040 attributed to ferry traffic is approximately 11 percent.

**No-Build, Preferred, and Existing Site Improvements Alternatives**

WSDOT would work with the City of Mukilteo to define the specific improvement needed to reduce delay, but the following measures would be effective:

- **Convert the 5th Street westbound right-turn only lane into a shared left-turn/right-turn lane and extend the merge area on SR 525 south of this intersection.** This would provide additional merge space for traffic turning onto southbound SR 525 from 5th Street southbound. This action would improve the intersection operations to LOS D.

**Elliot Point 1 Alternative**

During the 2040 PM peak period, the modeled vehicle queue from the toll booths would not extend to SR 525. If ferry and non-ferry traffic combined into the local lane (a shared through/right-turn lane) at the SR 525-5th Street intersection, it would operate at LOS C. However, the improvement described above for the other alternatives would likely be needed during the summer months.

### 3.7.2 Ferry Crossing Level of Service

By 2040, regardless of whether or not the Mukilteo Multimodal Project is implemented, the Mukilteo-Clinton ferry route is projected to be above the capacity standards described in Section 3.2.1. When the standards are exceeded, WSDOT would consider operational strategies identified in the ferry system Long-Range Plan to encourage demand to shift to other transit modes such as buses and commuter rail. The Mukilteo Multimodal Project alternatives, including the Preferred Alternative, already incorporate a number of the recommended strategies, including improved transit and non-motorized facilities.

### 3.7.3 Transit

**No-Build and Existing Site Improvements Alternatives**

The No Build and Existing Site Improvement alternatives would not require mitigation.

**Preferred Alternative**

The Preferred Alternative would relocate the current bus stops at the SR 525-Front Street intersection to a transit center east of Mukilteo Station. This relocation would increase the walking distances for some waterfront area destinations. During final design, WSDOT would coordinate with the City of Mukilteo, Sound Transit, Everett Transit, and Community Transit to consider adding new bus stops on the First Street extension.
Elliot Point 1 Alternative
The Elliot Point 1 Alternative would relocate bus stops on SR 525 to the new transit center, and could include the same mitigation measures as the Preferred Alternative.

3.7.4 Parking
This section describes how mitigation measures could reduce the loss of parking capacity near the Mukilteo ferry terminal.

No-Build Alternative
No mitigation is required for this alternative because there is no change in the parking supply.

Preferred Alternative
No mitigation is required because the alternative would create additional public parking spaces to replace public spaces that would be removed.

Existing Site Improvements Alternative
The preliminary design for this alternative would result in a loss of 30 on-street parking spaces near the Mukilteo ferry terminal. Mitigation to offset the loss could be difficult due to the lack of available land, but some spaces could be created on First Avenue or as off-street spaces in coordination with the City of Mukilteo.

Elliot Point 1 Alternative
No mitigation is required because the alternative would create additional public parking spaces to replace public spaces that would be removed.

3.7.5 Construction Mitigation

General Construction Mitigation

Preferred Alternative
As part of permits required by the City of Mukilteo, WSDOT would develop a construction traffic control plan. Anticipated elements of the plan include:

- Scheduling construction activities to minimize traffic disruptions
- Scheduling major activities such as larger concrete pours or large volume deliveries to be outside of peak seasonal or peak commute periods
- Enforcing time restrictions for truck traffic
- Managing truck traffic to avoid multiple trucks traveling simultaneously on local streets, such as Front Street and Park Avenue
- Constructing First Street improvements first and routing all construction traffic on First Street
**Elliot Point 1 Alternative**

Construction mitigation for the Elliot Point 1 Alternative would be the same as for the Preferred Alternative.

**No-Build and Existing Site Improvements Alternatives**

A construction traffic control plan would be developed. The No-Build and Existing Site Improvements alternatives would reroute all ferry-related traffic to the Edmonds ferry terminal during Mukilteo ferry terminal closures. The closures would vary in duration for these alternatives. For longer closures of the Mukilteo ferry terminal, WSDOT would do the following:

- **Communication and education campaign.** This strategy would alert and educate ferry passengers on how to complete their trip. The campaign would focus on ways to complete a trip without taking a vehicle on the ferry.

- **Signage.** Signage elements throughout the region (such as I-5) would redirect traffic to Edmonds. Additional signage around the Edmonds ferry terminal would be needed to provide direction for local circulation and to instruct ferry traffic not to block driveways and intersections.

- **Passenger-only service from Clinton to Mukilteo.** During construction it may be feasible to run a passenger-only ferry service from Clinton to Mukilteo to maintain connections to park-and-ride, bus, and rail transit.

- **Bus service from Edmonds to Mukilteo.** Bus or shuttle service from the Edmonds ferry terminal to existing bus routes at the Mukilteo ferry terminal or key destinations would maintain multimodal connectivity during construction.

- **Extended Edmonds ferry terminal shoulder queuing area.** Based on WSDOT experience in March 2011 with the temporary routing of Mukilteo-Clinton ferries to the Edmonds ferry terminal, additional space for queuing and separating vehicle traffic would be necessary. Two lanes on SR 104 from Dayton Street south to Paradise Lane could be used to separate vehicle traffic destined to Clinton or Kingston.

For short-term closures, WSDOT would provide a broad-based communication program to inform travelers and others, and to minimize disruptions.

**Additional Mitigation for Mukilteo Station Parking Impacts**

To mitigate the construction impacts of the Preferred and Elliot Point 1 alternatives on access and parking for Mukilteo Station, temporary parking may be needed. WSDOT would coordinate with Sound Transit and the City of Mukilteo to identify additional temporary parking supply and to develop construction staging plans that would minimize impacts on access and parking.
4 ENVIRONMENTAL IMPACTS AND MITIGATION

4.1 Introduction

This chapter discusses the environmental analysis and impacts associated with the proposed project. It comprises 13 sections, covering topics that include different aspects of the built environment (e.g., land use, noise, and vibration), the natural environment (e.g., ecosystems, water quality), historic and cultural resources, and commitment of resources.

Each section reviews the affected environment, analyzes potential environmental impacts that would result from the No-Build Alternative and the Build alternatives, and proposes mitigation and enhancement strategies to minimize negative environmental impacts. Each section analyzes long-term, short-term (construction), indirect (or secondary), and cumulative impacts.

The analysis of long-term impacts covers the permanent changes caused by the completed project. This includes the ferry terminal facilities and related improvements such as streets, sidewalks, and landscaping, and any mitigation measures developed as part of the project. The ongoing operation of the project is also considered.

The analysis of short-term or construction impacts covers the activities required to build the multimodal project, including all of the heavy construction activities and staging that would occur.

This Final EIS also considers the project’s indirect (or secondary) impacts on the environment. As defined under 40 Code of Federal Regulations (CFR) Section 1508.8(b), indirect effects “are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.”

The analysis of cumulative impacts considers the overall changes to the environment over time, including past, present, or reasonably foreseeable future actions, and evaluates the added impacts of the proposed project.

4.2 Land Use and Economics

This section reviews the potential for impacts on land use and economic activities in the project area. In addition, it identifies the property requirements for each of the alternatives, including the potential acquisition of properties that are not already being used for transportation purposes, and the displacement or relocation of their uses.

4.2.1 Overview of Analysis and Regulatory Context

The land use analysis discusses whether the proposed alternatives are compatible with local comprehensive plans, shoreline management programs, regional development plans, and the development regulations that implement the plans. It
also reviews long-term operations impacts and short-term construction impacts that
could affect existing land uses.

The economic analysis focuses on how the development and operation of the
multimodal facility would affect local and regional economic activities, either directly
or indirectly.

4.2.2 Affected Environment

The Mukilteo Multimodal Project area is located on Elliot Point in the northernmost
part of the city of Mukilteo, with a small part within the city of Everett.

Major land uses on Elliot Point include several large publicly owned properties as well
as private properties to the north of the BNSF tracks and commercial and residential
uses to the south (see Figure 1-2 in Chapter 1 Purpose and Need). The Mukilteo
Lighthouse Park occupies the west end of the point. This 14-acre City of Mukilteo
facility includes a boat launch and 6.6 acres of parking, as well as the historic Mukilteo
Lighthouse, a volleyball court, and picnic tables. The Mukilteo ferry terminal covers
about 2 acres, largely consisting of a vehicle holding area and a small area for
employee parking.

A condominium development, a restaurant, and a hotel are located along the shoreline
between the lighthouse and Park Avenue and occupy about 2 acres of land. Along
Front Street, Ivar's restaurant is located east of SR 525; a commercial parking lot
serving the restaurant is located east of the ferry holding area. A glass blowing studio is
located on Park Avenue at First Street. These private uses occupy about 1.5 acres.

The Mukilteo Tank Farm is a 20-acre parcel extending about 3,200 feet along the
shoreline, beginning on the east of Park Avenue and bounded on the south by the
BNSF Railway corridor. The Mukilteo Tank Farm consists largely of partially
demolished storage tanks and a variety of support facilities in various stages of
deterioration, as well as a 1,300-foot-long pier. NOAA Fisheries currently operates the
Mukilteo Research Station east of Park Avenue. The Mount Baker Terminal occupies a
1.5-acre site east of the Mukilteo Tank Farm.

The BNSF Railway owns a right-of-way at the edge of Elliot Point, which generally
forms the boundary between flat land to the north and a steep bluff to the south. This
rail line serves freight trains, Amtrak train service, and commuter passenger trains
operated by Sound Transit. The Sound Transit Mukilteo Station is located on the north
side of the BNSF tracks east of Park Avenue.

South of the BNSF tracks, land uses are primarily single-family residential west of
SR 525 and east of Park Avenue. A commercial area extends between the BNSF tracks
and Third Street, bounded by SR 525 on the west and Park Avenue on the east. The
City of Mukilteo Rosehill Community Center is located on a 5-acre site at Third Street
and Lincoln Avenue.

Other major land uses in the general area include the 1,300-acre Paine Field Municipal
Airport located about 2 miles to the south, and the 1,025-acre Boeing Everett Facility
about 2 miles south and a mile to the east. A commercial area extends along SR 525
between about 100th Street and 130th Street, approximately 3 miles to the south.
State, Regional, and Local Plans and Policies

The proposed alternatives are located primarily within the City of Mukilteo’s land use planning jurisdiction, with a small portion to the east within the Everett city limits. Land use is regulated and influenced by city plans and policies, as well as several state and regional plans and policies.

Growth Management Act. Washington State’s Growth Management Act (GMA) (Revised Code of Washington [RCW] 36.70A) of 1990 requires state and local governments to manage statewide growth by identifying urban growth areas (UGAs) and preparing comprehensive plans, capital improvement programs, and development regulations. The GMA requires infrastructure (transportation, water, sewer, and other urban services) to achieve population and employment targets established by the regional and local comprehensive plans. The GMA also specifies that transportation projects be identified and constructed concurrent with future development projects.

“Essential public facilities” (EPFs) are defined in the GMA (RCW 36.70A.200) as including state or regional transportation facilities of statewide significance. Ferry terminals as well as high-capacity transit facilities have statewide significance. Cities and counties are required to include a process for identifying and siting essential public facilities. Local jurisdictions cannot have local comprehensive plan or development regulations that preclude EPFs, but they can impose permitting conditions and require reasonable mitigation of impacts. The City of Mukilteo Comprehensive Plan, as discussed below, reflects the intent of the GMA and includes policies related to EPFs.

City of Mukilteo Comprehensive Plan. Mukilteo’s Comprehensive Plan was updated in 2012 and provides goals and policies to guide growth and development in the city (City of Mukilteo 2012). The Comprehensive Plan is a 20-year policy plan and, consistent with GMA requirements, includes land use, transportation, housing, capital facilities, utilities, economic development, and environmental elements.

The City’s Comprehensive Plan envisions the waterfront as a visitor- or tourist-oriented activity center with restaurants, a marina, and recreational opportunities with extensive public access. The Plan designates the existing Mukilteo ferry terminal, the Mukilteo Tank Farm, and surrounding area as COM (Commercial). The zoning of the Mukilteo Tank Farm is WMU (Waterfront Mixed Use), permitting a range of public and commercial uses, with multi-family as a secondary use. The area of the existing ferry terminal, ferry holding area, and nearby commercial and condominium uses is zoned DB (Downtown Business), permitting public and commercial uses, with multi-family as an accessory use. The Mukilteo Lighthouse Park is designated and zoned as OS (Open Space), permitting a variety of recreation and public uses and a limited range of commercial uses. Figures 4.2-1 and 4.2-2 show the Comprehensive Plan and zoning designations for the project area. While the ferry terminal is part of the state highway system and is not subject to local zoning, WSDOT designed the project alternatives to support the Comprehensive Plan objectives as much as possible, and considered the Plan’s underlying zoning designations in the site layouts. The state transportation plan includes the terminal relocation, and the City’s Comprehensive Plan anticipates the terminal relocation, as described in more detail in the following sections.
Figure 4.2-1. Comprehensive Plan Land Use

- Single-family Residential
- Parks/Public Open Space
- Commercial
- Industrial
- City Boundary

Data Sources: (Cities of Mukilteo and Everett, Snohomish County, WSDOT)
Figure 4.2-2. Zoning

Data Sources: (Cities of Mukilteo and Everett, Snohomish County, WSDOT)
The upland areas of Mukilteo south of the project site and along SR 525 are designated SFR-H (Single-Family Residential: 5.8 Dwelling Units/Acre). Smaller areas along SR 525 near 84th Street SW are designated as PSP (Public Semi Public), DB (Downtown Business), COM (Commercial), and OS (Open Space).

The Comprehensive Plan has several policies addressing the Mukilteo ferry terminal, derived from the March 1995 Mukilteo Multimodal/Intermodal Terminal and Access Study and Programmatic EIS (City of Mukilteo 1995). These policies include using the Central Waterfront Alternative as the basis for all planning activities related to the proposed Multimodal/Inter-Modal Terminal in downtown Mukilteo (Policy TR2).

The Mukilteo ferry terminal, SR 525, and the Mukilteo Station are identified as existing EPFs in Mukilteo’s Comprehensive Plan and Section 17.18.010 of the City’s Zoning Code. Both the City of Mukilteo and the City of Everett identify Mount Baker Terminal and the BNSF tracks as EPFs.

The City’s plans for the waterfront, particularly for the area in the vicinity of the existing ferry terminal, presume that the terminal will be relocated to the Mukilteo Tank Farm, allowing redevelopment of the current terminal site. Mukilteo’s Comprehensive Plan addresses development of transportation infrastructure on the Mukilteo Tank Farm in Policy TR4:

“Development of the Multimodal/Intermodal terminal and redevelopment of the Tank Farm site, should employ the following urban design techniques: a network of public paths, a waterfront promenade, a chain of waterfront parks, recreational opportunities such as a visitor dock and boat launch, new mixed use/commercial opportunities, public amenities downtown (e.g., benches, street lights, water fountains) and pedestrian oriented streetscapes.”

With the adoption of its 2012 update, the City revised this policy to place more emphasis on the public waterfront and recreational elements. The Waterfront Mixed Use District and Downtown Business District both carry design guidelines.

Everett Comprehensive Plan. Everett’s Comprehensive Plan was last updated in 2011. The area that could be developed by the Mukilteo Multimodal Project is designated Waterfront Commercial (Figure 4.2-1). Policies for this area are contained in the Shoreline Master Program, which are addressed below.

The Shoreline Management Act (SMA) is a state-mandated cooperative program of shoreline planning with local government and state responsibilities (RCW 98.58.050).

The SMA provides a framework to maximize public access to shorelines. The SMA regulations also guide other developments that would provide an opportunity for substantial numbers of people to enjoy the shorelines of the state (RCW 90.58.020). Local plans must provide an economic development element for the location and design of industries, transportation facilities, port facilities, tourist facilities, commerce, and other uses that depend on being located on or using shorelines of the state (RCW 90.58.100).

The Mukilteo Shoreline Master Program (SMP) was adopted in 1974. A comprehensive update and revision to the SMP was approved by the City of Mukilteo in December 2011, and was also approved by Washington State Department of Ecology.
Figure 4.2-3 shows the City’s SMP designations within the project area.

The project area is designated Urban Waterfront (UW), which is designed to provide for development and redevelopment of high-intensity, water-oriented commercial and recreational activities, transportation, and essential public facilities, while protecting existing ecological functions and improving ecological functions in areas that have been previously degraded.

The Mukilteo SMP (City of Mukilteo 2011) states that “Priority shall be given to water dependent uses, including ferry terminals and boat launches, in the Urban Waterfront Environment” (Policy UW1). Other policies also state that:

- “With the exception of pedestrian, bicycle, and emergency vehicle access, ferry vehicle staging, shared parking spaces, vehicle circulation and parking systems which are not related to shoreline-dependent uses shall be located as far from the shoreline as possible and should utilize offsite parking options such as park-and-ride facilities” (Policy SH17).

The City’s SMP provides for beach and tideland access along the western side of the city adjacent to Possession Sound. This program calls for a waterfront promenade and beach walk from Mukilteo Lighthouse Park to the east side of Mukilteo Tank Farm at the Everett city limits (17B.16.210, 17B.25.110, 17B.25.120 Design Guidelines 24, 17B.58.110).

The marine shoreline is classified as Critical Saltwater Habitat. This designation requires buffers to reduce potential impacts on the shoreline in accordance with best available science and as required by state or federal regulations. Buffer enhancement is required where existing buffer area vegetation provides minimal cover and cannot provide effective water quality or habitat functions.

Everett’s SMP was last updated in 2011 (City of Everett 2011). The area that could be developed by the project is designated Urban Multi Use. Figure 4.2-3 shows the City’s SMP designations within the project area. The purpose of this designation is:

- “To ensure optimum use of shorelines within urbanized areas by providing for water oriented public and commercial activities, recreational and residential uses, and public access, and by managing development so that it enhances and maintains shorelines for a multiplicity of urban uses, while protecting and restoring ecological functions.” The SMP specifically refers to a potential ferry development:

  - “This area is currently planned to be developed cooperatively with lands in the City of Mukilteo for a mixed use development to include some combination of recreational use, pedestrian paths and promenades, and commercial uses. The City of Everett shall redevelop its lands cooperatively and consistently with adjacent jurisdictions so that the entire site is an attractive and active waterfront with integrated commercial, transportation, and recreational components. This site shall be planned and developed cooperatively as part of a water-oriented mixed use development per the memorandum of understanding between the City of Everett, City of Mukilteo, Port of Everett, Department of Transportation Ferry System, and Sound Transit.”
Figure 4.2-3. Shoreline Management Program Environmental Designations

Environment Designations

- Urban Railroad
- Urban Waterfront
- Urban Waterfront Park
- Urban Multi-Use
- Shoreline Residential
- Conserving Wetland
- City Boundary
- Data Sources: (Cities of Mukilteo and Everett, Snohomish County, WSDOT)
Coastal Zone Management (CZM) Program, together with the Coastal Zone Management Act of 1972, requires activities of federal agencies that affect coastal zone land uses, water uses, or natural resources to be consistent with the state’s CZM program. Compliance with the local SMP constitutes CZM compliance.

Aquatic Lands Act, formerly the Washington State Aquatic Lands Act of 1984, provides for the protection and management of state aquatic lands. These lands include the tidelands in the project area. The Aquatic Lands Act is administered through DNR, which carries out the legislative direction to foster water-dependent uses, ensure environmental protection, encourage direct public use and access, and achieve similar goals.

PSRC Transportation 2040 identifies regionally important components of the area’s metropolitan transportation system. It includes a complete list of projects and transportation system improvements as well as the Mukilteo ferry terminal relocation (PSRC 2010).

Mukilteo Lighthouse Park Master Plan guides the continued development of the park. The plan proposes relocating the existing boat launch to the Mukilteo Tank Farm, but the relocation is not an element of any of the Mukilteo Multimodal Project alternatives.

Other Plans. There are no federal land use plans specifically applicable to the project area. The Washington Transportation Plan 2007-2026 incorporates the Washington State Ferries Long-Range Plan by reference (WSTC and WSDOT 2006). It also refers to capital facility planning strategies for facilities including the Mukilteo terminal, but does not provide project-specific direction. Chapter 1 Purpose and Need provides more discussion of the ferry system’s long-range strategic plan.

Washington’s State Comprehensive Outdoor Recreation Planning document provides general guidelines and policies for state agency lands and facilities. These policies emphasize the importance of public access to state resources, including shorelines, and provide for the sustainable management of those resources.

Economic Base

Mukilteo is primarily a residential community. It has a limited supply of commercial land, and residents rely primarily on retail centers in adjacent larger communities. Although Mukilteo residents have relatively high income levels and strong retail spending power, local businesses capture only a quarter of overall local spending. Even in convenience categories such as grocery, miscellaneous retail, and eating/drinking places, the businesses in the city are estimated to capture approximately half of the potential business from the city’s residential market. The primary locations where residents do most of their shopping are Alderwood Mall in Lynnwood and Everett Mall. These competitors limit the retail opportunities in the city of Mukilteo.

In addition, there is a limit to available commercial zoned land in the city. The residential and commercial lands are approaching buildout. The city contains about 4 million square feet of commercial land. Commercial vacant and underdeveloped lands are constrained, with a limited supply existing in the southern end of the city.
Industrial market opportunities are similarly constrained by the lack of developable land in the city.

The median household income in Mukilteo is considerably higher than both the Snohomish County and Washington State median incomes, as indicated in Table 4.2-1. Travel time information confirms that most of the working population is employed outside of the city limits.

**Table 4.2-1. Mukilteo Population and Economic Characteristics**

<table>
<thead>
<tr>
<th></th>
<th>Mukilteo</th>
<th>Snohomish County</th>
<th>Washington State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (2010)</td>
<td>20,254</td>
<td>713,335</td>
<td>6,724,540</td>
</tr>
<tr>
<td>Population 16 or older in labor force (2000)</td>
<td>11,812</td>
<td>368,828</td>
<td>3,374,721</td>
</tr>
<tr>
<td>Mean travel time to work (minute)</td>
<td>25.5</td>
<td>n/a</td>
<td>29.8</td>
</tr>
<tr>
<td>Median household income (in 2010)</td>
<td>$91,683</td>
<td>$66,300</td>
<td>$57,244</td>
</tr>
<tr>
<td>Per capita income (in 2010)</td>
<td>$40,649</td>
<td>$30,635</td>
<td>$29,733</td>
</tr>
<tr>
<td>Share of population below poverty level (2010)</td>
<td>n/a</td>
<td>5.7</td>
<td>8.4</td>
</tr>
</tbody>
</table>

n/a = not applicable
Source: U.S. Census (2010), American Community Survey (ACS) 2006-2010

Fairly low levels of growth are projected for Mukilteo as a whole and for the study area. The population within the existing boundaries of the city is expected to grow from about 20,250 in 2010 to 22,000 by 2025, and the majority of this growth would occur away from the study area. According to the City of Mukilteo Comprehensive Plan (City of Mukilteo 2012), there are approximately 190 undeveloped single-family residential lots in the city, about 250 underdeveloped lots, 250 lots in recent subdivisions, and capacity for approximately 229 multi-family units. Overall, there is the potential for about 990 additional dwelling units.

Within the study area, except for the Mukilteo Tank Farm, there are no undeveloped multi-family parcels, and very few single-family lots. Additional housing opportunities would likely come from mixed use development, especially in the downtown area and in the waterfront sub-area. The downtown area zoning allows for up to 999 square feet of accessory dwelling unit for each 1,000 square feet of commercial space constructed, with height limits that vary from 25 to 40 feet in the waterfront sub-area and 35 feet in the downtown business district.

### 4.2.3 Long-Term Environmental Impacts

The following sections address the anticipated long-term effects due to property acquisitions, changes in land use, or alteration of economic conditions as a result of the alternatives. While the EIS discussion evaluates the alternatives for their consistency with local comprehensive plans, the ferry terminal, as part of the state highway system, is considered an EPF and cannot be precluded by local plans or their permitting requirements. The ferry terminal itself is not subject to typical local
zoning requirements because it is part of the state highway system. The state transportation plan includes the terminal relocation, and the City of Mukilteo has anticipated the planned improvement for the terminal in its Comprehensive Plan, including the Plan’s land use and transportation elements. WSDOT also developed the alternatives in collaboration with the City, and considered the City’s Comprehensive Plan objectives in its designs as much as possible.

No-Build Alternative

Acquisition/Displacement

WSDOT would maintain its interests in the currently leased portion of the holding area.

Land Use Impacts

This alternative would not directly alter existing land uses because the configuration of the terminal and the existing land uses in the vicinity would remain the same, including the vehicle holding area.

The over-water facilities for the ferry terminal would be consistent with the goals of the SMA and the Aquatic Lands Act administered by DNR because they are water-dependent uses. The No-Build Alternative would not fully provide improvements needed to meet other goals of both acts, such as environmental protection and direct public use and access.

The holding area is set back approximately 160 feet from the shoreline’s ordinary high water mark (OHWM). This distance generally meets the criteria of accommodating the ferry terminal as a water-dependent use while locating ferry, vehicle staging, shared parking spaces, vehicle circulation, and parking systems as far from the shoreline as possible.

The continued presence of the terminal in the downtown area would not be consistent with the City’s adoption of the Central Waterfront Alternative of the 1995 Mukilteo Multimodal/Intermodal Terminal and Access Study. The study’s Central Waterfront Alternative presumed the terminal would be relocated to the Mukilteo Tank Farm. Moreover, it would not be consistent with the City’s desire to redevelop the existing ferry terminal area to provide a pedestrian-oriented waterfront along Front Street with mixed use on the south side of Front Street and a waterfront promenade extending from Mukilteo Lighthouse Park to the Mount Baker Terminal. This scenario is also reflected in the City of Mukilteo Comprehensive Plan Policies TR2 and TR3.

Economic Impacts

WSDOT would spend an estimated $60 to $65 million (2015 dollars) through 2030 for facility maintenance and structure replacements at the ferry terminal as they become necessary. This expenditure would provide short-term economic activity through job creation, purchase of materials, and sales tax revenue to the state. The alternative would generate approximately 230 short-term construction jobs, which is estimated by using a standard multiplier for the type of construction. Indirectly, these jobs would generate about 150 additional jobs in the region because these workers would spend some of their income on local goods and services. Direct sales tax revenues from the project are
estimated at about $2.8 million. The City of Mukilteo, however, is likely to receive only a small portion of this tax revenue because suppliers of materials are not likely to be located in Mukilteo.

The No-Build Alternative would maintain current land uses and economic activities on the site and in the immediate vicinity. The traffic congestion associated with the terminal, particularly on Front Street, would continue to constrain access to businesses; some businesses perceive this constraint as reducing their economic viability. However, some ferry patrons would buy convenience items or other products or services from businesses in the immediate vicinity.

Impacts on the range of economic activities that could develop along the Mukilteo waterfront are discussed under indirect and cumulative impacts (Sections 4.2.5 and 4.2.6).

Preferred Alternative

**Acquisition/Displacement**

This alternative would affect the following properties:

- The Mongrain Building, which houses glass blowing studios and other businesses at Park Avenue and First Street, would be acquired for the First Street extension, and the uses would be displaced. At this time, a specific site for relocating the associated businesses has not been identified, but compensation and relocation assistance would be provided in compliance with applicable regulations. The requirements of the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act (42 United States Code [USC] 4601) are discussed below in Section 4.2.7.

- WSDOT would buy a portion of a parcel it currently leases for the existing terminal.

- Approximately 9 acres of the Mukilteo Tank Farm would be developed.

- The existing Port of Everett fishing pier and seasonal day moorage on Port of Everett property would be removed.

**Land Use Impacts**

The over-water facilities for the ferry terminal would be consistent with the SMA goals and the Aquatic Lands Act because they are water-dependent uses.

The location of the alternative within the Mukilteo Tank Farm would be consistent with the *City of Mukilteo Comprehensive Plan*.

Parts of the vehicle holding area and transit facilities have a narrower shoreline setback than the SMP defines for non-water-dependent uses. The SMP criterion also requires other non-water dependent features, such as parking, to be as far back from the water as possible.

The Preferred Alternative generally conforms with the City of Mukilteo SMP policies, although some design elements do not fully meet the program’s exact
specifications. Further coordination with the City of Mukilteo will take place during final design and permitting.

A continuous shoreline promenade would be provided and pass through the passenger terminal. If possible, the terminal design would incorporate public viewpoints along this part of the promenade.

The promenade would contribute to the 20 percent of open space and public access required by City of Mukilteo SMP policies for development on the Mukilteo Tank Farm. While the promenade would not alone satisfy the requirement, it would not preclude the development of open space on other parts of the ferry terminal or other portions of the tank farm.

The design for the Preferred Alternative creates an additional parking area at SR 525 to address changes in on-street parking spaces along Park Avenue and First Street. The design also avoids parking impacts at Mukilteo Station. On-street and off-street parking supply for the waterfront area would increase slightly.

**Economic Impacts**

WSDOT would spend about $125 to $135 million (2015 dollars) to construct the Preferred Alternative, including the pier removal. This would provide short-term economic activity through job creation, purchase of materials, and sales tax revenue to the state. Based on a standard multiplier for the type of construction, the project would generate approximately 380 short-term construction jobs. Indirectly, these jobs would generate about 250 additional jobs in the region because these workers would spend some of their income on local goods and services. The City of Mukilteo is likely to receive only a small portion of direct tax revenue from the purchase of materials because suppliers of materials are not likely to be located in Mukilteo.

The acquisition of an existing building and the displacement of its associated uses would not have a substantial impact on the overall economic base of Mukilteo given the 4 million square feet of commercial use in the city, but it would affect the businesses using the building. This acquisition is unlikely to affect the viability of the local commercial area, especially if the existing terminal site is made available for redevelopment. The potential redevelopment is discussed under indirect and cumulative impacts (Sections 4.2.5 and 4.2.6).

**Existing Site Improvements Alternative**

**Acquisition/Displacement**

As shown in Figure 4.2-4, this alternative would require the following acquisitions:

- The existing Port of Everett fishing pier and seasonal day moorage would be removed.
- The existing Ivar’s restaurant on the shoreline would be acquired for a new passenger building. The parking lot south of Front Street would be acquired for employee parking and the transit center. There is little potential for relocating the restaurant in the vicinity.
- The property currently leased for the ferry holding area would be acquired for the reconfigured vehicle holding area and the transit center.
Figure 4.2-4. Properties Affected by the Alternatives

1. Port of Everett Fishing Dock/Moorage
2. Ivar’s Restaurant
3. Lot owned by A&J Enterprises (currently leased by WSF)
4. Parking Lot for Ivar’s Restaurant
5. Mongrain Building

Legend:
- All Alternatives
- Existing Site Improvements
- Alternative Only

Mukilteo Multimodal Project
• The Mongrain Building, which houses glass blowing studios and other businesses at Park Avenue and First Street, would be acquired, and its uses would be displaced.

**Land Use Impacts**

This alternative would have few direct impacts on existing land uses because the configuration of existing land uses in the vicinity would change little. The expanded terminal would eliminate a sizable restaurant, which is one of the few businesses on the waterfront that attracts a substantial number of people. The displacement of this business would conflict with the City’s goal of providing a pedestrian-oriented waterfront along Front Street.

The vehicle holding areas would be expanded. This area is set back approximately 160 feet from the edge of the water, and generally meets the criteria of accommodating the ferry terminal as a water-dependent use while locating ferry vehicle staging, shared parking spaces, vehicle circulation, and parking systems as far from the shoreline as possible.

Plans for the new passenger terminal facility remain conceptual; it is unknown at this time whether the terminal would allow public enjoyment of the water. This alternative does not advance the SMP provisions that call for continuous access along a waterfront promenade extending from Mukilteo Lighthouse Park to the Mount Baker Terminal. At-grade pedestrian crossings of the ferry loading area would still be provided via sidewalks, which is similar to today with crossings limited during loading and unloading.

Some public parking spaces on Front Street and Park Avenue that are typically used by local business patrons and persons accessing the shoreline would be eliminated. Demand for parking may not be adequately accommodated by the remaining spaces.

The displacement of the Port of Everett fishing pier would represent a net loss of shoreline public access facilities if it were not replaced.

Accommodation of the over-water facilities for the ferry terminal would be consistent with the SMA goals and the Aquatic Lands Act.

The continued presence of the terminal in the downtown area would not be consistent with the City’s *Comprehensive Plan*, which envisions creating a transit-oriented destination on the Mukilteo Tank Farm and supporting the redevelopment of the existing terminal site.

**Economic Impacts**

WSDOT would spend about $130 to $140 million (2015 dollars) to construct this alternative. This would provide short-term economic activity through job creation, purchase of materials, and sales tax revenue to the state. Based on a standard multiplier for the type of construction, the alternative would generate approximately 490 short-term construction jobs. Indirectly, these jobs would generate about 325 additional jobs in the region because these workers would spend their income on local goods and services. Sales tax revenues are estimated at about $6.2 million. The City of Mukilteo is likely to receive only a portion of direct tax revenue from the purchase of construction materials because all suppliers are not likely to be located in Mukilteo.
Traffic congestion associated with the terminal would continue, particularly on Front Street. Congestion affects access to businesses and is perceived by some to reduce their economic viability.

The displacement of two properties with approximately seven existing businesses would not have a substantial impact on the overall economic base of Mukilteo given that there are 4 million square feet of existing commercial space throughout the city. The City of Mukilteo estimates a potential loss of $50,000 annually in sales tax revenue from the businesses. An estimated 30 to 40 employees would be affected by the business displacements. Removal of Ivar’s restaurant would eliminate the only business along the shoreline that provides opportunities for a close view of the water. There is little potential for relocating the restaurant in the immediate vicinity because of the lack of privately owned sites. There may be potential for relocation in the future to portions of the Mukilteo Tank Farm, but this would depend on several other factors, including the availability of the land, and when the Port or others would be able to prepare the site for development.

Impacts due to other potential developments along the Mukilteo waterfront are discussed under indirect and cumulative impacts (Sections 4.2.5 and 4.2.6).

**Elliot Point 1 Alternative**

**Acquisition/Displacement**

This alternative would affect the following properties:

- The Mongrain Building, which houses glass blowing studios and other businesses, at Park Avenue and First Street would be acquired, and its uses would be displaced.
- Approximately 11 acres of the Mukilteo Tank Farm would be developed.
- The Mount Baker Terminal public shoreline access area’s layout would be altered to accommodate vehicle access to the terminal. See Chapter 5 Section 4(f) for further discussion of impacts and mitigation for parks and recreation resources.

**Land Use Impacts**

This alternative would have a variety of impacts in relation to the applicable land use plans.

City of Mukilteo policies call for 20 percent of the development within the Mukilteo Tank Farm to be provided as open space or public access. The shoreline promenade and the daylighting of Japanese Creek would help meet this requirement.

Accommodation of the over-water facilities for the ferry terminal would be consistent with the goals of the SMA and the Aquatic Lands Act.

This ferry terminal location would be consistent with the *City of Mukilteo Comprehensive Plan*. 
The vehicle holding area, transit facilities, and parking area would have minimal setback from the water and would not generally meet the SMP criterion for locating non-water-dependent uses as far from the shoreline as possible.

This alternative would respond to the SMP provisions that call for continuous access along the waterfront promenade extending from Mukilteo Lighthouse Park to the Mount Baker Terminal. It only partially achieves the objective by providing walkways along much of the shoreline and bicycle and pedestrian facilities set back from and parallel to the shoreline. Continuous pedestrian movement along the shoreline is interrupted by the ferry loading area. To access the shoreline promenade east of the ferry terminal, a pedestrian would have to walk to First Street and travel about 1,500 feet to get back to the promenade immediately east of the ferry loading area.

The location of the passenger terminal and maintenance facility on an over-water structure might conflict with SMP Policy UW 13, which limits new over-water structures to the minimum necessary to support the structure’s intended use, and also requires shared pedestrian access.

The alternative would maintain parking spaces and public access to the shoreline access area at the Mount Baker Terminal, but would alter the site’s current layout. Public access is required under a permit condition for the Mount Baker Terminal. The Everett Shoreline Substantial Development Permit requires a permanent public access road, although implementation was delayed pending the Mukilteo Tank Farm transfer to the Port.

**Economic Impacts**

WSDOT would spend about $150 to $165 million (2015 dollars) to construct this alternative and remove the Tank Farm Pier. This would provide short-term economic activity through job creation, purchase of materials, and sales tax revenue to the state. Based on a standard multiplier for the type of construction, the project would generate approximately 475 short-term construction jobs. Indirectly, these jobs would generate about 315 additional jobs in the region and some workers would spend their income on local goods and services. Sales tax revenues are estimated at about $6 million, a portion of which may go to the City of Mukilteo.

The acquisition of an existing building and the displacement of its associated uses would not have a substantial impact on the overall economic base of Mukilteo given the 4 million square feet of commercial use in the city, but it would affect the businesses using the building. It is unlikely to affect the viability of the local commercial area, especially if the existing terminal is made available for redevelopment.

Potential development on the existing ferry terminal site and the Mukilteo Tank Farm site is discussed under indirect and cumulative impacts (Sections 4.2.5 and 4.2.6).

**4.2.4 Construction Impacts**

**No-Build Alternative**

Construction would take place only as facilities require replacement, and would occur on lands already dedicated to transportation uses. Construction would have temporary effects on adjacent uses from noise, and possibly temporary disruption of traffic...
circulation. Construction would occur only as specific facilities warrant major repair or replacement and would take place on limited facilities at any one time. The ferry terminal would be closed temporarily for work on in-water facilities.

Construction would temporarily disrupt access to local businesses, but is not expected to be severe enough to change land use during construction. Economic impacts during construction could result from avoidance of the area by retail and restaurant customers due to disruption of traffic circulation and noise impacts. Such impacts, however, are expected to be managed by WSDOT to ensure they do not adversely affect the economic viability of any businesses.

**Preferred Alternative**

Construction would take place on a separate site, and the existing terminal would operate until construction is complete and new facilities are opened. Noise or traffic from the construction of new facilities and demolition of existing facilities may affect adjacent uses, including a hotel and the NOAA facility. However, construction impacts are unlikely to result in a change in land use or adversely affect the economic viability of adjacent land uses because noise-sensitive receptors are farther away. There is also the potential for temporary construction access routes to adversely affect the redevelopment of nearby properties, such as the NOAA laboratory, if the projects occurred concurrently.

**Existing Site Improvements Alternative**

Construction is likely to have temporary noise impacts on adjacent uses, such as a condominium building and the Silver Cloud Inn, and possibly temporary disruption of traffic circulation. The loss of ferry service for an anticipated 1- to 2-month period may have economic impacts on businesses due to retail and restaurant customers avoiding the area because of disruption in traffic circulation and noise impacts. Businesses that depend on ferry traffic for patronage would experience a decrease in business during ferry closures.

**Elliot Point 1 Alternative**

Construction impacts would be similar to the Preferred Alternative.

**4.2.5 Indirect and Secondary Impacts**

**No-Build Alternative**

The indirect impacts from retaining the existing site would include increased traffic-related problems; the City of Mukilteo has stated that these issues would constrain the development of its downtown waterfront area. Ferry operations would be similar to present conditions. Traffic congestion on local roadways at peak periods would continue to worsen as current problems remain unsolved. However, traffic congestion would likely not affect existing land use or have economic effects different from those described as direct impacts.
Preferred Alternative

The relocation of the ferry terminal to the Mukilteo Tank Farm would result in more efficient ferry operations. At peak periods, operational delays would be less frequent. Traffic congestion on local roadways at peak periods would be less because of the greater capacity of the holding area. The development of an access road to the Mukilteo Tank Farm would also allow the Port of Everett to complete the public access route needed to open its shoreline area, as planned for the Mount Baker Terminal.

Plans to revitalize the waterfront would be supported by the expansion of the active waterfront area and the development of the access road and shoreline promenade. Unused areas of the tank farm site as well as areas vacated by WSDOT could provide increased opportunities to develop public open spaces or other uses consistent with the adopted land use plans of the Cities of Mukilteo and Everett. Design elements and interpretive features that reflect the site’s rich cultural history and marine setting could also make the area more attractive to visitors.

Existing Site Improvements Alternative

Potential traffic-related indirect impacts would be similar to the No-Build Alternative discussed above, although perhaps to a lesser extent due to the reconfiguration of facilities and a new intersection at First Street.

The displacement of parking for oversized vehicles, Ivar’s restaurant, and another local business could reduce non-ferry patronage to the area as well as decrease patronage for other commercial uses. This might slow or constrain the City’s ability to develop the area consistent with its plans. Design features or interpretive elements reflecting the area’s historic significance could make the area more attractive to visitors and patrons.

Elliot Point 1 Alternative

Potential indirect impacts would be similar to the Preferred Alternative discussed above; however, this alternative could potentially improve SR 525 congestion even more during peak travel times because the access roadway can hold more vehicles. As with the Preferred Alternative, the opportunity to integrate context-sensitive designs and open spaces reflecting the site’s history and marine setting would help support revitalization of the area.

4.2.6 Cumulative Impacts

Land use trends were established within a short period after the Puget Sound region was settled by non-indigenous people in the 19th century. While development began in Mukilteo around the same time, it accelerated in the 1950s and 1960s with the construction of the Mukilteo ferry terminal and I-5. The land uses at the waterfront area have changed over time following development of the railroad and subsequent development of lumber, industrial, and shipping uses. This was followed by the military uses on what is now the Mukilteo Tank Farm. Other changes have included the development of the ferry terminal, the steady development of the surrounding neighborhoods in Mukilteo, and the transition to the existing uses in the area today.
For the future, the City of Mukilteo’s land use planning for the waterfront reflects an increasing emphasis on the shoreline as a valuable public and environmental resource.

The City and Sound Transit are considering other longer term plans for adding parking for the Mukilteo Station, and are considering various sites along the waterfront. Depending on the ultimate site, the addition of parking could help support the City’s waterfront vision.

These plans and projects could encourage future developments and changes to existing land uses, particularly in the area north of the BNSF tracks. Future developments would be subject to the conditions established by the City of Mukilteo’s adopted land use plans, so these developments would be consistent with the City’s land use goals and policies.

**No-Build Alternative**

This alternative would not directly affect the Mukilteo Tank Farm. With the transfer of the Mukilteo Tank Farm to the Port of Everett, the parcel would be available for redevelopment under Mukilteo and Everett land use regulations. The City of Mukilteo has proposed to relocate the boat launch ramp currently located at the Mukilteo Lighthouse Park; it could be accommodated at the Mukilteo Tank Farm.

If the redevelopment of the Mukilteo Tank Farm relies on the existing road network, traffic congestion at SR 525 and Front Street could constrain access, which could limit redevelopment of the Mukilteo Tank Farm.

NOAA’s plans for the Mukilteo Research Station within its portion of the Mukilteo Tank Farm include:

- Upgrading laboratories for the study of ocean toxicology, restoration of marine species and ecosystems, and ocean acidification
- Developing a new outreach and education center on the waterfront
- Rebuilding the existing pier, replacing or improving the clean seawater supply system used for laboratory research
- Improving support facilities for a fleet of small boats, field gear, and supplies

These changes would be subject to the City of Mukilteo’s development regulations and are not likely to affect land uses in the vicinity or change redevelopment options for other portions of the Mukilteo Tank Farm.

The discussion of direct effects for this alternative noted that it would not support the City of Mukilteo’s land use policies focusing on redeveloping the existing terminal and nearby lands. In the long term, the presence of the terminal and associated traffic congestion, particularly on Front Street, may affect the economic viability of businesses that depend on convenient access for their customers, especially non-ferry customers. It is possible, however, that the continuing presence of the ferry terminal would provide a customer base that would support existing establishments, and could lead to other businesses oriented to persons waiting to board ferries.
As indicated above, traffic congestion at SR 525 and Front Street could impede redevelopment of the Mukilteo Tank Farm and curtail economic activity.

**Preferred Alternative**

Relocation of the ferry terminal would allow WSDOT to release its interests in the existing vehicle holding area as well as at the existing terminal building. This could result in approximately 1 acre of land (not including First Street) available for other uses, subject to the City of Mukilteo mixed use zoning requirements. Under City codes, this area could accommodate about 66,000 to 160,000 square feet of first-floor retail space, depending on whether surface or structured parking were used. It would also accommodate between 80 and 160 upper-story residential units, depending on available parking and number of floors. NOAA’s planned redevelopment of its facility could contribute to a more integrated district. Otherwise, the impacts of NOAA facilities considered for development in the area would be the same as described under the No-Build Alternative.

Areas on the Mukilteo Tank Farm that are not needed for the Preferred Alternative could be available for other uses, including future redevelopment. This could result in the waterfront area having diverse land uses and economic functions rather than functioning as a single district. The City’s policies require 20 percent of the Mukilteo Tank Farm site be reserved for public use or open space. The Preferred Alternative includes a promenade, which would contribute to meeting this requirement. Development plans for other parts of the Mukilteo Tank Farm would also be required to contribute to the 20 percent public use or open space requirement.

The anticipated relocation of the City of Mukilteo boat launch ramp currently at Mukilteo Lighthouse Park could be accommodated at the Mukilteo Tank Farm. The ramp would have to be located east of the ferry terminal and would require additional access and site development. This could potentially be combined with the completion of public access serving the Port of Everett’s shoreline access area at the Mount Baker Terminal.

Also, the City of Mukilteo is working with Sound Transit to explore concepts for developing additional parking facilities for the waterfront, including potentially a parking garage. These plans are in early stages and the size, location, timing, and configuration of the facilities are not yet known. Increased parking could address problems associated with limited parking for the Mukilteo Lighthouse Park and could help make the waterfront area more accessible to more visitors and business patrons.

**Existing Site Improvements Alternative**

If the terminal remains at its current location, NOAA facilities could still be improved and the City could still relocate its boat launch on the Mukilteo Tank Farm, and other areas of the tank farm could be available for redevelopment by others, which would generate economic activity. However, traffic congestion at SR 525 and Front Street could impede redevelopment, although to a lesser extent than with the No-Build Alternative because the extension of First Street to a new signalized intersection at SR 525 would improve traffic operations in the area.
Elliot Point 1 Alternative

As with the Preferred Alternative, relocation of the ferry would likely result in WSDOT releasing its interests in the existing vehicle holding area, which would allow redevelopment of the area.

For development of the Mukilteo Tank Farm, the City’s policies require 20 percent of the site be reserved for public use or open space. The Elliot Point 1 Alternative includes a promenade and daylighting of Japanese Creek, which would partially meet this requirement. However, development plans for other parts of the Mukilteo Tank Farm would be required to help satisfy the requirement.

If the existing holding area can be developed, along with other remaining developable areas on the Mukilteo Tank Farm, the entire area would have more potential to function as a single business district as compared to the Preferred Alternative. The configuration of the parcel reserved for NOAA could contribute to a more integrated district. Otherwise, the impacts of NOAA facilities considered for development in the area would be the same as described under the No-Build Alternative.

The City of Mukilteo boat launch ramp could be relocated from the Mukilteo Lighthouse Park to be part of the Elliot Point 1 Alternative development on the Mukilteo Tank Farm, but details of its access and siting would require further planning.

4.2.7 Mitigation Measures

Acquisition of private property would occur under all Build alternatives. WSDOT would provide compensation at fair market value for property and property rights acquired; relocation assistance for displacement would be provided in accordance with applicable federal and state regulations.

If the project uses federal funding, then it must comply with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act (42 USC 4601). The act establishes a uniform policy on relocation assistance and on real property acquisition practices for programs or projects undertaken by a federal agency or with federal financial assistance. The primary purpose of this policy is to minimize the hardship of displacement on people and ensure that they do not suffer disproportionate injuries. As defined by this federal act, a displaced person is any person (family, partnership, corporation, or association) who moves from or moves their personal property from the real property affected (49 CFR Part 24.2).

The Washington State Real Property Acquisition Policy Act (RCW 8.26) is similar, except it establishes policy for the public works programs and acquisition practices of state and local governments. Implementing regulations for WSDOT are found in Washington Administrative Code (WAC) 468-100; all activities related to acquisitions, displacements, and relocations will comply with the requirements of this regulation. According to the state’s property acquisition act, a displaced person who is required to move can include any individual, family, partnership, corporation, or association who moves or moves their personal property from the real property affected (RCW 8.26.020(4)).
For the Preferred Alternative, mitigation measures include:

- WSDOT would work with the City of Mukilteo during final design to resolve areas where the project does not fully meet Shoreline Management Plan criteria. WSDOT may modify the project’s design, or it may ask the City for an exemption or provide other compensatory features such as additional open space as mitigation. Potential final design modifications could include increasing the setback for non-water-dependent elements; reducing storage lane capacity where the current design exceeds the capacity required under WSDOT’s design criteria; modifying the location of the employee parking area; or increasing the setback for the transit area. However, potential final design modifications will need to consider WSDOT’s design criteria for ferry terminals, impacts on potential archaeological resources, other environmental impacts, tradeoffs in transportation benefits and safe and secure facility operations, and other factors.

For the Existing Site Improvements Alternative potential mitigation measures include:

- Provision of public access facilities specified in the SMP could be accommodated by providing a pedestrian walkway on the water side of the proposed passenger terminal separated from ticketed ferry passengers. An example of such a facility is at the adjacent Silver Cloud Inn; however, this walkway would create additional over-water coverage.

- A pedestrian overpass over the ferry loading area would accommodate public access along the shoreline without pedestrian and vehicle conflicts.

For the Elliot Point 1 Alternative potential mitigation measures include:

- Changes in the site plan that could help the alternative meet the SMP criteria of locating vehicle-related elements (e.g., parking) farther from the shoreline. However, feasible options must meet the project’s purpose and need while contending with the site’s many physical and environmental constraints. For instance, one approach that would move vehicle-related elements away from the shoreline may cause additional impacts on cultural resources, may hinder opportunities to daylight Japanese Creek (or require bridging the creek), and may degrade the efficiency of ferry operations. Options must be evaluated in terms of tradeoffs in transportation benefits and safe and secure facility operations. If the site plan cannot be adjusted to meet the SMP criteria without unacceptably compromising the project’s purpose and need or creating unacceptable impacts on environmental or cultural resources, a mitigation strategy would provide compensatory open space areas along the shoreline in areas west of the terminal.

- Locating the passenger terminal and maintenance facilities on land rather than on an over-water structure would respond to SMP policies limiting over-water facilities to the minimum needed. However, this would involve assessing the tradeoffs among public open space, public access, distances traveled by pedestrians to access ferries, operational needs, and other environmental effects.
• The displacement of a portion of the upland recreation area provided as part of the shoreline access area at the Mount Baker Terminal could be compensated by providing similar recreation areas elsewhere on the ferry terminal site or the larger Mukilteo Tank Farm site (see Chapter 5 Section 4(f) for more detail).

• Policies for a continuous pedestrian promenade along the shoreline, combined with an open space corridor, would need to be addressed by WSDOT and the City of Mukilteo at the time of final design and permitting. WSDOT and the City of Mukilteo would need to determine whether there are options to the current proposal that provide a continuous corridor along the water and also recognize the security needs of the terminal.

To reduce construction impacts on existing businesses and public land uses for all alternatives, the following measures would be taken:

• Through final design, permitting, and outreach to the affected properties, WSDOT will confirm the specific measures to minimize impacts on adjacent land uses, in coordination with the City of Mukilteo as part of required permitting.

• Construction timing of key elements that disrupt business access would be planned for seasons or times of day when business peak operations would be less disrupted.

• Detour routes would be clearly marked to provide clear routes to access businesses and existing public access areas, and temporary parking would be provided on parcels acquired before construction, as practicable. The location of any temporary access routes would be designed in coordination with nearby property owners to minimize potential conflicts to the extent practicable; construction activities would be conducted as defined in construction permits required by the City of Mukilteo.

• A program of public information and business outreach would assist businesses in planning deliveries and other essential support activities around construction times.

• A public information campaign to inform the public that businesses are open would encourage patronage at these businesses during construction.

4.3 Noise and Vibration

Sound and vibration are around us all the time but may become a nuisance or create an adverse effect when they are too loud, too frequent, or disruptive to normal activity. Sound is any change in air pressure that the human ear can detect, from barely perceptible sounds to sound levels that cause hearing damage; the greater the change in air pressure, the louder the sound. When sounds are unpleasant or disturbingly loud, they are generally considered “noise.” Although human response to noise varies from person to person, identifying and mitigating project-related noise can reduce noise impacts on the population at large.
This section analyzes potential land-based sound and vibration impacts that would result from both the roadway improvements and the multimodal transit facilities. Potential aquatic noise impacts are discussed in Section 4.12 Ecosystems. The information in this section is based on the findings of the Noise and Vibration Discipline Report, which is an appendix to this EIS.

4.3.1 Overview of Analysis and Regulatory Context

Regulatory Context

State and local laws regulate noise from operational activities of land uses but do not regulate noise from traffic on public roadways. Construction noise is addressed by Washington Administrative Code, Chapter 173-60 (WAC 173-60), and local governments typically apply noise control measures for construction through their land use codes.

In accordance with the FTA’s Transit Noise and Vibration Impact Assessment guidance manual, an inventory of the potentially affected properties was identified in a screening process. There are no noise- or vibration-sensitive locations within the screening distance of the No-Build and Elliot Point 1 alternatives; six noise-sensitive locations were identified with the Existing Site Improvements Alternative. Two noise-sensitive locations were within the screening distance of the Elliot Point 2 Alternative (as presented in the Draft EIS); however, the design refinements for the Preferred Alternative (Elliot Point 2 Alternative) relocated the parking facility so that there are no noise-sensitive receptors within the screening distance for this alternative.

The analysis of potential noise impacts uses FTA’s methods to evaluate noise and vibration levels caused by transit- and ferry-related elements of the project alternatives, along with Federal Highway Administration (FHWA) methods for assessing noise impacts associated with roadways. Further detail is available in the Noise and Vibration Discipline Report.

Background Information About Noise Levels

Various descriptors are used for sound and noise levels, including the A-weighted decibel scale (dBA), sound level equivalents (Leq), day-night average sound levels (Ldn), and percentile levels. The most common measurement of sound and environmental noise is the dBA. This is a logarithmic scale that ranges from 0 dBA to about 140 dBA and approximates the range of human hearing. The threshold of human hearing is about 0 dBA; less than 30 dBA is very quiet; 30 to 60 dBA is quiet; 60 to 90 dBA is moderately loud; 90 to 110 dBA is very loud; and 110 to 130 is uncomfortably loud. Figure 4.3-1 shows typical noise levels from various sources.
Figure 4.3-1. Expected Decibel Levels from Various Noise Sources.
Human conversation generally ranges between 44 and 65 dBA when people are about 3 to 6 feet apart. The smallest change in noise level that the human ear can perceive is usually a 3 dBA increase in noise. An increase of 5 or 6 dBA is readily noticeable, and sound that increases by 10 dBA appears to be twice as loud to most listeners. A doubling of the number of noise sources, such as the number of cars operating on a roadway, increases noise levels by 3 dBA (FHWA and WSDOT 2006). A tenfold increase in the number of noise sources will usually add 10 dBA to the background noise levels. As a result, a noise source emitting a noise level of 60 dBA combined with another noise source of 60 dBA yields a combined noise level of 63 dBA, not 120 dBA.

Noise levels decrease with distance from the noise source. For a linear source such as a roadway, noise levels decrease 3 dBA over hard ground (concrete or pavement) or 4.5 dBA over soft ground (grass) for every doubling of distance between the source and the receptor. For a point source such as a construction activity, noise levels decrease between 6 and 7.5 dBA for every doubling of distance from the source.

Noise levels from traffic sources depend on volume, speed, and the type and condition of vehicles. Generally, an increase in volume, speed, or vehicle size increases traffic noise levels. Vehicle noise is a combination of noises from the engine, exhaust, and tires. Malfunctioning vehicle parts (such as mufflers) can increase traffic noise. Noise travels in a straight line-of-sight path between the source and a receiver. Terrain, along with shielding by barriers and buildings, can greatly affect the propagation of noise.

Overview of Analysis

The potential for long-term noise impacts from the operation of the project alternatives was evaluated using models designed to predict transportation-related noise.

Potential construction noise and vibration effects were evaluated qualitatively because of the temporary nature of construction and the variability of the construction activities. However, given the typical types of equipment used, the location of the Build alternatives, and the overall schedule for construction, a qualitative assessment still allows impacts and mitigation to be identified.

4.3.2 Affected Environment

Noise sources in the project area include air traffic to and from Paine Field airport, freight and passenger trains on the BNSF railroad, barge and rail traffic at Mount Baker Terminal, automobile traffic on SR 525 and local streets, and ferry arrivals and departures at the Mukilteo ferry terminal. South of the railroad tracks, the railroad dominates the noise levels, and residents experience comparatively minor levels of noise from the existing ferry terminal, airport, transfer facility, and roadway traffic. North of the railroad tracks, rail vehicles and ferry traffic along SR 525 add to the ambient sound level for residential land uses nearest the waterfront.

Table 4.3-1 lists noise monitoring locations and their measured sound levels. Measurements at seven receivers represent the existing ambient (or background) sound levels in the project vicinity along the waterfront. The variations show how
sound levels at some locations can be affected by passing trains or by traffic. The project also includes a site (MMM-1) representing typical sound levels near the ferry terminal as experienced by people at the Losvar Condominiums and Silver Cloud Inn. The dominant sound levels at MMM-2 came from the docking ferry and people on the beach.

Table 4.3-1. Project Noise Monitoring Locations and Findings (dBA)

<table>
<thead>
<tr>
<th>Project Site No.</th>
<th>Address</th>
<th>Day/Night Measurement Range</th>
<th>Time Period</th>
<th>15- to 30-Minute Noise Levels</th>
<th>Calculated 24-Hour Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>RBTF-1</td>
<td>1146 Second Street</td>
<td>39.5 to 76</td>
<td>68 hr.</td>
<td>n/a</td>
<td>76.7</td>
</tr>
<tr>
<td>RBTF-2</td>
<td>1513 Mukilteo Lane</td>
<td>38.1 to 58.7</td>
<td>68 hr.</td>
<td>n/a</td>
<td>57.7</td>
</tr>
<tr>
<td>TM-1</td>
<td>615 Third Street</td>
<td>49.7 to 64</td>
<td>24 hr.</td>
<td>n/a</td>
<td>66.2</td>
</tr>
<tr>
<td>TM-2</td>
<td>822 Second Street</td>
<td>42.4 to 71.9</td>
<td>24 hr.</td>
<td>n/a</td>
<td>70.4</td>
</tr>
<tr>
<td>AA-1</td>
<td>103 Cornelia Avenue</td>
<td>n/a</td>
<td>30 min.</td>
<td>71.6</td>
<td>69.6</td>
</tr>
<tr>
<td>MMM-1</td>
<td>612 Third Street</td>
<td>n/a</td>
<td>15 min.</td>
<td>68.4</td>
<td></td>
</tr>
<tr>
<td>MMM-2</td>
<td>NOAA Mukilteo Research Station</td>
<td>41 to 55.3</td>
<td>13 hr.</td>
<td>n/a</td>
<td>52.1</td>
</tr>
</tbody>
</table>

n/a = not applicable
RBTF = Port of Everett Satellite Rail/Barge Transfer Facility Noise Analysis, May 2004
TM = Noise Monitoring Tech Memo, October 2004
AA = Adolfson Associates, March 2005
MMM = Mukilteo Multimodal Measurements, March 2011

4.3.3 Long-Term Environmental Impacts

This section describes how noise and vibration could affect noise- and vibration-sensitive locations. Table 4.3-2 provides an inventory of properties identified in the screening process. Only sites identified in this inventory require additional assessment of potential noise or vibration effects. The Noise and Vibration Discipline Report contains additional information about the analysis, and it also shows monitoring locations and noise- or vibration-sensitive properties.

Table 4.3-2. Noise and Vibration Sensitive Receptors Inventory

<table>
<thead>
<tr>
<th>Noise- and Vibration-Sensitive Receptors</th>
<th>Project Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Ferry Vessel Terminal Dock</td>
</tr>
</tbody>
</table>

No-Build Alternative

None

Preferred Alternative

None

Existing Site Improvements

Losvar Condominiums: Noise
Silver Cloud Inn: Noise
111 Park Avenue: --
724 Second Street: --
726 Second Street: --
728 Second Street: --

 Elliot Point 1 Alternative

None

No Noise- or Vibration-Sensitive Locations Identified
No-Build Alternative

The No-Build Alternative would not change noise-generating activities and therefore would not cause additional impacts compared to existing conditions.

Preferred Alternative

Under the Preferred Alternative, all project elements are far enough from the noise-sensitive land uses to avoid potential impacts.

Existing Site Improvements Alternative

The Existing Site Improvements Alternative is near the greatest number of noise-sensitive receivers. These include the Silver Cloud Inn, Losvar Condominiums, and four residential properties along Mukilteo Lane, Second Street, and Park Avenue.

The Silver Cloud Inn is the only receiver that is within a potential area of impact due to changes to roadways. Front Street would change to a one-way street in front of the property, but the extension of First Street would be beyond the potential area of impact for the hotel or any other noise-sensitive property. Model results indicate that during peak traffic periods, noise levels would reach 56 dBA, which is well below the 66 dBA threshold where impacts to noise-sensitive properties would occur. Similarly, the sound levels at the hotel, condominiums, and residential properties near the transit center or other new noise sources were anticipated to reach 55, 52, and 51 dBA, respectively, all below the noise impact threshold.

Elliot Point 1 Alternative

Under the Elliot Point 1 Alternative, all project elements are far enough from the noise-sensitive land uses to avoid potential impacts.

4.3.4 Construction Impacts

No-Build Alternative

Even under the No-Build Alternative, the activities to maintain existing operations at the site would include construction of a replacement slip and terminal buildings and ongoing maintenance activities for the existing ferry terminal. Temporary, short-term impacts from construction noise, such as pile driving and demolition associated with the replacement of the terminal buildings and slip, would result from these activities. Pedestrians passing by and individuals working near the construction activity would be most affected.

No existing nearby structures would be damaged by construction of the No-Build Alternative and construction vibration would not exceed the federal impact criteria established by FTA. A general assessment of construction vibration effects on the NOAA Mukilteo Research Station indicates that the facility would experience vibration levels below the lowest FTA damage criteria for structures. FTA guidance suggests that facilities with laboratory equipment, such as optical microscopes and microbalances, can be evaluated by conducting a general assessment for the effects of vibration on these types of facilities. WSDOT conducted a general assessment for the NOAA facility and found the potential for some construction activity vibrations
to exceed the Category 1 (65) VdB threshold, which would apply to activities using microscopes or other specialized equipment.

**Construction Impacts Common to All Build Alternatives**

WSDOT anticipates that all of the Build alternatives would require approximately 2 years to construct. Major construction elements include demolition, earth moving, hauling, grading, paving, pile driving, pier construction, building construction, and road construction. General construction noise and vibration impacts could be expected during all of these construction elements, but would be most pronounced during demolition, pile driving, and road construction.

**Preferred Alternative**

As with the No-Build Alternative, no existing nearby structures would be damaged and noise or vibration levels would not exceed the federal annoyance criteria.

Although additional demolition and construction activities would occur on the Mukilteo Tank Farm, the closest noise- and vibration-sensitive receivers are located near the existing terminal. Construction noise could be annoying for passersby and individuals working near the construction, but it would not disrupt normal activities.

With the Preferred Alternative, the potential for impacts on the NOAA Mukilteo Research Station would be less than the Existing Site Improvements Alternatives because construction of the ferry terminal, access road, and holding area would be located farther away from the NOAA facility; it would also be less than No-Build's construction impacts. However, demolition activities would still occur at the existing terminal site, and there would be the potential for some construction activity vibrations to exceed the Category 1 (65) VdB threshold, with the potential to affect sensitive equipment at NOAA.

**Existing Site Improvements Alternative**

Under the Existing Site Improvements Alternative, the Losvar Condominium and Silver Cloud Inn residents and guests would likely experience greater noise and vibration annoyance than other area residents due to their proximity to the project site. As with the No-Build Alternative, no existing nearby structures would be damaged nor would noise or vibration levels exceed the federal impact criteria. More construction activity would occur near the NOAA research facility compared to the No-Build Alternative; therefore, there would be a greater potential for construction vibration to affect laboratory experiments conducted at the NOAA Mukilteo Research Station.

**Elliot Point 1 Alternative**

The Elliot Point 1 Alternative would have impacts similar to those described above for the Preferred Alternative.

**4.3.5 Indirect and Secondary Impacts**

Indirect or secondary impacts are caused by the proposed action that occur later in time or farther removed in distance but are still reasonably foreseeable. Indirect
impacts may include growth-inducing impacts and other impacts related to induced changes in the pattern of land use, population density, or population growth rate. Because this project would not substantially increase the capacity of any of the current facilities, no indirect impacts are reasonably foreseeable for the currently proposed alternatives.

4.3.6 Cumulative Impacts

The Mukilteo downtown and waterfront areas were settled and developed before the advent of the automobile and other noise sources such as the BNSF railroad corridor, Paine Field, and the Mukilteo ferry terminal. After World War II, population growth in the central Puget Sound region accelerated, leading to increased commercial development and roadway traffic. In 1952, the Mukilteo Ferry terminal began operation. In the 1960s, I-5 was built, leading to increased traffic on SR 525. This combination of increased population, development, and roadway traffic have contributed to greater sources of noise in the Mukilteo downtown and waterfront areas than existed historically.

The noise modeling and analysis considers the long-term cumulative impacts of noise from existing noise sources, including freight and passenger rail, and all traffic forecasted within the study area. This includes traffic growth from the Mukilteo Station, the Mount Baker Terminal, and potential residential and commercial development on remaining portions of the Mukilteo Tank Farm and in the downtown core. The baseline also includes growth in rail traffic along the BNSF railroad corridor.

Transportation is one of the primary noise sources in the project area; therefore, the likely cumulative change to noise levels is already considered. While future development could introduce new noise-sensitive uses as well as other noise sources, no specific projects have been permitted at this time. NOAA’s planned expansion would be a source of noise, but would not affect sensitive properties. Given the lack of significant impacts on existing noise-sensitive properties, long-term noise levels at new properties would likely be similar to baseline conditions. Construction of other projects, including NOAA’s planned redevelopment, could introduce additional construction noise. If the projects occur concurrently, this additional noise could result in a temporary cumulative noise impact.

4.3.7 Mitigation Measures

Noise abatement and minimization measures have been designed into all alternatives. The abatement and minimization measures for long-term impacts, construction impacts, indirect impacts, and cumulative impacts are described in the following subsections.

Mitigation for Long-Term Impacts

Noise and vibration effects of the four alternatives were analyzed, as discussed in Section 4.3.3. None of the project alternatives anticipate noise or vibration effects that would cause impacts that require abatement.
Mitigation for Construction Impacts

For all alternatives, including the Preferred Alternative, activities that generate high noise levels, such as demolition activities and pile driving, would follow a pre-approved schedule as defined by construction permits required by the City of Mukilteo to limit the noise effects of the construction activity on the nearby residential community on the bluff south of the project site. For example, the contractor would be required by the Washington Administrative Code and Mukilteo Municipal Code to restrict noise-generating construction activities to daylight hours or obtain a variance from the City of Mukilteo.

To minimize the duration of high noise levels, construction activities would be staged to occur simultaneously, if possible. The total noise level of the activities together would not be substantially greater, or more noticeable, than the largest of the noise levels generated by each of the single noise events.

Construction noise could be minimized by several means, including the use of effective vehicle mufflers, engine intake silencers, and engine enclosures; shutting off equipment when not in use; locating activities away from noise-sensitive receivers when possible; placing portable noise barriers around stationary equipment, such as a concrete crushing plant; and reducing the use of specific equipment, such as jack hammers, by using hydraulic tools instead.

The impacts of construction vibration at the NOAA Mukilteo Research Station would be minimized by means of preconstruction coordination and notification, as would be defined in construction permits required by the City of Mukilteo, and as defined through pre-construction coordination plans to be developed with NOAA. This would include:

- Using static rollers instead of vibratory rollers, when feasible
- Coordinating and scheduling any vibratory rolling or impact pile-driving activities with the NOAA facility to minimize interruption
- Monitoring the foundation vibration at the NOAA facility during vibratory rolling or impact driving within 500 feet to avoid exceeding the Institute of Environmental Science (IES) criteria for laboratory equipment
- As final design and construction plans are completed, coordinating with NOAA to identify any other potential vibration-sensitive activities or research that could occur during the construction period, and identifying measures to address disruption or interference with research activities

Mitigation for Indirect and Secondary Impacts

Because no indirect or secondary noise and vibration impacts are reasonably foreseeable, no mitigation of indirect noise and vibration impacts would be necessary.
Mitigation for Cumulative Impacts

Coordination of concurrent construction activities, such as NOAA’s planned redevelopment or other City of Mukilteo or Sound Transit projects that occur within the same timeframe, would reduce potential cumulative noise impacts.

4.4 Visual Quality, Aesthetics, and Light and Glare

Visual perception and experience is an important component of environmental quality. Because of the public nature and visual importance of the Mukilteo Multimodal Project, changes to the visual environment are being addressed during project development as part of the EIS.

4.4.1 Overview of Analysis

This section examines the potential effects of the project alternatives on visual resources in the project area, as required under NEPA and SEPA.

The proposed alternatives are located primarily within the City of Mukilteo’s land use planning jurisdiction, with a small portion to the east within the Everett city limits. Both jurisdictions have policies related to visual and aesthetic quality in their comprehensive plans, SMP, and permit review criteria.

Methods for the Visual Quality Assessment

The assessment of visual quality, or aesthetics, is concerned with both the character of the visual experience and the effect upon the viewer. (For the purposes of this analysis, visual quality and aesthetics are analogous terms.) It is subjective in that the person perceiving the visual environment brings personal and cultural frames of reference to the discernment and evaluation of visual information. Still, regulations and research establish a general public consensus of what constitutes a desirable visual environment.

For this analysis, the visual or aesthetic experience includes three critical parameters:

- Visual character
- Visual quality
- Viewer response

Visual character refers to identifiable visual information. It may be distinguished both at the level of specific elements and at the level of the relationships among elements.

Visual quality refers to the value of the visual experience to the public. Vividness refers to the way landscape components combine in distinctive and memorable visual patterns.

Intactness refers to the integrity of natural and human-built visual patterns, and the extent to which the scene “hangs together.” It also includes the extent to which the landscape is free from encroaching elements.
Viewer response is analyzed in terms of exposure and sensitivity. Viewer exposure refers to the physical location of viewer groups, the number of people exposed to a view, and the duration of their view. Viewer sensitivity refers to the degree in which a viewer perceives elements of the environment and the extent to which those elements are important to the viewer. This perception is affected by factors such as the activities a viewer is engaged in; the visual context; and the values, expectations, and interests of a group of persons or a person involved in a particular activity or context.

Viewpoints for this analysis were selected on the basis of:

- A substantial number of viewers
- Features that are representative of the existing conditions
- Views with high visual quality

Photographs were taken from viewpoints and reproduced at a scale that shows the static field of view an observer would see standing at the site. These photographs provide an accurate representation of the scale of elements of the view in relation to other objects. They do not, however, reproduce the entire field of view perceived by a human observer.

### 4.4.2 Affected Environment

The Mukilteo Multimodal Project area is located in the northernmost part of the city of Mukilteo adjacent to the city of Everett. The area of the alternatives is an east-west-oriented portion of the Possession Sound shoreline. In Everett, the shoreline continues generally northward.

Major land uses along the shoreline include the Mukilteo Lighthouse Park at the west end of the point, which includes a boat launch and 6.6 acres of parking, as well as the lighthouse, a volleyball court, and picnic tables. A condominium development, a restaurant, and a hotel are between the lighthouse and Park Avenue. To the west of SR 525, the ferry holding area covers most of the street frontage to Park Avenue. NOAA Fisheries operates the Mukilteo Research Station on 1.1 acres east of Park Avenue. The Mukilteo Tank Farm extends about 3,200 feet along the shoreline east of Park Avenue. It consists largely of partially demolished storage tanks, a variety of support facilities in various stages of deterioration, and a 1,300-foot-long unused pier. The Mount Baker Terminal occupies a 1.5-acre site east of the Mukilteo Tank Farm.

The BNSF railroad generally forms the boundary between flat land to the north and a steep bluff to the south. Sound Transit’s Mukilteo Station, east of Park Avenue, includes platforms and parking.

South of the BNSF railroad, land uses are primarily single-family residential areas west of SR 525 and east of Park Avenue. A commercial area extends between the BNSF tracks and Third Street bounded by SR 525 on the west and Park Avenue on the east.
The areas described below were identified to best represent and analyze the affected environment. Viewpoints were selected from these areas (Figure 4.4-1):

- The Puget Sound/Possession Sound shoreline. This area generally accommodates views parallel to the shoreline. Four viewpoints were chosen from this area.

- The flat upland area between the shoreline and the BNSF right-of-way. Only one viewpoint was selected from this area because the topography and buildings along the shoreline do not offer views of significant features of the alternatives.

- The bluff immediately south of the BNSF tracks. Four viewpoints were chosen from this area.

Selected viewpoints are as follows, and are shown in Section 4.4.8.

**Viewpoint 1, View East from Mukilteo Lighthouse.** This shoreline viewpoint (Figure 4.4-2) is located just north of the lighthouse and outside of the concrete seawall at the end of a pedestrian walkway. This viewpoint faces east and includes the existing ferry terminal as a major foreground element. In the distance, the peaks of the Glacier Peak Wilderness Area in the North Cascades are the most vivid feature on clear days. The terminal facilities partly obscure views of the city of Everett and Port Gardner. The activity of ferries landing, loading, and departing, however, provide visual interest in themselves.

The ferry terminal is the major source of light in this area. There is also some exterior lighting on the condominium building and buildings east of the terminal.

The viewing population from this area consists of park users and beach users. This population is larger in the summer, but continues year-round. Viewers can be considered sensitive to the visual context; however, they have a wide range of potential views to choose from. They can look away from the ferry terminal to enjoy natural views or they can look toward the terminal.

**Viewpoint 2, View West from Silver Cloud Inn Shoreline Public Access.** This viewpoint (Figure 4.4-3) is located just east of the existing ferry terminal from a public access walkway between Ivar’s restaurant and the Silver Cloud Inn. The view is to the west along the orientation of the shoreline, and includes the existing ferry terminal as a major foreground element framed by Ivar’s restaurant to the south. In the distance, above the terminal, the Olympic Mountains are the most vivid feature on clear days but are substantially obscured by the terminal facilities, particularly when a ferry is docked. The man-made features of the ferry terminal are the dominant elements of the view, and the natural features of mountains and water are minor elements. The terminal is an encroaching element in distant view, but also provides a near-view focus of maritime activity. The ferries, with the landing, loading, and departing activities, provide visual interest.

The ferry terminal is a major source of light at night, and there is some exterior lighting on buildings. Viewers are mostly persons enjoying the public access area that parallels the shoreline.
Figure 4.4-1. **Viewpoints**

- **Project Area**
- **Shoreline**
- **Upland**
- **Bluff**
Viewpoint 3, View East from Silver Cloud Inn Shoreline Public Access. This viewpoint (Figure 4.4-4) is from the public access pier between Ivar's restaurant and the Silver Cloud Inn. The view faces east along the shoreline, and is about 100 feet north of Viewpoint 2. The distant views are dominated by the peaks of the Glacier Peak Wilderness Area in the North Cascades on clear days. The extensive water areas of Possession Sound and Port Gardner Bay provide an additional area of visual interest visible in all weather conditions. The dominant features in the near and middle distance are the NOAA pier and Tank Farm Pier at the Mukilteo Tank Farm. The two piers do not obscure distant views of the mountains because those structures are well below the line of sight. They do, however, obscure distant shoreline features of the city of Everett and Port Gardner. The pier and the Mukilteo Tank Farm are encroaching elements that reduce the integrity and unity of near to middle-distance views.

There is relatively little exterior lighting in the immediate vicinity. The Silver Cloud Inn and NOAA Mukilteo Research Station have exterior security lights, but there are no urban street lights visible. There is little lighting on the Mukilteo Tank Farm. Mount Baker Terminal is a more distant source of light at night.

Viewers are mostly persons enjoying the public access area that parallels the shoreline.

Viewpoint 4, View West from Mount Baker Terminal Shoreline Access Area. This viewpoint (Figure 4.4-5) is located just west of the Mount Baker Terminal within a shoreline access area that includes a beach to the east and picnic areas. The view is from the beach area, to the west along the shoreline. It is dominated by the Olympic Mountains on clear days. On days when vision is obscured, the most extensive horizon feature is the wooded ridgeline of Whidbey Island. The extensive water areas of Possession Sound provide an area of interest both as a natural feature and as the context for a variety of human activities on the water ranging from commercial shipping to recreational boating. Distant views of the mountains are not obscured by the Tank Farm Pier in the middle distance because it is well below the line of sight. The pier does, however, substantially obscure views of the existing ferry terminal. The shoreline features of the Mukilteo Tank Farm at a middle distance are a disorganized assemblage of partially demolished facilities that reduce the integrity and unity of this portion of the view.

There is relatively little urban street lighting in the immediate vicinity. Lights of the downtown area west of Park Avenue and from the ferry terminal are visible in the distance. There is little lighting on the Mukilteo Tank Farm.

The viewing population from this area is relatively small because the site does not currently have vehicular access or local public access, but access is intended for future public use. The future viewing population will be sensitive to the visual context, but they have a wide range of potential views to choose from.

Viewpoint 5, North View from Ferry Terminal Vehicle Holding Area. This viewpoint (Figure 4.4-6) is located in the southerly portion of the ferry holding area. The view is oriented to the north. A slope to the north provides views of buildings along Front Street above the vehicles. Views of the ferry at the dock are limited by the angle of the dock and the existing towers. There are partial views of the water and the
wooded ridge of Whidbey Island between buildings. The dominant features of the view are buildings along Front Street. The view has no vivid dominating features. It has some unity in the character of building fronts. The vehicles parked in the ferry holding area may be viewed as an encroaching element that reduces visual unity.

There is currently a wide variety of urban street lighting and building lights in the area, with the lighting at the ferry holding area a major source of nighttime light.

Most viewers are occupants of vehicles waiting for the ferry. For them, the vehicles parked in front of them will obscure much of the view. This viewing population is less likely to be sensitive to the view while waiting in their vehicles. Viewers that exit vehicles are likely to have a range of sensitivity to the view depending on their activities.

**Viewpoint 6, North View from SR 525.** This viewpoint (Figure 4.4-7) is located on the east side of SR 525 at the mid-point of the overpass crossing the BNSF tracks. Oriented to the north, it includes the entry to the existing holding area; it is typical of views from locations east along Second Street. This is also the view experienced by occupants of vehicles accessing the ferry or vehicles queued along the shoulder of the highway. The termination of the view includes the waters of Possession Sound and the wooded ridgeline of Whidbey Island, which can be viewed in corridors between buildings and over shorter buildings along Front Street. The view lacks vivid elements and has a moderate level of visual quality. The existing ferry terminal is largely out of the field of view because of the angle of the dock at the end of the roadway and the blockage by the Losvar Condominium building.

There is a wide variety of urban street lighting in the area, with the lighting at the ferry holding area a major source of nighttime light.

The viewing population from this area is largely occupants of vehicles waiting for the ferry, pedestrians along the highway, and pedestrians along Second Street. This viewing population is likely to have a range of sensitivity to the view depending on activities.

**Viewpoint 7, Northwest View from Second Street and Park Avenue.** This viewpoint (Figure 4.4-8) is located on Second Street east of Park Avenue and is south of the BNSF tracks. The existing ferry holding area is in the middle of the view but north of the BNSF tracks, and is largely obscured by an existing two-story building at First Street and Park Avenue. Elements in the view range from parked cars to buildings to overhead utility lines. Views of the waters of Possession Sound and the wooded ridgeline of Whidbey Island are largely obscured by intervening buildings. The view lacks vivid elements, and has a number of elements with little compositional unity; therefore, it has a low to moderate level of visual quality.

There is a wide variety of urban street lighting in the area; the lighting at the ferry holding area is a major source of nighttime light. Because this viewpoint is above the elevation of light standards in the holding area, it experiences limited direct glare.

The viewing population from this area is largely occupants of vehicles, pedestrians along city streets, and residences located above the BNSF tracks. This viewing population is likely to have a range of sensitivity to the view depending on activities, with residents likely to be the most sensitive.
**Viewpoint 8, North View from Second Street and Prospect Avenue.** This viewpoint (Figure 4.4-9) is located on a private lane north of Second Street and is typical of views from residences and some public street corridors on the bluff south of the BNSF tracks. The view has two components: the highly integrated and unified distant view of Possession Sound, and the highly disorganized middle to near view of the partially demolished Mukilteo Tank Farm. The major element in the distant view is the water area of Possession Sound centered on the wooded ridgeline of Hat Island with Camano Island in the background. The overall distant views are an integrated scene of water and islands with native vegetation predominating over man-made structures.

In the middle and near view, the Mukilteo Tank Farm is a prominent element, at variance with the character of the natural water and land views. The partially disassembled structures also contribute to the lack of integration and visual unity. It is likely that most residents are habituated to the dissonant elements of the view and concentrate on the high visual quality of distant views.

There is currently little or no exterior lighting visible from this viewpoint within the Mukilteo Tank Farm or in the distance.

The viewing population from this area is largely residents and includes some pedestrians along city streets who can access views between buildings or down street corridors at Prospect and Cornelia Streets and down Brewery Creek. The predominantly residential viewing population is likely to be very sensitive to visual quality.

**Viewpoint 9, Northwest View from Mukilteo Lane East of Japanese Gulch.** This viewpoint (Figure 4.4-10) is located on Mukilteo Lane just before it turns south away from the shoreline. The view has two components: the highly integrated and unified distant view of Puget Sound, Possession Sound, and the Olympic Mountains; and the highly disorganized middle to near view of the partially demolished Mukilteo Tank Farm. As with Viewpoint 8, it is likely that most residents are habituated to the dissonant elements of the view and concentrate on the high visual quality of distant views. The Mukilteo Tank Farm, however, is much more visible as a long linear feature in this view. The combination of the two elements results in a high level of visual interest and a moderate level of visual integrity and unity.

There is currently little or no exterior lighting visible from this viewpoint within the Mukilteo Tank Farm. Exterior lighting at the existing ferry terminal is visible in the distance.

The viewing population from this area includes vehicle occupants and pedestrians along Mukilteo Lane and residents of homes on the bluff. The residential viewing population is likely to be very sensitive to visual quality.

### 4.4.3 Long-Term Environmental Impacts

**No-Build Alternative**

The No-Build Alternative includes what would be needed to maintain the existing ferry terminal at a functional level. It assumes that maintenance and structure
replacements would occur in accordance with legislative direction to maintain and preserve ferry facilities. There would be no investments to improve the operation, safety, security, or capacity at the terminal.

Therefore, no visual impacts or benefits would be expected for the No-Build Alternative.

**Preferred Alternative**

This alternative would relocate the ferry terminal from its current location to the western portion of the Mukilteo Tank Farm, just east of the NOAA Mukilteo Research Station.

WSDOT refined the design of the Elliot Point 2 Alternative to create the Preferred Alternative. The design refinements were generally neutral or beneficial to the alternative’s aesthetic impacts. Visual changes due to this alternative were simulated for several viewpoints. Table 4.4-1 summarizes the effects.

**Table 4.4-1. Preferred Alternative Visual Impacts**

<table>
<thead>
<tr>
<th>Viewpoint</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. View East from the Mukilteo Lighthouse (see Figure 4.4-2)</td>
<td>Removing the existing terminal, ferry berth and fishing pier/day moorage would provide greater integration and unity of the distant peaks of the Glacier Peak Wilderness Area and also would open up the middle distance shoreline views of Port Gardner. The NOAA pier, however, would continue to partially obscure these features. The new over-water terminal facilities to the east would be visible, but would be at a substantially greater distance and would be partially obscured by the NOAA pier. The viewing population would likely consider the view as being more integrated with the views to the west and north in which the natural features predominate. The elimination of the ferry terminal as the major source of light in this area would change the nighttime visual character somewhat, but substantial urban light would continue to be present from existing shoreline development.</td>
</tr>
<tr>
<td>2. View West from Silver Cloud Inn Shoreline Public Access (see Figure 4.4-3)</td>
<td>Removing the existing ferry terminal and the fishing pier/day moorage facility would allow a more open and integrated view of natural features, including the waters of Possession Sound and Puget Sound with the peaks of the Olympic Mountains. The view would increase significantly in integrity and unity. Viewers would perceive the view as one in which natural elements predominate.</td>
</tr>
<tr>
<td>3. View East from Silver Cloud Inn Shoreline Public Access (see Figure 4.4-4)</td>
<td>Removing the Tank Farm Pier would tie together the distant views dominated by mountains and the near and middle distance views of water areas of Possession Sound and Port Gardner Bay. Views of the ferry berth would be partially obscured by the NOAA pier; however, the overhead facilities including towers housing the hydraulic transfer span lifting mechanisms, the overhead walkways, and the two-story passenger building would be higher than the existing Tank Farm Pier and would be relatively prominent. Lighting for ferry facilities, parking, and transit centers would increase substantially. This source of light, however, is at a moderate distance from the viewpoint and therefore it is likely to be perceived as a generalized area of bright lighting rather than a source of glare.</td>
</tr>
</tbody>
</table>
Table 4.4-1. Preferred Alternative Visual Impacts

<table>
<thead>
<tr>
<th>Viewpoint</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. View West from Mount Baker Terminal Shoreline Access Area (see Figure 4.4-5)</td>
<td>The ferry facility towers for the transfer span, the overhead walkways, and the two-story passenger building would be higher than the existing Tank Farm Pier, but would not be high enough to encroach on the most vivid feature in the view, which are the peaks of the Olympic Mountains, particularly when a ferry vessel is docked. The ferry holding area would have greater visual unity than the remains of the Mukilteo Tank Farm. The over-water structure would be a prominent visual focus at night that would be more visually arresting than other features in the vicinity. A fishing pier would be partially visible in the foreground but less prominent than the overwater structures.</td>
</tr>
<tr>
<td>5. North View from Ferry Terminal Vehicle Holding Area (see Figure 4.4-6)</td>
<td>Removing the ferry terminal would clear the corridor between the condominium and Ivar’s restaurant. It would also remove a source of nighttime lighting.</td>
</tr>
<tr>
<td>6. North View from SR 525 (see Figure 4.4-7)</td>
<td>The ferry terminal would be removed and an unobstructed view down the highway corridor would be available of Possession Sound and Whidbey Island. The viewing population is likely to perceive the view as more integrated. The lighting would be less intense than the current lighting in the ferry holding area.</td>
</tr>
<tr>
<td>7. Northwest View from Second Street and Park Avenue (see Figure 4.4-8)</td>
<td>The integrity and unity of distant views of Possession Sound and Whidbey Island would be increased by removal of a building currently blocking these views. The lighting would be less intense than the current lighting in the ferry holding area.</td>
</tr>
<tr>
<td>8. North View from Second Street and Prospect Avenue (see Figure 4.4-9)</td>
<td>The terminal building facilities would have no impact on distant views of Possession Sound and the islands in the distance. In the middle to near distance, terminal facilities, particularly towers for the transfer span, the overhead walkways, and the two-story passenger building would be higher than the existing pier and more prominent. The terminal would be at a much smaller scale than the Tank Farm Pier and perpendicular to the view rather than cutting across the view. These features would result in a greater visual integrity and unity than the assemblage of existing Mukilteo Tank Farm elements, including remnants of the large storage tanks. Holding and parking areas for vehicles, however, would lack visual interest. Overall, the lack of impact on high-quality distant views and the increased visual unity of near views, despite low visual interest, would moderately increase the level of visual integrity, unity, and overall visual quality. There would be more lighting than currently exists on the Mukilteo Tank Farm; at night, viewers from the bluff above the site would have a brightly lit area in the foreground views, which would also reduce visibility for longer range night views.</td>
</tr>
<tr>
<td>9. Northwest View from Mukilteo Lane East of Japanese Gulch (see Figure 4.4-10)</td>
<td>The terminal facilities would have no impact on the most vivid feature in daytime distant views, which are the peaks of the Olympic Mountains, because terminal facilities are well below these features. Overall, the terminal would have greater visual integrity and unity than the existing Mukilteo Tank Farm elements, which includes a degraded landscape with remnant tanks, structures, and buildings in various states of repair. However, near views of the Mukilteo Tank Farm would not be altered. The lighting for ferry facilities would increase ambient light levels, as discussed for Viewpoint 8 above, but the lighting is at a greater distance and would be less of an intrusion.</td>
</tr>
</tbody>
</table>

Existing Site Improvements Alternative

This alternative would reconstruct the terminal and its related facilities at the current site, which would be expanded and realigned, as well as increasing the height of structures on the waterfront. To indicate the visual impacts of this alternative, visual simulations were prepared for several views; impacts are summarized in Table 4.4-2.
Table 4.4-2. Existing Site Improvements Alternative Visual Impacts

<table>
<thead>
<tr>
<th>Viewpoint</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. View East from the Mukilteo Lighthouse (see Figure 4.4-2)</td>
<td>The terminal’s configuration is similar to the existing one, with the addition of the overhead loading structure. This would increase the view blockage directly east toward Everett, the waterfront, and the distant vivid peaks of the Glacier Peak Wilderness Area. Residents would also have increased view blockage.</td>
</tr>
<tr>
<td>2. View West from Silver Cloud Inn Shoreline Public Access (see Figure 4.4-3)</td>
<td>The terminal’s configuration is similar to the existing one, but with the addition of the overhead loading structure. The middle distance views of Possession Sound and Puget Sound, including the distant vivid peaks of the Olympic Mountains, and views for the public on the shoreline access pier would be further encroached upon. Silver Cloud Inn patrons would also have increased view blockage.</td>
</tr>
<tr>
<td>3. View East from the Silver Cloud Inn Shoreline Public Access (see Figure 4.4-4)</td>
<td>There would be no change in visual character or visual quality; the viewpoint faces away from the existing ferry terminal or the replacement terminal.</td>
</tr>
<tr>
<td>4. View West from the Mount Baker Terminal Shoreline Access Area (see Figure 4.4-5)</td>
<td>Little change in visual character or visual quality because the changes would be in the distance.</td>
</tr>
<tr>
<td>5. North View from Ferry Terminal Vehicle Holding Area (see Figure 4.4-6)</td>
<td>Replacing Ivar’s restaurant with a two-story passenger terminal and the overhead loading ramp would further obstruct parts of the view.</td>
</tr>
<tr>
<td>6. North View from SR 525 (see Figure 4.4-7)</td>
<td>Replacing Ivar’s restaurant with a two-story passenger terminal and the overhead loading ramp would further obstruct parts of the view. The ferry, while at dock, would be more visible because the new facilities would be aligned with SR 525.</td>
</tr>
<tr>
<td>7. Northwest View from Second Street and Park Avenue (see Figure 4.4-8)</td>
<td>The ferry holding area and the bus transit center would become somewhat more visible because of the removal of an existing building that currently blocks views; this would result in a reduction in visual quality. The lighted holding area and the bus transit center would likely become the dominant feature of views at night because other water and landscape elements have lower-intensity lighting. For the viewing population, the expansion of the parking area as the center of attention may be regarded as a negative distraction and a reduction in visual quality. Condominium residents are likely to perceive the additional nighttime lighting as an impact because of its proximity.</td>
</tr>
<tr>
<td>8. North View from Second Street and Prospect Avenue (see Figure 4.4-9)</td>
<td>No change in visual character or visual quality; viewpoint faces away from the existing ferry terminal.</td>
</tr>
<tr>
<td>9. Northwest View from Mukilteo Lane East of Japanese Gulch (see Figure 4.4-10)</td>
<td>Little change in visual character or visual quality is expected; most changes occur within distance views with features not readily distinguished.</td>
</tr>
</tbody>
</table>

**Elliot Point 1 Alternative**

This alternative would relocate the ferry terminal from its current location to the eastern portion of the Mukilteo Tank Farm, thereby removing the current facility’s visual elements, and introducing new visual elements to another location on the waterfront. To indicate the visual impacts of this alternative, visual simulations were prepared for several views; impacts are summarized in Table 4.4-3.
Table 4.4-3. Elliot Point 1 Alternative Visual Impacts

<table>
<thead>
<tr>
<th>Viewpoint</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. View East from the Mukilteo Lighthouse (see Figure 4.4-2)</td>
<td>Impacts would be similar and slightly less than those discussed above for the Preferred Alternative because the facility would be a more distant element of the view. Impacts would be positive because of the elimination of the existing terminal.</td>
</tr>
<tr>
<td>2. View West from Silver Cloud Inn Shoreline Public Access (see Figure 4.4-3)</td>
<td>Visual conditions would be similar to those discussed above for the Preferred Alternative. The changes would be positive because of the elimination of the existing terminal and the existing fishing pier/day moorage.</td>
</tr>
<tr>
<td>3. View East from Silver Cloud Inn Shoreline Public Access (see Figure 4.4-4)</td>
<td>Impacts would be similar and slightly less than those discussed above for the Preferred Alternative because the facility would be a more distant element of the view.</td>
</tr>
<tr>
<td>4. View West from Mount Baker Terminal Shoreline Access Area (see Figure 4.4-5)</td>
<td>Impacts would be similar and slightly more prominent than those discussed above for the Preferred Alternative because the facility would be nearer to the viewpoint. The clutter represented by the eastern portion of the Mukilteo Tank Farm would be removed, which would improve visual integrity and unity.</td>
</tr>
<tr>
<td>5. North View from Ferry Terminal Vehicle Holding Area (see Figure 4.4-6)</td>
<td>Impacts would be similar to those discussed above for the Preferred Alternative.</td>
</tr>
<tr>
<td>6. North View from SR 525 (see Figure 4.4-7)</td>
<td>Impacts would be similar to those discussed above for the Preferred Alternative.</td>
</tr>
<tr>
<td>7. Northwest View from Second Street and Park Avenue (see Figure 4.4-8)</td>
<td>Impacts would be similar to those discussed above for the Preferred Alternative.</td>
</tr>
<tr>
<td>8. North View from Second Street and Prospect Avenue (see Figure 4.4-9)</td>
<td>Impacts would be similar to those discussed above for the Preferred Alternative, except that the clutter in the western portion of the Mukilteo Tank Farm that would not be redeveloped and would remain partially in the view.</td>
</tr>
<tr>
<td>9. Northwest View from Mukilteo Lane East of Japanese Gulch (see Figure 4.4-10)</td>
<td>Impacts would be similar to those discussed above for the Preferred Alternative, except that the clutter in the eastern portion of the Mukilteo Tank Farm would be replaced by vehicle holding lanes closer to the viewpoint, which would improve visual integrity and unity.</td>
</tr>
</tbody>
</table>

4.4.4 Construction Impacts

The construction impacts on visual quality would be temporary for all alternatives and at all viewpoints. Impacts would result from activities related to staging areas, lighting, fencing, closed roadway sections, detours, heavy equipment, scaffolding, cranes, and temporary storage of materials, including demolition debris. The visual impacts of construction would generally not change the overall views available, but would alter existing localized views. The most prominent elements that would alter views would likely be cranes and other tall equipment. However, distant views of water features and mountains would remain visible if partially obstructed.

4.4.5 Indirect and Secondary Impacts

Visual changes could occur due to changes in development and landscaping for other projects. For example, the development of part of the tank farm could allow other developments to occur on unused portions of the site. The visual impacts of potential
other developments likely would be a positive change from the current views of remnant tanks on the Mukilteo Tank Farm site. A shift from the existing terminal location to the tank farm property would also make the lands that are currently used for the terminal available for other developments. Any other developments would be subject to separate development review processes, but they could involve more visually prominent structures or features than exist today. For example, the City of Mukilteo is considering a parking facility in the waterfront area to help serve commuter rail and other parking needs, and some of the potential site options are on the Mukilteo Tank Farm site.

### 4.4.6 Cumulative Impacts

The visual character of the landscape has been dramatically transforming ever since the first Europeans settled in the area. The area was logged and cleared for farming and development; shoreline areas were filled; rivers were channelized; and other activities such as shoreline development and road building all contributed to changes in the landscape. The urban character of the project area has also changed over time as the architecture of the city has evolved and land uses have changed. Even though development has blocked some views of the landscape, Mukilteo benefits from many natural features such as the Olympic and Cascade Mountains, which are so dominant that they can still be seen from many viewpoints.

Foreseeable future actions include redevelopment of the Mukilteo Tank Farm, as discussed in Section 4.2 Land Use and Economics.

### No-Build Alternative

This alternative would not affect the Mukilteo Tank Farm, so the entire parcel would be available for redevelopment under Mukilteo and Everett land use regulations. Cumulative visual quality changes could occur in the area if redevelopment were to occur as the City of Mukilteo anticipates. The City’s goal for redevelopment is to create a prime Snohomish County attraction and provide recreational opportunities for residents and visitors; specifically, these would include a walking promenade along the shoreline, access to the waterfront, and linkages to parks and open spaces. In general, the visual effects of such redevelopment would be positive because it would replace the partially demolished remains of the Mukilteo Tank Farm with low-rise urban development, which would have a more unified and integrated visual character. Lighting would consist of normal building and street lighting. This lighting would be a change in the nighttime environment from viewpoints where the site can be seen, but would be substantially less than the lighting required for the Mukilteo ferry terminal.

NOAA plans to expand its laboratory on the west end of the Mukilteo Tank Farm. If this expansion occurs, the scale of buildings is likely to be similar to private-sector, mixed-use development in terms of height and bulk, as well as lighting.

The anticipated relocation of the City of Mukilteo boat launch ramp currently at Lighthouse Park could be accommodated at a variety of sites on the Mukilteo Tank Farm. This would involve a ramp and pier that would likely be visible only from a close range. The parking for the launch ramp could cover several acres and be similar in character to the ferry holding area and other parking. If the parking area were
lighted, the intensity of lighting likely would be less than the ferry holding area because the operational needs are different.

Sound Transit and the City of Mukilteo are studying options for expanding parking, but a specific site has not yet been confirmed. A multi-story structure would have additional visual quality impacts that would be apparent primarily from Viewpoint 9 and from single-family residences on the bluff behind the BNSF tracks between Viewpoints 7 and 9. Visual impacts of this project will be assessed separately in the future.

**Preferred Alternative**

Under this alternative, the eastern portion of the Mukilteo Tank Farm parcel could be available for redevelopment. The visual impacts of such redevelopment would be positive with a greater integrity and unity of design compared to the lack of visual integrity and unity from the partially disassembled structures of the Mukilteo Tank Farm.

Under this alternative, the existing ferry terminal would be removed and the site could be available for redevelopment. The scale of development and the associated impacts would be similar to the description above for the portions of the Mukilteo Tank Farm not used for the ferry terminal.

Lighting would consist of normal building and street lighting that would be substantially less than the lighting required for the ferry terminal.

The relocation of the boat launch at Lighthouse Park, expansion of the NOAA Mukilteo Research Station and possible replacement of its pier, and expansion of Mukilteo Station by Sound Transit, would have visual impacts similar to those discussed under the No-Build Alternative.

**Existing Site Improvements Alternative**

Cumulative impacts of mixed-use development on the Mukilteo Tank Farm, potentially in combination with relocation of the boat launch at Lighthouse Park, NOAA Mukilteo Research Station expansion, and Mukilteo Station expansion, would be similar to those discussed under the No-Build Alternative.

**Elliot Point 1 Alternative**

The impacts of mixed-use redevelopment and potential relocation of the boat launch ramp on the Mukilteo Tank Farm would be similar to those discussed above under the Preferred Alternative. The area of the Mukilteo Tank Farm potentially available for redevelopment is to the west and more easily integrated with the redevelopment area of the existing terminal site. The relocation of the boat launch at Lighthouse Park, expansion of the NOAA Mukilteo Research Station, and expansion of Mukilteo Station would have visual impacts similar to those discussed under the No-Build Alternative.
4.4.7 Mitigation Measures

Mitigation for Long-Term Impacts

For the Preferred Alternative, mitigation measures would be applied to reduce potential visual impacts, including light and glare:

- Applying a context-sensitive design approach to soften view impacts of large expanses of paved area. To be reduce visual impacts from the south, landscaping would include native vegetation, such as trees with substantial canopy size, and landscaping would be considered for areas between ferry loading lanes and pedestrian-oriented areas, where feasible.

- Applying context-sensitive design treatments reflecting the site’s cultural and historic significance; this could include historic and natural resource interpretive or design features.

- Using shorter supports for light standards to reduce glare impacts.

- Shielding luminaries on all lights to limit horizontal and vertical diffusion of glare.

- Continuing a culturally-sensitive design approach defined in the project’s Section 106 Memorandum of Agreement to unite the site visually and with other public facilities. Cultural design elements could include traditional motifs and objects; narrative content; building and facility design, such as landscaping, materials, and form; commemorative signs, drawings, and photography; and public educational displays. Under the MOA, tribal representatives and WSDOT would collaboratively develop the design criteria for cultural elements.

- During final design, coordinating with the City of Mukilteo, Sound Transit, and others on design themes such as:
  - A common specification for terminal lighting that could be coordinated with other public projects and street lighting. The hue of the lighting also could be coordinated as appropriate for the surrounding streets.
  - Surface elements, such as sidewalks and crosswalk treatments, on the site and surrounding areas that provide visual unity. These also could be designed to reinforce way-finding by clearly demarcating pedestrian routes to the transit center, Mukilteo Station, and other destinations.

Other alternatives would apply similar measures as described for the Preferred Alternative, including similar programs for context-sensitive and culturally-sensitive designs.

4.4.8 Visual Simulations

Figures 4.4-2 to 4.4-10 show the current view and the simulated view for each of the project alternatives at the selected viewpoints.
Figure 4.4-2 (Existing)
View East from the Mukilteo Lighthouse
Figure 4.4-2 (Simulations)
View East from the Mukilteo Lighthouse

Viewpoint 1 - Preferred Alternative

Viewpoint 1 - Existing Site Improvements Alternative
Figure 4.4-3 (Existing)
View West from the Silver Cloud Inn
Shoreline Public Access
Viewpoint 2 - Preferred Alternative and Elliot Point 1 Alternative

Viewpoint 2 - Existing Site Improvements

Figure 4.4-3 (Simulations)
View West from the Silver Cloud Inn
Shoreline Public Access
Figure 4.4-4 (Existing)
View East from the Silver Cloud Inn
Shoreline Public Access
Viewpoint 4

Figure 4.4-5 (Existing)
View West from the Mount Baker Terminal
Shoreline Access Area
Figure 4.4-5 (Simulations)
View West from the Mount Baker Terminal
Shoreline Access Area

Viewpoint 4 - Preferred Alternative

Viewpoint 4 - Elliot Point 1 Alternative
Viewpoint 5

Figure 4.4-6 (Existing)
North View from the Ferry Terminal
Vehicle Holding Area
Figure 4.4-6 (Simulations)
North View from the Ferry Terminal
Vehicle Holding Area

Viewpoint 5 - Preferred Alternative and Elliot Point 1 Alternative

Viewpoint 5 - Existing Site Improvements Alternative
Viewpoint 6

Figure 4.4-7 (Existing)
North View from SR 525
Figure 4.4-7 (Simulations)
North View from SR 525

Viewpoint 6 - Preferred Alternative and Elliot Point 1 Alternative

Viewpoint 6 - Existing Site Improvements Alternative
Figure 4.4-8 (Existing)
Northwest View from Second Street and Park Avenue
Viewpoint 7 - Preferred Alternative and Elliot Point Alternative

Viewpoint 7 - Existing Site Improvements Alternative

Figure 4.4-8 (Simulation)
Northwest View from Second Street and Park Avenue
Figure 4.4-9 (Existing)
North View from Second Street and Prospect Avenue
Viewpoint 8 - Preferred Alternative

Viewpoint 8 - Elliot Point 1 Alternative

Figure 4.4-9 (Simulations)  
North View from Second Street and Prospect Avenue
Figure 4.4-10 (Existing and Simulation)
Northwest View from Mukilteo Lane East of Japanese Gulch
4.5 Social Environment and Environmental Justice

This section evaluates the project’s potential for adverse impacts on and benefits to parks, recreation, social services, neighborhoods, community resources, and community cohesion. It also assesses the potential for disproportionately high and adverse impacts on low-income and minority communities.

4.5.1 Overview of Analysis and Regulatory Context

NEPA established a national environmental policy and goals for the protection, maintenance, and enhancement of the environment, which includes communities as well as parks and recreation areas. FTA’s regulations for implementing NEPA provide guidance for considering impacts on the social environment. SEPA regulations suggest that general welfare, social, and economic factors be taken into account in an environmental review, but does not apply the term “socioeconomic” or define other requirements for the analysis of impacts on certain populations.

Pursuant to Title VI of the Civil Rights Act and the Civil Rights Restoration Act, recipients of federal financial assistance must ensure non-discrimination on the basis of race, color, or national origin in all of their programs and activities. Similarly, Executive Order 12898 (1994) requires federal agencies to analyze their actions and environmental impacts on minority and low-income populations.

Following Executive Order 12898, USDOT issued Order 5610.2, which describes how USDOT administrations must analyze environmental justice and incorporate environmental justice principles into the transportation decision-making process.

The analysis of parks and recreational impacts is required under both SEPA and NEPA; in addition, there are state and federal regulations regarding the potential conversion of park land for other purposes. Much like the other aspects of the social impact analysis, coordination and consultation with local agencies, non-profit service providers, and the public are critical to the analysis process.

Analyzing Social Impacts

The social impacts section of this EIS examines how the project could alter the ways in which people live, work, play, and function together as members of society. This includes changes to the larger environment or physical setting for a community, which could affect the cohesion and functions of individual neighborhoods or community members, including people in minority or low-income groups. It also includes a review of the public park, recreation, and social services available to the community.

The community impact analysis flows out of the EIS’s overall findings of other kinds of environmental impacts. It examines the findings for those and other environmental conditions to assess the potential for significant impacts on communities. The social impacts assessment considers:

- Displacements of homes, businesses, or community resources (see Section 4.2 Land Use and Economics)
- Separation of a neighborhood from its community resources (see Chapter 3 Transportation)
• Economic changes resulting from displacements, or other changes affecting local or regional economic activities (see Section 4.2 Land Use and Economics)

• Changes in the transportation system, parking, or traffic circulation patterns that affect the connectivity within a community or between communities, and altered connections between residential areas and the arterial and transit networks (see Chapter 3 Transportation)

• Permanent or temporary impacts that adversely affect the community, such as visual, noise and vibration, air quality, parks and recreational resources, and impacts on the local utilities, public services, or facilities (see Sections 4.2 Land Use and Economics; 4.3 Noise and Vibration; 4.4 Visual Quality, Aesthetics, and Light and Glare; 4.7 Air Quality; and 4.13 Public Services and Utilities)

• Health and resource impacts related to hazardous materials (see Section 4.8 Hazardous Materials)

Analyzing Environmental Justice Impacts

The analysis identifies the percentages of low-income and minority populations in the study area that could experience impacts from the project. These percentages are compared to the average percentage of low-income and minority populations at city and county levels. The study area extends 0.5 mile from the footprint of the alternatives, and is based on an assessment of potential project impacts from all alternatives in other environmental impact topics. The analysis also takes into consideration the potential for environmental justice impacts based on all impacts identified in the EIS, not just the impacts in the environmental justice study area.

As described in Section 4.5.2 Affected Environment, this Final EIS has applied data from the 2010 U.S. Census and from the 2006-2010 American Community Survey; the Draft EIS used 2000 Census data. Consistent with the Draft EIS, the Final EIS data are reported for the census tracts that overlap with the study area boundaries. The 2010 U.S. Census revised boundaries for one of the two study area census tracts. As a result, the Final EIS analyzes the demographics of a smaller total population than shown in the Draft EIS.

The analysis also considers information collected from other sources, including Section 8 Housing Assistance data from the U.S. Department of Housing and Urban Development (HUD), as well as free and subsidized lunch program data from the Mukilteo School District.

USDOT guidance defines “low-income households” using the U.S. Department of Health and Human Services poverty guidelines. The U.S. Census Bureau defines “minority” to include the following racial categories:

• Black or African American. A person having origins in any of the Black racial groups of Africa

• Asian American. A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent
• **American Indian or Alaska Native.** A person having origins in any of the original peoples of North and South America and who maintains tribal affiliation or community attachment

• **Native Hawaiian or Other Pacific Islander.** A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands

The U.S. Census Bureau definition of “minority” also includes the following ethnic category:

• **Hispanic or Latino.** A person of Cuban, Mexican, Puerto Rican, South or Central American, or other Spanish culture or origin, regardless of race

Since FTA and WSDOT began the NEPA environmental review process for the Mukilteo Multimodal Project in October 2004, they have provided frequent opportunities for the public, including minority and low-income populations, to share concerns and discuss specific project details with project staff. Public involvement activities to date have included public meetings, agency and tribal meetings, online meetings, and stakeholder briefings. For more details on this outreach, see Chapter 7 Agency, Tribal, and Public Involvement. WSDOT continued discussions with the public, agencies, and tribes while preparing technical reports.

**Determining Disproportionately High and Adverse Impacts**

To identify the potential for disproportionately high and adverse impacts on minority or low-income populations, this analysis considers five primary questions:

**Question 1:** Does the project affect a resource that is especially important to a minority or low-income population? For instance, does the project affect a resource that serves an especially important social, religious, or cultural function for a minority or low-income population?

**Question 2:** Would the project result in high and adverse impacts to a minority or low-income population?

**Question 3:** Would the project result in disproportionately high and adverse impacts that would be suffered by a minority or low-income population compared to the impacts that would be suffered by the general population?

**Question 4:** Does the project propose mitigation and/or enhancement measures?

**Question 5:** Are there project benefits that would accrue to minority or low-income populations at similar or different levels than the general population?

The answers to these five questions help show whether the project alternatives would be likely to result in disproportionately high and adverse impacts on minority or low-income populations.

**4.5.2 Affected Environment**

This section describes the key characteristics of the social environment, including community resources, housing demographics, parks, low-income and minority populations, and other factors that contribute to community cohesion and quality of life. The study area is the same as the one used for the environmental justice analysis.
Community Resources

Except for parks and community centers (discussed separately below), the only municipal facility located in the study area is a fire station. Several small offices in the downtown area provide a variety of limited health care services.

The Mukilteo School District serves about 14,000 students living in Mukilteo and south Everett. The study area falls entirely within the attendance boundaries of Mukilteo Elementary School, Olympic View Middle School, and Kamiak High School, although the schools are outside of the study area. Two churches are located on Third Street, near the existing ferry terminal. Two community centers, the Boys and Girls Club and the Rosehill Community Center, are in the study area, as are several parks and recreational facilities. These resources are shown on Figure 4.5-1.

Housing exists on both sides of SR 525 from Second Street to Ninth Street, but south of Ninth Street a steep bluff limits development west of SR 525. Two other neighborhoods are located west of SR 525 in the study area: one at Horizon Heights Drive (approximately 19th Street), and the other between 80th Street SW and 84th Street SW.

Commercial development in the study area is concentrated in the old downtown area and along SR 525. The old downtown area is located east of SR 525, approximately from Sixth Street to the waterfront. As with residential development, nearly all of the commercial development has occurred east of SR 525 (see Figure 4.2-2 in Section 4.2 Land Use and Economics). Exceptions are the waterfront sub-area and the intersection of SR 525 and 84th Street SW, each of which has a small number of businesses west of SR 525. The waterfront sub-area currently has only one hotel, three restaurants, a small store, a building with a number of office and art-related uses, the NOAA facility, and several commercial parking lots. Most housing within the 0.5-mile study area consists of owner-occupied single-family homes. There are few homes owned by HUD or using rental assistance programs, such as those offered by the Housing Authority of Snohomish County (HASCO).

Parks and Recreational Resources

The study area contains a number of parks and recreational facilities that provide a variety of outdoor and indoor activities (Figure 4.5-1). Some of these resources also qualify for protection under a USDOT regulation known as Section 4(f), as discussed in Chapter 5 Section 4(f) and Appendix I:

- Pioneer Cemetery is a 0.5-acre historic town cemetery, located approximately five blocks southwest of the ferry terminal, with expansive views of Puget Sound.
- The Rosehill Community Center provides a variety of indoor and outdoor athletic facilities.
- Totem Park is a 0.1-acre park adjacent to SR 525, three blocks south of the existing ferry terminal.
Figure 4.5-1. Recreational and Community Resources

Data Sources: (Cities of Mukilteo and Everett, Snohomish County, WSDOT)
• Mukilteo Lighthouse Park is on the shoreline to the west and south of the existing ferry terminal. The 14.4-acre site encompasses the former Mukilteo State Park, the former U.S. Coast Guard Light Station property, and the portion of Front Street along the park. The City’s approved master plan for the park features a central lawn with open views of the lighthouse and the Sound; a pedestrian loop path system that connects with a planned pedestrian promenade along the waterfront to the east; shoreline restoration; viewpoints; a pedestrian pier; streetscape improvements; new picnic, play, and restroom facilities; and improved vehicular circulation and parking that avoids intrusions on a more pedestrian-oriented shoreline. A boat launch is currently located at the park.

• The Port of Everett fishing pier and seasonal day moorage is located just east of the Mukilteo ferry terminal.

• The Mukilteo Community Beach is a 0.3-acre parcel along the shoreline at the end of Park Street, adjacent to the west entrance of the Mukilteo Tank Farm. It offers shoreline access, community programs, and a limited amount of parking. It is also a popular site for SCUBA divers to access the offshore area.

• The Barbara Brennen Dobro Memorial Park is a 0.1-acre site in old downtown Mukilteo. The Fowler Pear Tree was planted here during the U.S. Civil War, and is a registered state historic landmark.

• Japanese Gulch is a 20-acre public open space in a ravine that carries Japanese Creek and runs from approximately the north end of Paine Field to the shoreline at the east end of the Mukilteo Tank Farm. It features hiking trails and views of Possession Sound.

• Centennial Park is a 0.25-acre park located in the northeastern part of the city. This small park includes space for picnics and features the Japanese Gulch Memorial.

• A public shoreline access area for Edgewater Beach is to the east of the Mukilteo Tank Farm in the city of Everett. Associated with the Port of Everett’s Mount Baker Terminal, the access area is a City of Everett permitting condition for the terminal, with enhancements including parking, benches, and a shoreline walkway. The area is not yet officially open.

• Edgewater Park is located in the city of Everett, slightly east and upland of the project area. The 1.5-acre site includes picnic tables, tennis and basketball courts, and a playground.

• The Cascadia Marine Trail is one of 16 non-motorized water trails designated as National Millennium Trails by the White House Millennium Council. The trail crosses to the west of Point Elliot and extends through Puget Sound from Olympia to Point Roberts on the U.S.-Canada border.
Recreational Fishing

The Port of Everett fishing pier and seasonal day moorage, as well as the public pier near the Silver Cloud Inn, provide access for recreational fishing, which is popular in and near the study area. Salmon, crab, and shrimp are typically harvested by boat, while shellfish are harvested from shore. The Washington Department of Fish and Wildlife (WDFW) divides Washington State waters into Fishing Management Areas. One of the most popular fishing areas is the bar at the south end of Whidbey Island, just offshore from Scatchet Head and Possession Point. The easiest and quickest way to reach this bar from the mainland is to launch at the Mukilteo Lighthouse Park; however, this ramp can be difficult to use in high winds. The Port of Everett boat launch in Everett is farther from the south end of Whidbey Island but is larger and more protected from wave action.

Demographics

Racial characteristics for the study area population as of the 2010 Census are shown in Table 4.5-1. The percentage of non-white population for each census block group in and near the study area is shown in Figure 4.5-2. In the census tracts that intersect the study area, approximately 14.7 percent of the population was non-white, less than the rates found within Snohomish County (21.6 percent) and the city of Mukilteo (25.1 percent). The analysis also assesses ethnicity in terms of the non-white and white Hispanic and Latino populations that may be present. In the census tracts that intersect with the study area, approximately 4.1 percent of the population was Hispanic and/or Latino in 2010, which is less than half the rate of Snohomish County (9.0 percent) and similar to the rate within the city of Mukilteo (4.4 percent). Although the Everett city limits fall within the study area, its population is concentrated east of the study area; therefore, this population segment was not included as a comparison factor in Table 4.5-1.

Table 4.5-1. Racial and Ethnic Composition of Residents in Snohomish County, City of Mukilteo, and Census Tracts within the Study Area

<table>
<thead>
<tr>
<th></th>
<th>Snohomish County</th>
<th>City of Mukilteo</th>
<th>Census Tract 413.01</th>
<th>Census Tract 413.04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>713,335</td>
<td>20,254</td>
<td>5,117</td>
<td>2,870</td>
</tr>
<tr>
<td>White alone</td>
<td>559,011</td>
<td>15,172</td>
<td>4,456</td>
<td>2,359</td>
</tr>
<tr>
<td>Black or African American alone</td>
<td>18,168</td>
<td>346</td>
<td>53</td>
<td>46</td>
</tr>
<tr>
<td>American Indian and Alaska Native alone</td>
<td>9,793</td>
<td>115</td>
<td>34</td>
<td>20</td>
</tr>
<tr>
<td>Asian alone</td>
<td>63,385</td>
<td>3,457</td>
<td>342</td>
<td>265</td>
</tr>
<tr>
<td>Native Hawaiian and Other Pacific Islander alone</td>
<td>3,135</td>
<td>34</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>Some other race alone</td>
<td>27,121</td>
<td>227</td>
<td>50</td>
<td>47</td>
</tr>
<tr>
<td>Two or more races</td>
<td>32,722</td>
<td>903</td>
<td>173</td>
<td>126</td>
</tr>
<tr>
<td>Percent non-white</td>
<td>21.6</td>
<td>25.1</td>
<td>12.9</td>
<td>17.8</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>64,249</td>
<td>882</td>
<td>198</td>
<td>133</td>
</tr>
</tbody>
</table>

Source: U.S. Census 2010, QT-P4
Figure 4.5-2. Percent Nonwhite

Data Sources: Cities of Mukilteo and Everett, Snohomish County, WSDOT, and U.S. Census Bureau, 2010 census data
The Draft EIS reported income characteristics from the 2000 U.S. Census because that was the most current demographic data available at that time at the level of geography necessary for detailed analysis. As of 2010, the U.S. Census no longer includes income questions; therefore, the Final EIS reports income characteristics based on the 2006-2010 American Community Survey estimate. The 2006-2010 estimate is the most recent American Community Survey data release available, and reports income characteristics based on data collected from January 1, 2006, to December 31, 2010. Income characteristics for the study area census tracts are shown in Table 4.5-2. The combined poverty rate for the study area census tracts was 6.0 percent, which is lower than that found in Snohomish County (8.4 percent) and similar to the city of Mukilteo (5.7 percent). The percentage of households below the federal poverty threshold for block groups in and near the study area is shown in Figure 4.5-3.

Table 4.5-2. Income Level of Residents in Snohomish County, City of Mukilteo, and Census Tracts within the Study Area

<table>
<thead>
<tr>
<th>Housing Type</th>
<th>Snohomish County</th>
<th>City of Mukilteo</th>
<th>Census Tract 413.01</th>
<th>Census Tract 413.04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median household income</td>
<td>$66,300</td>
<td>$91,683</td>
<td>$90,060</td>
<td>$100,829</td>
</tr>
<tr>
<td>Share of population below poverty level (%)</td>
<td>8.4</td>
<td>5.7</td>
<td>7.0</td>
<td>4.4</td>
</tr>
</tbody>
</table>

Source: American Community Survey 2006-2010, B19013 and S1701/B17021

Tribal Communities

There are no tribal reservations in the project area. Several tribes trace their ancestry to the native inhabitants of the Puget Sound region, and their members continue to live, work, fish, hunt, and participate in traditional cultural activities in locations throughout the region. These tribes include the federally recognized Lummi Nation, Muckleshoot Indian Tribe, Samish Indian Nation, Sauk-Suiattle Indian Tribe, Snoqualmie Tribe, Stillaguamish Tribe of Indians, Suquamish Tribe, Swinomish Indian Tribal Community, Tulalip Tribes, and Upper Skagit Tribe, as well as the non-federally recognized Duwamish Tribe and Snohomish Tribe.

As described in Section 4.12 Ecosystems, the project area supports several species of salmon, crab, shellfish, and other marine species that have always been central to tribal cultures of Western Washington. Tribal harvests focus on salmon, Dungeness crab, and shellfish. Fishing opportunities for salmon, Dungeness crab, and other shellfish are shared among federally recognized tribes of Western Washington and they have access to seasons and areas not open to the general public. The tribes also have resource management roles that they conduct in coordination with WDFW.

The primary mode of harvesting salmon is with anchored or drifting gill nets. Typically, Chinook salmon are fished from July to September, pink salmon in July, coho from early September to October, and chum salmon from mid-October through November. Tribal harvesting of Dungeness crab is accomplished mostly with pot gear, during summer low tides. Tribal clam harvesting occurs most of the year. Ghost shrimp for use as bait are harvested year-round from the sandy areas near the Port of Everett’s Mount Baker Terminal.
Figure 4.5-3. Percent Below Poverty Threshold

Data Sources: Cities of Mukilteo and Everett, Snohomish County, WSDOT, and U.S. Census Bureau, 2006-2010 American Community Survey data
Tribal fishers have used the Tank Farm Pier as shelter during periods of strong south winds. The Tank Farm Pier also provides habitat and refuge for crabs. The area off the upland portion of the Mukilteo Tank Farm is not typically fished with drift gear because of the proximity to the Tank Farm Pier. Fishing is precluded in the immediate area around the existing ferry terminal due to ferry traffic.

### 4.5.3 Long-Term Environmental Impacts

Long-term social impacts from transportation projects may result from the acquisition of properties, removal of buildings and other physical features, displacement of businesses or residents, separation of neighborhoods from their community resources, impacts on traffic circulation patterns, impacts on parks, or impacts on neighborhood cohesion. Separation of a neighborhood from its community resources may be caused by operational changes such as rerouting traffic, pedestrian or transit service, as well as by introducing new physical barriers such as roadways or other transportation facilities.

#### No-Build Alternative

**Social Impacts**

The No-Build Alternative would not alter the overall ferry terminal layout.

The surrounding community is routinely affected by the deficiencies of the current facilities. Long queues block driveways and side streets, and waterfront access is both limited and impeded by conflicts between vehicles and pedestrians.

The No-Build Alternative conditions hinder access to the waterfront, the small businesses, and the Mukilteo Lighthouse Park. In the future, increasing ferry traffic volumes would make vehicular access to the waterfront businesses more difficult.

Currently, only a small portion of ferry traffic uses residential streets to avoid traffic signals on SR 525 and SR 526, although this could worsen as ferry traffic increases in the future. An increase could undermine neighborhood cohesion.

**Impacts on Parks and Recreational Resources**

Because of congestion and overall increase in traffic, ferry queues, parking constraints, and ferry loading and unloading, the No-Build Alternative would continue to hinder access to Mukilteo Lighthouse Park and Community Beach Park.

**Environmental Justice Considerations**

No resources or services specific to low-income and minority populations exist in the area. There would be no impacts on low-income housing sites, social service providers, or other environmental justice resources. The Port of Everett existing fishing pier would remain, although it might be modified if it is used temporarily to provide passenger-only ferry service during replacement of the existing ferry docking facilities.
The maintenance and structure replacements associated with this alternative would not adversely affect the occurrence or abundance of aquatic species, including species harvested by tribal fishers.

**Preferred Alternative**

**Social Impacts**

The Preferred Alternative would convert a portion of the Mukilteo Tank Farm to a multimodal transportation use with a public waterfront promenade, and it would remove the existing ferry terminal facilities. This alternative would improve access and safety for the central waterfront, and it would move ferry traffic and operations out of the central waterfront. An improved network of pedestrian facilities extending east would also help unify the waterfront area.

As described in *Chapter 3 Transportation*, this alternative would provide the shortest walk between the multimodal connections.

The Preferred Alternative also would extend First Street and provide a new signalized intersection at SR 525 and First Street. The First Street extension would displace the Mongrain Building, which houses a glass blowing art studio and other businesses. Compensation and relocation assistance would be provided in compliance with applicable regulations. First Street would feature sidewalks and bicycle lanes. By improving bus circulation, this alternative would improve bus service between the waterfront and nearby social resources. By improving bus and rail connections, this alternative would benefit rail users in the community.

The Preferred Alternative would increase areas available to queue vehicles waiting to reach the terminal and would provide adjacent bus facilities. As discussed in *Chapter 3 Transportation*, the queue length for the Preferred Alternative would still extend to SR 525, but the additional capacity would reduce traffic congestion, cut-through traffic, blocked driveways, and other impacts in the adjacent neighborhoods compared to the No-Build or Existing Site Improvements alternatives.

**Impacts on Parks and Recreational Resources**

The Preferred Alternative would include a pedestrian walkway from First Street to a waterfront promenade. The passenger building would provide part of the continuous pedestrian walkway. The Port of Everett fishing pier and day moorage would be relocated to the Mukilteo Tank Farm site.

The demolition of the Tank Farm Pier would remove a known dive site, and the operation of the ferry in the area would restrict other fishing or diving activities in the immediate vicinity. However, the removal of the existing ferry terminal would allow for more opportunities for public shoreline access in the central waterfront area.

The transit center would include layover facilities for transit, which would reduce the need for buses to use Mukilteo Lighthouse Park for layover parking. Similarly, the removal of the existing ferry terminal and its related traffic on Front Street would improve access, safety, and parking availability for the park.
Environmental Justice Considerations

Minority or low-income populations would not bear disproportionately high and adverse impacts from the Preferred Alternative. No services specific to low-income or minority populations exist in this area. There would be no impacts on low-income housing sites, social service providers, or other environmental justice resources.

Treaty rights preserve the right for certain Native American tribes to harvest fish in their usual and accustomed areas. The project is located within areas designated as usual and accustomed by the Treaty of Point Elliott.

The Port of Everett fishing pier and day moorage provides a location for public fishing and is available to people with low incomes, including people who may rely upon fishing as a primary source for food. The Preferred Alternative would reconstruct the existing fishing pier. To avoid longer term disruption to fishing as well as to provide a more open waterfront near the existing terminal, the Preferred Alternative would relocate the fishing pier and day moorage to the east of the new terminal. With the new fishing pier in place before the existing fishing pier is demolished, there would be no impacts on public fishing activities relying on the pier.

While the Preferred Alternative would not adversely affect any specific facility serving low-income or minority populations, the EIS analysis considered other impacts to fishing as a potential environmental justice issue. As discussed in Section 4.12 Ecosystems, the Preferred Alternative would not adversely affect the occurrence or abundance of aquatic species, including species that are harvested by tribal fishers, or other recreational or commercial fishermen.

The crab populations that live under or just west of the Tank Farm Pier may relocate when the pier is removed, but this is not expected to alter the abundance of crabs that are available to fishers in the area.

Removal of the existing ferry terminal and the Tank Farm Pier would open up additional waters for tribal, public, and commercial fishing. Fishing activities, including fishing by tribal members, would be affected by the physical presence of the proposed new ferry terminal as well as by the removal of the Tank Farm Pier, which currently can provide shelter during storms and high winds.

Current clamming areas and ghost shrimp harvest areas would remain accessible to tribal fishers. Upon completion of the new ferry terminal, portions of the Mukilteo Tank Farm shoreline, waters around the Tank Farm Pier, and some currently fenced or restricted areas would become more publicly accessible, although ferry navigation and terminal security would still restrict certain areas. FTA, in coordination with WSDOT, is conducting government-to-government consultations with affected tribes to resolve potential issues associated with treaty rights.

Potentially beneficial permanent impacts on area fish and shellfish include improvements to water quality and sediment over the long term resulting from the
removal of creosote-treated timber at the existing ferry terminal and the Tank Farm Pier (see Section 4.11 Water Resources).

Considering all of the above, and assuming agreements addressing treaty rights are executed, there would not be high or adverse impacts to public and tribal fishing activities, and consequently no associated environmental justice impacts.

The construction of this alternative has the potential to encounter archaeological resources, including a site of significance to Native Americans. The alternative is designed to avoid encountering this resource, as described in Section 4.6 Cultural Resources. The project’s Section 106 Memorandum of Agreement includes measures developed with tribal representatives and others to resolve adverse effects to the resources.

**Existing Site Improvements Alternative**

**Social Impacts**

The Existing Site Improvements Alternative would make limited improvements at the existing site, replacing and realigning existing ferry facilities such as the ferry slip and trestle. Congestion and vehicle/pedestrian conflicts at the Front Street-SR 525 intersection would continue to impair the integration of the Mukilteo waterfront with the surrounding community.

This alternative would remove the existing Port of Everett fishing pier and seasonal day moorage and displace Ivar’s restaurant and art-related businesses at Park Avenue and First Street, but compensation and relocation assistance would be provided. However, the displacement of these resources would further reduce the limited commercial activities that help draw people to the waterfront area for reasons other than the ferry. The fishing pier is used extensively by the local community and is one of a limited number of shoreline recreational fishing opportunities open to the public in the area. A potential replacement location has been identified; see Figure 2-3 in Chapter 2 Alternatives.

This alternative would slightly increase the walk from the ferry to buses relative to the No-Build Alternative, but the improved bus transit center would offer more amenities (shelter, route information, benches) for passengers, and it is closer to the commuter rail Mukilteo Station. Because of the extension of First Street and the new intersection at First Street and SR 525, bus service would improve between the Mukilteo waterfront and nearby social resources. The proximity of the new transit center and the commuter rail station would improve bus-rail connections for rail users in the community.

This alternative, with overhead loading included, would also help reduce delays in the ferry system operations, benefiting all populations, but queue lengths would still extend back onto SR 525. The Draft EIS public comments have shown queues are a concern to surrounding neighborhoods.
Impacts on Parks and Recreational Resources

The Existing Site Improvements Alternative would remove the Port of Everett public fishing pier and seasonal day moorage, which is a recreational resource used by the community and the public. If not replaced prior to its removal, the loss of the pier would be an impact on a recreational resource for the community because it is one of a limited set of shoreline recreational fishing opportunities available to the public in the area.

As discussed for the No-Build Alternative, congestion on the waterfront would continue to impair access to Mukilteo Lighthouse Park and Mukilteo Community Beach.

Environmental Justice Considerations

There are few impacts that would potentially affect minority or low-income populations disproportionately. Some displaced employees from Ivar's restaurant may be from low-income or minority groups. These employees could be retained if Ivar's were relocated to an area suitable for its business and if the restaurant's operations can transition without a long period of disruption. Otherwise, these individuals could lose their jobs permanently.

The existing fishing pier and day moorage would be removed. Low-income or minority people who rely on fishing as a food source would be affected if no replacement facility is provided before removal. A user survey conducted by WSDOT in October 2011 found that minority and low-income people use the pier, although the number of users fluctuates throughout the year. To avoid affecting people who might rely on fishing from the pier for subsistence, the project would need to provide a temporary or replacement site for public fishing access. Additional outreach to pier users prior to construction would also help avoid impacts.

As discussed in Section 4.12 Ecosystems, the Existing Site Improvements Alternative would not adversely affect the occurrence or abundance of aquatic species, including species that are harvested by tribal fishers.

As discussed in Section 4.6 Cultural Resources, the project’s construction could affect archaeological resources, many of which are important to Native Americans.

To implement this alternative, FTA and WSDOT would need to continue coordination and government-to-government consultations with affected tribes to resolve any issues associated with treaty rights. FTA would also continue Section 106 consultations to address adverse effects on cultural resources of significance to the tribes. With these issues resolved, no adverse effects on environmental justice populations are expected.

Elliot Point 1 Alternative

Social Impacts

This alternative would convert a portion of the Mukilteo Tank Farm to a multimodal transportation use with public shoreline access features, and it would remove the existing ferry terminal facilities. This alternative would improve access to the central
waterfront and the waterfront near the Mount Baker Terminal and would integrate the Mukilteo downtown area with the waterfront.

The distance between the ferry and local bus service at the new transit center is a short walk (about 540 feet or 0.11 mile). The distance from Mukilteo Station to the ferry terminal would be about the same as it is today (about 1,970 feet or 0.37 mile).

This alternative would extend First Street to the Mount Baker Terminal and provide a new signalized intersection at SR 525 and First Street. First Street would feature sidewalks and bicycle lanes. As with the Existing Site Improvements Alternative, by improving bus circulation, this alternative would improve bus service between the waterfront and nearby social resources. By improving bus-rail connections, this alternative would benefit rail users in the community.

This alternative would increase areas available to queue vehicles waiting to reach the terminal and would provide adjacent bus facilities. As discussed in Chapter 3 Transportation, the queue would not reach SR 525. The additional capacity would reduce traffic congestion, cut-through traffic, blocked driveways, and other impacts in the adjacent neighborhoods compared to the No-Build Alternative. As discussed below, the public shoreline area near the Mount Baker Terminal would be modified but maintained. Community access to Mukilteo Station would remain generally the same as it is today.

**Impacts on Parks and Recreational Resources**

The Elliot Point 1 Alternative would modify some of the dedicated public access area at the Mount Baker Terminal, but would still provide the access and parking required by permit for the shoreline area. The alternative would also extend the shoreline areas available to the public and open a larger section of the shoreline to public access than is currently available by providing a shoreline promenade to the west and east of the new ferry terminal.

The demolition of the Tank Farm Pier would remove a known dive site, and the operation of the ferry in the area would restrict other fishing or diving activities in the immediate vicinity. However, the removal of the existing ferry terminal would allow for more opportunities for public shoreline access in the central waterfront area.

The transit center would include layover facilities for transit, which would reduce the need for buses to use Mukilteo Lighthouse Park for layover parking. Similarly, the removal of the existing ferry terminal and its related traffic on Front Street would improve access, safety, and parking availability for the park.

**Environmental Justice Considerations**

No services specific to low-income or minority populations exist in this area. There would be no impacts on low-income housing sites, social service providers, or other environmental justice resources.

The existing Port of Everett fishing pier and day moorage provides a location for public fishing and is available to people with low incomes, including people who may rely upon fishing as a primary source for food. The Elliot Point 1 Alternative would relocate the fishing pier and day moorage.
As with the Preferred Alternative, removal of the Tank Farm Pier and establishment of a new ferry terminal could alter existing tribal fishing practices, but could open new areas by removing the existing ferry terminal. FTA is conducting government-to-government consultations with affected tribes and coordinating with WSDOT to resolve potential issues associated with treaty rights.

As discussed in Section 4.6 Cultural Resources, the project’s construction could affect prehistoric archaeological resources important to Native Americans and historic archaeological resources important to Japanese-Americans. This alternative has the least overlap with the prehistoric site and has the lowest potential for impacts. FTA would continue to conduct Section 106 consultations to address adverse effects.

### 4.5.4 Construction Impacts

This section addresses the temporary impacts that may result from the construction of new facilities, hauling of materials, and the staging of major construction activities. Both standard practices and context-specific measures will be incorporated into the project to reduce noise, light and glare, and air quality impacts during construction, including truck traffic impacts on the community, as discussed in more detail in Chapter 3 Transportation and Sections 4.3 Noise and Vibration; 4.4 Visual Quality, Aesthetics, and Light and Glare; and 4.7 Air Quality. Construction activities are not expected to have disproportionately high and adverse impacts on low-income and minority populations.

**No-Build Alternative**

Construction would take place only as facilities require replacement. Construction would have temporary impacts on adjacent uses from noise and temporary disruption of traffic circulation. As described in Chapter 3 Transportation, this would temporarily alter access and increase delays to businesses and other uses along the waterfront, but access is expected to be maintained.

The construction would fully close the facility for a 4- to 9-month period. Full closure would have the greatest transportation impact on ferry users primarily because the ferry route would be redirected to Edmonds. Waterfront traffic circulation would improve without ferry operation but patronage at some businesses could decline because area activity levels would decrease. Construction activities conducted while the terminal is in operation would result in some disruptions to ferry operations and traffic patterns. Nearby residents would be subject to increased dust, dirt, traffic, visual impacts, and other inconveniences during the construction period. As detailed in Section 4.3 Noise and Vibration, higher noise levels would occur during construction, but mitigation measures are identified to avoid adverse impacts on sensitive receptors such as the hotel and residences near the existing terminal.

The No-Build Alternative could result in a temporary closure of the Port of Everett fishing pier. A nearby public pier beside the Silver Cloud Inn could be used instead. Users of Mukilteo Lighthouse Park would also experience higher noise levels during construction.
Section 4.12 Ecosystems contains a more detailed discussion of potential impacts on fishing. Whenever in-water work is conducted, fish distribution or abundance may be temporarily affected, which may disrupt typical tribal and non-tribal fishing activities. Fishing may be affected by noise, vibration, construction activities, and turbidity. The presence of barges and other construction vessels and equipment could also interfere with the use of private boats in the vicinity for fishing or other activities.

Preferred Alternative

Because construction of the Preferred Alternative would take place on the Mukilteo Tank Farm, operation of the existing ferry terminal would continue until construction is complete. Impacts due to the removal of the existing ferry terminal facilities, such as noise, dust, disruption from demolition, or from trucks hauling debris away from this location, would occur for 1 to 2 months after the new ferry terminal is in place and operating.

For most other construction activities, only minor noise, vibration, and visual impacts would be expected because the Mukilteo Tank Farm would not be open to the public during construction and it is not near homes or businesses.

Construction traffic would temporarily affect the downtown street system and cause delays on local streets and SR 525.

Construction impacts to recreational facilities would be largely limited to proximity impacts. The Port of Everett fishing pier and seasonal day moorage would be replaced prior to demolition, which avoids impacts to these types of recreational uses. Impacts would be limited as well at the Mukilteo Lighthouse Park, because aside from demolition of the existing terminal, most of the construction would be away from the park site. Demolition of the existing terminal could create short-term proximity impacts such as noise or visual impacts for park users, primarily in the areas of the park closest to the terminal.

Potential impacts on recreational fishing and crabbing from offshore areas may result from in-water work; the Preferred Alternative requires more in-water work than the No-Build Alternative or the Existing Site Improvements Alternative and is similar to the Elliot Point 1 Alternative. In-water work may temporarily affect fish distribution or abundance, which would in turn disrupt typical tribal and non-tribal fishing activities. A large population of crabs is present in the Tank Farm Pier area. Individual crabs could be injured or killed during pile removal or placement, but overall impacts on crab populations would not be substantial (see Section 4.12 Ecosystems). Impacts to recreational fishing opportunities are not expected but may occur if there is a period of time between demolition and replacement of the Port of Everett fishing pier.

Existing Site Improvements Alternative

Construction and demolition activities would be staged to minimize disruptions to existing ferry operations and traffic patterns. The construction of a replacement facility on and adjacent to the existing ferry terminal site would complicate access to waterfront area properties, as well as public waterfront areas nearby. As described in Chapter 2 Alternatives, construction would close the terminal facility for 1 to 2 months,
which is longer than other Build alternatives but shorter than with the No-Build Alternative.

Nearby residents would be subjected to noise, dust, dirt, traffic, visual impacts, and other disruptions during the construction period at levels that are greater than those described for the No-Build Alternative. The construction period would not extend for as long a period as that of the No-Build Alternative.

The closure and demolition of the public fishing pier and seasonal day moorage during construction of the Existing Site Improvements Alternative would remove one of a limited number of shoreline recreational fishing locations open to the public in the area. If construction occurs during the offseason, day moorage would not be affected. In the Draft EIS, WSDOT identified two options for replacing the facility, but both have limitations. If a replacement can be constructed before the current facility is removed, impacts on recreational use would be reduced. This would also help avoid impacts on low-income or minority individuals who rely on fishing as a food source. Other recreational properties would remain open to the public during construction and demolition. Construction could affect access to and from Mukilteo Lighthouse Park and the public pier beside the Silver Cloud Inn. The access changes would include detours, delays, and alternative pathways for pedestrians and bicyclists.

Similar to the No-Build Alternative, potential impacts on fishing may result from in-water work.

**Elliot Point 1 Alternative**

Construction impacts on community cohesion and social resources or interactions would be low and primarily related to construction traffic, similar to those for the Preferred Alternative. Only minor noise, vibration, and visual impacts would be expected because the Mukilteo Tank Farm would not be open to the public and it is not near homes or businesses.

Construction impacts on parks and recreation would be similar to those for the Preferred Alternative, assuming the fishing pier and seasonal day moorage would be relocated to be part of the new multimodal facility.

The public shoreline access area developed as part of the Mount Baker Terminal is not yet open to the public because its permanent access requires tank farm property that would not be available until after the transfer of the property from the U.S. Air Force. The opening of the shoreline access area would be coordinated with the construction of the Mukilteo Multimodal Project because the extension of First Street would be needed as part of the access route; therefore, construction impacts are not anticipated.

**4.5.5 Indirect and Secondary Impacts**

Major transportation projects can have community impacts that are removed in time or space from the project area, such as job creation, gentrification, and redevelopment.
No-Build Alternative

No indirect impacts are anticipated.

Preferred Alternative

This alternative would indirectly benefit community cohesion by providing the opportunity for redeveloping the waterfront area, and helping the City of Mukilteo achieve its planned vision for the downtown area and Mukilteo Lighthouse Park. This alternative would remove the existing ferry terminal features and operations that are in the center of the downtown waterfront area and adjacent to the Mukilteo Lighthouse Park. A portion of the current holding lanes that are on property leased by WSDOT would be available for other development.

Existing Site Improvements Alternative

No indirect impacts are anticipated.

Elliot Point 1 Alternative

The indirect impacts of the Elliot Point 1 Alternative would be similar to those for the Preferred Alternative.

4.5.6 Cumulative Impacts

No-Build Alternative

This alternative would not affect the Mukilteo Tank Farm. The entire 18.85-acre parcel proposed for transfer to the Port of Everett would be available for development. The City of Mukilteo anticipates the land would be redeveloped as a recreational resource. The redevelopment of the Mukilteo Tank Farm would likely have some positive impacts on the city of Mukilteo and the immediate surrounding neighborhood. This redevelopment would improve local recreation options such as more opportunities for shoreline access, as well as a potential City proposal to relocate a boat launch currently at Mukilteo Lighthouse Park. However, because the No-Build Alternative would not improve the transportation infrastructure in the vicinity of the ferry terminal, lack of access and continued traffic congestion would hinder or limit redevelopment of the Mukilteo Tank Farm.

Pending a land transfer from the U.S. Air Force, the NOAA Mukilteo Research Station is expected to be redeveloped and expanded to include additional public education and research facilities. Plans are still in early stages, but these activities could help enhance the vitality of the waterfront area.

WSDOT has indicated that it does not have plans to fund or build any improvements to SR 525 that would increase its capacity before 2030. However, due to the forecasted increase in traffic volumes on SR 525 from ferry service demand, increased ridership at the Mukilteo Station, development of the remaining Mukilteo Tank Farm, and increases in general traffic, the combined contributions from these traffic generators may accelerate the need for several road improvements that could ease congestion and improve safety. If they occur, these improvements would
enhance the public’s ability to access the area’s parks and recreational resources, as well as social resources, businesses, and residences.

Preferred Alternative
Relocation of the ferry terminal would result in WSDOT vacating the existing ferry terminal site, potentially allowing a consolidated area of about 1 acre for redevelopment. On the Mukilteo Tank Farm, approximately 5 acres would remain available for development, and could include community facilities, depending on proposals to be developed by the Port of Everett or others. This potential development would be subject to a separate permitting and environmental approval process. The City of Mukilteo has expressed an interest in relocating the boat launch ramp currently at Mukilteo Lighthouse Park to the Mukilteo Tank Farm. Removing the boat launch from Mukilteo Lighthouse Park would help improve the pedestrian and shoreline access functions called for in the park’s master plan, and reduce areas needed for parking and boat loading and unloading. This alternative would construct roadways that would improve local circulation. The roadway improvements also extend towards, but not to, the public shoreline area near the Mount Baker Terminal, which would support the proposed boat launch relocation.

The alternative’s roadway improvements could support plans for the NOAA Mukilteo Research Station redevelopment, which may be expanded to include additional public education and research facilities that would be open to the community and could help support revitalization of the central waterfront.

Existing Site Improvements Alternative
The cumulative impacts of the Existing Site Improvements Alternative and the related redevelopment of the Mukilteo Tank Farm would be similar to those reported for the No-Build Alternative above.

Elliot Point 1 Alternative
Similar to the Preferred Alternative, the Elliot Point 1 Alternative would provide opportunities for redevelopment to occur at the site of the existing ferry terminal (about 1 acre) and on portions of the Mukilteo Tank Farm not needed for transportation purposes (about 6 acres). Elliot Point 1 would provide additional support for relocating the existing boat launch ramp currently at Mukilteo Lighthouse Park because this alternative would extend First Avenue to the Mount Baker Terminal and shoreline access area. Similar to the Preferred Alternative, this alternative’s improvements to local circulation and access could also support plans for the NOAA Mukilteo Research Station to be expanded to include additional public education and research facilities.

4.5.7 Mitigation Measures
The Mukilteo Multimodal Project is expected to have relatively minor long-term social impacts. Consequently, little mitigation would be required for impacts on social resources, nearby residents, or environmental justice populations.
Mitigation for Long-Term Impacts

As described in Section 4.2 Land Use and Economics, property owners of parcels to be acquired would be compensated, and residents and business owners who would be displaced as a result of the proposed property acquisitions would receive relocation assistance in accordance with state and federal law.

Mitigation for Impacts on Parks and Recreational Resources

For the Preferred Alternative and Elliot Point 1, WSDOT would replace the Port of Everett fishing pier and seasonal day moorage at the new multimodal center prior to the removal of the existing fishing pier and moorage. The Existing Site Improvements Alternative would need to identify a relocation site within the existing waterfront area of the city of Mukilteo, but these options are limited. Additional coordination with the City and Port, as well as pier users, would be needed to mitigate the pier removal and avoid an impact.

Although the public shoreline access area at the Mount Baker Terminal would be modified as part of the Elliot Point 1 Alternative, the alternative would maintain parking and access and provide a promenade that would connect to the site.

Environmental Justice Considerations

Interference with access to tribal fisheries, if not mitigated, would be the only foreseeable environmental justice impact. FTA is pursuing government-to-government consultations with affected tribes and coordinating with WSDOT to resolve potential issues associated with treaty rights. As with other legal requirements that must be satisfied as a condition of federal funding, the potential treaty issues must be resolved for the project to advance.

As described in Section 4.6 Cultural Resources and in the Cultural Resources Discipline Report, mitigation measures for potential adverse impacts to archaeological resources were developed in consultation with interested tribes and parties, and the State Historic Preservation Officer.

Mitigation for Construction Impacts

For the Preferred Alternative and all other alternatives, a project communication and public awareness program would describe the changes occurring on the Mukilteo waterfront and inform the public that businesses there are open and accessible during construction. WSDOT, the Port of Everett, Sound Transit, and the City of Mukilteo would coordinate construction activities if multiple projects in the waterfront area are implemented concurrently.

During construction, reduced parking along Front Street would negatively affect businesses on the waterfront by impeding customer and employee access. Potential mitigation measures to address construction impacts on businesses, and closure of the terminal, are identified in Section 4.2 Land Use and Economics.

Public notification of proposed construction activities, including timing of construction, would be provided to all local service providers and schools within the immediate vicinity of the project site.
Recycling of demolition debris on site has been incorporated into construction practices to reduce the amount of material hauled off site to regional facilities and decrease truck traffic on roadways. A construction traffic control plan would be developed prior to construction to minimize disruptions to traffic patterns during construction, as described in Chapter 3 Transportation.

Mitigation measures for traffic, noise, and visual impacts are discussed in Chapter 3 Transportation, Section 4.3 Noise and Vibration, and Section 4.4 Visual Quality, Aesthetics, and Light and Glare, respectively.

For the No-Build Alternative and the Existing Site Improvements Alternative, the Port of Everett fishing pier would be closed during construction. The closure of the pier could be partially mitigated by encouraging the use of the nearby public pier adjacent to the Silver Cloud Inn and by public information and signage identifying other available locations for fishing.

4.5.8 Environmental Justice Final Determination

The preceding sections evaluated the potential for direct or indirect social impacts in general. As described in these sections, and summarized below, the Preferred Alternative would not result in disproportionately high and adverse impacts on minority or low-income populations.

**Question 1:** Does the Preferred Alternative affect a resource that is especially important to a minority or low-income population?

The Preferred Alternative will not displace housing, social service providers, unique ethnic establishments, or other resources that are particularly important to low-income and minority populations. The Preferred Alternative will displace and relocate a fishing pier and day moorage. It will also remove the Tank Farm Pier. Adverse effects on natural resources are not anticipated and the Preferred Alternative is not likely to change the availability or abundance of marine species. Several key elements, such as the removal of the Tank Farm Pier, are expected to provide environmental benefits due to the removal of over-water structures and potential sources of contamination. While tribal members will continue to use the Mukilteo shoreline to harvest salmon, shrimp and crabs, the Preferred Alternative will interfere with or prohibit fishing access at certain places. The tribal fishing rights issue is being addressed through government-to-government consultations with tribes. Impacts to archaeological resources, including a midden, are addressed through the project’s Section 106 Memorandum of Agreement, as discussed below for Question 4.

**Question 2:** Will the Preferred Alternative result in high and adverse impacts to a minority or low-income population?

No high and adverse impacts to minority or low-income populations are anticipated.
Question 3: Will the Preferred Alternative result in disproportionately high and adverse impacts that will be suffered by a minority or low-income population compared to the impacts to the non-minority and/or non-low-income population?

No disproportionately high and adverse impacts to minority or low-income populations have been identified.

Question 4: Does the Preferred Alternative propose mitigation and/or enhancement measures?

Yes. Through the Section 106 process and EIS development, WSDOT, FTA, cooperating and participating agencies, and tribal governments worked closely to develop mitigation measures and agreements with consulting tribes on ecosystems and natural resources, archaeological resources, and other issues of interest to Native Americans. Design refinements and mitigation measures were developed through consultations with the consulting tribes and others to address impacts on resources important to Native Americans. Impacts on tribal treaty rights are being addressed through government-to-government agreements. With mitigation and other anticipated agreements, there would not be high or adverse impacts remaining in any area of the environment.

The project’s improvements and its mitigation measures will benefit minority and low-income populations as well as the general population. The benefits include: environmental cleanup, improved public transportation, improved access to the shoreline, improved economic development conditions, and improved safety and security.

Question 5: Are there Preferred Alternative benefits that will accrue to minority or low-income populations at similar or greater levels than the general population?

As described above, the Preferred Alternative will benefit enhanced public shoreline access and the aquatic environment through the removal of the Tank Farm Pier over-water structures and piles that are potential sources of contamination. These benefits will occur for environmental justice populations at similar or higher levels than the general population.

Also, the jobs created to construct the new terminal facilities will be available for low-income and minority populations; moreover, targeted outreach can increase the potential for low-income or minority individuals to obtain these jobs. The Preferred Alternative provides increased transit capacity and reliability, as well as improved safety conditions for motorists, bicyclists, and pedestrians accessing the ferry and the waterfront. The improvements in transit and non-motorized access will benefit low-income individuals at the same or higher levels as the general population because these modes are lower in cost than vehicular use.

4.6 Cultural Resources

This section discusses the project’s effects on cultural resources. This analysis was conducted in compliance with the National Historic Preservation Act (NHPA) and its implementing regulations with FTA as the lead federal agency.
4.6.1 Overview of Analysis and Regulatory Context

The NHPA requires federal agencies, in this case FTA, to identify and assess the effects of federally assisted undertakings on historic properties and to consult with others to find acceptable ways to avoid or mitigate adverse effects. Properties protected under Section 106 of the NHPA are those that are listed in or are eligible for listing in the National Register of Historic Places (NRHP). Eligible properties generally must be at least 50 years old, possess integrity, and meet at least one of four criteria of significance. Historic properties may include archaeological sites, buildings, structures, districts, or objects.

In consultation with the State Historic Preservation Officer (SHPO), at the Washington State Department of Archaeology and Historic Preservation (DAHP), FTA determined the project Area of Potential Effects (APE) for archaeological resources and historic buildings and structures. The APE encompasses an area beginning west of SR 525 at Elliot Point (current name for the geographic area where the Point Elliott Treaty was signed) and extending 0.75 mile east along the shoreline, well beyond the end of the Mukilteo Tank Farm (Figure 4.6-1). The BNSF railroad tracks generally mark the southern boundary of the APE. Although the project’s direct, physical impacts would be limited to a smaller area, the APE was drawn large enough to accommodate potential indirect impacts, such as visual and auditory changes, and vibration on cultural resources.

According to the NHPA implementing regulations, certain people or groups are automatically entitled to consulting party status, including federally recognized and potentially affected Native American tribes (36 CFR 800.2). WSDOT and FTA are consulting with the federally recognized Tulalip Tribes, Suquamish Tribe, Swinomish Indian Tribal Community, Muckleshoot Indian Tribe, Samish Indian Nation, Sauk-Suiattle Indian Tribe, Snoqualmie Tribe, Stillaguamish Tribe of Indians, Upper Skagit Tribe, and the Lummi Nation. FTA and WSDOT have also consulted with the non-federally recognized Duwamish Tribe and Snohomish Tribe. In addition to DAHP and the tribes, consulting parties on this project include the U.S. Army Corps of Engineers, U.S. Air Force, Advisory Council on Historic Preservation (ACHP), Mukilteo Historical Society, Historic Everett, City of Mukilteo, Snohomish County Historic Preservation Commission, and the Japanese Cultural and Community Center.

4.6.2 Affected Environment

The project has identified five resources in the APE that are listed in or eligible for listing in the NRHP.

- Mukilteo Shoreline Site, a NRHP-eligible archaeological site with stratified pre-contact shell midden deposits

Key Terms

shell midden – A shell midden or shell mound is an archaeological feature consisting mainly of mollusk shells where aquatic resources were prepared directly after harvest and prior to use or storage. Shell middens often reveal what food was eaten or prepared and include many fragments of stone tools and household goods.

stratification (building of layers) – The Mukilteo Shoreline Site includes bedded layers of crushed shell, charcoal, charcoal-stained sediments, and fire-modified rock deposited on top of the clean sand and gravel of the beach berm.

Circular definition: lifeway – A custom, practice, or art reflecting the traditional lifeways of a tribal society.
Figure 4.6-1. Historic and Cultural Resources Area of Potential Effects
• Point Elliott Treaty Site, a NRHP-eligible site where the 1855 treaty between the U.S. government and Puget Sound Native American tribes was signed
• Old Mukilteo Townsite, a NRHP-eligible archaeological site with buried remnants of the early Mukilteo business district
• Japanese Gulch Site, a NRHP-eligible site with buried deposits associated with early 20th century Japanese mill workers
• Mukilteo Light Station, a NRHP-listed early 20th century lighthouse complex

The following pages describe these resources, which are also included in Appendix I Section 4(f) Evaluation, and summarized in Chapter 5 Section 4(f) of this Final EIS.

FTA determined, with concurrence from DAHP, that nine other properties are not eligible for NRHP listing, including the buildings and structures on the property now owned by the U.S. Air Force, as well as the Ivar’s restaurant building, and the existing Mukilteo ferry terminal. Resources found not to be eligible for the NRHP are not subject to the NHPA and are not discussed in this section. The Cultural Resources Discipline Report includes details on those resources.

4.6.3 Historic Background

The Mukilteo vicinity, with a Salish name meaning “a good place to camp” or “goose neck,” was well known historically as a gathering place for local Native American people. The importance of the area to Native American groups is reflected in its selection as the site for the signing of the Point Elliott Treaty in 1855. Euroamerican settlement of the site vicinity began soon after signing of the treaty, with J.D. Fowler and Morris Frost filing the first land claims. By 1858, Fowler and Frost had established a post for trading with local Native American residents; a store, saloon, hotel, and a post office soon followed (Figure 4.6-2).

In 1903, the Mukilteo Lumber Company established a mill on the Mukilteo waterfront, which was acquired in 1909 by the Crown Lumber Company. This mill, which employed both Euroamerican and Japanese workers, operated until 1930. The last of its buildings was destroyed by fire in 1938. The mill site was subsequently acquired by the U.S. Army and an ammunition shipping facility was built in the early 1940s. Ownership of this facility was transferred to the U.S. Air Force in 1951 for construction of a fuel supply depot and tank farm.
The five cultural resources discussed below have been determined eligible for, or are listed in, the NRHP because they meet one or more of four National Park Service criteria of significance:

A. The property is associated with events that have made a significant contribution to the broad patterns of our history.

B. The property is associated with the lives of persons significant in our past.

C. The property embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components lack individual distinction.

D. The property has yielded, or is likely to yield, information important in prehistory or history.

**Mukilteo Shoreline Site**

The Mukilteo Shoreline Site (designated 45SN393 by DAHP) was identified in 2005 during initial cultural resource studies for the Mukilteo Ferry Terminal Project. The site’s original landforms have been obscured by pavement and buildings or buried beneath fill. The north-facing shoreline of Elliot Point has been at least occasionally occupied by Native Americans for approximately 1,000 years. The Mukilteo Shoreline Site contains the remnants of this occupation, including a thick, horizontally extensive shell midden over 1,500 feet (0.3 mile) in length. The midden is characterized by intact, bedded layers of crushed shell, charcoal, charcoal-stained sediments, and fire-modified rock. The alkaline depositional environment of the shell midden has created ideal preservation conditions for bone, in the form of both unmodified animal
remains and fragments of mammal bone and beaver teeth modified into tools. Within the shell midden layers are the remains of animals that were hunted, fished, and gathered by the Native occupants of the site; the plants that they ate; and the wood that they used for fuel and implements. Stone tools and tool-making debris reflect the kinds of stone implements they used, how they used them, and the various ways in which the tools were made.

The archaeological investigation established preliminary boundaries and content for the Mukilteo Shoreline Site. Geoarchaeological tests helped investigators deduce the physical framework of the site, establish the depositional context for the shell midden, and construct a preliminary landform history.

Testing suggests that the Mukilteo Shoreline Site was an important year-round occupation that played a prominent role in the settlement systems of Native American communities. Elliot Point would have been a valuable place not only for the year-round availability of certain subsistence resources, but also as a strategic landform near the intersection of south Puget Sound, the protected tidewaters east of Whidbey Island, the entrance to Hood Canal, and the exit to the Strait of Juan de Fuca through Admiralty Inlet. The site is also near the mouth of the Snohomish River, which provides a transportation route east to the foothills, the Cascade crest, and beyond. The U.S. Air Force determined the site is eligible under NRHP Criterion D, for its potential to provide information important in understanding history or prehistory.

**Point Elliott Treaty Site**

The Point Elliott Treaty Site (designated 45SN108 by DAHP) is the location where the 1855 treaty between the U.S. government and the Native American tribes of northern Puget Sound was signed. The treaty caused extreme changes for Native American people by divesting them of their lands and establishing the reservation system. At the same time, the treaty is a legal document that establishes the sovereignty of independent tribal governments, and it is a symbol of survival. Work associated with the Point Elliott Treaty Site included archival research, coordination with the tribes, and oral history interviews with tribal members. Although exact locations where 1855 Point Elliott Treaty events occurred remain uncertain, the size of the treaty gathering, nature of the landform, and other factors suggest that the site boundary should encompass the entire original geography for the point, which ended east of where the Tank Farm Pier is today or just past Japanese Gulch.

FTA has determined the Point Elliott Treaty Site is eligible for listing as a historic site in the NRHP under Criterion A for its association with the history of Indian/white relations, and under Criterion B for its association with prominent political leaders of the day, Governor Isaac Stevens, and a number of Indian leaders including Seattle, Patkanim, Goliah, and Chowitshoot. The site is also eligible as an archaeological site under Criterion D for its potential to provide information important in understanding history and prehistory.

**Old Mukilteo Townsite**

Archaeological investigations associated with the Mount Baker Terminal in 2006 provided physical evidence of the community's history in the form of buried historical
archaeological sites. The Old Mukilteo Townsite (designated 45SN404 by DAHP) studies offer unique insights into the town’s early community structure, commercial systems, demographics, and lifeways, while recovery of a few clay tobacco pipe fragments, a bead, and a stone pendant may be evidence of Mukilteo’s trading post period. Observed historical materials also included deteriorated lumber, burned brick, and historical artifacts, as well as remains identified through historical research as the Crown Lumber Company store and butcher shop. This site has previously been determined eligible by the U.S. Air Force under Criterion D for the property’s potential to provide information important in understanding history, and under Criterion A for its association with Mukilteo’s early development.

Japanese Gulch Site

The Japanese Gulch Site (designated as 45SN398 by DAHP) was also identified in 2006. It is evidence of early 20th century Japanese mill workers who resided in the racially segregated Mukilteo Japanese Gulch settlement.

The early city directories did not include the Japanese workers, who were evidently employed by the Mukilteo Lumber Company from the beginning of its operation. Newspaper accounts indicate that the mill had hired at least 30 laborers of Japanese ancestry to work in the yard by February of 1904, and reported that other Japanese crews were planned. Caucasian workers initially threatened to leave the company if the Japanese workers were not dismissed, but their protest had little effect. The numbers of Japanese employed at Mukilteo Lumber Company continued to rise and later historical accounts suggest that the number had increased to 150 by 1905.

This site has previously been determined eligible by the U.S. Air Force under Criterion D for the property’s potential to provide information important in understanding history, and under Criterion A for its association with the introduction of Japanese immigrant labor to the Puget Sound area.

Mukilteo Light Station

This lighthouse complex, consisting of 11 buildings and structures, is listed in the NRHP. The lighthouse, two keepers’ residences, and a coal storage building were constructed in 1906. A two-bay garage, concrete fence posts, sidewalks, a seawall, ladder storage, water basin, and triangle alarm were added before 1935 and are contributing elements.

The Mukilteo Light Station is listed as being historically significant under Criterion A for its association with the maritime history of Puget Sound. It is also significant under Criterion C as a well-preserved complex of buildings and structures typical of those produced by the federal Light House Board in the Pacific Northwest during the late 19th and early 20th centuries.

4.6.4 Adverse Effects

For historic properties, adverse effects occur when an undertaking may alter, directly or indirectly, any of the characteristics that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association. Examples of adverse
effects include physical destruction or damage; restoration, rehabilitation, repair, or other alteration inconsistent with the Secretary’s Standards for the Treatment of Historic Properties; relocation of a property from its historic location; change in the character of a property’s use or physical features of the setting; introduction of visual, atmospheric, or audible elements that diminish the property’s integrity; neglect that causes deterioration; and transfer, lease, or sale of property out of federal ownership or control without adequate preservation controls.

For archaeological sites, adverse effects due to construction are considered permanent because they can damage artifacts and damage the integrity of association among artifacts and cultural and natural sediments. Disruption of these relationships severely limits the ability of archaeologists to interpret a property in a meaningful manner. Because the archaeological sites identified in the APE lie beneath soils used as fill in more recent times, a disruption is most likely to occur when excavation is deep enough to penetrate the protective fill layer.

Archaeological investigations suggest limited potential for encountering other buried archaeological material, aside from the sites that are already recorded. In general, much of modern Elliot Point consists of a filled lagoon or wetland—landforms that would not have been conducive to pre-Euroamerican contact or Native American residential activities. The presence of lagoon or wetland deposits is a good indicator that concentrated pre-contact cultural material, like a shell midden, would not occur. The limited excavations at the Japanese Gulch Site, located on delta deposits, did not identify any pre-contact cultural material or deposits. The original shoreline was at the base of the slopes of Japanese Gulch until the railroad was constructed.

Table 4.6-1 provides a summary of adverse effects.

**Table 4.6-1. Adverse Effects by Alternative**

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Project Elements</th>
<th>Site Affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>No-Build</td>
<td>Buildings and utilities</td>
<td>45SN393 Mukilteo Shoreline Site</td>
</tr>
<tr>
<td>Preferred Alternative</td>
<td>No features within midden but construction above</td>
<td>45SN393 Mukilteo Shoreline Site</td>
</tr>
<tr>
<td></td>
<td>Stormwater and utilities</td>
<td>45SN404 Old Mukilteo Townsite</td>
</tr>
<tr>
<td></td>
<td>First Street/SR 525 relocation and retaining walls</td>
<td>45SN404 Old Mukilteo Townsite</td>
</tr>
<tr>
<td>Existing Site Improvements</td>
<td>Buildings</td>
<td>45SN393 Mukilteo Shoreline Site</td>
</tr>
<tr>
<td></td>
<td>Utilities</td>
<td>45SN393 Mukilteo Shoreline Site</td>
</tr>
<tr>
<td></td>
<td>Stormwater and utilities</td>
<td>45SN404 Old Mukilteo Townsite</td>
</tr>
<tr>
<td></td>
<td>First Street/SR 525 relocation and retaining walls</td>
<td>45SN404 Old Mukilteo Townsite</td>
</tr>
<tr>
<td>Elliot Point 1</td>
<td>No features within midden but construction above</td>
<td>45SN393 Mukilteo Shoreline Site</td>
</tr>
<tr>
<td></td>
<td>Stormwater and utilities</td>
<td>45SN404 Old Mukilteo Townsite</td>
</tr>
<tr>
<td></td>
<td>First Street/SR 525 relocation and retaining walls</td>
<td>45SN404 Old Mukilteo Townsite</td>
</tr>
<tr>
<td></td>
<td>Japanese Creek daylighting and nearby construction elements</td>
<td>45SN398 Japanese Gulch Site</td>
</tr>
</tbody>
</table>
**No-Build Alternative**

The No-Build Alternative would have an adverse effect on the Mukilteo Shoreline Site, but would avoid effects on any of the other historic properties. The replacement of the passenger building would likely require below-ground seismic and utility upgrades, which could intrude upon the northern edge of the Mukilteo Shoreline Site. The Mukilteo Shoreline Site has been identified at the intersection of Front Street and SR 525 at a shallow depth.

**Preferred Alternative**

The Preferred Alternative moves the terminal and its facilities to the Mukilteo Tank Farm parcel, which coincides in part with the east end of the Mukilteo Shoreline Site (45SN393). The Preferred Alternative places all project elements requiring excavation outside the midden. Some smaller buildings, paved roadways, holding lanes, and other parts of the multimodal facility would be constructed above the midden. All project elements above the midden will be built on a protective layer of fill to avoid intersecting the archaeological site. Because the project could still encounter unidentified archaeological resources, WSDOT and FTA have consulted under Section 106 to define the measures the project will take to protect the resource and resolve any adverse effects to the midden site, should they occur.

Through the Section 106 consultations, WSDOT and FTA defined a collaborative planning and cultural design process to guide further development of the project in collaboration with affected Native American tribes. This process will help define potential design features and themes to help commemorate the Mukilteo Shoreline Site as well as the Point Elliott Treaty Site. During final design, the project will continue a collaborative process to further develop the project’s commemorative and interpretive features, which include potential viewpoints, a “long house” design concept for the passenger building, and other design concepts to be considered for project facilities. However, the Preferred Alternative would not alter any of the characteristics that make the Point Elliott Treaty Site eligible for the NRHP, and aside from the geographic setting, there are no remaining features related to the site’s historic significance.

The Preferred Alternative overlaps the known limits of the Old Mukilteo Townsite (45SN404). Maximum depth of excavation in this area will be approximately 7 feet below finished grade for the installation of utilities. The mechanically stabilized earth walls along First Street within the site boundary will require 2 to 3 feet of excavation, and an approximate maximum width of 11 feet at each footing. A stormwater treatment pond will be located near First Street and Park Avenue, intersecting the Old Mukilteo Townsite. The size and depth of this pond has not yet been determined, but could intersect the Old Mukilteo Townsite.

FTA and WSDOT determined excavation will have an adverse effect on the Old Mukilteo Townsite and may have an adverse effect on the Mukilteo Shoreline Site. DAHP concurred with an adverse effect finding for the project under Section 106. FTA and WSDOT then undertook consultations under Section 106 to develop a Memorandum of Agreement (MOA) defining the measures the project will take to resolve adverse effects.
By limiting excavation and using fill to establish a protective layer, the Preferred Alternative would avoid or minimize adverse effects to the Mukilteo Shoreline Site, and this also reduces potential effects to portions of Mukilteo Shoreline Site. The MOA describes the measures and commitments the project will make to resolve adverse effects to historic properties, which include a resource management plan to guide actions during future design and construction activities. The Draft MOA is included as Appendix J to this EIS.

**Existing Site Improvements Alternative**

The Existing Site Improvements Alternative has the potential to damage the Mukilteo Shoreline Site because the replacement ferry passenger/maintenance building at the northern edge of the site is expected to exceed the dimensions of the foundations for the existing building or Ivar’s restaurant, and additional utility connections and upgrades would be needed. Excavation for utilities and stormwater features is anticipated near the intersection of Front Street and Park Avenue, where parts of the Mukilteo Shoreline Site and the Old Mukilteo Townsite are located.

New roadways and holding lanes would likely be built on fill and so are not expected to adversely affect subsurface material, but retaining walls would be needed for the First Street extension and the south end of the employee parking area, which could adversely affect historic archaeological material associated with the Old Mukilteo Townsite. The transit center, stormwater facilities, or other utilities could also be in areas with archaeological materials.

**Elliot Point 1 Alternative**

The Elliot Point 1 Alternative would move the terminal east of the boundaries of the Mukilteo Shoreline Site and the Old Mukilteo Townsite, with several of the associated facilities built over water. An adverse effect on the Old Mukilteo Townsite could result from excavation for a stormwater pond, utilities, and the retaining wall needed for the First Street extension. The Japanese Gulch Site could be adversely affected by daylighting Japanese Creek, installing a nearby sanitary sewer pump station/generator, and extending First Street.

The alternative would place fill and a roadway above the eastern edge of the Mukilteo Shoreline Site, and the site layout allows most utilities to be routed around the midden. The alternative’s footprint overlaps the least with the boundaries of the site. Similar to the Preferred Alternative, fill would be used to avoid disturbing the midden.

**4.6.5 Indirect and Secondary Impacts**

Indirect and secondary impacts are project activities or plans that could change the qualities for which historic resources are listed or considered eligible for the NRHP, but are not direct impacts (such as right-of-way acquisitions). These are caused by the project, but later in time or farther removed in distance from the APE, and are reasonably foreseeable. For historic resources, these impacts may include visual, air quality, noise, or traffic impacts that could cause changes to the historic setting or use of the historic resources. The existing terminal site would be available for
redevelopment with the Preferred Alternative and the Elliot Point 1 Alternative. The redevelopment of some portions of the existing terminal site could encounter identified archaeological sites.

4.6.6 Cumulative Impacts

Cumulative impacts result from the incremental effect of the proposed action when added to those of other past, present, and reasonably foreseeable future actions, regardless of the agency (federal or non-federal) or person that undertakes other such actions. Cumulative impacts can result from individually minor but collectively significant actions that take place over a period of time.

Past and present development has removed or altered the character of many cultural resources in the central Puget Sound region during the last 150 years. The development and subsequent loss of character or integrity of historic properties follows a national trend, which lead to the passage of federal and state regulations to protect these resources. In 1966, Congress passed the NHPA to slow the trend of loss. Washington State and Snohomish County also have regulations to protect cultural resources and to consider effects on properties eligible for listing in the Washington Historic Register or in the Snohomish County Register of Historic Places. Although many resources have already been lost, the rate of attrition is slowing because of federal, state, and local protections and an increasing public interest in preserving the nation’s cultural heritage for future generations.

Although the mitigation measures described below would greatly minimize this project’s impacts on historic resources, this project and future development along the Mukilteo shoreline could contribute to cumulative impacts on historic resources in the area. As discussed in Chapter 2 Alternatives, the U.S. Air Force may transfer ownership of the Mukilteo Tank Farm to the Port of Everett. The U.S. Air Force land conveyance is independent of the Mukilteo Multimodal Project. It is permitted by Section 2866 of the Military Construction Authorization Act for Fiscal Year 2001 (division B of the Spence Act; 114 Stat. 1654A-436, as amended by Section 2858 of the National Defense Authorization Act for Fiscal Year 2002 [PL 107-107]). Thus, regardless of the alternative selected for this project, a portion of the Mukilteo Tank Farm may be available for redevelopment. This redevelopment could cause impacts to historic and cultural resources, although a preservation covenant would be included with the conveyance of property to the Port of Everett.

4.6.7 Mitigation Measures for Adverse Effects

FTA has determined that construction and operation of this project could cause adverse effects on historic properties and with WSDOT has consulted with DAHP, ACHP, affected tribes, and other interested parties, pursuant to the NHPA. The project’s MOA and an associated resource management plan will dictate the specific commitments and approach to resolve adverse impacts on historic properties for the Preferred Alternative. While this Final EIS addresses impacts under all of the alternatives, the MOA applies specifically to the Preferred Alternative. Should a different alternative be advanced, FTA and WSDOT and the consulting parties would develop an MOA specific to that alternative.
Preferred Alternative

A signed MOA would need to be in place before the project can be approved by FTA. The draft that is currently under consideration by the consulting parties is provided in Appendix J. It calls for the continued participation of the consulting parties in the development of the project, and it defines measures to:

- Guide the design and construction of the project to avoid excavation with the limits of the Mukilteo Shoreline Site
- Develop the project with cultural design elements to recognize the importance of the Point Elliott Treaty Site as a traditional place and a site of historic and cultural significance
- Guide project design and archaeological research for areas affecting the Old Mukilteo Townsite, and address the Preferred Alternative’s unavoidable excavation impacts
- Develop and implement an archaeological monitoring plan, a data recovery plan, a curation plan, an inadvertent discovery plan, and a plan specific to the potential recovery of human remains
- Make public findings of archaeological investigations conducted under the resource management plan
- Allow interested and affected tribes to participate in the project’s archaeological monitoring activities
- Document compliance with the terms of the MOA

No-Build Alternative

For this alternative, impacts would be avoided or minimized if the project would maintain the same foundation location for the passenger building, and if seismic and utility upgrades can be accomplished without excavating into the midden area. If this is not possible, the project would apply avoidance, minimization, and data recovery measures for the affected resources, in consultation with DAHP and other interested parties.

Existing Site Improvements Alternative

For areas where excavation or other construction is expected to encounter archaeological materials, the Existing Site Improvements Alternative would apply similar avoidance, minimization, and data recovery measures as those described for the Preferred Alternative. New building construction, trenches, drains, and underground utilities would be sized and located to minimize impacts. All in-ground work would be monitored within the boundaries of identified archaeological sites or where pre-construction surveys identify that archaeological deposits may be encountered. To the extent possible, subsurface work in archaeological sites would take place in previously disturbed areas.
Elliot Point 1 Alternative

The Elliot Point 1 Alternative would apply similar avoidance, minimization, and data recovery measures as described for the Preferred Alternative. New building construction, trenches, drains, and underground utilities would be sized and located to minimize impacts. All in-ground work would be monitored in areas within the identified archaeological sites or where pre-construction surveys indicate archaeological deposits may be encountered. To the extent possible, subsurface work in archaeological sites would take place in previously disturbed areas.

4.7 Air Quality

Air quality refers to the level of pollutants in the atmosphere. Air pollution is a general term that refers to one or more chemical substances that degrade the quality of the atmosphere. Individual air pollutants degrade the atmosphere by reducing visibility, damaging property, reducing the productivity or vigor of crops or natural vegetation, and/or harming human or animal health. Federal and state regulations prohibit air pollution and require an analysis of air quality impacts for proposed projects.

Vehicle emissions from traffic congestion in the Puget Sound area contribute several air pollutants. Air pollutants affect public health, especially the health of the young, the elderly, and those with sensitive respiratory conditions. The major pollutants of concern in the Puget Sound region include carbon monoxide (CO), oxides of nitrogen (NOx), particulate matter less than 10 microns in size (PM10), particulate matter less than 2.5 microns in size (PM2.5), and ozone (O3).

4.7.1 Overview of Analysis and Regulatory Context

Several state and federal regulations provide for the protection of air quality.

The Clean Air Act (CAA) requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants determined harmful to public health and the environment. The CAA established two types of national air quality standards. Primary standards set limits to protect public health, including the health of “sensitive” populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, as well as damage protection for animals, crops, vegetation, and buildings.

Under the CAA, the EPA has set NAAQS for six “criteria pollutants”: CO, PM10, PM2.5, O3, sulfur dioxide (SO2), lead, and nitrogen dioxide (NO2). The NAAQS specify maximum allowable concentrations for these criteria pollutants. The standards applying to transportation projects are summarized in Table 4.7-1.

Federal regulations require that projects conform to and do not exceed the NAAQS. These standards were established to protect human health and welfare. “Maintenance areas” are locations that previously did not meet the NAAQS, but with air quality improvement these areas now meet the standards.

Other regulations direct the EPA to implement policies and regulations that will ensure acceptable levels of air quality.
The CAA and the Final Transportation Conformity Rule apply to proposed transportation projects. The CAA requires federally funded transportation projects to conform to applicable State Implementation Plans.

Table 4.7-1. Summary of National Ambient Air Quality Standards

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Primary Standards</th>
<th>Secondary Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Level</td>
<td>Averaging Time</td>
</tr>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>9 ppm (10 mg/m³)</td>
<td>8-hour</td>
</tr>
<tr>
<td></td>
<td>35 ppm (40 mg/m³)</td>
<td>1-hour</td>
</tr>
<tr>
<td>Lead (Pb)</td>
<td>0.15 µg/m³ (Rolling 3-Month Average)</td>
<td>Same as Primary Standard</td>
</tr>
<tr>
<td></td>
<td>1.5 µg/m³</td>
<td>Quarterly Average</td>
</tr>
<tr>
<td>Nitrogen Dioxide (NO₂)</td>
<td>53 ppb (Annual Arithmetic Average)</td>
<td>Same as Primary Standard</td>
</tr>
<tr>
<td>Particulate Matter (PM₁₀)</td>
<td>100 µg/m³</td>
<td>1-hour</td>
</tr>
<tr>
<td></td>
<td>150 µg/m³</td>
<td>1-hour</td>
</tr>
<tr>
<td>Particulate Matter (PM₂.₅)</td>
<td>15.0 µg/m³ (Annual Arithmetic Average)</td>
<td>Same as Primary Standard</td>
</tr>
<tr>
<td></td>
<td>35 µg/m³</td>
<td>24-hour</td>
</tr>
<tr>
<td>Ozone (O₃)</td>
<td>0.075 ppm</td>
<td>8-hour</td>
</tr>
<tr>
<td></td>
<td>0.12 ppm</td>
<td>1-hour</td>
</tr>
<tr>
<td>Sulfur Dioxide (SO₂)</td>
<td>0.03 ppm (Annual Arithmetic Average)</td>
<td>0.5 ppm</td>
</tr>
<tr>
<td></td>
<td>0.14 ppm</td>
<td>24-hour</td>
</tr>
<tr>
<td></td>
<td>75 ppb (³)</td>
<td>1-hour</td>
</tr>
</tbody>
</table>

Notes:
1. Not to be exceeded more than once per year.
2. The official level of the annual NO₂ standard is 0.053 ppm, equal to 53 ppb, which is shown here for the purpose of clearer comparison to the 1-hour standard.
3. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 100 ppb.
4. Not to be exceeded more than once per year on average over 3 years.
5. To attain this standard, the 3-year average of the weighted annual mean PM₂.₅ concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.
6. To attain this standard, the 3-year average of the weighted annual mean PM₂.₅ concentrations from single or multiple community-oriented monitors must not exceed 15.0 µg/m³.
7. To attain this standard, the 3-year average of the fourth-highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year must not exceed 0.075 ppm.
8. (a) EPA revoked the 1-hour ozone standard in all areas, although some areas have continuing obligations under that standard (“anti-backsliding”).
   (b) The standard is attained when the expected number of days per calendar year with maximum hourly average concentrations above 0.12 ppm is ≤ 1.
9. To attain this standard, the 3-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 75 ppb.

ppm = parts per million; ppb = parts per billion
The Final Conformity Rule requires that projects do not:

- Cause or contribute to any new violation of any NAAQS in any area;
- Increase the frequency or severity of any existing violation of any NAAQS in any area; or
- Delay timely attainment of any NAAQS or any required interim emission reductions or other milestones in any area.

**Air Toxics**

EPA regulates air toxics, which are pollutants known or suspected to cause cancer or other serious health effects. The CAA identified 188 air toxics, 21 of which result from mobile sources. EPA has not established ambient standards for Mobile Source Air Toxic (MSAT) levels, so non-attainment areas have not been designated and conformity requirements for MSAT emissions have not been promulgated.

Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories or refineries).

EPA has identified seven hazardous MSATs that have significant contributions from mobile sources: acrolein; benzene; 1,3-butadiene; diesel particulate matter, formaldehyde, naphthalene, and polycyclic organic matter. The health risk from MSAT exposure is related to cancer and long-term ailments, not emergent disease, like asthma attacks. Unlike pollutants such as ozone and carbon monoxide that have emission limits and are subject to transportation conformity, there are no emission standards for MSATs. While modeling tools can estimate MSAT emissions from a project, information regarding MSATs is still evolving and there are limited tools for determining project-specific health outcomes (cancer risk) from MSAT exposure.

**4.7.2 Affected Environment**

**Puget Sound Regional Air Quality Trends**

For air quality purposes, the study area for the project encompasses the four-county urban area. Air quality in the study area is managed by EPA, Ecology, and the Puget Sound Clean Air Agency (PSCAA).

The Puget Sound area encompasses a large portion of the Everett-Seattle-Tacoma urban area, including surrounding communities such as Mukilteo. Prior to 1996, the Puget Sound area was classified as a non-attainment area for CO because monitoring sites showed that CO concentrations had exceeded the NAAQS. In 1996, it was reclassified as a maintenance area for CO, meaning that the area met NAAQS and a maintenance plan was implemented to prevent the area from being reclassified to non-attainment.

Another pollutant of interest in the Puget Sound region is particulate matter or dust. Standards regulate the portion of dust that is less than 10 microns in size; stricter standards apply to particles less than 2.5 microns. Particles of these sizes are small enough to enter the lungs when inhaled. The region is in attainment (meets NAAQS).
for both sizes of particulate matter; therefore, no project-level analysis for particulate matter is required.

Over the past 20 years, air quality in the region has improved, even with increases in both population and vehicle miles traveled. Much of the improvement in air quality is due to improvements made to emission controls on motor vehicles, the vehicle Inspection and Maintenance (I&M) program administered by Ecology, and the retirement of older, more polluting vehicles. However, over the past several years, levels of emissions of fine particulates and ozone have been on the rise, and new concerns such as air toxics, visibility, and climate change have grown.

NOx are a concern in the region due to their role in the formation of ozone (along with volatile organic compounds in the presence of sunlight); however, emissions of this pollutant have been dramatically reduced in the region.

Because of EPA’s more stringent standards for both ozone and fine particulates, the region could soon be designated as non-attainment for these pollutants.

Emissions of carbon monoxide, sulfur oxides, and lead are below levels of concern in the region. The National Air Toxic Assessment is an ongoing comprehensive evaluation of air toxics conducted by EPA. It indicates that air toxics risk in the Puget Sound region is similar to other major urban areas. Voluntary programs, such as the local Diesel Solutions Program and Ecology’s Clean Cities Program, seek to reduce toxic diesel emissions by encouraging public and private fleet operators to use ultra-low sulfur diesel and/or to install retrofit devices to filter or oxidize vehicle exhaust (PSCAA 2005). Ecology and EPA support other voluntary programs that encourage diesel emission reductions.

**Existing Meteorological Conditions**

Ambient air quality is a function of many factors, including climate, topography, meteorological conditions, and the production of airborne pollutants by natural or artificial sources.

The project site is subject to the same meteorological conditions that affect the Puget Sound. This region has a marine climate, dominated by cool, moist winds coming off the ocean. Temperature inversions are common throughout the Puget Sound area in the fall and winter, and these conditions tend to trap and concentrate pollutants. In most cases, inversions have an upper lid at an altitude between 1,000 and 3,000 feet, occur during the night, and break up by early afternoon. The project is close to sea level, less than 1,000 feet elevation, and is therefore within an area subject to inversions.

During the summer, winds typically tend to be light and variable (less than 10 miles per hour). Persistent high-pressure cells often dominate summer weather, creating stagnant air conditions. This weather pattern sometimes contributes to the formation of photochemical smog. Because of its location north of the major urban centers of Seattle and Tacoma and the northerly winds during the summer months, the Mukilteo area generally experiences fewer instances of stagnant air conditions.

Although the Puget Sound lowland is the most densely populated and industrialized area in Washington, there is sufficient wind most of the year to disperse air.
pollutants. Air pollution is usually most noticeable in the late fall and winter, under conditions of clear skies, light wind, and a sharp temperature inversion, when particulates and CO from wood stoves and vehicle sources can be trapped close to the ground. If poor dispersion persists for more than 24 hours, PSCAA can declare an air pollution episode or local impaired air quality.

Ecology issues a daily Air Quality Index (AQI) using forecast meteorology and real-time pollutant monitoring. There have been several instances of air quality advisories categorizing air pollution in the region as moderate or unhealthy for sensitive groups.

**Attainment Status and Regional Air Quality Conformity**

The State Implementation Plan (SIP) directs that transportation activities may not produce new air quality violations, worsen existing violations, or delay timely attainment of the NAAQS. As detailed below, the project is not expected to create any new violations or increase the frequency of an existing violation of the CO standard; it would conform with the SIP and the requirements of the federal CAA and the Washington Clean Air Act. As a regionally significant project, the proposed project is included in the current regional transportation plan (RTP), and in the Central Puget Sound Regional 2007-2010 Transportation Improvement Program (TIP), which lists all current transportation projects (PSRC 2009). The RTP and the TIP meet the conformity requirements identified by federal regulators.

### 4.7.3 Long-Term Environmental Impacts

**Regional Impacts**

For all alternatives, the project conforms with the SIP because it does not:

- Cause or contribute to any new violations of the NAAQS
- Increase the frequency or severity of any existing violation of the NAAQS
- Delay the timely attainment of the NAAQS

Improvements to the transportation system that are independent of this project would reduce emissions from vehicles and improve air quality in the study area. Programs and trends, such as the Puget Sound I&M program, stricter vehicle emission standards and higher fuel efficiency for new cars, and gradual replacement of older, more polluting vehicles with newer, cleaner cars, are expected to continue to reduce vehicle emissions.

Voluntary programs also are expected to contribute to emissions reductions. The WSDOT Ferries Division participates in voluntary emission reduction programs, such as the PSCAA Diesel Solutions Program. WSDOT has switched its fleet to low-sulfur diesel fuel and biodiesel to reduce emissions and is evaluating methods for reducing fuel consumption, including reducing travel speeds and performing engine retrofits. WSDOT also plans to replace the current 124-vehicle vessels operating on the Mukilteo-Clinton route with 144-vehicle vessels, which would result in shorter queues and help reduce the amount of idling in the holding areas. Newer generation ferries also have engines that reduce emissions, which will also help to improve future air quality.
According to PSRC’s *Vision 2040*, “regional air pollution trends have generally followed national patterns over the last 20 years, with the level of criteria air pollutants decreasing over the last decade to levels below the federal standards” (PSRC 2010). In general, the air quality in the central Puget Sound region has either remained steady or improved over the last 5 years. Cleaner cars, industries, and consumer products have contributed to cleaner air throughout much of the United States, including in the central Puget Sound region, and this trend is likely to continue.

All Build alternatives will change the location of the ferry terminal, but the number of sailings will remain the same as today. The cumulative effects of the ferry emissions will also remain the same as today or get better over time. The same is true for emissions from vehicles waiting for the ferry. In the worst-case scenario, about 20 percent of the vehicles will idle while waiting for the ferry. These emissions will be reduced as WSDOT adds larger capacity vessels and as vehicles become cleaner over time.

The predominant wind direction in this area is from the southwest in the summer and northwest in the winter. This means that emissions from the new terminal location would typically be dispersed away from local residents.

As described in more detail below, worst-case operational CO concentrations were modeled for the No-Build Alternative and the Build alternatives. No exceedance of the 35 ppm 1-hour average or the 9 ppm 8-hour average NAAQS for CO would occur at any receptor location.

Regional impacts were considered for the Central Puget Sound CO maintenance area. Impacts during construction were evaluated on a regional scale, including the Central Puget Sound CO maintenance area.

As a regionally significant project, the proposed project is included in the current RTP and in the TIP, which meet the conformity requirements identified by federal and state regulations for CO.

Ozone concentration was not modeled for this project because it is modeled on a regional scale by the PSRC, and is not likely to be an impact. The primary source of air pollution in the project area is vehicle emissions. The presence of traffic queues at the existing toll booths and vehicles traveling to the ferry may result in short-term periods of high vehicle emissions and elevated CO concentrations. However, the low-rise residential and commercial structures do not trap emissions, reducing the likelihood of elevated pollutant concentrations.

**Localized Impacts**

Because the project area is in a maintenance area for CO, a project-level analysis must verify that no localized impacts would cause, contribute to, or worsen a violation of the NAAQS. The analysis calculates CO concentrations around selected intersections, which are chosen based on their high levels of traffic volumes and delay.

Potential long-term air quality impacts were estimated according to the guidelines provided in the EPA’s *Guideline for Modeling Carbon Monoxide from Roadway Intersections* (EPA 1992a). This analysis (called a hot-spot analysis) predicts CO concentrations...
and compares air quality conditions under various scenarios to the NAAQS for CO at selected locations. The NAAQS provide two types of standards for CO: an 8-hour standard of 9 ppm and a 1-hour average standard of 35 ppm.

The analyzed sites were the signalized intersections that would be directly affected by this project, as well as those indirectly affected and within the project vicinity.

Air quality was modeled for the existing conditions in 2010, the year of opening (2019), and the horizon year (2040) for all the alternatives.

Five intersections were analyzed for CO impacts:

- SR 525/5th Street (all alternatives)
- SR 525/First Street (all Build alternatives)
- West Driveway/First Street (Elliot Point 1 Alternative)
- East Driveway/First Street (Elliot Point 1 Alternative)
- Toll booth and First Street (Preferred Alternative)

As shown in Table 4-7.2, the results for the worst-case receptor are below the 1-hour average NAAQS for CO of 35 ppm and below the 8-hour average standard of 9 ppm. This confirms that the air quality would improve within the vicinity of the project area, resulting in no exceedance of the CO air quality standards in 2040.

### Table 4-7.2. Maximum Predicted CO Concentrations (ppm)

<table>
<thead>
<tr>
<th>Alternatives</th>
<th>SR 525/5th Street</th>
<th>SR 525/First Street</th>
<th>West Driveway/First Street</th>
<th>East Driveway/First Street</th>
<th>Toll Booths and First Street</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 hr</td>
<td>8 hr</td>
<td>1 hr</td>
<td>8 hr</td>
<td>1 hr</td>
</tr>
<tr>
<td>2010 (Existing)</td>
<td>5.1</td>
<td>4.5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2019 No-Build</td>
<td>4.2</td>
<td>3.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2019 Existing Site Improvements</td>
<td>4.2</td>
<td>3.8</td>
<td>4.3</td>
<td>3.9</td>
<td></td>
</tr>
<tr>
<td>2019 Elliot Point 1</td>
<td>4.2</td>
<td>3.8</td>
<td>4.3</td>
<td>3.9</td>
<td>3.9</td>
</tr>
<tr>
<td>2019 Preferred Alternative</td>
<td>4.2</td>
<td>3.8</td>
<td>3.9</td>
<td>3.6</td>
<td>4.2</td>
</tr>
<tr>
<td>2040 No-Build</td>
<td>4.8</td>
<td>4.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2040 Existing Site Improvements</td>
<td>4.8</td>
<td>4.3</td>
<td>4.3</td>
<td>3.9</td>
<td>4.2</td>
</tr>
<tr>
<td>2040 Elliot Point 1</td>
<td>4.8</td>
<td>4.3</td>
<td>4.3</td>
<td>3.9</td>
<td>4.2</td>
</tr>
<tr>
<td>2040 Preferred Alternative</td>
<td>4.8</td>
<td>4.3</td>
<td>4.3</td>
<td>3.9</td>
<td></td>
</tr>
</tbody>
</table>

Note: Gray cells indicate that the intersection does not exist under a given alternative.

### Mobile Source Air Toxic Emissions in the Project Area

MSAT emissions are discussed qualitatively for the project because operations are not expected to change among alternatives. For each alternative in this EIS, the amount of MSATs emitted would be proportional to the vehicle miles traveled
(VMT), assuming that other variables such as fleet mix are the same for each alternative. Because the estimated VMT under each of the alternatives is the same, there would be no appreciable difference in overall MSAT emissions among the alternatives. Also, regardless of the alternative chosen, MSAT emissions would be lower than present levels in the design year as a result of EPA’s national control programs that are projected to reduce annual MSAT emissions by 72 percent between 1999 and 2050.

Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures; however, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future.

Some public comments on the Draft EIS expressed concerns that areas beyond the holding area would be negatively affected by air quality changes due to the project. However, the standards used to assess emissions of any kind, including criteria pollutants such as carbon monoxide, as well as MSATs, are based on locations with the highest concentrations of operating vehicles. For areas that are more removed from the emissions sources (such as the surrounding inland areas of Mukilteo), the effects would be even lower than the worst case “hot spot” locations modeled.

Similarly, some comments also expressed concerns for workers who may be exposed to higher levels of emissions in their daily work, due to vehicle emissions during loading and unloading, as well as from the ferries themselves. Since the volume of vehicles and the ferries operations remain the same under the No-Build Alternative and the Build alternatives, there would be no additional impact for any of the Build alternatives. As part of its ongoing programs at an agency-wide level, WSDOT’s health and safety plans will continue to incorporate best practices to help reduce potential negative effects to workers. As cleaner ferry and vehicle engines continue to replace older models, the potential exposure to emissions will also continue to be reduced.

### 4.7.4 Construction Impacts

Construction activities typically associated with roadway projects can temporarily generate particulate matter (mostly dust) and small amounts of other pollutants. These emissions are often associated with earthwork and demolition activities. If uncontrolled, particulate matter would also be generated by construction trucks entering roadways, and depositing dust and mud on paved streets.

Heavy trucks, barges, and construction equipment powered by gasoline and diesel engines would generate CO and NOx in exhaust emissions. If construction traffic were to reduce the speed of other vehicles in the area, emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site. In addition, people near asphalt paving operations may detect temporary odors. These odors would decrease with increased distance from the source.

Construction activities would include demolition of pavement and bridge structures, earthwork, new bridge construction, and new paving. Equipment to be used for construction would include pile-driving equipment, truck cranes, vibratory oscillator, dump trucks, loaders, excavators, and typical paving equipment such as graders, asphalt
pavers, and rollers. The air emissions from these types of construction projects would be slightly greater for the Elliot Point alternatives because they require more fill and other materials than the No-Build and the Existing Site Improvements alternatives.

PM$_{10}$ emissions may be associated with project construction, particularly for earthwork or demolition activities. PM$_{10}$ emissions can vary from day to day, depending on the level of activity, specific operations, and weather conditions. PM$_{10}$ emissions depend on soil moisture, silt content of soil, wind speed, and amount and type of equipment in operation. Larger dust particles settle near the source, while fine particles are dispersed over greater distances from the construction site.

PM$_{10}$ emission from construction activities is noticeable if uncontrolled. Mud and particulates from trucks can be noticeable, particularly if construction trucks travel on local streets.

Burning would not be allowed in the project area, so there would be no contribution of particulate matter from burning.

### 4.7.5 Indirect and Secondary Impacts

The project would produce indirect impacts on air quality from two sources: 1) primarily from trucks hauling construction materials to and from the SR 525 corridor, and 2) particulate release from excavation and trucking of fills from borrow sites outside the project’s construction zone.

### 4.7.6 Cumulative Impacts

#### Historical Trend

According to PSRC’s *Transportation 2040*, “regional air pollution trends have generally followed national patterns over the last 20 years, with the level of criteria air pollutants decreasing over the last decade to levels below the federal standards” (PSRC 2010). In the same document, PSRC points out that CO levels have decreased substantially in the region, in large part because of federal emission standards for new vehicles and the gradual replacement of older, more polluting vehicles. Additionally, improvements in fuels, inspection programs, and traffic control measures have also helped to decrease CO emissions. The central Puget Sound region has designated maintenance areas for CO and particulate matter. The region is in attainment for all other criteria pollutants. In general, the air quality in the central Puget Sound region has either maintained or seen improvements over the last 5 years. Cleaner cars, industries, and consumer products have contributed to cleaner air throughout much of the United States, including in the central Puget Sound region; this trend is likely to continue.

#### Impacts of the Project Alternatives

The air quality analysis for PSRC’s *Transportation 2040* considers the long-term cumulative impacts of air pollutant emissions by incorporating traffic forecasts for regionally significant projects in the region. This analysis includes traffic from this project, as well as future development such as the Sound Transit Mukilteo Station improvements and both residential and commercial development in the downtown
core. By including these projects in its RTP, PSRC has analyzed possible cumulative impacts associated with the project, and has not identified long-term regional cumulative air quality impacts.

Localized cumulative air quality impacts could result if other construction projects occur concurrently with construction for this project, and if construction detours and material haul routes are not well coordinated.

### 4.7.7 Mitigation Measures

#### Mitigation for Long-Term Impacts

The operation of the Build alternatives would not generate additional traffic, but would better serve the traffic that is expected to increase whether this project is built or not. The air quality analysis indicates that the Mukilteo Multimodal Project would not result in any significant adverse air quality impacts in the study area. Consequently, no operational impact mitigation measures are warranted or proposed.

#### Mitigation for Construction Impacts

**Preferred Alternative**

For the Preferred Alternative, WSDOT would require contractors to develop a construction management plan to identify measures to mitigate air quality impacts. The plan would attempt to minimize roadway congestion and would be designed to conserve energy and reduce air emissions by limiting idling equipment, encouraging construction workers to carpool, and locating staging areas near work sites.

The construction management plan would encourage contractors to apply EPA’s National Clean Diesel Campaign emission reduction strategies, including:

- Replace old vehicles or equipment with newer, cleaner models
- Maintain engines properly to burn fuel more efficiently
- Install diesel particulate filters, diesel oxidation catalysts, crankcase emission control devices, and/or new engine components
- Use technologies that provide amenities such as cabin heat and air conditioning without operating the main engine, allowing for reduced idling
- Use fuels such as ultra-low sulfur diesel, biodiesel, liquid petroleum gas, compressed natural gas, or liquefied natural gas

Fugitive dust emissions would be reduced by incorporating mitigation measures specified in the *Associated General Contractor of Washington Guidelines* into the construction specifications for the project. Possible mitigation measures to control fugitive dust emissions during construction are listed below (Associated General Contractors of Washington 1997).

- Spray exposed soil with water to reduce emissions of PM_{10} and the deposition of particulate matter
• Minimize dust emissions during transport of fill material or soil by wetting down or covering the load
• Promptly clean up spills of transported material on public roads
• Locate construction equipment and truck staging areas away from residences, as practicable, and in consideration of potential impacts on other resources
• Provide wheel washers to remove particulate matter that would otherwise be carried off site by construction vehicles
• Cover dirt, gravel, and debris piles, as needed, to reduce dust and wind-blown debris
• Minimize on-site odors by covering loads of hot asphalt

Other Alternatives

Construction mitigation for the No-Build, Existing Site Improvements, and Elliot Point 1 alternatives would be similar to the measures identified for the Preferred Alternative.

4.7.8 Conformity Determination

This project meets project-level air quality conformity in accordance with state and federal regulations as follows:

• The project is included in PSRC’s RTP.
• The project is included in the current TIP.
• The project meets the local hot-spot conformity requirements. Because the project has been included in the RTP and TIP modeling, it demonstrates conformity to the SIP. The project meets project-level conformity requirements because it would not cause any new NAAQS exceedance or worsen any existing one, and would not delay the timely attainment of any standard.

4.8 Hazardous Materials

Hazardous material is a term describing a substance that may harm humans or the environment. Hazardous materials may be classified in different categories based on the laws and regulations that define their characteristics and uses. These classifications include hazardous waste, dangerous waste, hazardous substances, and toxic substances. Hazardous materials contamination refers to soil, sediment, or water that carry some level of toxic substance not normally found in the natural environment, typically due to an uncontrolled release of hazardous materials.

This section evaluates the impacts that existing or future hazardous materials could have on people and the environment, and discusses how the potential presence of existing hazardous materials could affect the construction or implementation of project alternatives. The section also describes measures to avoid or mitigate impacts.
4.8.1 Overview of Analysis and Regulatory Context

Numerous federal, state, and local laws; regulations; guidance documents; and policies govern the handling and disposal of hazardous materials and the remediation of media contaminated with hazardous materials. The most common federal and state laws and regulations pertaining to hazardous materials that apply to WSDOT projects are listed in Table 4.8-1. A detailed description of each law and regulation in this list is provided in the Hazardous Materials Discipline Report, which is an appendix to this EIS. Ecology’s Model Toxics Control Act (MTCA) cleanup regulations (Chapter 173-340 WAC) and the Sediment Management Standards (SMS) (Chapter 173-204 WAC) regulate management and disposal of contaminated soil, groundwater, surface water, and sediment.

Table 4.8-1. Laws, Regulations, Guidance Documents, and Policies Governing Handling, Disposal, and Remediation of Hazardous Materials

<table>
<thead>
<tr>
<th>Federal Laws and Regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean Air Act (CAA)</td>
</tr>
<tr>
<td>Clean Water Act (CWA)</td>
</tr>
<tr>
<td>Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA, 42 USC §§ 9601 - 9675), the Superfund Amendments and Reauthorization Act (SARA), and All Appropriate Inquiries (AAI) (40 CFR Part 312)</td>
</tr>
<tr>
<td>National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR Parts 61 to 71)</td>
</tr>
<tr>
<td>Occupational Safety and Health Act of 1970</td>
</tr>
<tr>
<td>Toxic Substances Control Act (TSCA)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>State Laws and Regulations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clean Air Act and Local Air Agency Regulations</td>
</tr>
<tr>
<td>Dangerous Waste Regulations (WAC 173-303)</td>
</tr>
<tr>
<td>Dredged Material Management Program (RCW 79.105.510 and 520, WAC 332.30.166)</td>
</tr>
<tr>
<td>Model Toxics Control Act (MTCA) (RCW 70.105D) and MTCA regulations (WAC 173-340)</td>
</tr>
<tr>
<td>Sediment Management Standards (WAC 173-204)</td>
</tr>
<tr>
<td>Solid (Non-Dangerous) Waste Disposal (RCW 70.95, WAC 173-304)</td>
</tr>
<tr>
<td>Underground Storage Tank Statute (RCW 90.76) and Regulations (WAC 173-360)</td>
</tr>
<tr>
<td>Underground Utilities (RCW 19.122)</td>
</tr>
<tr>
<td>Washington Industrial Safety and Health Act (WISHA, RCW 49.17) and implementing regulations</td>
</tr>
<tr>
<td>Lead-Based Paint and Asbestos Work (WAC 296-62 Part I-1; WAC 296-65; WAC 296-155)</td>
</tr>
<tr>
<td>Hazardous Waste Operations and Treatment, Storage, and Disposal Facilities (WAC 296-62 Part P)</td>
</tr>
<tr>
<td>Safety Standards for Construction Work (WAC 296-155)</td>
</tr>
<tr>
<td>Wastewater Discharges to Ground (WAC 173-216)</td>
</tr>
<tr>
<td>Wastewater Discharges to Surface Waters (WAC 173-220)</td>
</tr>
<tr>
<td>Water Pollution Control Act (RCW 90.48), Water Quality Standards for Surface Waters of the State of Washington (WAC 173-201A), and Water Quality Standards for Groundwater of the State of Washington (WAC 173-200)</td>
</tr>
</tbody>
</table>
4.8.2 Affected Environment

The project area is defined as the footprint of all four project alternatives taken together. The hazardous materials study area surrounds and includes the project area and is the area within which hazardous materials, if released, might affect the project area. Figure 4.8-1 shows the boundaries of the project area and the study area and identifies sensitive receptors, which are areas with populations particularly sensitive to potential project-related releases of hazardous materials.

A total of 14 hazardous materials sites were identified in the study area, one of which is the Mukilteo Tank Farm. Figure 4.8-2 shows and Table 4.8-2 describes the sites and lists documented releases of hazardous materials based on past uses of hazardous materials at the sites and on remaining structures or facilities.

Mukilteo Tank Farm

The Mukilteo Tank Farm straddles the city limits of Mukilteo and Everett. The property is bounded by Possession Sound to the north, Park Avenue to the west, the BNSF tracks to the south, and the Port of Everett Mount Baker Terminal to the east.

The Mukilteo Tank Farm consists of nearly 20 acres of upland property and the associated Tank Farm Pier. The upland portion of the site, about 12 feet above mean sea level, is graded and flat. A protective riprap wall, approximately 10 feet high, separates the site from Possession Sound, with tidal flats and intertidal beaches exposed north of the site during low tide. The site is enclosed in some places by an 8-foot-high fence topped with barbed wire and in others by 10-foot-high concrete secondary tank containment walls. A gated entrance to the site is located on Front Street.

Major stages in the development of the property that is now the Mukilteo Tank Farm are summarized in Table 4.8-3. The site was originally developed as a lumber mill at the turn of the 20th century. During World War II, the mill property was sold to the U.S. Army, which established the Mukilteo Explosives Loading Terminal for loading ammunition onto ships bound for the Pacific theater. On-site structures at the time included administration buildings, facilities for vehicle maintenance (using oil, diesel, gasoline, and lubricating oils), an ammunition repair shop, several railroad spurs running the length of the property, coal-fired equipment, a pile-retaining wall, and two piers used for ammunition loading.

In 1951, the U.S. Air Force acquired the Mukilteo Tank Farm and constructed a bulk fuel storage and transfer facility, which included modifying the western pier (now known as the Tank Farm Pier) to load and unload fuel from vessels to rail cars. The U.S. Air Force later demolished the eastern trestle pier. Fill material was added to much of the site. The facility began operating, in association with McChord Air Force Base, in 1953 and continued until 1973, supplying jet propellant and aviation gasoline fuels to military installations in the Pacific Northwest.
Figure 4.8-1. Environmental Characteristics, Project Area, Sensitive Receptors, and Study Area

Mukilteo Multimodal Project

Legend:
- **Project Area**
- **Study Area**
- **Sensitive Receptor**

Data Sources: (ESRI USGS online MXDS)
Figure 4.8-2. Hazardous Materials Site Locations
### Table 4.8-2. Hazardous Materials Sites

<table>
<thead>
<tr>
<th>Site No.</th>
<th>Site Name</th>
<th>Description</th>
<th>Documented Releases or Past Uses of Hazardous Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>City of Mukilteo</td>
<td>Waterfront property west of current terminal</td>
<td>Potential presence of lead-based paint, asbestos, polychlorinated biphenyls (PCBs), mercury, creosote-treated timber and piles, and sediment contaminated with creosote.</td>
</tr>
<tr>
<td>2</td>
<td>Port of Everett</td>
<td>Mukilteo terminal is currently located here</td>
<td>Potential presence of lead-based paint, asbestos, PCBs, mercury, creosote-treated timber and piles, and sediment contaminated with creosote.</td>
</tr>
<tr>
<td>3</td>
<td>Ivar’s Real Estate</td>
<td>Property occupied by Ivar’s restaurant</td>
<td>Potential presence of lead-based paint, asbestos, PCBs, mercury, creosote-treated timber and piles, and sediment contaminated with creosote.</td>
</tr>
<tr>
<td>4</td>
<td>Silver Cloud Inn</td>
<td>Hotel immediately adjacent to the project area</td>
<td>Previously remediated site. Two gasoline underground storage tanks existed on the property. The western tank was closed in place in 1983. The eastern tank was removed in 1998. Ecology issued a No Further Action determination for the site in 1999.</td>
</tr>
<tr>
<td>5</td>
<td>WSDOT</td>
<td>Paved area already owned by WSDOT; primarily used for ferry holding</td>
<td>Potential presence of lead-based paint, asbestos, PCBs, and mercury.</td>
</tr>
<tr>
<td>6</td>
<td>A &amp; J Enterprises</td>
<td>Paved area currently being used for ferry holding</td>
<td>Diesel fuel releases encountered in 2009. This property was a gas station from the late 1940s to the mid-1950s. Underground storage tanks are the likely source of the petroleum hydrocarbon contamination.</td>
</tr>
<tr>
<td>7</td>
<td>Ivar’s Real Estate</td>
<td>Parking lot</td>
<td>Underground PCBs detected in 2009 at southern edge.</td>
</tr>
<tr>
<td>8</td>
<td>James Mongrain</td>
<td>Glass blowing manufacturing shop</td>
<td>Potential lead-based paint, asbestos, PCBs, and mercury.</td>
</tr>
<tr>
<td>9</td>
<td>BNSF Railway Corridor</td>
<td>Tracks adjacent to the project area</td>
<td>No available information indicates whether loading of hazardous materials, including petroleum products from the Mukilteo Tank Farm, occurred along BNSF tracks.</td>
</tr>
<tr>
<td>10</td>
<td>City of Mukilteo Public Works Shop</td>
<td>Building located about 260 feet south of the project area</td>
<td>Previously remediated site. Two underground storage tanks were located on the property. The tanks were removed in 1999 and all reasonably accessible contaminated soil was removed. Ecology issued a No Further Action determination for the site in 2006.</td>
</tr>
<tr>
<td>11</td>
<td>Mukilteo Garage</td>
<td>Repair shop and former gasoline service station located about 300 feet south of the project area</td>
<td>The automotive repair service operated from at least the late 1940s through the early 1970s. Two fuel dispensers were observed in front of the garage in December 2002 but were gone by May 2011.</td>
</tr>
<tr>
<td>12</td>
<td>Mukilteo Water District</td>
<td>Office building located about 1,250 feet south of the project area</td>
<td>The site had a gasoline underground storage tank that has been removed. No release has been reported for the site.</td>
</tr>
<tr>
<td>13</td>
<td>Mukilteo Tank Farm</td>
<td>Property occupies much of project area</td>
<td>Previously remediated site (see Table 4.8-3).</td>
</tr>
<tr>
<td>14</td>
<td>WSDOT</td>
<td>Part of property lies within the project area; WSDOT leases remainder to the Port of Everett for the Mount Baker Terminal facility</td>
<td>Asbestos and PCBs.</td>
</tr>
</tbody>
</table>

Site No.: Site number on Figure 4.8-2

1 No Further Action is the determination used by Ecology to signify that a site cleanup achieved all site-specific cleanup standards.
Table 4.8-3. Mukilteo Tank Farm Hazardous Materials Summary

<table>
<thead>
<tr>
<th>Year</th>
<th>Property Owner/Operator</th>
<th>Event/Activity</th>
<th>Documented Releases or Past Uses of Hazardous Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>1903</td>
<td>Crown Lumber Company</td>
<td>Lumber mill constructed.</td>
<td>Fuel oil, lubricating oil, coal storage</td>
</tr>
<tr>
<td>1930</td>
<td>Crown Lumber Company</td>
<td>Lumber mill closed.</td>
<td></td>
</tr>
<tr>
<td>1938</td>
<td>Unknown</td>
<td>Mill destroyed by fire.</td>
<td></td>
</tr>
<tr>
<td>Early</td>
<td>U.S. Army</td>
<td>Mukilteo Explosives Loading Terminal established, including two piers.</td>
<td>Vehicle maintenance (gasoline, diesel, lubricating oils); coal-fired power plant</td>
</tr>
<tr>
<td>1951</td>
<td>U.S. Air Force</td>
<td>Property acquired and converted to bulk fuel storage and transfer terminal, in association with McChord Air Force Base in Tacoma; fuel delivered to facility by barge, stored in 10 large aboveground tanks, and distributed by barge, rail car, and tanker truck.</td>
<td>Aviation gasoline, jet propellant</td>
</tr>
<tr>
<td>Mid-1960s</td>
<td>U.S. Air Force</td>
<td>Demolished trestle pier (east portion of property) used during World War II for loading ammunition onto ships; small pier added adjacent to the administration building (later the NOAA Mukilteo Research Station building).</td>
<td></td>
</tr>
<tr>
<td>1973</td>
<td>Defense Logistics Agency (DLA)</td>
<td>Operation transferred; facility eventually designated as Defense Fuel Support Point (DFSP) Mukilteo. By the late 1970s, the pier was no longer used for loading fuel.</td>
<td></td>
</tr>
<tr>
<td>1979</td>
<td>DLA</td>
<td>Fuel-contaminated soil discovered within bulk fuel storage tank containment structures.</td>
<td></td>
</tr>
<tr>
<td>1982</td>
<td>DLA</td>
<td>First fuel oil recovery well installed north of and between Tanks 2 and 3.</td>
<td>Chloroform; lead; methylene chloride; tetrahydrofuran; total petroleum hydrocarbons (TPHs), including benzene, toluene, ethylbenzene; jet propellant</td>
</tr>
<tr>
<td>1982</td>
<td>DLA</td>
<td>Soil and groundwater in northeast portion of property found to be contaminated.</td>
<td></td>
</tr>
<tr>
<td>1983-1984</td>
<td>DLA</td>
<td>Floating petroleum product observed on groundwater north of Tank 10 and in another recovery well.</td>
<td>Aviation gasoline product</td>
</tr>
<tr>
<td>1986-1987</td>
<td>DLA</td>
<td>Damaged section of underground pipeline north of Tank 9 led to estimated loss of 6,700 gallons of jet propellant to the ground, fuel seeps on the beach, and a sheen on Possession Sound.</td>
<td>Jet propellant</td>
</tr>
<tr>
<td>1986-1987</td>
<td>DLA</td>
<td>U.S. Navy divers recovered World War II-era ammunition shells from sediments beneath the Tank Farm Pier.</td>
<td>Ammunition shells</td>
</tr>
<tr>
<td>1989</td>
<td>DLA</td>
<td>Fuel storage and transfer operations ceased on the property.</td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>DLA</td>
<td>Washington State Attorney General and DLA entered into a Remedial Action Order requiring DLA to complete a Remedial Investigation/Feasibility Study (RI/FS) for clean-up of the Mukilteo Tank Farm.</td>
<td></td>
</tr>
<tr>
<td>1991</td>
<td>DLA</td>
<td>At least six underground and aboveground fuel, heating oil, waste fuel, and waste oil tanks were removed, and approximately 3,000 gallons of floating petroleum product were recovered.</td>
<td>TPHs, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), PCBs, and heavy metals (arsenic, cadmium, chromium, copper, lead, mercury, and zinc) detected in soils during tank removal</td>
</tr>
<tr>
<td>1991-1994</td>
<td>DLA</td>
<td>Preliminary site investigation and remedial investigation performed at the site.</td>
<td>Jet propellant and aviation gasoline product floating on groundwater; contamination of soil, groundwater, surface water, and sediments by</td>
</tr>
</tbody>
</table>
Table 4.8-3. Mukilteo Tank Farm Hazardous Materials Summary

<table>
<thead>
<tr>
<th>Year</th>
<th>Property Owner/Operator</th>
<th>Event/Activity</th>
<th>Documented Releases or Past Uses of Hazardous Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993-1994</td>
<td>DLA</td>
<td>U.S. Navy underwater ordnance survey conducted in areas surrounding the Tank Farm Pier and the trestle pier; no ordnance were found.</td>
<td>previously documented chemicals</td>
</tr>
<tr>
<td>1994</td>
<td>Defense Fuel Supply Center (DFSC)</td>
<td>Ecology issues Enforcement Order to DFSC to address the documented releases of hazardous substances. The order replaced the previous remedial action order from 1990.</td>
<td></td>
</tr>
<tr>
<td>1995-1997</td>
<td>DFSC</td>
<td>Ecology approved site-specific cleanup standards using Washington State MTCA Method B practices in effect at the time. DFSC initiated collection and treatment of contamination by installation of remedial systems, including fuel product recovery, oil/water separation, soil vapor extraction, and air sparging.</td>
<td></td>
</tr>
<tr>
<td>1997-2002</td>
<td>DFSC (in 1998, renamed Defense Energy Support Center [DESC])</td>
<td>Remediation systems installed and operated to remove free product, product vapors, and contaminated groundwater. Remediation systems shut down in November 2000 on the east end of the property and in November 2002 on the west end of the property after performance monitoring indicated that contaminants were not detected or were found at concentrations below the cleanup levels negotiated with Ecology for the property.</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>DESC</td>
<td>Ecology issued written notification to DESC that the provisions of the Enforcement Order of 1994 had been satisfied, and no future remediation action was required.</td>
<td></td>
</tr>
<tr>
<td>2006-2007</td>
<td>DESC</td>
<td>WSDOT’s archaeological trenching and borings found contaminants of concern in excess of the site's approved cleanup levels in soils in the west and central portions of the property, at depths of 9 to 12 feet below ground surface (see Figure 4.8-2), and petroleum hydrocarbons in excess of MTCA Method A cleanup levels, at depths of 8 to 12 feet below ground surface.</td>
<td>Benzene, toluene, ethylbenzene, and xylenes (BTEX), cPAHs, and gasoline-, diesel- and lube oil-range petroleum hydrocarbons</td>
</tr>
<tr>
<td>2010</td>
<td>U.S. Air Force</td>
<td>Development of an Environmental Baseline Survey assessing conditions on the site and updating information on current status of underground and aboveground storage tanks and other buildings.</td>
<td></td>
</tr>
<tr>
<td>2012</td>
<td>U.S. Air Force</td>
<td>WSDOT sediment sampling in support of the EIS review and to address public and agency comments about contamination showed limited levels of contamination for an array of potential contaminants, but encountered contaminants of concern in excess of Dredged Material Management Program (DMMP) Screening Levels and SMS Sediment Quality Levels in the upper 8 feet of sediment around the pier perimeter. Contaminants of concern were also encountered from 8 to 12 feet below the mudline near the northeast corner of the former fuel pier.</td>
<td>Chlordanes, and polycyclic aromatic hydrocarbons (PAHs)</td>
</tr>
</tbody>
</table>

Fuel was delivered to the property by barge and was distributed by barge, railcar, and tanker trucks. Barge and railcar deliveries were transferred to and from 10 aboveground bulk fuel storage tanks; tanker truck deliveries were transferred at two truck-loading racks. In 1973, the U.S. Air Force transferred the Mukilteo Tank Farm land and facility to the Defense Logistics Agency (DLA), which, through the agency now known as the Defense Energy Support Center (DESC), continued operating the facility as a government-owned, contractor-operated fuel storage and transfer terminal. By the late 1970s, the Tank Farm Pier had fallen into disrepair and was no
longer used for loading fuel onto railcar tankers. In 1987, the government decided to close the Mukilteo Tank Farm facility and consolidate its mission with a facility in Manchester, Washington. Fuel storage and transfer operations on the property ceased in 1989.

In the late 1970s through the 1980s, hazardous materials were found in the soil, groundwater, surface water, and sediment on the Mukilteo Tank Farm. In 1979, soil contaminated with fuel oil was found in a number of bulk fuel storage tank containments. By 1982, a fuel recovery well had been installed between what was known as the main oil/water separator and the U.S. Air Force Aviation Fuels Laboratory (fuels laboratory), located on the north side of the property. In 1982, soil and groundwater in the northeastern portion of the property was found to be contaminated with chloroform, methylene chloride, tetrahydrofuran, benzene, ethylbenzene, toluene, and total petroleum hydrocarbons. Lead was also found in the groundwater. Several unknown compounds were also encountered. In 1983, 1984, 1986, and 1987, floating contaminants were found in the groundwater in several locations. The suspected sources were leaks from underground storage tanks and damaged underground distribution pipelines, including some that led to seeps to the beach and were visually observed as a sheen on Possession Sound.

In 1990 and 1994, the Washington State Office of the Attorney General, DLA, and Ecology developed remedial action agreements and enforcement orders for the Mukilteo Tank Farm. The DLA installed remedial treatment systems and operated them through 2002, and continued compliance monitoring through 2006. In 2006, Ecology issued written notification to DLA’s DESC, stating that the provisions of Enforcement Order No. DE 93TC-N268 had been satisfied, that no further monitoring was required, and that remaining monitoring wells could be abandoned (Brian Sato, Ecology; dated May 22, 2006). No environmental covenant or deed restriction has since been entered against the property, and the property was given a site cleanup status of “Removal from Hazardous Sites List Completed” in Ecology’s 2008 Sediment Cleanup Status Report.

Although the U.S. Air Force satisfied the terms of Ecology’s order, and Ecology determined no further action was needed, WSDOT’s archaeological field work for the Mukilteo project encountered areas with soil contamination on the Mukilteo Tank Farm in 2006 and 2007. Soil contamination was identified by sampling and analysis, photo-ionization detector measurements, and visual/odor observations.

Indications of contaminated soil were observed throughout the west and west-central portions of the property as shown in Figure 4.8-3. Site-specific cleanup levels were used to screen the analytical results from the 2006/2007 archaeological investigations for the analytes for which site-specific cleanup levels were identified (some metals, polycyclic aromatic hydrocarbons, and volatile organic compounds). The analytes for which site-specific cleanup levels were promulgated are discussed in detail in the Hazardous Materials Discipline Report. MTCA Method A cleanup levels were used to screen the analytical data results for the analytes for which site-specific cleanup levels were not promulgated (including petroleum hydrocarbons). Petroleum hydrocarbons (gasoline-, diesel-, and lube oil-range) were encountered at concentrations in excess of MTCA Method A cleanup levels for industrial and unrestricted land use in soil samples collected in these areas from 8 to 12 feet below ground surface (bgs).
Figure 4.8-3. Tank Farm Property Features

Polycyclic aromatic hydrocarbons, volatile organic compounds, and metals were detected at concentrations greater than the site-specific cleanup levels and/or MTCA Method A cleanup levels for unrestricted land use in soil samples collected in these areas from 8 to 12 feet bgs. Archaeological borings elsewhere on the site revealed localized residual contamination at lower levels.

The depth of affected soil coincides with the groundwater level “smear zone” at the site. The groundwater smear zone is the tidally influenced groundwater fluctuation range, which is from approximately 8 feet to 12 feet bgs at the property. There is the potential that affected soil may remain at these depths throughout the site. Remnant contamination also could affect groundwater. Additional sampling of soil and groundwater is needed to characterize the existing conditions at the site. The Hazardous Materials Discipline Report provides more information about measures to address remnant contamination as identified by the U.S. Air Force in its Final Environmental Assessment and resulting Finding of No Significant Impact in 2012. The U.S. Air Force has stated that it will retain environmental and public safety responsibilities associated with “the discovery of significant contaminants attributable to legacy DOD operations on the property” (U.S. Air Force 2012).

Slag material is suspected to be present in the riprap material armoring the shoreline. Material that appears to be slag was observed in the riprap during a 2012 site visit. The source of this material is unknown but slag produced at the former Everett Asarco copper smelter was historically used in riprap armoring throughout the Puget Sound. Heavy metals associated with slag from copper smelters may be present in the soil beneath the riprap at the site.

In March and April 2012, sediment samples were collected in six locations around the perimeter of the pier and in three locations beneath the pier. The samples were analyzed for Dredged Material Management Program (DMMP) and SMS contaminants of concern.

Pesticides were detected in perimeter sediment samples collected from the surface to 8 feet below the mudline at concentrations greater than DMMP Screening Levels and/or SMS Sediment Quality Standards. Polycyclic aromatic hydrocarbons were detected in one discrete sample collected near the northeast corner of the pier from 8 to 12 feet below the mudline. No exceedances were encountered in the surface to 4-foot-interval samples collected from beneath the pier. Dioxin concentrations measured in surface sediments around the pier ranged from 4.09 parts per trillion (ppt) toxic equivalents (TEQs) to 1.9 ppt TEQ. Open-water disposal is allowed as long as the volume-weighted average concentration of dioxins in material from the entire dredging project does not exceed the Disposal Site Management Objective of 4 ppt TEQ.

Deeper sediment (greater than 4 feet below the mudline) beneath the Tank Farm Pier may be affected by the 3,900 creosote-treated piles. Deeper sediments under the pier could also be contaminated with petroleum hydrocarbons from the pier's nearly 30-year use as a bulk fuel storage and transfer facility.

4.8.3 Long-Term Environmental Impacts

This section discusses potential impacts that could occur during project operation, including effects associated with the permanent facilities that would be in place and effects from ongoing operations of the multimodal facility. Potential adverse operational
impacts include hazardous material leaks and spills by the traveling public, leaks due to the operation and maintenance of the terminal, dispersal of contaminated sediment, and groundwater contamination due to stormwater infiltrating through landscape features and into contaminated soils, which could cause migration of hazardous materials. Beneficial operational impacts include reduction of exposure to hazardous materials because of project-related improvements or longer-term site management measures.

All project alternatives would use hazardous materials similarly due to the types and intensities of activities that occur at ferry terminals. There is the potential for leaks or spills from vehicles in holding areas, area roadways, transit centers, or other terminal operation and maintenance activities. However, as described in more detail in Section 4.11 Water Resources, the Build alternatives would develop stormwater retention and treatment facilities to meet current standards, which would reduce the effects of potential spills and their transport to receiving waters.

Both the Preferred Alternative and Elliot Point 1 Alternative include stormwater facilities and landscaping in potentially contaminated areas. The Elliot Point 1 Alternative also includes daylighting of Japanese Creek, with grading changes that could affect the flow of groundwater in the area. Infiltrating water or changing groundwater flow could spread existing contamination if such contamination exists.

All alternatives would result in long-term benefits by removing the existing terminal structures, including in-water and landside structures, some of which contain hazardous materials. The likely contaminants in the existing structures are described in more detail under Section 4.8.4 Construction Impacts below. All Build alternatives would create additional long-term benefits by removing existing contaminants in soil or groundwater as necessary during construction. Over time, if left in place, these materials could migrate or become exposed due to groundwater movement.

The most environmental benefits would be expected from the Preferred and Elliot Point 1 alternatives, which would remediate hazardous materials associated with the Mukilteo Tank Farm and the pier as needed.

### 4.8.4 Construction Impacts

The potential short-term impacts during project construction include impacts to the natural environment or to people if the project encounters or causes the spread of hazardous materials. They also include the potential for construction activities to cause a new release of hazardous materials. Table 4.8-4 summarizes by alternative the common effects anticipated.

#### Table 4.8-4. Construction Activities Involving Areas with Potential Hazardous Materials

<table>
<thead>
<tr>
<th>Construction Activities Potentially Affected by Hazardous Materials</th>
<th>Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No-Build</td>
</tr>
<tr>
<td>Acquire property with potential hazardous materials releases</td>
<td>X</td>
</tr>
<tr>
<td>Renovate, remove, or excavate structures and equipment that could contain asbestos, lead-based paint, PCBs, and mercury</td>
<td>X</td>
</tr>
<tr>
<td>Remove storage tanks and/or associated contaminated soil</td>
<td>X</td>
</tr>
</tbody>
</table>
### Table 4.8-4. Construction Activities Involving Areas with Potential Hazardous Materials

<table>
<thead>
<tr>
<th>Construction Activities Potentially Affected by Hazardous Materials</th>
<th>No-Build</th>
<th>Preferred Alternative</th>
<th>Existing Site Improvements</th>
<th>Elliot Point 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Decommission underground oil/water separators, bulk fuel distribution facilities, remediation wells, and all associated piping</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Remove creosote-treated timber and piles from structures being renovated or removed</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Disturb, dredge, or excavate sediment and soil that has been in contact with creosote-treated timber or piles</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Grade or excavate potentially contaminated soil</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Dewater excavations or pits in the vicinity of potentially contaminated groundwater</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Construct stormwater facilities in areas with potential contamination</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

**No-Build Alternative**

The No-Build Alternative would require the continued leasing or the acquisition of all or part of Site 6—a portion of the area currently used for vehicle holding. The existing facility has areas where hazardous materials may be present.

The No-Build Alternative would remove the creosote-treated timber piles used for the existing terminal, which could disturb nearby sediments. It would also replace structures or equipment that could contain asbestos, lead-based paint, PCBs, or mercury.

Upland grading, excavation, or dewatering could encounter contaminated soil or groundwater because some migration from a previously contaminated site under the vehicle holding area may have migrated toward the No-Build Alternative’s area of construction.

**Preferred Alternative**

For this alternative, WSDOT would acquire a property interest in three sites with previous contamination. All structures, equipment, and other existing surface features will be removed from the Mukilteo Tank Farm site (including the pier). Some of the existing features and equipment to be removed from the Mukilteo Tank Farm may contain hazardous materials. A U.S. Air Force survey of current and past fuel or other hazardous material storage tanks found that nearly all of them have been removed or drained of hazardous materials. Tanks with product remaining would be a source of contamination if they were ruptured during construction. Construction for this alternative would occur on the west and west-central portions of the Mukilteo Tank Farm where contaminated soils and groundwater were encountered in 2006 and 2007.

Underground oil/water separators, bulk fuel distribution facilities, remediation wells, and associated piping could still exist within the Preferred Alternative footprint. Such
structures could contain residual petroleum products and other hazardous materials that could be spread during project construction.

The removal of the existing ferry structures and the Tank Farm Pier, as well as dredging the 500-foot-wide navigation channel, would disturb sediment and soil that have been in contact with creosote-treated timber or piles. Creosote contains polycyclic aromatic hydrocarbons, which often leach into the surrounding sediments and could be released during pile removal when those sediments are disturbed. If contamination is present in the sediments, exposure to currents and wave action could spread contamination over a larger area.

A dredge material characterization study would be completed to evaluate the suitability of the material in the proposed dredge prism for open-water disposal. The Dredged Material Management Office (DMMO) will evaluate the analytical results from the samples that will be collected for the study and make a determination regarding the suitability of the material for open-water disposal.

During and after pier removal and dredging for the Preferred Alternative, exposed sediments could be vulnerable to minor levels of disturbance or dispersal by wave action and ferry propeller scour. Sampling information indicates that contaminants of concern could be present in surfaces that would be exposed by the Preferred Alternative. WSDOT conducted additional analysis (Coast & Harbor 2013) of the 2012 sediment sampling results. The study indicates that propeller scour will affect a small and localized scour area with a maximum sediment depth of 1.4 feet for the Preferred Alternative (with no detectable shoreline impact). The maximum volume of material that would be mobilized during a 25-year storm event is approximately 1,050 cubic yards, resulting in an average of 0.08 inch of surface sediment material settling in the basin on the east side of the existing pier. The majority of this material would be deposited within 1,800 feet of the pier. These levels of dispersion would be unlikely to result in contaminants exceeding Washington State’s SMS in these areas.

Much of the construction of this alternative is designed to avoid excavation within the tank farm site, particularly in the western portion where archaeological resources may also be present. The alternative proposes placing fill and pavement over large portions of the site, which would reduce the potential for construction activities to encounter or cause the spread of hazardous materials. Excavation or stormwater infiltration features with soil or groundwater sampling and testing would occur on less than 20 percent of the project site. However, the project could encounter hazardous materials when excavating for utilities, stormwater systems, and structural foundations or grading. Dewatering could alter groundwater flow in the excavation dewatering area, which could result in hazardous materials migration.

The potential presence of remnant contamination would require additional plans, procedures, and permitting approvals to construct the Preferred Alternative. This would include plans for the handling or disposal of hazardous materials in accordance with applicable regulations. However, with appropriate plans in place, it is unlikely that the alternative’s construction activities would result in further impacts on people or the environment; moreover, the removal or containment of contamination would improve environmental conditions.
**Existing Site Improvements Alternative**

The Existing Site Improvements Alternative would result in impacts related to removal of the existing terminal structures, creosote-treated timber and piles, and sediment near creosote-treated timber and piles. These impacts would also apply to the Port of Everett fishing pier and day moorage.

This alternative would require acquisition of all or part of six additional sites located in the central waterfront area of Mukilteo and associated demolition and removal of structures or equipment that could contain asbestos, lead-based paint, PCBs, or mercury. The alternative includes the construction of a transit center on a property that has been previously identified with a hazardous material release. It also includes acquiring property that was once used as a gasoline service station. These sites may require additional plans, procedures, and approvals for their construction, including the handling or disposal of hazardous materials, but it is unlikely that the alternative’s grading, excavation, or dewatering activities would result in an increased spread of contaminated soil or groundwater.

**Elliot Point 1 Alternative**

The Elliot Point 1 Alternative would have a similar potential to encounter hazardous materials during project construction as the Preferred Alternative. There may be some localized differences during construction due to the different footprints. This alternative has a larger footprint than the Preferred Alternative, which increases the extent of construction. It has a longer extension of First Street and includes the daylighting of Japanese Creek.

After pier removal and dredging for Elliot Point 1, exposed sediments could be vulnerable to minor levels of disturbance or dispersal by wave action and ferry propeller scour, with potential effects that are similar to those described for the Preferred Alternative. The scour effects would extend several feet deeper into the sediments than for the Preferred Alternative, but with no serious impacts (Coast & Harbor 2013).

As with the Preferred Alternative, much of the construction of this alternative is designed to avoid excavation within the tank farm site, particularly in the western portion where archaeological resources may be present. The alternative’s proposed fill and paved areas would also reduce the potential for construction activities to encounter or cause the spread of hazardous materials. However, the Elliot Point 1 Alternative could encounter hazardous materials during excavation for utilities, stormwater systems, structural foundations, or grading activities, and when daylighting Japanese Creek. As with the Preferred Alternative, dewatering activities associated with construction could locally alter groundwater flow, which could result in hazardous materials migration.

**4.8.5 Indirect and Secondary Impacts**

No indirect or secondary impacts are anticipated for any of the project alternatives.
4.8.6 Cumulative Impacts

This project and future projects in the area would support increased environmental protection and appropriate cleanup and mitigation of any hazardous materials in accordance with existing regulations and future regulations, which are likely to be more stringent. This project would not result in an accumulation of hazardous materials. The Preferred Alternative and the Elliot Point 1 Alternative would remove contamination encountered on the Mukilteo Tank Farm, whereas the No-Build and Existing Site Improvements alternatives would not. Therefore, if contamination is present at the Mukilteo Tank Farm, it could remain there longer under the No-Build and Existing Site Improvements alternatives.

4.8.7 Mitigation Measures

Preferred Alternative

Mitigation measures for all project activities would be defined through a project-specific Hazardous Materials Management Plan developed in consultation with Ecology. WSDOT has a spill plan that the Ferries Division would use to respond to spills or leaks that may occur during project operation.

Long-term impacts for the Preferred Alternative were identified due to the potential for migration of potentially contaminated sediments beneath the Tank Farm Pier, and for the possible migration of contamination due to infiltrating stormwater in areas with potentially contaminated soils or groundwater.

The Hazardous Materials Management Plan would include measures for dredging and disposal of contaminated sediments, and capping, armoring, or otherwise minimizing the potential for migration due to wave action, currents, or propeller scour. Many of these activities would be defined through the DMMP process and other state and federal water quality and aquatic lands permitting and management programs; the project would comply with all terms and conditions defined through those required regulatory processes. Mitigation measures to manage the potential for contaminated sediment migration would be addressed as part of these required regulatory approvals, which are further discussed under construction mitigation. Potential measures may include sediment capping, near shore armoring, and clean sand and gravel in areas where piles are removed.

Stormwater facilities would be developed in accordance with the applicable permit requirements identified for water resources. If WSDOT and permitting authorities conclude that infiltrating stormwater facilities are appropriate for the Preferred Alternative, mitigation would include placing infiltration stormwater facilities only in areas where there is no contamination. Alternatively, if infiltration is necessary in contaminated areas, WSDOT would clean up the soil beneath and downgradient of the facilities to prevent the spread of contamination into Possession Sound.

No-Build and Existing Site Improvements Alternatives

Some contaminated sediments could still be encountered or exposed during implementation of the No-Build and Existing Site Improvements alternatives but sediment migration would be less likely with these alternatives. The mitigation
measures would be similar to those discussed for the Preferred Alternatives if contaminated sediment is encountered or exposed for these alternatives.

**Elliot Point 1 Alternative**

The long-term impacts and mitigation measures for the Elliot Point 1 Alternative are similar to those identified for the Preferred Alternative. The identified long-term impacts include the potential for migration of potentially contaminated sediments beneath the Tank Farm Pier, and for the possible migration of contamination due to infiltrating stormwater in areas with potentially contaminated soils or groundwater.

The mitigation measures discussed for the Preferred Alternative would also be implemented for the Elliot Point 1 Alternative.

**Mitigation for Construction Impacts**

**Preferred Alternative**

Mitigation measures for all project activities will be defined through a project-specific Hazardous Materials Management Plan developed in consultation with Ecology. The site-specific Hazardous Materials Management Plan would include the following elements and procedures:

- State requirements for appropriately trained hazardous waste operations and response personnel
- A site-specific health and safety component regarding contaminated material exposure and personal protective equipment
- Defined site-specific measures to minimize exposure to contaminants through both airborne and direct contact routes
- Plan for appropriate space to stockpile graded and excavated soil that shows evidence of being contaminated or that is to be disposed of off site
- Require characterization of the bedding material beneath the bottom pad of each steel tank bottom located on the Mukilteo Tank Farm
- Require pre-demolition surveys of any structures to be removed to identify the presence of hazardous materials and to determine appropriate management procedures.
- Require careful removal of the granular asphalt bedding material beneath the bottom pad of each welded steel tank bottom that is removed for project construction
- Require characterization of soil in any areas where project excavation will encounter it, and the definition of management remediation measures if any are identified.
- Require characterization of site soil in any areas identified for stormwater ponds or infiltration
• Prepare a Creosote-Treated Timber Removal and Disposal Plan to address how piles and adhered sediments will be removed, managed, and disposed of in accordance with state laws and regulations. WSDOT would coordinate with EPA, Ecology, DNR, and others to develop and employ BMPs for creosote timber removal. WSDOT would also prohibit the reuse of these timbers.

• Remove, manage, and dispose of residual petroleum products and petroleum-contaminated soil that is encountered would be done in accordance with applicable regulations. Any wells requiring abandonment would need to be abandoned by a licensed well driller in accordance with state regulations.

• Decommission any remaining storage tanks onsite according to tank decommissioning and site assessment regulations. Any contaminated soil associated with the removed tanks would be tested in accordance with regulatory or permit specifications.

• Develop a Groundwater Management Plan to address any contaminated groundwater that may be dewatered from areas with potentially contaminated soils during project construction. The plan would require groundwater characterization in locations where excavations would encounter groundwater, where infiltration or stormwater ponds would be located, or where the location is downgradient from any contaminated soil areas

• Develop a Spill Prevention, Control and Countermeasures (SPCC) Plan and a Temporary Erosion and Sediment Control (TESC) Plan. The SPCC Plan would identify and include measures to protect sensitive receptors, describe any pre-existing contamination and contaminant sources, and identify the equipment and work practices that would be used to prevent the release of contamination.

Mitigation for Impacts due to Removal of Contaminated Sediment or Dredged Sediment

WSDOT will manage and dispose of contaminated sediment in accordance with applicable permits and regulations, including permits or plans required by Ecology and DNR. The DMMP Process and related permits such as the Section 401 Water Quality permit would define construction as well as post-construction requirements for the management of hazardous materials that maybe present in sediment. A DMMP-approved dredge material characterization would be completed to identify any contaminants of concern that may be present within the dredge prism. As would be specified in the project permits (including Section 401 Water Quality), BMPs will be implemented during dredging to minimize sediment transport and increased turbidity. Anticipated BMPs include:

• Controlling the speed of the dredging bucket
• Controlling the depth of the dredging bucket “bites”
• Using an enclosed dredging bucket
• Monitoring water quality (turbidity and chemical analyses) during dredging
• Defining periods when dredge activity would be allowed.

Work would be stopped immediately and additional BMP implementation will be evaluated if exceedances of 401 Water Quality criteria are observed during construction period water quality monitoring. Additional BMPs may include (but are not limited to) the use of silt curtains, sheet pile enclosures, removable dams, silt screens, or pneumatic (bubble) curtains.

WSDOT would comply with the results of the DMMP process and permits to evaluate that dredge spoils are clean and eligible for open-water disposal at a site already permitted by the DMMP agencies, or if material is contaminated and required to be disposed at an approved upland facility. The DMMP has jurisdiction over the final decision and permitting for open-water disposal suitability of the dredge material. BMPs and DMMP-approved methodology will be used for open-water disposal of dredge material, if any.

As anticipated in permits and approval conditions, WSDOT would conduct testing to determine if contaminated sediments are present at depths that would be exposed after dredging. If contamination exceeds applicable regulatory criteria, WSDOT would work with permitting agencies to develop protective measures to reduce the potential for erosion and transport of contaminated sediment. The detailed measures and the data requirements necessary to define the measures would be guided by the project’s permitting process and associated requirements.

**Mitigation for Indirect or Cumulative Impacts**

No adverse indirect or cumulative impacts were identified because past practices involving hazardous materials are already being addressed by the project; therefore, no additional mitigation is necessary.

**4.9 Energy and Climate Change**

This section reviews both operational and construction energy use and the potential for climate change effects either as a result of the project or potentially affecting the project.

**4.9.1 Overview of Analysis and Regulatory Context**

**Energy**

SEPA regulations recommend reviews of effects on natural resources, while NEPA regulations more specifically cite the need to consider energy requirements and conservation potential (40 CFR 1502.16). This energy analysis includes a building energy analysis, as required by 49 CFR 622.301, which instructs FTA to consider the energy consumption of buildings that are constructed as part of transit projects receiving federal funding.

According to USDOT guidance, large-scale projects with potentially substantial energy impacts should discuss the major direct and/or indirect energy impacts and conservation potential of each alternative.
Climate Change

The assessment of the project's potential to increase greenhouse gas emissions and contribute to climate change follows WSDOT’s *Guidance for Project-Level Greenhouse Gas and Climate Change Evaluations*. Section 4.7 Air Quality provides more detailed discussions of other emissions and pollutants related to air quality and Clean Air Act requirements for the project.

Vehicles emit a variety of gases during their operation; some of these are greenhouse gases. The greenhouse gases associated with transportation are water vapor, carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Any process that burns fossil fuel releases CO₂ into the air. CO₂ makes up the majority of the emissions from transportation. Vehicles are a primary source of greenhouse gas emissions and contribute to climate change primarily through the burning of gasoline and diesel fuels. National estimates show that the transportation sector (including on-road vehicles, construction activities, airplanes, and boats) accounts for almost 30 percent of total domestic CO₂ emissions. However, in Washington State, transportation accounts for nearly half of greenhouse gas emissions because the state relies heavily on hydropower for electricity generation, unlike other states that rely on fossil fuels such as coal, petroleum, and natural gas to generate electricity. The next largest contributors to total greenhouse gas emissions in the state are fossil fuel combustion in the residential, commercial, and industrial sectors at 20 percent; and electricity consumption, also 20 percent. Figure 4.9-1 shows the gross greenhouse gas emissions by sector, nationally and for Washington State. Figure 4.9-2 compares Washington’s per capita transportation emissions to the national average and high and low jurisdictions. By this metric, Washington’s emissions are just above average.

![Figure 4.9-1. Greenhouse Gas Emissions by Sector in Washington State (2008) and the U.S. (2005)](image)
Efforts to Reduce Greenhouse Gas Emissions in Washington State

In 2007, Washington State set the following greenhouse gas reduction goals:

- 1990 greenhouse gas levels by 2020
- 25 percent reduction below 1990 levels by 2035
- 50 percent reductions below 1990 levels by 2050

Also in 2007, a Climate Advisory Team was formed in response to the Governor's Executive Order 07-02 to find ways to reduce greenhouse gas emissions. The final report included 13 broad recommendations, many of which are now being implemented.

In March 2008, the Governor signed Washington’s Climate Change Framework/Green-Collar Jobs Act (HB 2815). This law includes, among other elements, statewide per capita VMT reduction goals as part of the state’s greenhouse gas emission reduction strategy.

WSDOT is working with regional jurisdictions to develop transportation plans for reducing greenhouse gas emissions. In addition, WSDOT is among the six agencies that lead the development of the state’s integrated climate change response strategy, now published, titled Preparing for a Changing Climate (Ecology 2012).

Delivering well-planned transportation improvements further contributes to greenhouse gas reduction. The 2005 Transportation Partnership Act is an integrated local, regional, and state effort to ensure that system improvements work in concert with ongoing programs to reduce the miles that vehicles need to travel each year.

4.9.2 Affected Environment

The proposed alternatives, adjacent streets, and SR 525 queue lane comprise the study area for evaluating energy and greenhouse gas emissions.
4.9.3 Long-Term Environmental Impacts

Table 4.9-1 compares the energy and greenhouse gas effects of all alternatives. While some alternatives offer the potential for energy and emission reductions, these reductions would be negligible compared to the total emissions emitted by the ferry users at the Mukilteo ferry terminal.

As required by RCW 39.35, WSDOT would design all terminal buildings with occupied space to meet the United States Green Building Council Leadership in Energy and Environmental Design (LEED) silver standard. LEED-certified buildings are more energy efficient than conventional buildings, and incorporate a variety of conservation measures.

4.9.4 Construction Impacts

Energy is required for project construction, both on site to operate construction equipment and off site to create and transport the materials used during construction.

Construction energy use was calculated using the CalTrans methodology that correlates project cost information to project energy use by using energy factors developed by CalTrans (CalTrans 1983). These factors take into account the energy used to obtain the raw materials, manufacture and transport the supplies, and construct the facility.

Construction emissions originate primarily from the combustion of fuel used to construct the facility. The greenhouse gas emissions analysis assumed all construction energy will be provided by diesel and used the diesel CO₂ emission factors provided by The Climate Registry’s General Reporting Protocol. Nitrous oxide and methane emissions were estimated to be 5 percent of the CO₂ emissions—the approximate proportion of the emissions typical from transportation sources. This approach is also consistent with recent EPA inventories of greenhouse gases from construction sources, which show nitrous oxide at about 3 percent of projected CO₂ emissions per gallon, and methane at about 5 percent (EPA 430-R-12-001).

Alternatives Comparison

All alternatives would require energy for construction and produce greenhouse gas emissions during the construction process, including the No-Build Alternative, which includes maintenance and preservation projects to maintain the functionality of the existing structures. Estimated construction energy and greenhouse gas effects for all alternatives are listed in Table 4.9-2 and construction greenhouse gas emissions are compared in Figure 4.9-3.
Table 4.9-1. Operational Impacts Comparison

<table>
<thead>
<tr>
<th></th>
<th>No-Build</th>
<th>Preferred Alternative</th>
<th>Existing Site Improvements</th>
<th>Elliot Point 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Local traffic volumes</strong></td>
<td>The project does not affect ferry holding area vehicle capacity or vessel capacity; therefore, no change in traffic volumes is expected between project alternatives.</td>
<td>Energy and greenhouse gas emissions would be similar to those today, and less than the No-Build Alternative.</td>
<td></td>
<td>The ferry queue would be less likely to extend onto SR 525, helping to reduce conflicts and decrease energy use and greenhouse gas emissions.</td>
</tr>
<tr>
<td><strong>Ferry queue (outside ferry terminal)</strong></td>
<td>A ferry queue would continue to form on the shoulder of SR 525—no change in emissions or energy use.</td>
<td>A ferry queue would continue to form on the shoulder of SR 525—no change in emissions or energy use.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Toll booths</strong></td>
<td>Similar to existing conditions, the No-Build Alternative would include three toll booths—no change in emissions or energy use.</td>
<td>All Build alternatives include four toll booths. If all four booths are staffed and operating, the ferry queue may be processed more quickly, thereby removing traffic from the street and allowing drivers to turn off their vehicles—possible slight reduction in energy use and greenhouse gas emissions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Front Street conflicts</strong></td>
<td>Similar to existing conditions, as ferry vessels would load and unload; traffic on Front Street would still need to stop to allow ferry traffic to cross the intersection. Gaps would continue to be inserted during the unloading and loading processes to allow cross traffic to proceed. Current conditions would continue—no change in emissions or energy use.</td>
<td>The conflict with traffic on Front Street would be removed. Eliminating cross traffic waiting for ferry traffic and ferry traffic waiting for cross traffic would slightly reduce energy requirements and greenhouse gas emissions because vehicles would not sit idling while waiting for cross traffic to clear.</td>
<td>Similar to existing conditions, as ferry vessels would load and unload; traffic on Front Street would still need to stop to allow ferry traffic to cross the intersection. Gaps would continue to be inserted during the unloading and loading processes to allow cross traffic to proceed. Current conditions would continue—no change in emissions or energy use.</td>
<td>The conflict with traffic on Front Street would be removed. Eliminating cross traffic waiting for ferry traffic and ferry traffic waiting for cross traffic would slightly reduce energy requirements and greenhouse gas emissions because vehicles would not sit idling while waiting for cross traffic to clear.</td>
</tr>
<tr>
<td><strong>Terminal bus loading areas</strong></td>
<td>Current conditions would continue—no change in emissions or energy use.</td>
<td>Six bus bays are included in the Build alternatives. This should allow buses to remain in place during layovers, slightly reducing energy requirements and greenhouse gas emissions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Passenger loading</strong></td>
<td>Similar to existing conditions, vehicles would wait while walk-on passengers load and unload from the ferry. Some vehicles would be idle during this wait. The current loading and unloading process would continue—no change in emissions or energy use.</td>
<td>Overhead passenger loading would allow passengers to load and unload simultaneously with vehicles—possible reduction in energy use and greenhouse gas emissions because vehicles would not idle while waiting for passenger loading and unloading.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Terminal buildings</strong></td>
<td>All alternatives would replace the current passenger and terminal supervisor's buildings. The project team will determine the specific methods to achieve LEED silver certification, as required by state law, during final project design.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 4.9-2. Construction Impacts Comparison

<table>
<thead>
<tr>
<th></th>
<th>No-Build</th>
<th>Preferred Alternative</th>
<th>Existing Site Improvements</th>
<th>Elliot Point 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy (MBtu)</td>
<td>807,000</td>
<td>1,203,000</td>
<td>1,564,000</td>
<td>1,516,000</td>
</tr>
<tr>
<td>Greenhouse Gas Emissions (MT CO₂e)</td>
<td>62,000</td>
<td>91,000</td>
<td>120,000</td>
<td>115,000</td>
</tr>
</tbody>
</table>

Note: Total energy is expressed in million Btus, and greenhouse gases in metric tons of carbon dioxide equivalents.

Figure 4.9-3. Construction Greenhouse Gas Emissions

4.9.5 Indirect and Secondary Impacts

Energy

Energy consumption can cause indirect impacts if construction or operation of the project causes measurable impacts on other sectors of the economy, such as utilities, or affects the ability of Washington State to meet the energy demands for this project, requiring expansion of existing energy sources.

Project operations would not cause a measurable change in energy use patterns or quantities in other sectors of the economy for any alternative. In addition, vehicles using the facility would become more efficient over the coming years as older, less efficient vehicles are replaced with newer vehicles meeting increased fuel economy requirements. Increased transit connectivity from the Build alternatives can also be expected to shift some passenger vehicle use to more efficient transit modes.

Likewise, energy requirements for project construction would not affect area energy supplies.

Greenhouse Gas Emissions

Greenhouse gas emissions are an indirect consequence of transportation energy consumption using petroleum fuels. Because the project alternatives would not modify operational energy use patterns, there would not be any indirect change in emission patterns from any of the project alternatives associated with operational energy use. However, if the increased transit connectivity provided by the project
produces a shift to more efficient transit modes, greenhouse gas emissions could be reduced.

4.9.6 Cumulative Impacts

The regional-scale analysis methods used for energy use and greenhouse gas emissions is largely a cumulative impact assessment because it already considers past and future trends, conditions, activities, and projects in the region. The long-range transportation forecasts that form the basis for the energy and greenhouse gas conditions predicted for the project already incorporate other transportation projects and regional travel growth through 2040. Other localized projects could also affect conditions in some locations. The other present and reasonably foreseeable activities in the area include:

- Mukilteo Tank Farm transfer from the U.S. Air Force to Port of Everett ownership
- Sound Transit Mukilteo Station Phase II program
- NOAA Fisheries Mukilteo Research Station expansion
- Port of Everett access road to Mount Baker Terminal
- Japanese Creek restoration

For any of the alternatives, construction and operation of the proposed project, along with these present and reasonably foreseeable future projects, would make up a negligible part of regional energy consumption or statewide greenhouse gas emissions. In general, the cumulative impacts would not differ from the conditions predicted for the project alternatives, or differ among the alternatives.

4.9.7 Energy and Greenhouse Gas Reduction Measures

Operational Energy Reduction Measures

WSDOT and its transportation partners are working to reduce energy consumption and greenhouse gas emissions from the transportation sector throughout the state, including the ferry system. For any of the Build alternatives, examples of these activities would be providing an alternative to driving alone (such as carpooling, vanpooling, and transit); developing a transportation facility that encourages transit, HOV users, bicycle and pedestrian modes; and supporting land use planning and development that encourage such travel modes (such as concentrating growth within urban growth areas). Improving efficiency in loading and unloading ferry vessels, and shorter queues, would also reduce idling time and therefore energy consumption and greenhouse gas emissions. WSDOT also has switched its fleet to low-sulfur diesel fuel and biodiesel to reduce emissions.

The largest reduction in transportation energy use and greenhouse gas emissions would come from vehicle and fuel improvements. Current corporate average fuel economy (CAFE) standards require the average efficiency of new cars and light trucks sold in 2016 to be 34.1 miles per gallon. In August 2012, the federal government set the goal of 54.5 miles per gallon for new passenger cars and trucks starting in 2025. The National Highway Traffic Safety Administration (NHTSA)
and EPA are now working on additional light-duty vehicle standards for the years 2017 to 2025. The agencies are also establishing the first medium- and heavy-duty vehicle efficiency standards (NHTSA 2010), which are expected to improve new truck efficiency by up to 25 percent between 2014 and 2018.

The project will determine the specific methods to achieve LEED silver certification, as required by state law, during final project design. LEED-certified buildings are more energy efficient than conventional buildings. Building operations from new LEED-certified terminal buildings would use less energy on a per square foot basis than the current structures.

**Construction Energy Reduction Measures**

Construction practices that minimize roadway congestion and encourage efficient energy use would be implemented. Measures that reduce energy use and air quality impacts (see Section 4.7 Air Quality) would also reduce greenhouse gas emissions. As in the mitigation for air quality impacts, WSDOT would require a construction management plan that would include:

- Limiting equipment idling
- Encouraging carpooling of construction workers
- Locating staging areas near work sites
- Scheduling the delivery of materials during off-peak hours to allow trucks to travel to the site with less congestion and at fuel-efficient speeds

**Indirect and Secondary Impacts**

The increased efficiency of the transportation system, due to more people using transit to reach the ferry, would reduce energy use. WSDOT is also implementing a more efficient vessel fleet, which will reduce energy use. Direct energy use and greenhouse gas emissions would also reduce indirect impacts.

**Cumulative Impacts**

Measures taken to address direct energy use and greenhouse gas emissions would also reduce cumulative impacts.

**4.9.8 Effects of Changing Climate on the Project**

WSDOT acknowledges that effects of climate change may alter the function, sizing, and operations of its facilities; therefore, in addition to mitigating greenhouse gas emissions, WSDOT must also ensure that its transportation facilities can adapt to the changing climate. To ensure that WSDOT facilities can function as intended for their planned 50- to 100-year lifespan, they must be designed to perform under the variable conditions expected as a result of climate change.

Climate projections for the Pacific Northwest are available from the Climate Impacts Group at the University of Washington (UW Climate Impacts Group 2009). The climate projections indicate that Washington State is likely to experience some or all of the following effects over the next 50 to 100 years:
• Increased temperature leading to more frequent extreme heat events, weakened air quality, and glacial melting
• Sea-level rise, coastal erosion, and salt water intrusion
• Changes in the volume and timing of precipitation resulting in reduced snowpack, increased erosion, and more frequent and severe flooding
• Ecological effects of a changing climate including the spread of disease, altered plant and animal habitats, and negative impacts on human health and well-being

WSDOT has been working with other state agencies to develop the state’s integrated climate response strategy focusing on how state-funded capital projects can incorporate future climate conditions. The strategy, *Preparing for a Changing Climate* (Ecology 2012), looked at the complex interplay between climate variables and communities. As the Mukilteo Multimodal Project continues toward funding, final design, and other implementation steps, WSDOT will continue to incorporate the state’s latest guidance.

For example, inundation from rising sea levels and heavy surface flow from storms would challenge the capacity of storm drains, creeks, rivers, and water treatment facilities. Rising sea levels could inundate or disrupt numerous nearshore facilities, including:

• Transportation infrastructure
• Public ports
• Private business and industry
• Drinking water, wastewater, and stormwater facilities
• Agriculture
• Housing

The Mukilteo project team considered the potential impacts of climate change during preliminary design and the potential for changes in the surrounding natural environment. The current projected medium change in Puget Sound sea level is 13 inches by 2100, with a range of 6 inches to 50 inches (Mote et al. 2008). Overall, recent studies appear to be converging on projected increases in the range of 2 to 4 feet.

With help from PSRC, WSDOT developed maps showing a 2- and 4-foot sea-level rise in the project area. WSDOT then evaluated the potential for projected design measures to withstand the projected sea-level rise and increased storm intensity. Compared to the No-Build and Existing Site Improvements alternatives, the Preferred Alternative and Elliot Point 1 Alternative would provide more opportunities to accommodate sea-level rise by using fill to modify terminal elevation, locating access roads in upland areas, and locating facilities outside the 100-year floodplain. Both the No-Build Alternative and Existing Site Improvements Alternative are located within the 100-year Federal Emergency Management Agency (FEMA) floodplain, as are many of the surrounding land uses and connecting streets. This would make it more difficult to use fill to modify the terminal’s elevation to be above floodplain elevation.
Other adaptive measures may be needed to address sea-level rise (additional details on floodplains are provided in Section 4.11 Water Resources). Other forecasted climate variables such as temperature and precipitation are within the wide range of climate conditions currently experienced in the project area.

4.10 Geology

This section identifies, describes, and evaluates long-term and short-term impacts from geologic hazards (steep slopes, landslides, liquefaction, earthquake prone areas) to the proposed No-Build and Build alternatives. If ignored, geologic hazards could adversely affect the project in terms of construction worker and public safety; availability and/or quality of natural resources; project schedule and costs; and risk for future facility users. Identifying and mitigating geologic hazards could prevent or reduce these impacts. This section also identifies potential impacts on geologic conditions and resources that may result from construction and operation of the project.

4.10.1 Overview of Analysis and Regulatory Context

NEPA and SEPA require the consideration of impacts on the environment, which includes geologic conditions, hazards, and resources. The Washington State GMA mandates that local jurisdictions adopt ordinances that classify, designate, and regulate land use to protect critical areas. Critical areas include geologically hazardous areas. Critical area ordinances protect locally designated critical areas, and may identify areas susceptible to erosion, sliding, earthquake, or other geological events that pose a threat to incompatible development.

4.10.2 Affected Environment

Regional Geology and Seismicity

This region was shaped by glaciers that carved deep north-south trending channels filled with glacial till and other sandy soils, sediments, and river deposits. This region is also subject to earthquakes (seismic activity) due to the Juan de Fuca Plate diving under the North American Plate at the Cascadia Subduction Zone. This resulted in the northwest-southeast trending Southern Whidbey Island Fault Zone, which is up to 7 miles wide and contains numerous concealed faults. The nearest fault line is approximately one-third of a mile south of the project area (Johnson et al. 2004). The Southern Whidbey Island Fault Zone is capable of producing crustal earthquakes in excess of surface-wave magnitude 7 (Johnson et al. 1996) and the Cascadia Subduction Zone is capable of producing earthquakes up to moment magnitude 9 (Atwater et al. 2005). This suggests that substantial ground motion may occur in the project area.

Site Topography, Landforms, and Beach Composition

The project site is located in a flat shoreline area along Possession Sound. Its protective seawall rises from sea level to approximately 10 to 15 feet above mean sea level (MSL) along a 1 horizontal:1 vertical (1H:1V) slope. Prior to the seawall, the original landform was a spit that enclosed a lagoon. This lagoon was filled during
waterfront property development as early as the 1900s. Significant cut-and-fill work occurred in the 1950s as part of historical operations of the Mukilteo Tank Farm.

Inland from the project site and parallel to the shoreline is a bluff that rises to a broad upland plateau along a 1.5H:1V slope to an approximate height of 54 feet MSL. The bluff is bisected by Japanese Gulch and Brewery Creek. A culvert at the base of the bluff conveys this stream under the BNSF corridor and the Mukilteo Tank Farm to Possession Sound. Brewery Creek is enclosed within a pipe system as it passes through the downtown waterfront area before reaching Possession Sound. Streams provide a source of sediment to the beach. The bluff’s ability to supply sediment to the beach has been greatly reduced by the presence of the BNSF line. These conditions have resulted in sediment-starved beaches consisting of cobble and gravel in a sand matrix. The natural migration of beach sediment along the shoreline is hindered by the Tank Farm Pier. The net shore drift is north and northeast with wave action predominantly from the southwest (City of Mukilteo 2011).

**Site Geologic Units**

Surface soils in the project area include urban soils with moderate infiltration rates, and gravelly sandy loams derived from the underlying glacial till. Alternating layers of fine and coarse material result in low to moderate infiltration rates, respectively.

Much of the project area is underlain with up to 22 feet of dredge fill, construction debris, and/or local backfill materials. The fill material consists of unconsolidated sand and small to medium gravel with various amounts of organics. Zones of fill material, consisting of wood, brick, scrap metal, and other debris occur near the shoreline and in locations throughout the project area. These zones are unsuitable for construction. Below the fill are beach deposits that are approximately 40 feet thick at the rail lines and more than 90 feet thick offshore. Below the beach deposits are underlying geologic units of the Vashon Till, Transitional Beds, and the Whidbey Formation. Pressure from overlying ice sheets during glacial events resulted in compaction of these units. The Vashon Till is a dense, non-sorted mixture of clay, silt, sand, gravel, cobbles, and boulders. The Transitional Beds consist of glacial and non-glacial deposits of clays, silts, fine sands, and peaty sand and gravels, and can become unstable in steep slope areas resulting in slope failure and landslides. Clay layers in the lower portion of the Whidbey Formation can restrict vertical movement of groundwater, which could lead to an erosion bowl along the bluff fence and result in slope failure.

**Geologic Hazards**

Geologic hazards are natural geologic processes that can create environmental conditions that endanger human lives and threaten property. Geologic hazards in the project area are discussed below.

**Erosion**

Erosion can adversely affect surface water quality and/or undermine structures. Soil erosion in the project area can occur from wind and/or improper surface water drainage when soils are exposed during construction. Soil erosion is of
concern along bluffs adjacent to the project area due to soil type, slope inclination, and underlying hardpan.

Erosion of in-water sediment can reduce the lateral capacity for foundations of pier structures, wingwalls, and bulkheads. It also can suspend sediments into the water column, diminishing water quality.

**Landslides**

Landslides can damage structures and threaten public safety. These hazards result from a combination of slope inclination (>25 percent), soil type, geologic structure, vegetation, human alteration, and occurrence of water. Steep slopes and high landslide hazards have been identified adjacent to the project area (see Figure 4.10-1).

The potential for landslides in the immediate vicinity of project improvements is low; however, the larger project area could be affected by potential landslides from the bluff. Several small shallow landslides were identified along the bluff area during a landslide survey after the heavy storms in 1996 and winter 2010–2011. These events indicate the bluffs are susceptible to landslides, and additional hazard areas that are not mapped may be present along the bluff.

Offshore landslides have the potential to occur in the project area due to the relatively loose nature of the submarine beach deposits and steep slope inclination in the area. A potential large submarine landslide has been identified offshore near the project area (Karlin 2011; Gonzalez 2003). Earthquake events have the potential to trigger onshore and offshore landslides.

**Non-Seismic Settlement**

Settlement hazards can result in damage to building and structure foundations and cause cracks in roadways. Settlement hazards in the project area could occur from unsuitable fill material in the project area. Several parts of the project area have been found to contain unsuitable fill materials as evidenced by pavement collapses at the existing terminal and near SR 525 in the past 5 years. Not all of the areas of unsuitable fill material have been completely delineated; therefore, exact locations are not fully known. More information on the extent of these areas will be developed in later design stages of the project.

**Earthquakes**

Earthquakes can cause adverse effects from: 1) ground motion, 2) soil liquefaction and settlement, 3) tsunamis, and 4) earthquake-induced landslides (discussed above). The project area is within an active earthquake region. The Southern Whidbey Island Fault Zone is within one-third of a mile of the project area (see Figure 4.10-2).
Figure 4.10-1. Landslide Susceptibility and Steep Slopes

Data Sources: (WSDOT, LiDAR Puget Sound 2005, City of Mukilteo, Karlin unpublished 2011)
Figure 4.10-2. Seismic Hazards

Liquefaction Susceptibility

- Moderate
- Low
- Very Low

- Southern Whidbey Fault Zone
- Tsunami Inundation Area (Tsunami data shown only for City of Mukilteo)
- Streams
- City Boundary
- Shoreline

Data Sources: (City of Mukilteo, Snohomish County, WSDOT)
Ground Motion

Ground motion is the movement that occurs during an earthquake as soil particles move in response to passing seismic waves. Certain soil types can amplify ground motion. The U.S. Geological Survey (USGS) seismic hazard maps and database were used to estimate ground motion parameters for the site at 500-year and 1,000-year events. The results from the evaluation indicate a risk of an earthquake of magnitude greater than 7 from the Southern Whidbey Island Fault Zone.

Ground motion (or shaking) during an earthquake can result in damage or structural collapse to buildings and structures. It also can severely damage roadways, railroads, and utility lines.

Liquefaction and Settlement

Liquefaction from an earthquake can damage buildings or structures, and pose a threat to public safety. Liquefaction is a phenomenon where saturated soils lose their strength during seismic activity, causing the soil to behave like a fluid. It is most likely to occur in saturated, loose (unconsolidated) sandy soils. Significant adverse impacts may occur to structures and buildings as a result of settlement from the loss of strength and bearing capacity of the soil. Buckling may occur to structures supported by pile foundations. Irregular settlement may break utility lines, resulting in loss of power and water. Adverse impacts may also occur from liquefaction-induced lateral spreading, which can pull apart building foundations, and apply damaging pressure on retaining walls and terminal piles.

Potentially liquefiable soils have been identified throughout the project area and are similar in character for each alternative; however, geotechnical evaluations and studies in the project area suggest the soils are likely to have localized variations.

Tsunamis

Tsunamis generated from earthquakes, volcanic eruptions, or landslides can devastate coastal regions. A tsunami is a series of waves caused by the displacement of a large volume of water. Damage from a tsunami is caused by the smashing force of tall, fast-moving waves, and the drainage of water receding to the sea.

The potential impacts from tsunami inundation on the existing structures are dependent on wave run-up elevation. Critical factors are the degree of displacement at the source of the wave, the distance of the wave source to the site, and the characteristics of offshore and onshore topography. Modeling indicates the potential for a minor tsunami (1.6-foot wave height) in Mukilteo if an earthquake with a magnitude greater than 7 occurs along the Southern Whidbey Island Fault Zone. The height of the incoming wave could be amplified by tidal stage and offshore slopes.

Other tsunami sources in the project area include large submarine landslides resulting in river delta failure at the mouths of major rivers into the Puget Sound and slope failure of steep submarine slopes. The closest major river delta to the project, the Snohomish River, is located approximately 6.5 miles northeast of the project area. A possible submarine landslide could occur near the project, as mentioned above in the Landslides discussion.
Volcanoes

Volcanic hazards from Mount Baker and Mount Rainier could threaten public safety and damage structures. Although a number of hazards are associated with volcanic activity, volcanic ash fall would be the most likely hazard to affect the project area, but overall there is a low potential for significant volcanic hazards in the project area.

4.10.3 Long-Term Environmental Impacts

Long-term impacts on the proposed alternatives may result from seismic and non-seismic geologic hazards identified in the project area. Project alternatives also have the potential to alter existing geologic or hydrogeologic conditions or resources.

No-Build Alternative

The No-Build Alternative would replace existing structures over time when they reach the end of their design lives, including wingwalls, towers, fixed dolphins, transfer span, bridge seat foundation, concrete trestle, and bulkhead. It would also replace piles supporting the structures. The replacement structures would reduce the likelihood of adverse impacts because new facilities would meet current building codes and standards, including seismic requirements.

Ground Motion, Liquefaction, and Settlement

Adverse impacts from ground motion are potentially significant because the older existing structures do not meet current seismic codes, reflect new developments in earthquake and tsunami science, or incorporate materials and construction techniques that help reduce the risks related to earthquakes or tsunamis. The existing site has a high potential for earthquake-induced liquefaction and lateral spreading. Adverse impacts include structural damage or catastrophic failure during strong ground shaking from an earthquake. Structures that would be most affected by ground motion are the bulkhead and pile-supported structures.

Adverse impacts on the No-Build Alternative are likely to be greater than impacts under the proposed Build alternatives because the Build alternatives would incorporate more updates in seismic code, engineering design, and construction techniques into new construction and operation. Potential impacts would be reduced as new structures replace older components. In addition, vulnerable older onshore structures that may not be replaced or upgraded under the No-Build Alternative would be more susceptible to damage than new structures during a seismic event.

Non-seismic settlement due to unsuitable fill material does not appear to pose adverse impacts for the No-Build Alternative. The replacement of predominantly offshore structures should not be affected by poor fill because they would be replaced using current engineering standards.

Tsunamis

Adverse impacts from tsunamis on the No-Build Alternative would be potentially significant. In addition to inundation, structures can be damaged by the high lateral and vertical pressure from the wave currents or from debris transported by the wave that would affect site structures. The wave action and hydraulic forces can cause
substantial scour and erosion undermining buildings and other foundations, causing collapse or other major damage. The generally deteriorated condition of the existing structures and the relatively lower standards to which they were built increase their vulnerability.

**Landslides**

Active upland landslides have not been identified near the existing terminal. A high landslide susceptibility zone has been established by the City of Mukilteo under the Critical Hazard Ordinance, but this zone is outside the project area.

A large submarine landslide has been identified in the vicinity of the existing site. The potential impacts to the No-Build Alternative may include undermining foundation structures or removing the lateral capacity of the sediments leading to damage or collapse of offshore structures.

**Preferred Alternative**

Offshore structures would be constructed to meet current seismic standards, similar to the No-Build Alternative; however, the Preferred Alternative would relocate the ferry terminal and the fishing pier/day moorage from its current location to the middle section of the Mukilteo Tank Farm. A new passenger building, new toll booths, a terminal supervisor's building, and a maintenance building would also be built, and several of these buildings would be multiple stories rather than the single-story buildings on the current terminal.

**Ground Motion, Liquefaction, and Settlement**

The Preferred Alternative would be subject to similar moderate to high seismic risks as the No-Build and Existing Site Improvements alternatives. However, stable soils at the Mukilteo Tank Farm occur at shallower depths than at the existing site. The alternative would be largely developed on a vacant site, which allows the project to apply soil strengthening and stabilization measures and foundation supports for structures. Environmental or archaeological considerations may restrict some stabilization techniques, but the major structures are outside of archaeological sites. Design and construction measures would address unsuitable fill material, or weak, compressible, and organic soil, which would help to minimize the risks from seismic effects.

**Tsunamis**

Offshore topography would help the Preferred Alternative withstand tsunami-related damage to a greater degree than the No-Build Alternative or Existing Site Improvements Alternative. As with the other Build alternatives, advances in engineering design may be applied to the design of the Preferred Alternative and could reduce impacts.

**Landslides**

On land, landslide susceptibility for the Preferred Alternative is greater than the No-Build and Existing Site Improvements alternatives. As presented in Figure 4.10-1, high landslide susceptibility has been established by the City of Mukilteo approximately 350 feet from the closest design footprint. Steep slopes are identified...
within 300 feet of the design footprint. However, impacts resulting from slope failure are expected to be low because slope failures are likely to be small, and shallow landslides are unlikely to affect the project.

A large submarine landslide could affect the Preferred Alternative, although the area of the previous offshore landslide is closer to the existing facility. Design measures to stabilize soils and provide foundations for all weight bearing in-water structures would minimize potential impacts to the project. This includes stone columns and deeper foundation supports for the load-bearing offshore structures.

**Existing Site Improvements Alternative**

The Existing Site Improvements Alternative would include the construction of new wingwalls, towers, fixed dolphins, transfer span and bridge seat foundation, concrete trestle and bulkhead, and the relocation of dolphins from the current facility. New toll booths, a new passenger building, and a new transit center would also be constructed.

**Ground Motion, Liquefaction, and Settlement**

The anticipated seismic effects for this alternative would be similar to those presented for the No-Build Alternative. However, the improvements to the existing upland structures would reduce the potential damage resulting from strong ground motion, liquefaction, or settlement. The construction of new offshore structures and upland buildings would reflect current seismic design criteria and site-specific geotechnical information. These buildings would be less susceptible to damage from ground motion than unaltered older structures.

The potential for liquefaction impacts to marine structures for the Existing Site Improvements Alternative would be similar to those of the No-Build Alternative, with the exception of upland structures. There is a high liquefaction potential for near-surface soils to depths generally ranging from 10 to 20 feet onshore and to 80 feet offshore. Compliance with current design criteria would make structures safer.

**Tsunamis**

The potential impacts on the Existing Site Improvements Alternative would be similar to those presented for the No-Build Alternative, although if aging terminal facilities are replaced sooner, they would be better able to withstand lower magnitude events.

**Landslides**

The potential impacts on the Existing Site Improvements Alternative would be similar to those presented for the No-Build Alternative.

As noted above for the No-Build Alternative, a large submarine landslide has been identified to the north of the existing terminal. Potential impacts on offshore structures would be similar to those identified for the No-Build Alternative. However, with the Existing Site Improvements Alternative, more measures to address seismic risk would be applied, which would help to reduce risks.
Elliot Point 1 Alternative

This alternative would be similar to the Preferred Alternative, but it extends farther east and includes the daylighting of Japanese Creek. It also has a longer trestle and more over-water structures than the Preferred Alternative.

Ground Motion, Liquefaction, Settlement, Tsunamis, and Landslides

The anticipated seismic effects for the Elliot Point 1 Alternative would be similar to those for the Preferred Alternative except for daylighting Japanese Creek.

Daylighting Japanese Creek would alter soils and hydrology in the project area. This could affect bluffs above the project area. Because the daylighting would occur near areas where ground stabilization measures would be provided both onshore and nearshore, the additional risk of landslides would be limited. In addition, further geotechnical analyses during final design could identify other design measures to minimize impacts.

4.10.4 Construction Impacts

This section discusses potential short-term impacts during project construction to geologic and hydrologic resources, and impacts from erosion hazards during project construction.

Topsoil, fill, aggregate, quarry rock, concrete, and asphalt resources would be used for all alternatives. Some of these materials would be generated by recycling materials from the demolition of existing roads or concrete structures within the project area, while some would consist of quarried materials. Construction contractors would determine the sources of the materials they use for project construction, although WSDOT may make available specific state-owned sources as part of the construction contract bidding process.

No-Build Alternative

Erosion impacts resulting from the No-Build Alternative are not considered to be significant if they are mitigated. Potential erosion of uncovered soils would be limited by BMPs for stormwater management during construction.

Limited amounts of geological resources would be used as fill for the No-Build Alternative; consequently, appreciable impacts to geologic resources are not anticipated.

Preferred Alternative

Construction could increase erosion, especially in areas where soft and loose soil conditions exist. Erosion could occur in areas where construction occurs (both onshore and offshore). The removal of existing offshore structures may increase sediment loss for a short time by disturbing the sediments and introducing them into the water column to be transported off site.

Compared to the No-Build Alternative, a greater volume of geological resources would be used for the Preferred Alternative, particularly for fill, but this would not pose an appreciable impact on geological resources.
Existing Site Improvements Alternative

The Existing Site Improvements Alternative would not significantly increase the erosion hazard. The removal of existing offshore structures may slightly increase sediment loss for a short time by disturbing the sediments and introducing them into the water column to be transported off site.

The use of geological resources as fill for the Existing Site Improvements Alternative would not pose appreciable impacts on geological resources.

Elliot Point 1 Alternative

The erosion hazards and use of geological resources for the Elliot Point 1 Alternative would be very similar to the Preferred Alternative except for daylighting Japanese Creek.

The Elliot Point 1 Alternative would restore Japanese Creek to an open stream, which may potentially increase erosion for a period as the creek re-establishes natural conditions.

4.10.5 Indirect and Secondary Impacts

The greatest risks to the project are impacts from earthquakes. Earthquake impacts include substantial ground motion and soil liquefaction, which have a high potential to affect public safety, cause structural damage, and result in economic disruption. Based on the Hydrodynamic and Sediment Transport Modeling Study (Coast & Harbor 2013) prepared for the project, the changes in offshore structures could slightly alter sediment migration, erosion patterns, or deposition.

No-Build Alternative

Under the No-Build Alternative, the potential for major damage to the terminal from an earthquake as a result of inadequate seismic design of existing structures and buildings may affect public safety and disrupt the local economy.

Preferred Alternative

The Preferred Alternative would incorporate current seismic and other engineering standards to address the risk of earthquakes, landslides, or other geologic factors.

Based on information developed as part of the project’s design efforts and a review of wind, waves, currents, ferry wakes, and propeller scour, it is unlikely the Preferred Alternative would markedly alter sediment transport patterns.

Existing Site Improvements Alternative

Although earthquake risk is high, new and retrofitted buildings and structures would be built to current seismic safety standards, potentially increasing public safety and decreasing the likelihood of structural damage and economic disruption.

A change in the position of offshore structures under this alternative would not significantly alter sediment transport patterns from current conditions.
Elliot Point 1 Alternative

The indirect effects of the Elliot Point 1 Alternative would be similar to those discussed for the Preferred Alternative, but daylighting Japanese Creek could further alter sediment transport patterns. These changes would be minor.

4.10.6 Cumulative Impacts

Human activities since the late 19th century have substantially changed the topography in the study area. These activities primarily include grading and excavating to construct the Mukilteo Tank Farm, Mukilteo ferry terminal, and BNSF Railway corridor.

Past construction practices were less effective than today’s standards in anticipating geologic and seismic hazards, gravel depletion, and soil erosion. Cumulative development in the region has resulted in loss of topsoil and erosion. As the infrastructure has aged, more constructed projects fail to meet evolving seismic design standards. As these trends became evident, roadway and bridge design codes were updated. Development occurring on unstable soils and slopes requires that specific site preparation measures be applied to reduce hazards and to better protect the public. These measures allow facilities to be more capable of resisting seismic events without damage. BMPs are now standard practice in protecting against soil erosion and landslide potential. Construction debris can now be recycled into usable building materials.

Changes that would occur as a result of the project include reworking disturbed soil, making minor grade changes at a local level, and increasing slope stability with ground improvements. These activities are expected to provide improvements in existing geology or soils conditions, which would in turn reduce the potential for cumulative impacts from existing conditions or past actions such as unstable fill or cuts or surface water modifications near steep slopes. Any other future developments in the project area would also be expected to be built to current engineering standards, which also would minimize the potential for adverse cumulative impacts.

4.10.7 Mitigation Measures

This section describes the project’s measures to prevent, minimize, or offset long-term and short-term impacts from geologic hazards to structures and the project’s impacts to geologic resources. Some of these measures are reflected in the updated project design for the Preferred Alternative, but details will continue to be refined during the final engineering design phases of the project.

Mitigation for Long-Term Impacts

Preferred Alternative

The following long-term mitigation measures would be implemented:

- During preliminary and final design, geotechnical engineering would further characterize existing geologic hazards for incorporation into the final engineering design. These hazards would include, but not be limited to, landslides (onshore and offshore), steep-cut slopes, soil liquefaction, and settlement. Additional site-
specific assessments may include the use of geotechnical drilling, test pitting, material testing, geophysical techniques and/or inclinometers, and monitoring wells, as needed. These assessments would be based on the recommendations of the project geotechnical engineer and will comply with WSDOT geotechnical design standards.

- In the later stages of project design, WSDOT would define the specific stabilization techniques that would be used to minimize liquefaction of soils.

- The project would adhere to City of Mukilteo and City of Everett regulations regarding critical area regulations to safeguard public health, safety, and welfare, as well as protect sensitive areas and their functions and values. These regulations address protection of public health and natural resources from injury, loss or damage from landslides, steep slope failures, erosion, seismic events, liquefaction, tsunamis, and flooding.

- WSDOT would design and build facilities to meet seismic standards and other applicable federal, state, county, and city engineering and design codes or standards. Structural designs will take into consideration ground motion, liquefaction, lateral spreading caused by earthquakes, and information on tsunami risks.

**Other Alternatives**

The mitigation measures for the other alternatives would be similar to those described for the Preferred Alternative.

**Mitigation for Construction Impacts**

WSDOT would adhere to applicable local regulations regarding grading and excavation. These regulations address preserving, enhancing, or replacing understory and groundcover (Section 4.12 Ecosystems); minimizing degradation of water quality and sedimentation of creeks; minimizing impacts of increased runoff erosion and sedimentation; and protection of groundwater resources (Section 4.11 Water Resources). Grading, excavation, and/or the removal of topsoil and vegetative cover would require local permits (Section 4.2 Land Use and Economics).

**4.11 Water Resources**

This section discusses the potential impacts the proposed alternatives may have on marine water, surface water, and groundwater. Marine and freshwater habitats are discussed in Section 4.12 Ecosystems, and groundwater is also discussed in Section 4.8 Hazardous Materials.

**4.11.1 Regulatory Context**

NEPA and SEPA both identify water resources as a required area of environmental analysis. The Clean Water Act (CWA) is the primary federal law governing water quality in the United States. Numerous federal and state regulations and permits, many of which are under the authority of the CWA, control activities ranging from discharges into United States waters to construction or fill within certain waters. For instance,
surface water quality standards are implemented through CWA Section 401 certifications and comply with the Water Pollution Control Act and Washington State’s Water Quality Standards. Groundwater standards protect existing and future beneficial uses of groundwater from contaminated discharge. WSDOT also must comply with its National Pollutant Discharge Elimination System (NPDES) permit and the WSDOT Highway Runoff Manual, which was developed to comply with Ecology’s 2007 Stormwater Management Manual for Western Washington. Ecology has updated the manual in 2012, and WSDOT will update its manual when its next NPDES permit is renewed.

### 4.11.2 Affected Environment

The study area includes all water resources within the immediate vicinity of the project alternatives. The study area is limited because the alternatives are all located along the shoreline, and upland effects on water resources would be limited to the effects occurring within the area of construction, primarily along the shoreline. Upland parts of the study area are generally one edge of the alternatives and Possession Sound is the other. Figure 4.11-1 shows the larger watershed context of the project, while Figure 4.11-2 shows the more localized features surrounding the project. The study area is located within the southern part of Water Resource Inventory Area (WRIA) 7, Snohomish River, and adjacent to WRIA 8, Cedar-Sammamish River.

The project area lies north of the BNSF tracks along the Mukilteo waterfront. Most of the area has been graded and filled for existing development and is relatively flat. Across the project area there is less than a 10-foot change in elevation. Beyond the railroad tracks is a relatively steep hillside and bluff section. SR 525 descends this hillside to the existing Mukilteo ferry terminal.

### Water Resources in the Study Area

The major water resources within the study area are Possession Sound, Japanese Creek, and Brewery Creek. Both creeks descend to the flat area within the study area and may receive some groundwater flow collected from under the surface as the topography flattens near the beachfront. There are no documented wetlands within the project area.

Possession Sound is located at the northern portion of the study area. It provides an environment for aquatic life; opportunities for recreational boating, fishing, and swimming; and tidelands that provide opportunities for beachcombing and shellfish harvesting. It also enables commerce and navigation throughout the region. The shoreline of Possession Sound in the study area is shaped by tides, wind, and wave action. Currents run parallel to the shore, moving sediment from the adjacent streams.
Figure 4.11-1. Water Resources in the Project Vicinity

Project Area
City Boundary
Wetlands
Streams
Waterbodies
WRIA Boundary
Stream Basin Boundary

Data Sources: (Cities of Mukilteo and Everett, Snohomish County, WSDOT, Ecology)
Figure 4.11-2. Water Resources in the Study Area

Data Sources: (Cities of Mukilteo and Everett, Snohomish County, WSDOT, FEMA)
Japanese Creek originates near Paine Field Boulevard in Everett and flows north toward the project area through a steep narrow ravine known as Japanese Gulch. After descending through Japanese Gulch, the stream flows into a culvert (that is a partial fish barrier) under the BNSF railroad tracks, and enters an underground vault on the north side of the railroad tracks. Stream flows then are diverted into two routes. The first route is a 42-inch-diameter culvert extending through the existing Mukilteo Tank Farm site and entering Possession Sound. The second route is a 48-inch-diameter pipe extending east along the railroad tracks to an outfall at the Mount Baker Terminal. There are documented cutthroat trout, Chinook salmon, and coho salmon in the creek.

Brewery Creek originates south of the project area, and its drainage basin includes most of downtown Mukilteo. The stream channel gradient in the upper basin is relatively steep, but it flattens considerably through the downtown area. The stream is enclosed within a pipe system as it passes through the downtown waterfront area before it is discharged through an outfall into Possession Sound. No fish have been documented in Brewery Creek.

**Water Quality**

Possession Sound is included on the 2012 Washington State Water Quality Assessment [303(d)] list (Ecology 2012) for not meeting necessary quality criteria for fish habitat, and for exceeding thresholds for dissolved oxygen, fecal coliform bacteria, and dioxin. A designated total maximum daily load (TMDL), which sets the maximum amount of a pollutant allowed to be released into a waterbody, is in place for dioxin.

The water quality in Japanese Creek and Brewery Creek is impaired due to urbanization in the drainage basins. Data obtained from Japanese Creek from 1994 through 2012 show that the stream does not meet the state water quality criteria for fecal coliform bacteria, lead, turbidity, pH, dissolved oxygen, cadmium, and copper.

Previous studies completed for the City of Mukilteo confirmed that oil from the existing ferry holding area is degrading the water quality in Brewery Creek (TetraTech/KCM et al. 2001). Water quality in the creek is also likely degraded by a variety of pollutants typically found in urban runoff in the Puget Sound area, including heavy metals, hydrocarbons, and synthetic organic compounds.

**Groundwater**

A former lagoon area at the base of the hillside, now covered with fill, acts as a small groundwater recharge zone, with groundwater observed 7 to 10 feet below the surface elevation. Groundwater levels are highly dependent on tidal conditions, ranging from +6.1 feet above mean lower low water (MLLW) at low tide to +11.3 feet MLLW at high tide. The study site overlies the Intercity Plateau Aquifer, which is not used for drinking water. Municipal drinking water for the city of Mukilteo comes from the Spada Reservoir. At low tide, the groundwater flows north. At high tide, the water table near the northern boundary of the site reverses direction and flows south. The groundwater is recharged by on-site and off-site infiltration of rainwater, and from the aquifer in the uplands to the south. The majority of the project area has been paved. Paved surfaces minimize the infiltration of surface water, reducing the transport of
possible contaminants migrating out of the area through the groundwater and into Possession Sound.

Soils and groundwater underlying portions of the study area were contaminated with petroleum hydrocarbons and heavy metals (Herrera 2003) as a result of past uses of the Mukilteo Tank Farm. After remediation between 1997 and 2002, monitoring results showed that soil, groundwater, surface water, and marine sediment were compliant with all provisions of the Ecology-approved compliance monitoring plan (Oasis 2006) (for additional information, see Section 4.8 Hazardous Materials). However, project-related archaeological trenching and boring conducted in 2006 and 2007 found petroleum and other contaminants in soils on the west and central portions of the property. Therefore, despite past cleanup efforts, it is possible that minor residual contamination is still present beneath the ground surface in some areas.

**Stormwater**
Currently, moderate amounts of pollutants in stormwater runoff are generated within the study area by vehicle traffic, routine business uses, and the ferry terminal operations. Additional pollutants may enter the stormwater runoff from the former Mukilteo Tank Farm operations, atmospheric deposition, and wildlife fecal matter. Multiple stormwater outfalls within the study area discharge into Possession Sound (see Figure 4.11-2).

**Flooding**
A portion of the study area is mapped by FEMA within a 100-year floodplain (see Figure 4.11-2). The 24-inch-diameter outfall for the Brewery Creek culvert is not equipped with a tide gate. At certain high tides, high waves cause water to back up in the culvert. When this occurs, the streets near the intersection of Front Street and Park Avenue in downtown Mukilteo can flood up to 18 inches, particularly when rainstorms coincide with high tides. Based on hydrologic modeling conducted by the City of Mukilteo, flooding near the Brewery Creek outfall is expected independent of tidal conditions during 25-year storm events. This flooding would occur because of the limited capacity of the stream culvert pipe. If a high tide coincides with this type of flooding event, flooding could spread to many areas along the waterfront. No other flooding is known to occur within the study area.

**Aquatic Vegetation**
Macroalgae and eelgrass surveys along the shoreline have been completed in the study area, and are discussed in Section 4.12 Ecosystems. While aquatic vegetation is present throughout the area, it is sporadic. The larger areas with vegetation are to the east of the site.

**4.11.3 Long-Term Environmental Impacts**
All alternatives may affect water resources in several ways. Possible impacts may result from stormwater runoff from impervious surfaces (roadways and parking areas) entering the water resources; shading from the ferry pier; placement of piles and buildings within the nearshore area and the vegetated shoreline; creation of new sediment patterns; and unanticipated spill of hazardous materials. Impacts on water resources would generally be similar under all alternatives.
Stormwater

The Preferred Alternative would create approximately 10.2 acres of pollution-generating impervious surface (PGIS); no PGIS would be removed, but some would be replaced or relocated.

Stormwater from the existing terminal vicinity is currently discharged untreated to Possession Sound. Runoff from the Preferred Alternative would receive enhanced treatment. Stormwater would be captured by shrub/tree vault treatment catch-basins, with piping from the catch-basins to either outfalls or to bioretention areas. The slope and depth of piping would be minimized in order to avoid deep trench excavations, which would avoid or minimize conflicts with groundwater, the shell midden, and soil contaminants. The west end of the site would be routed to an existing 24-inch pipe outfall. The center of the site would be routed to an existing 30-inch outfall. Water from the eastern portion of the site would be routed to a new outfall.

The Preferred Alternative would provide enhanced stormwater treatment for all new PGIS. Treatment would be provided by filtering cartridges installed underneath the holding area or by natural bioretention systems. Infiltration (permeable pavement) could be used for stormwater treatment at the east end of the site. Field testing during final design would be performed on any areas proposed for infiltration to confirm areas suitable for infiltration (where the surface water can be infiltrated without it combining with contaminated soil or groundwater). If field testing shows that soils or groundwater are contaminated beyond acceptable limits, infiltration would not be used, and water would be discharged via the new outfall.

Site-specific cleanup levels already established for the property would be used to determine acceptable levels for groundwater and soil contamination (see Section 4.8 Hazardous Materials).

Notwithstanding WSDOT’s intention of trying to infiltrate some of the runoff, the stormwater analysis conservatively assumes no infiltration. If infiltration issued, actual pollutant loads would be less than what is presented here. WSDOT would notify the National Marine Fisheries Service and U.S. Fish and Wildlife Service if the final design of stormwater treatment methods differs from what is discussed in this EIS and Appendix L Biological Assessment.

For all of the Build alternatives, increased land cover would generate more pollutants. The project site is exempt from current flow control requirements because stormwater runoff is discharged directly into Possession Sound; however, increased flows could exceed the capacity of the existing enclosed drainage conveyance system leading to the Sound.

The No-Build Alternative would retain nearly the same footprint as the existing condition. It would contribute the largest amount of stormwater-related pollutants to Possession Sound because only minimal stormwater retrofit requirements would be implemented.

The Existing Site Improvements Alternative would have a similar amount of impervious surface as the No-Build Alternative, but would include adequate stormwater treatment facilities.
The Elliot Point 1 Alternative would have the most impervious surface among alternatives; therefore, larger stormwater treatment facilities would be included to meet current requirements.

**Flooding and Shoreline Effects**

Because most of the existing flooding in the waterfront area is related to high tides or storm surges, none of the alternatives would generate an increased risk of flooding due to changes in stormwater runoff flows. Any new outfalls would be designed and sited to prevent occasional tidal backwater impacts from flooding the site and adjacent areas. If necessary, tide gates could be added, or larger conveyance pipes could be used for extra storage to address combined high storm and tide events.

The project’s *Hydrodynamic and Sediment Transport Modeling Study* (Coast & Harbor 2013) examined the potential for impacts from wave action or currents on the shoreline and sediments. The analysis also considered the forces generated by ferry propellers. None of the alternatives would cause shoreline erosion or notable erosion in the bottom slopes or sediments. The Preferred Alternative would have the deepest water berth, and would have limited effects due to scouring. The Existing Site Improvements Alternative is in an area that lacks sediments, in part due to the existing terminal; additional sediment scour is not expected. The nearby shoreline area and bulkheads would also be reconstructed as part of the new terminal facility, which would further protect against erosion of the shoreline particularly during storm events.

The No-Build and Existing Site Improvements alternatives are located within the FEMA 100-year floodplain (see Figure 4.11-2), which poses a risk to future terminal operations. A small portion of the Elliot Point 1 Alternative is located within the FEMA 100-year floodplain, but the future risk to terminal operations would be much lower than for the No-Build and Existing Site Improvements alternatives. The Preferred Alternative is not located within the FEMA 100-year floodplain.

**Marine Vegetation**

Water quality can be affected if nearshore aquatic vegetation is shaded. The lack of sunlight can reduce photosynthetic activity and alter dissolved oxygen levels in the immediate area.

For all alternatives, shading would generally be similar to or less than the existing conditions for the No-Build Alternative. The Existing Site Improvements Alternative would increase over-water coverage by about 12,000 feet, compared to a gain of 3,000 square feet with the No-Build Alternative. The Preferred Alternative has a shorter pier than the Elliot Point 1 Alternative, and removes the existing facility and the Tank Farm Pier for a net removal of about 129,100 square feet of over-water cover. It also removes the existing Port of Everett fishing pier and day moorage and relocates it on the Mukilteo Tank Farm site. The Elliot Point 1 Alternative has the largest pier and greatest amount of new over-water coverage, but also removes the existing facility and Tank Farm Pier, resulting in a net removal of about 116,000 square feet of over-water cover. For all alternatives, the effect on marine vegetation would be limited to the immediate project area and is not anticipated to result in
measurable impacts on aquatic life or water quality (see Section 4.12 Ecosystems for more information).

**Sediment**

Wave action and sediment drift along the shore could be altered by the bulkhead bank protection, anchor chains leading from the floating dolphin structures to seafloor anchors, new piles supporting the ferry terminal pier, and removal of piles supporting the Tank Farm Pier and the existing ferry trestle. As noted above under Flooding and Shoreline Effects, propeller-driven currents during ferry docking are not expected to notably disturb Possession Sound’s bottom slopes or sediments near the ferry terminal.

As discussed in more detail in Section 4.8 Hazardous Materials, WSDOT also assessed existing sediment quality near the Tank Farm Pier. While some of the sediment samples show traces of several contaminants, primarily pesticides, there would be a low risk of additional contamination to area sediments due to the relatively low levels of contaminants present, and because sediment transport would be limited.

**Over-Water Spills**

Under all alternatives, ferry terminal activities would occur over water and within nearshore areas. Such activities would include docking of ferries, operation of the vehicle transfer span, loading and unloading of vehicles, and collection of wastes and other activities related to increased human presence. Small fuel leaks, engine fluid releases, garbage, and spills of other harmful materials could escape containment and collection, resulting in adverse impacts on the offshore and nearshore water resources.

The pier for the Preferred Alternative is approximately the same size as the No-Build Alternative pier and the risk of spills is expected to be similar. The Existing Site Improvements Alternative has a larger over-water structure compared to the No-Build Alternative, resulting in a slightly higher risk of over-water spills. The larger pier for the Elliot Point 1 Alternative with additional over-water vehicle use and equipment operation would pose the highest potential for accidental over-water spills.

**4.11.4 Construction Impacts**

Construction impacts are short term and temporary because they are confined to the duration of construction activities. Potential impacts on water quality may result from removal of existing buildings and piers, relocation of utilities, other land-disturbing activities, dredging of sediments, construction of new buildings and trestles, and removal and installation of other in-water features, including bulkheads. Many of the construction impacts would be similar for the four alternatives being considered.

**Impacts Common to All Alternatives**

All of the alternatives have construction activities that could affect water quality. Demolition of existing features may inadvertently convey contaminants into water resources, impairing water quality. Wind-blown dust from exposed surfaces and other fugitive dust from construction materials containing contaminants could be carried to adjacent water resources. As discussed below, other sources of potential impacts include excavation in upland areas where groundwater may be encountered, construction or
demolition in-water where sediments may be disturbed, or the potential for accidental spills of fuel or other materials when construction activities are near water.

**Dewatering**

If water is encountered during excavation and construction activities, dewatering of selected areas may be required. Dewatering typically involves pumping groundwater out of a construction area to temporarily lower the water table elevation, allowing work to be done in a relatively dry condition. Within the study area shallow groundwater exists at 7 to 10 feet bgs. While few elements extend that deep, some excavation related to foundation and structural elements or removal of utilities could extend to these levels; if it does, dewatering activities may encounter contaminated groundwater, and could cause contaminated groundwater to migrate.

**Sediment, Turbidity, and Water Quality**

Upland construction activities could also result in soil erosion, which could lead to sediment entering stormwater runoff. If not handled in accordance with applicable construction procedures and permits, this runoff could enter Possession Sound through stormwater systems, culverts, and overland flow.

Water quality at the saltwater intake system for the NOAA Mukilteo Research Station is not expected to be affected by most construction activities, such as construction of an over-water platform and placement of anchors. If toxic chemicals were suspended from the marine sediment layer or from creosote piles during removal, the associated concentrations in the water column would be diluted, and sediments would be carried away by wave action or would settle back onto the bottom of Possession Sound in a relatively short time after entering the water column. The suspension of contaminants in the water column would be temporary, and no long-term degradation of intake water is expected. Even if turbidity associated with construction were to enter the intake system, water quality for the NOAA Mukilteo Research Station is not likely to be adversely affected because the intake system is filtered. Coordination with NOAA research staff before and during sediment-disturbing activities would help avoid impacts.

All of the alternatives have fixed dolphin structures, wingwalls, a trestle, and an overhead pedestrian walkway; for their construction, WSDOT would need to drive or drill steel or concrete piles into the sediment. The driving of solid-cast concrete piles into sediments would displace sediments and temporarily increase turbidity. Installing hollow steel piles would create less water column turbidity, but may require the disposal of contaminated sediment from inside the pile casing prior to concrete pouring. If displaced water within the hollow piles or drilled shafts is not removed and managed carefully, uncured concrete could make contact with marine water, locally increasing the pH and turbidity of the water.

The *Hydrodynamic and Sediment Transport Modeling Study* (Coast & Harbor 2013) addressed construction impacts from dredging, pile removal, and stone column installation. The study concluded that with the application of BMPs and other standard construction control measures, construction would not generate turbidity levels above regulatory impact criteria.
To construct new or upgraded drainage outfalls for any of the alternatives, WSDOT would need to excavate in some areas along the shoreline, and construction control measures would be needed as part of required water quality permits for the project.

For the Preferred Alternative or the Elliot Point 1 Alternative, WSDOT would remove the Tank Farm Pier and dredge a navigation channel through an existing sediment berm where the pier is currently located. While measures would be in place to minimize impacts, these activities could suspend sediments that could escape collection, and small turbidity plumes could occur in the nearshore area. Higher levels of turbidity would reduce penetration of light in the water column, and this could temporarily reduce productivity of aquatic plants and algae that form part of the food chain.

To meet seismic and other structural engineering standards for facilities such as the passenger buildings and the trestle, WSDOT may need to use stone columns to stabilize soils nearby. The stone columns would be installed by air injection or water jetting to advance the stone column probe past dense soil layers. These activities could suspend bottom sediments and create localized increases in turbidity. However, with the use of standard BMPs, the modeling study predicted turbidity levels would be lower than regulatory limits (Coast & Harbor 2013).

Dredging may also affect water quality by resuspending bottom sediments, which would increase turbidity and allow the potential movement of sediments. This is typically done by using excavation buckets to place sediments on a barge. The modeling analysis found that turbidity would increase where the dredging is occurring, but typical BMPs and other measures required by permits would limit the turbidity and sediment movement effects to within the dredging area (Coast & Harbor 2013). Section 4.8 Hazardous Materials further discusses issues related to sediment quality and potentially contaminated sediments.

**Spills**

There is an inherent risk of water quality impairment with in-water and waterside construction activities. For example, the rupture of a hydraulic fluid line on a work barge or other heavy construction equipment could cause toxic material to spill into open waters. Equipment used to construct the in-water structures may leak small amounts of fuel and engine fluids into Possession Sound. However, use of effective and required pollution prevention measures would reduce the risk of such potential spills.

If an accidental spill of fuel, lubricant, or septic material should occur during construction, shallow groundwater underlying the project area could become degraded. If a large spill occurs on exposed soil, and sufficient containment and cleanup measures are not implemented, the contamination could be significant enough to adversely affect nearshore water quality in Possession Sound. However, it is highly unlikely that a spill of this magnitude would occur during construction. Applicable spill control measures are described in Section 4.11.7.

The construction effects on water resources specific to each proposed alternative are discussed below.
No-Build Alternative

The No-Build Alternative would demolish and replace existing buildings. This action could potentially contaminate nearby water resources with construction materials if containment BMPs are not adequately implemented.

Preferred Alternative and Elliot Point 1 Alternative

The Preferred and Elliot Point 1 alternatives would have many of the same impacts, which would be greater than for the No-Build or the Existing Site Improvements alternatives. The removal of the Tank Farm Pier and its support piles would result in nearshore turbidity plumes. Dredging would result in temporary impacts from the removal and suspension of sediments. Creosote-related hydrocarbons, which are harmful to marine organisms, may have leached from the Tank Farm Pier piles into the surrounding sediment (Herrera and Mossatt & Nichol 2006). Wave action and currents could then transport the resuspended contaminants to nearby areas of Possession Sound. However, WSDOT’s modeling analysis indicates turbidity impacts would be limited to areas within 150 feet, and most of the sediment that could be moved would resettle within 1,500 feet and would not adversely alter sediment quality in adjacent areas. See Sections 4.11.2, 4.8 Hazardous Materials, and 4.12 Ecosystems for more information.

Increased stormwater infiltration into the groundwater table and adjacent open stream sections may result from pavement removal and replacement and other land changes. Water quality may be affected if runoff is conveyed through the potentially contaminated soils described in Section 4.11.2.

Dewatering may be necessary to allow for construction to be completed in relatively dry conditions. Stormwater facilities are expected to require excavation over a small portion of the site, less than 10 percent of the total area, at depths of 5 feet bgs. The proposed stormwater system would tie into an existing outfall at 10 feet bgs.

Existing Site Improvements Alternative

In comparison with the No-Build Alternative, the Existing Site Improvements Alternative would have more land-disturbing activities and excavation, which would increase the potential for erosion and construction dust that may affect water resources. The steeper slope associated with the existing holding lanes for this alternative would also increase the potential for erosion relative to the Preferred and Elliot Point 1 alternatives where the grade is flatter.

4.11.5 Indirect and Secondary Effects

Over time, creosote-treated wood in the piles at the existing terminal site and the Tank Farm Pier have likely contaminated and are still contaminating the marine sediment beneath them. All alternatives involve the removal of creosote-treated piles at the existing terminal site. In addition, the Preferred and Elliot Point 1 alternatives would include removal of the Tank Farm Pier and some underlying sediments, while the No-Build and Existing Site Improvements alternatives would not. Removal of all these sources of pollution could have a long-term beneficial impact on the water quality in the project vicinity.
4.11.6 Cumulative Effects

Population growth and resource use have contributed to degradation of water quality in the region. The polluting of Puget Sound became a controversial issue as far back as the 1920s, when shellfish growers sought protection from the pollution from early pulp mills. The Pollution Control Commission was finally established in 1945 to control pollution. Decades later, a flurry of major state and federal environmental laws was passed between 1965 and 1973 in light of growing awareness of environmental problems. In the late 1970s and early 1980s, a number of events caused broad public concern about conditions in Puget Sound, including reports of toxic contamination, closures of shellfish growing areas, sightings of dead whales, and declines in some fish stocks. The resulting public outcry produced initiatives to improve the water quality of Puget Sound, which continue to this day.

The long-term trend is the slow improvement in water quality resulting from regulatory requirements for treating discharges of water to receiving resources. As redevelopment occurs, requirements are triggered and updated methods of treating and managing discharges are implemented. For the reasonably foreseeable future, without considering the proposed terminal improvement project, several nearby projects will help improve water quality by reducing pollution and retrofitting older stormwater systems. In addition, the region has invested in public education and pollution prevention programs, which will assist in preventing contaminants from reaching the receiving water resources.

This project and several nearby projects would trigger requirements for implementing retrofit measures to ensure water quality treatment. The cumulative impact would be beneficial by improving water quality, reducing pollution, and updating aging stormwater systems, which often develop leaks and thus introduce additional pollutants to downstream resources.

Other actions planned or recently completed in the study area include:

- Transfer of the U.S. Air Force Mukilteo Tank Farm to Port of Everett and NOAA
- Port of Everett Tank Farm Master Plan
- Sound Transit Mukilteo Station South Platform Project
- NOAA Mukilteo Research Station Expansion
- Port of Everett Mount Baker Terminal
- City of Mukilteo Shoreline Master Plan—Restoration of Japanese Creek

Although WSDOT is coordinating with the sponsors of these projects, separate actions could be taken even if the Mukilteo Multimodal Project is not developed. For more information on these projects, see Chapter 2 Alternatives.

As with the Mukilteo Multimodal Project, other projects would implement required water quality treatment, provide erosion and sediment control measures, and carry out other actions to protect water resources. Therefore, the proposed project, in combination with past, present, and reasonably foreseeable future projects, would
likely contribute to an incremental improvement in stormwater runoff quality, and decrease the pollutant loading to Possession Sound.

4.11.7 Mitigation Measures

This section describes the mitigation measures that would be required for protection of surface water and groundwater as well as additional mitigation measures that could be implemented to prevent, avoid, and minimize negative impacts on water resources. These measures include BMPs implemented during construction activities as well as long-term measures.

During design, opportunities to apply low-impact development techniques may be identified.

Climate Change Adaptation

As the stormwater design is developed, the potential impacts of climate change will be taken into account. Rising sea level may affect the floodplain, drainage outfalls, and stream levels. Temperature change and storm patterns may bring higher intensity precipitation, stronger winds, and higher storm surges. Drainage facilities, such as conveyance pipes, may need to be enlarged to handle increased rainfall runoff and provide storage for additional stormwater volumes that may result from water backing up due to sea level rise. Project components at the water edge will be designed taking into consideration the potential for higher sea levels (see Section 4.9 Energy and Climate Change for more information). Upland stormwater systems likewise may be designed to minimize potential flooding due to projected increases in precipitation and sea level. The installation of flap gates to prevent saltwater from backing up into the enclosed drainage would be evaluated as part of final design. WSDOT will also consider federal, state, and local guidance regarding design considerations for rising sea levels during final design.

Mitigation for Long-Term Impacts

The risk for potential impacts on stormwater discussed in Section 4.11.3 would be minimized by incorporating appropriate stormwater treatment measures in the project design, and in accordance with permits that would apply to all alternatives, including the permits needed for the facilities to be reconstructed under the No-Build Alternative. These features and measures would be similar to those described below for the Preferred Alternative.

No-Build Alternative

The No-Build Alternative would retain the same footprint as the existing conditions, with most change affecting structures or in-water elements. Therefore, it would trigger the fewest stormwater retrofit requirements.

Preferred Alternative

After the implementation of design features, BMPs, and other components included in the Preferred Alternative, or as part of the mitigation defined in other environmental topic areas, no additional mitigation would be needed.
Stormwater would be treated in accordance with required permits, which call for the use of BMPs prior to being released to surface water. BMPs may consist of ponds, vegetated areas, biofiltration swales, filters, constructed wetlands, or other features and emerging technologies designed to treat for the removal of pollutants from stormwater runoff. Also, landscaping and exterior cleaning practices would include measures to protect water resources.

Drainage conveyance systems would meet applicable requirements for stormwater discharge into Possession Sound; these requirements are in place to minimize the potential for water quality impacts.

**Existing Site Improvements Alternative**

The Existing Site Improvements Alternative would replace existing pavement with new paved surfaces. Stormwater runoff from the upland areas of the project would be treated prior to discharge to Possession Sound in accordance with treatment requirements. A vault system is one of the potential treatment facility types that could be considered.

**Elliot Point 1 Alternative**

For the Elliot Point 1 Alternative, the drainage system for the new PGIS could use bioretention or comparable facilities to treat runoff from areas subject to vehicular traffic. A bioretention facility that provides treatment through binding metals to the soil and uptake of pollutants by plants would be expected to provide better treatment than a vault, which treats through settlement only (Ecology 2005). Drainage runoff from upland areas of the project site would be treated before discharging to Possession Sound, reducing the average annual pollutant load discharged to the Sound from stormwater runoff. Overall, Elliot Point 1 stormwater facilities would be similar to those for the Preferred Alternative.

**Mitigation for Construction Impacts**

**Preferred Alternative**

Measures to reduce turbidity and wave action impact on the shoreline during pier removal could include cutting off the piers at ground elevation, collecting and treating construction stormwater, and complying with the project’s applicable permitting conditions.

Measures to prevent infiltration and contain the dewatering activities would be required in selected areas. It would also be necessary to treat water that had been pumped or otherwise isolated during dewatering before release into Possession Sound.

For any construction work within or above water, a Hydraulic Project Approval (HPA) would be required from WDFW. Work could be limited by the HPA to selected work windows specifying the time of year during which construction activities are allowed to occur. A temporary diversion of the streams could be needed to exclude and protect aquatic communities during construction activities.

In addition to requirements developed through ESA consultations and discussed in Section 4.12.6, Ecosystems, the project would develop and implement plans to minimize
impacts from construction activities and incorporate the plans into construction contracts, including:

- **Turbidity Control Plan**—designed to contain sediments in the nearshore areas for over-water work and for activities such as pile driving, beachhead work, and other activities below the high water level.

- **Temporary Erosion and Sediment Control Plan**—designed to contain and minimize sediment transport from upland construction areas. Disturbed areas would be minimized, protected from erosion, and covered during periods of inactivity that occur prior to final stabilization. Staging of grading operations would be defined and scheduled to minimize the amount of exposed soil at one time. BMPs intended to minimize sediment transport will be identified, marked on project plan sheets, and installed prior to construction activities within the general area of work. Watering may be used to control fugitive dust.

- **Spill Prevention, Control, and Countermeasures Plan** (as called for in Section 4.8.7 Hazardous Materials)—designed to reduce the potential for accidental spills, minimize their quantity, provide direction for containment, and clean up any materials that could cause pollution to the water resources and surrounding environments. Maintenance and operation requirements for equipment and vehicles would be prescribed, on-site spill response materials identified, secondary containment called out, other BMPs for spills discussed, and response, training procedures, and adaptive management processes specified.

- **Dewatering Plan**—designed to prevent groundwater contamination and to ensure appropriate treatment of water removed during dewatering.

- **Dredge Material Management Program approval** (as called for in Section 4.8.7 Hazardous Materials)—designed to manage the disposal of dredged sediments and minimize potential environmental impacts from dredging and disposal activities. The plan requires the approval of state and federal regulatory agencies and would identify the amount of sediment to be disposed, dredged construction techniques, transport method, and the disposal locations.

- **Related water quality permits and approvals**, including the terms and conditions defined by Section 401 permit issued by the U.S. Army Corps of Engineers.

In order to protect the water quality of Possession Sound, and would be further defined by the project’s required water quality permits and by the terms and conditions of the Biological Opinions for the project. BMPs would be used to:

1. Use a floating containment boom surrounding all in-water work areas.
2. Schedule installation of drainage outfall work during periods of low tide to avoid inundation of excavated areas and reduce turbidity.
3. Filling holes left by removed piles with clean sand and gravel.
Other Alternatives

The construction mitigation measures for the No-Build, Existing Site Improvements, and Elliot Point 1 alternatives would be similar to the measures defined for the Preferred Alternative.

Mitigation for Indirect and Secondary Effects

Potential long-term contamination of Possession Sound from indirect effects would be addressed through operational and construction BMPs.

The spread of contaminated sediment or debris suspended during removal of the Tank Farm Pier would be prevented or minimized through the use of construction BMPs such as turbidity curtains, which would allow the suspended sediment or debris to settle out of the water column in a contained area.

Mitigation for Cumulative Impacts

Overall cumulative impacts would be positive and would contribute to improved water quality and water resource benefits for aquatic life and human activities.

4.12 Ecosystems

This section identifies, describes, and evaluates the project’s long-term and short-term impacts on ecosystems (upland, wetland, freshwater, and marine wildlife habitat). The study area boundary for this evaluation is defined as a 1-mile radius from the existing ferry terminal. In addition, biologists reviewed existing information on wildlife habitats present within a 5-mile radius of the existing ferry terminal.

Sensitive wildlife, fish, plants, and their habitat can be adversely affected by project construction and operational modifications. Areas of particular concern include interference with critical life functions (foraging, migration, breeding, etc.); degradation or loss of habitat; habitat fragmentation; effects related to collisions between vehicles/vessels and wildlife; loss of animal or plant populations; impacts on food resources; water quality impacts; and direct effects from construction such as noise or other temporary disruption of habitat areas. Identifying and mitigating risks to ecosystems could prevent or reduce the effects of these impacts.

A detailed description of the affected environment and a more detailed analysis of ecosystem impacts and mitigation are presented in the Ecosystems Discipline Report, which is an appendix to this EIS.

4.12.1 Overview of Analysis and Regulatory Context

Federal, state, and local laws protect many marine, freshwater, and upland plants, animals, and habitat from human-caused influences or impacts. Protecting habitat is necessary for the continued presence of wildlife species in urban environments, such as the city of Mukilteo. Applicable authorities protecting fish, wildlife, and their habitat include:

- **Federal:** Endangered Species Act (ESA); Migratory Bird Treaty Act; Bald and Golden Eagle Protection Act; Magnuson-Stevens Fishery Conservation Management Act (Magnuson-Stevens Act); Marine Mammal Protection Act
(MMPA); Executive Order 11990 on the protection of wetlands; Clean Water Act; Clean Air Act; and National Environmental Policy Act.

- **State:** State Environmental Policy Act; Shoreline Management Act; Hydraulic Code; Fishways, Flow and Screening Code; State Growth Management Act; Washington State Species of Concern Lists; and water quality and stormwater management regulations.

- **Local:** Cities of Mukilteo and Everett critical area regulations and Shoreline Master Programs.

### 4.12.2 Affected Environment

#### Existing On-site Wetland Characteristics

Investigations performed for this project did not identify any wetlands within the project area. Palustrine (freshwater) wetlands are present in the off-site portion of the study area within Japanese Gulch and south of 5th Street, as characterized in Table 4.12-1.

<table>
<thead>
<tr>
<th>Vegetation</th>
<th>Wildlife (Throughout off-site palustrine wetland habitat)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Japanese Creek Vicinity</strong></td>
<td></td>
</tr>
<tr>
<td>Emergent Habitat:</td>
<td></td>
</tr>
<tr>
<td>- reed canarygrass</td>
<td>Observed Species:</td>
</tr>
<tr>
<td>- creeping buttercup</td>
<td>- mallard</td>
</tr>
<tr>
<td>- rushes</td>
<td>- hooded merganser</td>
</tr>
<tr>
<td>Scrub-Shrub Habitat:</td>
<td>- belted kingfish</td>
</tr>
<tr>
<td>- salmonberry</td>
<td>- pileated woodpecker</td>
</tr>
<tr>
<td>- Himalayan blackberry</td>
<td></td>
</tr>
<tr>
<td>- sapling red alders</td>
<td>Expected Species:</td>
</tr>
<tr>
<td>Forested Habitat:</td>
<td>- raccoon</td>
</tr>
<tr>
<td>- red alder</td>
<td>- northwestern garter snake</td>
</tr>
<tr>
<td>- salmonberry</td>
<td>- ensatina</td>
</tr>
<tr>
<td>- creeping buttercup</td>
<td>- Pacific chorus frog</td>
</tr>
<tr>
<td>- piggy back plant</td>
<td>- yellow warbler</td>
</tr>
<tr>
<td>- skunk cabbage</td>
<td>- common yellowthroat</td>
</tr>
<tr>
<td>- lesser periwinkle</td>
<td>- goldfinch</td>
</tr>
<tr>
<td><strong>South of 5th Street</strong></td>
<td></td>
</tr>
<tr>
<td>Forested Habitat:</td>
<td>- orange-crowned warbler</td>
</tr>
<tr>
<td>- red alder</td>
<td>- violet-green swallow</td>
</tr>
<tr>
<td>- salmonberry</td>
<td>- tree swallow</td>
</tr>
<tr>
<td>- Himalayan blackberry</td>
<td>- bushtit</td>
</tr>
<tr>
<td>- reed canarygrass</td>
<td>- bufflehead</td>
</tr>
<tr>
<td>- piggy back plant</td>
<td>- downy woodpecker</td>
</tr>
<tr>
<td>Open Water Habitat</td>
<td></td>
</tr>
</tbody>
</table>

#### Terrestrial Wildlife Habitat Characteristics

Terrestrial habitat (including marine nearshore habitat) in the proposed construction areas consists of urban and mixed environments. These habitats have been highly modified from their original condition and are used by animals that are adapted to human activity and disturbance. Upland forest habitat is present within 1 mile of the project area, primarily in Japanese Gulch, Brewery Gulch, and Edgewater Creek Gulch (Figure 4.12-1).
Figure 4.12-1. Wildlife Habitat in the Project Vicinity

Legend
- Project Area
- 1 Mile Study Area Buffer
- Backshore Restoration Projects
- City Boundary

Note: All habitat locations estimated.

Data Sources: (Cities of Mukilteo and Everett, Snohomish County, WSDOT, WDFW)

Mukilteo Multimodal Project
On-site Terrestrial Habitats

The predominant terrestrial habitat type found in the study area is urban and mixed-use habitat. It is characterized by a high level (more than 60 percent cover) of impervious surfaces, such as pavement and buildings. Vegetation is limited to lawn and landscape strips and isolated patches of unmaintained scrub vegetation, and is dominated by non-native plants. Buildings can provide nesting opportunities for some species of birds and mammals. The species most commonly found in these areas are generally tolerant of a high level of disturbance and reproduce readily in urbanized environments. Vegetation and wildlife species likely to be found in this habitat are summarized in Table 4.12-2.

Table 4.12-2. Study Area Urban and Mixed-use Habitat

<table>
<thead>
<tr>
<th>Vegetation</th>
<th>Wildlife</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-native Species:</td>
<td>Observed Species:</td>
</tr>
<tr>
<td>- Himalayan blackberry</td>
<td>- crow</td>
</tr>
<tr>
<td>- butterfly bush</td>
<td>- house sparrow</td>
</tr>
<tr>
<td>- shrub roses</td>
<td>- Canada goose</td>
</tr>
<tr>
<td>- common St. John’s wort</td>
<td>- European starling</td>
</tr>
<tr>
<td>- Scot’s broom</td>
<td>- several gull species</td>
</tr>
<tr>
<td>- English plantain</td>
<td>- rock pigeon</td>
</tr>
<tr>
<td>- numerous grass species</td>
<td>- great blue heron</td>
</tr>
<tr>
<td></td>
<td>- belted kingfisher</td>
</tr>
<tr>
<td>Native Species:</td>
<td></td>
</tr>
<tr>
<td>- red alder</td>
<td>- bald eagle</td>
</tr>
<tr>
<td>- Douglas fir</td>
<td></td>
</tr>
<tr>
<td>- Pacific madrone</td>
<td>Expected Species:</td>
</tr>
<tr>
<td>- red elderberry</td>
<td>- song sparrow</td>
</tr>
<tr>
<td>- bentgrass</td>
<td>- white-crowned sparrow</td>
</tr>
<tr>
<td>- Canada thistle</td>
<td>- Bewick’s wren</td>
</tr>
<tr>
<td>- fireweed</td>
<td>- Brewer’s blackbird</td>
</tr>
<tr>
<td></td>
<td>- cottontail rabbit</td>
</tr>
<tr>
<td></td>
<td>- eastern gray squirrel</td>
</tr>
<tr>
<td></td>
<td>- house mouse</td>
</tr>
<tr>
<td></td>
<td>- Norway and black rat</td>
</tr>
<tr>
<td></td>
<td>- raccoon</td>
</tr>
<tr>
<td></td>
<td>- Virginia opossum</td>
</tr>
</tbody>
</table>

Marine nearshore habitat, which extends from the high tide line along the shore to approximately 30 feet in depth, is also found within the project area. Bird species likely to be found in the marine nearshore habitat of the project area are listed in Table 4.12-3.
Table 4.12-3. Study Area Marine Nearshore Habitat

<table>
<thead>
<tr>
<th>Wildlife</th>
<th>Expected Marine Bird Species</th>
<th>Other Observed Bird Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wildfowl</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- great blue heron</td>
<td>- mallard</td>
<td>- bald eagle</td>
</tr>
<tr>
<td>- surf scoter</td>
<td>- marbled murrelet</td>
<td>- European starling</td>
</tr>
<tr>
<td>- Barrow’s goldeneye</td>
<td>- western grebe</td>
<td>- rock pigeon</td>
</tr>
<tr>
<td>- common goldeneye</td>
<td>- black scoter</td>
<td></td>
</tr>
<tr>
<td>- common murre</td>
<td>- American coot</td>
<td></td>
</tr>
<tr>
<td>- Canada goose</td>
<td>- American widgeon</td>
<td></td>
</tr>
<tr>
<td>- horned grebe</td>
<td>- mew gull</td>
<td></td>
</tr>
<tr>
<td>- red-breasted merganser</td>
<td>- ring-billed gull</td>
<td></td>
</tr>
<tr>
<td>- double-crested cormorant</td>
<td>- glaucous-winged gull</td>
<td></td>
</tr>
<tr>
<td>- pelagic cormorant</td>
<td>- killdeer</td>
<td></td>
</tr>
<tr>
<td>- pigeon guillemot</td>
<td>- common loon</td>
<td></td>
</tr>
<tr>
<td>- red-necked grebe</td>
<td>- long-tailed duck</td>
<td></td>
</tr>
<tr>
<td>- numerous gull species</td>
<td>- harlequin duck</td>
<td></td>
</tr>
<tr>
<td>- various waterfowl</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There are two freshwater streams, Japanese Creek and Brewery Creek, in the project area. Both Japanese Creek and Brewery Creek have been designated by Ecology as protected for salmon and trout spawning, non-core rearing, and migration; wildlife habitat; and other values. Water quality data for Japanese Creek indicate high levels of fecal coliform bacteria, lead, and turbidity. The City of Mukilteo’s Comprehensive Surface Water Management Plan identifies water quality problems within the Brewery Creek drainage basin. These problems include untreated runoff with oil content resulting from the existing holding area for ferry traffic, and generally degraded stormwater quality as a result of the types of land use in the drainage basin. Fish have been observed in Japanese Creek, including coho salmon, cutthroat trout, and Chinook salmon, but no fish have been recorded in Brewery Creek.

**Off-site Terrestrial Habitats**

Wildlife species found in nearby off-site habitats may be affected by construction or operation of the project. Similar to on-site areas, the off-site areas also contain marine nearshore habitat. In addition, off-site terrestrial habitats also include upland forest, grasslands, edge habitat, and palustrine (freshwater) wetlands and streams. Vegetation and wildlife likely to be found in these habitats are summarized in Table 4.12-4.
### Table 4.12-4. Study Area Off-site Habitats

<table>
<thead>
<tr>
<th>Vegetation</th>
<th>Wildlife</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Upland Forest Habitat</strong></td>
<td></td>
</tr>
<tr>
<td>Japanese Gulch, Brewery Gulch, and</td>
<td>Observed Species:</td>
</tr>
<tr>
<td>Edgewater Creek Gulch:</td>
<td>- hairy woodpecker</td>
</tr>
<tr>
<td>- red alder</td>
<td>- pileated woodpecker</td>
</tr>
<tr>
<td>- black cottonwood</td>
<td>- chestnut-backed chickadee</td>
</tr>
<tr>
<td>- big-leaf maple</td>
<td>- European starling</td>
</tr>
<tr>
<td>- Douglas fir</td>
<td>- common crow</td>
</tr>
<tr>
<td>- western red cedar,</td>
<td>- bald eagle</td>
</tr>
<tr>
<td>- western hemlock</td>
<td></td>
</tr>
<tr>
<td>- salmonberry</td>
<td>High-Quality Ecosystem</td>
</tr>
<tr>
<td>- red elderberry</td>
<td>(southwest of project area):</td>
</tr>
<tr>
<td>- Himalayan blackberry</td>
<td>- big leaf maple</td>
</tr>
<tr>
<td>- English ivy</td>
<td>- red alder</td>
</tr>
<tr>
<td>- piggy back plant</td>
<td>- sword fern</td>
</tr>
<tr>
<td></td>
<td>- fringe cup</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>High-Quality Ecosystem</td>
<td></td>
</tr>
<tr>
<td>(southwest of project area):</td>
<td></td>
</tr>
<tr>
<td>- big leaf maple</td>
<td>Observed Species:</td>
</tr>
<tr>
<td>- red alder</td>
<td>- hairy woodpecker</td>
</tr>
<tr>
<td>- sword fern</td>
<td>- pileated woodpecker</td>
</tr>
<tr>
<td>- fringe cup</td>
<td>- chestnut-backed chickadee</td>
</tr>
<tr>
<td></td>
<td>- European starling</td>
</tr>
<tr>
<td></td>
<td>- common crow</td>
</tr>
<tr>
<td></td>
<td>- bald eagle</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Expected Species:</td>
</tr>
<tr>
<td></td>
<td>- coyote</td>
</tr>
<tr>
<td></td>
<td>- red fox</td>
</tr>
<tr>
<td></td>
<td>- raccoon</td>
</tr>
<tr>
<td></td>
<td>- Virginia opossum</td>
</tr>
<tr>
<td></td>
<td>- common garter snake</td>
</tr>
<tr>
<td></td>
<td>- northwest salamander</td>
</tr>
<tr>
<td></td>
<td>- downy woodpecker</td>
</tr>
<tr>
<td></td>
<td>- northern flicker</td>
</tr>
<tr>
<td></td>
<td>- Bewick’s wren</td>
</tr>
<tr>
<td></td>
<td>- black-capped chickadee</td>
</tr>
<tr>
<td></td>
<td>- Hutton’s vireo</td>
</tr>
<tr>
<td></td>
<td>- varied thrush</td>
</tr>
<tr>
<td></td>
<td>- Wilson’s warbler</td>
</tr>
<tr>
<td></td>
<td>- red-tailed hawk</td>
</tr>
<tr>
<td></td>
<td>- sharp-shinned hawk</td>
</tr>
<tr>
<td></td>
<td>- winter wren</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Grassland Habitat</strong></td>
<td></td>
</tr>
<tr>
<td>- tall fescue</td>
<td>- common garter snake</td>
</tr>
<tr>
<td>- reed canarygrass</td>
<td>- western fence lizard</td>
</tr>
<tr>
<td>- other grass species</td>
<td>- European starling</td>
</tr>
<tr>
<td>- soft rush</td>
<td>- savannah sparrow</td>
</tr>
<tr>
<td>- creeping buttercup</td>
<td>- song sparrow</td>
</tr>
<tr>
<td></td>
<td>- bald eagle</td>
</tr>
<tr>
<td></td>
<td>- great blue heron</td>
</tr>
<tr>
<td></td>
<td>- voles</td>
</tr>
<tr>
<td></td>
<td>- cottontail rabbit</td>
</tr>
<tr>
<td></td>
<td>- coast mole</td>
</tr>
<tr>
<td></td>
<td>- red-tailed hawk</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Edge Habitat</strong></td>
<td></td>
</tr>
<tr>
<td>mix of grassland and upland forest</td>
<td>Any species noted above</td>
</tr>
<tr>
<td>edges</td>
<td>Additional Species:</td>
</tr>
<tr>
<td></td>
<td>- spotted towhee</td>
</tr>
<tr>
<td></td>
<td>- brown-headed cowbird</td>
</tr>
<tr>
<td></td>
<td>- American robin</td>
</tr>
<tr>
<td></td>
<td>- rufous and Anna’s hummingbirds</td>
</tr>
<tr>
<td></td>
<td>- white-crowned sparrow</td>
</tr>
</tbody>
</table>

Upland forest habitat in the study area is primarily located near stream corridors in Japanese Gulch, Brewery Gulch, and Edgewater Creek Gulch. These large
streamside forest areas are second or third growth and provide beneficial wildlife habitat with a diversity of plant species, two to three canopy layers, surface waters, large and small snags, downed wood, and leaf litter. These areas also provide refuge and corridors for wildlife moving through an otherwise developed landscape. As shown in Figure 4.12-1, WDFW has classified portions of the study area as biodiversity areas and corridors. These areas contain undeveloped ravines, steep hillsides, and open spaces that provide refuge for deer, coyote, raptors, and other mammals and birds.

In addition to upland forest, a portion of Japanese Gulch, located south of 5th Street, contains islands of grassland habitat. The off-site area also contains edge habitat, where the grassland and upland forest edges meet. These areas provide diversity and are typically used by a larger number of species than any one habitat.

**Aquatic Marine Environment**

**Existing Physical and Chemical Conditions**

The existing physical characteristics of the shoreline in the study area have been substantially modified in ways typical of many urbanized shorelines of Puget Sound. The entire project area is armored by riprap revetment and bulkheads, through which 14 storm drains and culvert outfalls discharge into Possession Sound.

Samples that were collected from Possession Sound along the shoreline at the Mukilteo Tank Farm in 2003 showed the sediments to be generally in compliance with Ecology’s sediment quality standards (WAC 173-204-320). Samples collected underneath and adjacent to the Tank Farm Pier in 2012 found levels of organochlorine pesticides and petroleum hydrocarbons slightly above regulatory criteria.

A detailed discussion of stormwater drainage in the project area and sediment and water quality in Possession Sound is presented in Section 4.11 Water Resources.

**Existing Biological Characteristics**

While shoreline modifications and human activities have reduced the diversity and abundance of species, many types of plants and animals have still been observed during project dive surveys. Nearly two dozen aquatic plant species are in the study area. Aquatic plants provide surfaces for herring to spawn, produce oxygen and take up carbon dioxide during the day, and provide juvenile fish with a refuge from predators. Aquatic plants and the small organisms that live on their surfaces also provide food for many aquatic species. Although some kelp is present in the study area, no major kelp beds (ribbon or bull kelp) occur there. The most common of the larger aquatic plants are sugar wrack, iridescent seaweed, and sea lettuce.

A survey conducted in 2005 found small patches of eelgrass west and one patch east of the Tank Farm Pier. The most recent surveys conducted in 2011 found no eelgrass throughout most of the proposed project area. Only one small clump of eelgrass (less than 1 square foot) was found just north of the Existing Site Improvements Alternative footprint.

Several invertebrate species are present in the study area. There is habitat for geoduck and hardshell clams; Dungeness crabs are also common. Geoduck surveys
showed very low numbers throughout the study area. Other invertebrates that have been commonly observed include sunflower stars and plumose anemone, and over 50 other invertebrate species, such as crabs, shrimp, barnacles, anemones, urchins, sea stars, clams, nudibranch, and octopus.

More than 40 fish species have been identified in the study area. Possession Sound is in the migratory path of several salmon species and supports many resident fish species. The most abundant fish species is surfperch. Sand lance, an important forage fish for salmonids, and several other species spawn in study area beaches.

The biological diversity in the study area is comparable to other parts of Puget Sound where development has taken place. Diversity is fairly low and the species assemblages do not represent a unique composition nor do they include any rare or uncommon species.

Federally and State-Listed Species and Critical Habitat

The ESA provides for the conservation of species that are endangered or threatened with extinction and the conservation of the habitat on which they depend. Several federally and state-listed species that may be present in the study area are discussed below. The Mukilteo Multimodal Project Biological Assessment (WSDOT 2012) provides a detailed discussion of species that could occur in the study area and evaluates potential impacts of the proposed project (see Appendix L).

Endangered Species Listed Under the ESA

Southern Resident Killer Whales: The Southern Resident population of killer whales predominantly feed on salmon. They have occasionally been observed in the vicinity of the Mukilteo ferry terminal, primarily between October and April. Project biologists have not observed any killer whales during site investigations. NOAA Fisheries has designated critical habitat in Washington for Southern Resident killer whales and this habitat encompasses all of Possession Sound.

Humpback Whales: Historically, one or two individual humpback whales have been sighted in Puget Sound in an average year. None were observed during site investigations for this project, but they are occasionally seen in the study area.

Bocaccio: In the Puget Sound region, the distinct population segment (DPS) of adult Georgia Basin/Puget Sound bocaccio appear to be limited to areas around Tacoma Narrows and Point Defiance. There is little information about their use of the project area. The project area has appropriate depths, steepness, and substrate complexity for adults; historically, bocaccio have been documented in the project vicinity. Critical habitat has not been proposed for bocaccio.

Threatened Species Listed Under the ESA

Marbled Murrelet: Marbled murrelets are regularly seen foraging and loafing in marine waters near the existing ferry terminal and the lighthouse, although they are unlikely to nest within the project vicinity.

Chinook Salmon: The Chinook salmon found in Puget Sound are part of the Puget Sound evolutionarily significant unit (ESU) of Chinook salmon. They use the study area primarily for migration, foraging, and rearing. The closest river for spawning is
the Snohomish River, approximately 7 miles to the north of the study area; however, one juvenile was recently observed in Japanese Creek. Designated critical habitat for Puget Sound Chinook salmon includes the study area.

**Bull Trout:** Designated critical habitat for the Coastal-Puget Sound DPS of bull trout includes the study area, which they use for migration and foraging.

**Steelhead:** The Puget Sound DPS of steelhead trout includes steelhead from river basins of the Strait of Juan de Fuca, Puget Sound, and Hood Canal, Washington. The species is present in Possession Sound and likely to be found in the project vicinity. Critical habitat has not been proposed for steelhead.

**Pacific Eulachon:** Eulachon are not common in Puget Sound and there is little information about them within the project area. The Puyallup River is the only Puget Sound system in which eulachon are known to spawn; spawning regularity in that river is classified as rare. The species was not observed during dive surveys, and is unlikely to occur in the project area. NOAA Fisheries has proposed critical habitat for the southern DPS of Pacific eulachon but that proposal does not include Puget Sound.

**Canary Rockfish:** Canary rockfish have historically been observed in the study area. The project area has none of the rocky reef habitat favored by adult rockfish. Juvenile rockfish are associated with kelp beds and other macroalgae, which are limited in the project area. Critical habitat has not been proposed for canary rockfish.

**Yelloweye Rockfish:** Yelloweye rockfish have historically been observed in Possession Sound; however, little is known about their presence in the study area. The project area has none of the rocky reef habitat favored by adult rockfish. Juvenile rockfish are associated with kelp beds and other macroalgae, which are limited in the project area. Critical habitat has not been proposed for yelloweye rockfish.

**Steller Sea Lion:** No Steller sea lion haul-outs (habitat sites on land or ice) are located on the project site or in the vicinity of the proposed project. Steller sea lions have been observed playing in the propeller wash of the ferry at the Edmonds Ferry Terminal. Steller sea lions may be present in the project vicinity, but none were observed during site investigations.

**Federal Species of Concern**

Coho salmon is a federal species of concern under the ESA that is found in the study area. While species of concern receive no protections under the ESA, coho salmon are covered by the Magnuson-Stevens Act, which requires consultation with NOAA Fisheries concerning potential effects to their habitat (see *Essential Fish Habitat* below). Coho have been documented to use the lower reach of Japanese Creek upstream of the culverts, south of the Mukilteo Tank Farm. Habitat requirements, construction windows, and life histories are similar to federally listed salmonids.
State Species of Concern

Washington State maintains a Species of Concern list for many species native to Washington that are in various states of decline. State-listed species that occur or may occur in the study area are:

- **Endangered:** Southern Resident killer whales and the humpback whale
- **Threatened:** Marbled murrelet and Steller sea lion
- **Candidate:** Pacific harbor porpoise, Chinook salmon, bull trout, canary rockfish, yelloweye rockfish, bocaccio rockfish, Clark’s grebe, Western grebe, and common murre
- **Sensitive:** Bald eagle, common loon, and gray whale
- **Monitored:** Harbor seal, Dall’s porpoise, red-necked grebe, great blue heron, green heron, and Caspian tern
- **Priority habitat:** Priority habitat for Dungeness crab and Pacific sand lance also occurs in the project vicinity. Sand lance spawning has been documented on a small (200 feet) section of beach near the Silver Cloud Inn property approximately 300 feet east of the existing terminal, but would not be affected by any of the alternatives. Impacts on Dungeness crabs are discussed in Section 4.12.3.

Other Marine Mammal Species

Several non-listed marine mammal species have also been observed in the project area. Transient orca whales have been documented in the project vicinity. California sea lions are common in Puget Sound and frequently observed in the project area. Elephant seals and minke whales are less common, but may be seen in the project area. Like all marine mammals, these species are protected under the MMPA, regardless of their abundance.

Essential Fish Habitat

The Magnuson-Stevens Act establishes requirements for essential fish habitat (EFH) descriptions in federal fishery management plans and requires federal agencies to consult with NOAA Fisheries on activities that may adversely affect EFH. The Pacific Fishery Management Council (PFMC) has designated EFH for Pacific salmon, Pacific coast groundfish, and coastal pelagic species. EFH for all three groups is found in the study area. A detailed discussion of EFH species that could occur in the study area and potential impacts of the proposed project is included in the Biological Assessment (Appendix L).

Commercial, Recreational, and Tribal Fisheries

The proposed project is entirely within WDFW Fishery Management Area 8-2, which includes a number of tribal, commercial, and recreational fisheries. Several tribes have federally recognized treaty rights within the study area to take fish and shellfish at all usual and accustomed fishing grounds and stations. Tribal harvest focuses on salmon and Dungeness crab. Non-tribal commercial gill netting for salmon is limited by
WDFW in this area. Tribal, commercial, and recreational crab fishing occurs in the study area. The most consistent marine harvest activities in the vicinity of the study area are littleneck clams, butter clams, and horse clams. Ghost shrimp are harvested year-round for use as bait. An extensive geoduck survey conducted in 2005 found geoduck densities in the commercial harvest to be extremely low.

4.12.3 Long-Term Environmental Impacts

All Alternatives

Over-water Structures

Each of the proposed alternatives would change the amount of over-water cover due to replacement or construction of wingwalls, dolphins, transfer spans, and passenger and maintenance facilities, as well as demolition of the existing trestle. The Preferred Alternative and the Elliot Point 1 Alternative would also remove the Tank Farm Pier and approximately 3,900 associated piles (7,300 tons of creosote-treated timbers). Table 4.12-5 provides estimates of the approximate changes in over-water cover for the alternatives.

Table 4.12-5. Over-Water Cover Estimates for Each Alternative (square feet)

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Removal of Existing Over-Water Cover</th>
<th>Creation of Over-Water Cover</th>
<th>Net Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>No-Build</td>
<td>10,200</td>
<td>13,200</td>
<td>3,000</td>
</tr>
<tr>
<td>Preferred</td>
<td>150,200</td>
<td>21,100</td>
<td>-129,100</td>
</tr>
<tr>
<td>Existing Site Improvements¹</td>
<td>12,100</td>
<td>24,100</td>
<td>12,000</td>
</tr>
<tr>
<td>Elliot Point 1</td>
<td>150,200</td>
<td>33,900</td>
<td>-116,300</td>
</tr>
</tbody>
</table>

¹ Estimate does not include the replacement of the Port of Everett fishing pier and seasonal day moorage facility. Depending on the location and design, 1,500 to 5,000 square feet of over-water cover could be added.

Direct over-water cover reduces sunlight available to macroalgae, which can reduce or eliminate macroalgae populations in an area. Epibenthos are all organisms that live on or just below the surface of the seabed. Those that occur in the immediate footprint of the new trestles would likely be affected, and epibenthic production within about 20 feet of the terminal for any of the alternatives would be affected by shading. Eelgrass is unlikely to be affected due to its location in the study area. The No-Build Alternative would have the least impact on epibenthos because the project would replace existing structures in the same location. Elliot Point 1 Alternative would have the largest amount of new over-water cover due to the size of over-water structures associated with the new terminal; however, this option would also remove over-water cover from the existing terminal facility and the Tank Farm Pier that would provide a net improvement.

Juvenile salmonids depend on nearshore habitats for food and refuge. Over-water structures, such as ferry terminals, bridges, docks, piers, and temporary work trestles, may directly affect juvenile salmon, especially Chinook and chum, by disrupting migratory behavior along the shallow-water nearshore zone. Delays in migration
could lead to increased energy expenditure. The widths of the over-water structures associated with the No-Build Alternative, Preferred Alternative, and Existing Site Improvements Alternative are all similar. The Elliot Point 1 Alternative would have the largest over-water footprint and could have a greater impact on juvenile salmonid migration. Also, some studies have suggested that migrating salmonids may not pass under an over-water structure, but instead be pushed farther offshore where they may become more susceptible to predation from birds, mammals, and other fish. However, a study performed at the Mukilteo ferry terminal in 2002 did not find any evidence of increased predation due to over-water cover at the site.

**Habitat Displacement by New Piles and Dolphin Anchor System**

The No-Build and Existing Site Improvements alternatives would each install approximately 20 new piles. The Preferred Alternative would install approximately 110 new piles. The Elliot Point 1 Alternative would install slightly more piles than the Preferred Alternative. New piles and dolphin anchor chain movement would permanently displace bottom (benthic) habitats and eliminate benthic plants and animals, including macroalgae, clams, worms, anemones, and urchins, in the footprint of the new piles and dolphin anchors. Eventually, the new piles associated with the alternatives would become new habitat for a variety of species. All of the alternatives would replace or remove the existing terminal, eliminating about 250 creosote-treated piles that support the timber trestle and transfer span. Benthic communities would likely develop at these locations and vertical pile communities would likely develop on new piles, helping to offset the communities lost during pile removal. The *Mukilteo Multimodal Project Biological Assessment* (WSDOT 2012) contains more information about the impacts to benthic habitat.

**Effects from Propeller Scour**

Ferry propellers create currents that can disturb bottom sediments, resulting in the creation of scour holes that displace benthic organisms and reduce available habitat. Propeller wash modeling conducted for each of the four alternatives showed that scour holes would potentially form as follows:

- **No-Build Alternative:** Scour hole of approximately 2.9 feet at a depth of 20 to 25 feet below MLLW
- **Preferred Alternative:** Scour hole of about 1.4 feet at a depth of 20 to 25 feet below MLLW
- **Existing Site Improvements Alternative:** Scour hole of about 4.5 feet at a depth of 15 to 20 feet below MLLW
- **Elliot Point 1 Alternative:** Scour hole of about 4.5 feet at a depth of 15 to 20 feet below MLLW

Bottom scour would stabilize after a few months; however, it could be minimized by placing coarser sediment on the bottom that would resist movement.
**Beneficial Effects**

Each of the proposed alternatives would remove about 290 creosote-treated piles and decking of the existing terminal. The creosote material may be seeping into the water and sediment, and removing the piles is the only way to eliminate this impact.

**All Build Alternatives**

**Impacts on Marine Nearshore Habitat**

Some marine nearshore habitat would also be lost under the Build alternatives due to the new ferry slip configurations. Wildlife use of this habitat by species such as Barrow’s goldeneye, horned grebe, surf scoter, American coot, double-crested cormorant, pigeon guillemot, mew gull, ring-billed gull, common loon, and glaucous-winged gull could shift to the areas where the existing ferry slip is removed and to adjacent marine nearshore habitats to the east and west.

**Beneficial Effects**

All three Build alternatives would provide enhanced stormwater treatment to remove pollutants from runoff from the project’s parking lots and bus terminals. This treatment would improve habitat by minimizing pollutant loads to receiving waterbodies. More information on stormwater management and treatment is presented in *Section 4.11 Water Resources*.

**Preferred Alternative**

**Terrestrial Habitat**

The Preferred Alternative would develop a portion of the Mukilteo Tank Farm and new landscaping would replace sparse herbaceous and scrub vegetation. Thus, the area would remain as urban and mixed use habitat, but the level of human activity on the site would increase. Wildlife use of this habitat for nesting, foraging, and perching would be reduced and/or displaced. However, reduction of habitat would be minor and temporary because species found in this habitat type are accustomed to human disturbance; moreover, the developed property would also provide some wildlife habitat.

**Impacts on Crab and Crab Habitat**

Dungeness crab abundance is relatively high east of the Tank Farm Pier and gravid female crabs use the sediment berm during the winter. This is in the area where the Preferred Alternative would be located. Removal of the Tank Farm Pier, which would remove feeding habitat as well as change the sea bed in elevations and sediment composition in the area, could reduce crab use in the area. Dredging would occur across a portion of the footprint of the Tank Farm Pier and could also reduce crab use in the area. While pier removal would not affect overall Dungeness crab populations, it would likely reduce the numbers of crabs in the project area.
Erosion of the Sediment Mound underneath the Tank Farm Pier

Over time, a mound of sediment several feet higher than the surrounding seabed has developed in the slow-moving waters beneath the Tank Farm Pier. Removal of the pier would cause a measurable change in wave energy that could, in some circumstances, move sediment from this mound up to 1800 feet down current. The erosion rate would be slow and would only occur during larger (5- to 10-year) storms.

Approximately 1,050 cubic yards of material would eventually be eroded from the sediment mound. Even if all the material were to be mobilized at once and deposited within 2,000 feet of the pier, it would form a layer only 0.08 inch thick. Movement of sediment from the mound would therefore not pose a significant risk of smothering aquatic plants or macroinvertebrates in the project vicinity.

Sediment sampling underneath the Tank Farm Pier revealed low levels of organochlorine pesticides and petroleum hydrocarbons at various layers, but some samples did exceed regulated limits. Transport of sediments could spread contaminated material detrimental to aquatic organisms; however, the amount of material that would be transported would not pose a risk. Section 4.8 Hazardous Materials contains additional discussion of these sediments.

Beneficial Effects

In addition to removing approximately 290 creosote-treated piles and decking of the existing ferry terminal, the Preferred Alternative would demolish the Tank Farm Pier and remove approximately 3,900 creosote-treated timber piles associated with the pier. This would eliminate approximately 7,300 tons of creosote-treated timbers from the environment and create a net gain of approximately 2,870 square feet of benthic habitat. Also, sediments beneath the Tank Farm Pier would undergo additional testing prior to construction. Dredged sediments that do not meet regulated criteria would be disposed of at appropriate upland locations, reducing the amount of contaminated sediments in the aquatic environment. Removing the Tank Farm Pier would also eliminate the shade from approximately 138,100 square feet of over-water structures. This would allow more sunlight that would potentially increase macroalgae and eelgrass growth, increase macroinvertebrate production, and improve habitat for salmonids and other fish. Pile removal would occur over an area of approximately 150,200 square feet, which includes 138,100 square feet for the Tank Farm Pier, 2,000 square feet for the existing trestle, and 10,100 square feet for the fishing pier. The Biological Assessment (Appendix L) provides additional information about biological resources and the Preferred Alternative’s beneficial effects.

Elliot Point 1 Alternative

The Elliot Point 1 Alternative would have similar impacts to those of the Preferred Alternative regarding terrestrial habitat, crabs and crustaceans, erosion of sediment beneath the Tank Farm Pier, and aquatic habitat benefits. Also, under the Elliot Point 1 Alternative, a portion of Japanese Creek within the project footprint would be restored to an open stream with a 50-foot vegetated buffer on each side. The
vegetated buffer would provide nesting and foraging habitat for wildlife and an open stream channel would also improve habitat for fish species that use the creek.

4.12.4 Construction Impacts

All Alternatives

Construction impacts are common to all alternatives and include disturbance from construction activities, grading and staging, impaired water quality, and effects on aquatic species from underwater noise related to pile driving.

**Disturbance, Grading, and Staging**

Under all alternatives, construction would occur in both the urban and mixed-use habitat and the marine nearshore habitat. The wildlife that currently use these habitats could be reduced and/or displaced during construction as a result of increased traffic, human activity, and noise. However, because the upland area is already developed with residential and commercial uses, effects on wildlife using the urban and mixed environments would be minimal.

In the marine nearshore environment, marine bird species would be affected by construction activity and underwater noise associated with pile driving. The existing underwater noise level is dominated by noise generated from human activities, primarily marine vessel traffic (additional discussion of underwater noise is presented below).

Temporary impacts on non-aquatic vegetation may result from grading, staging, and other project-related activities. No impacts on protected non-aquatic plant species are expected because none are known to occur within the study area.

**Water Quality**

Construction activities such as pile driving and removal, construction of stone columns, dredging, and placement of anchoring systems could create turbidity and result in temporary impacts on fish and aquatic resources from decreased water quality. The extent and duration of in-water work of each alternative and the specific construction methods and materials would affect the magnitude of the temporary impacts.

Impacts on aquatic resources due to elevated turbidity include:

- Mortality, gill tissue damage, and physiological stress to fish, including juvenile salmonids
- Burial, abrasion of body parts, and clogging of filtration systems of crustaceans and other marine invertebrates
- Reduced light levels affecting behavior and feeding of aquatic animal species
- Reduced photosynthesis by burial of aquatic plants or reduced light levels
- Behavioral changes

Piles would be removed under each alternative, suspending sediment, and temporarily increasing turbidity in the surrounding area. The sediments suspended could also be contaminated by creosote. Factors affecting the amount of turbidity generated during
pile removal include the type and number of piles removed, the removal technique used, and the characteristics of the bottom sediments. Pile installation also can generate turbidity. However, turbidity is less of an issue with pile installation because the impact is highly localized.

Based on modeling conducted for the project, increases in turbidity resulting from pile removal, pile installation, dredging, and the installation of stone columns would be localized and temporary, and would not exceed water quality standards. These activities are also a one-time disturbance, and benthic organisms are expected to rapidly recolonize altered areas after construction.

Section 4.11 Water Resources contains more discussion about construction-related water quality impacts.

**Underwater Noise**

Pile driving produces intense sound pressure waves in the water column that can adversely affect fish, marine mammals, and other aquatic species. The level of sound produced during pile driving depends on several variables including the type of hammer used, the type and size of piles being used, and the characteristics of the substrate. The distance that the sound travels under water and in air also depends on several variables, including topography.

High levels of underwater sound can injure and kill fish. Fish with swim bladders, such as salmonids, are more susceptible to barotraumas (injuries, such as hemorrhage and rupture of internal organs, caused by pressure waves) from impulsive sounds, like impact pile driving. Death from barotrauma can be instantaneous or delayed up to several days after exposure.

Elevated noise levels can also cause sublethal injuries, such as a reduced ability to detect predators and prey, or hearing damage. Also, sound may affect behavior, resulting in fish avoiding foraging or spawning grounds. The impact of these avoidance responses may be lasting if feeding or reproduction is impeded.

For marine mammals, whales in particular, sound is one of the most critical sensory pathways of information. Noise impairs communication, detection of prey, and navigation. It also causes harmful physiological conditions, energetic expenditures, reduced hearing sensitivity, behavioral changes, and changes in cardiac rates and respiratory patterns. Changes in behavior can range from minor changes in orientation or breathing to interrupted feeding or avoidance of an area. Very loud noises at close range may cause hearing damage, other physical damage, or even death.

Diving birds may also be harmed by noise levels in the range of those that harm fish and mammals, and they may experience similar effects such as a reduced ability to detect predators or prey, or to forage. Mitigation measures and monitoring will reduce impacts to diving birds and other marine mammals.

**No-Build Alternative**

The No-Build Alternative would install approximately 20 new piles, which is the fewest among the proposed alternatives. This would potentially result in the least impact from turbidity and underwater noise.
Preferred Alternative

The Preferred Alternative would install approximately 110 new piles for the terminal facilities and relocated fishing pier. It would remove the existing terminal facility and the Tank Farm Pier, and dredge a navigation channel about 500 feet wide by 100 feet long through a sediment mound beneath the pier. The channel would provide navigation depth of -28 feet at an average lowest tide, which would require dredging to a depth of -30 feet. Approximately 19,500 cubic yards of material would be dredged for the channel.

Pier removal and dredging would likely mobilize sediments under the pier that have been found to contain low levels of organochlorine pesticide and petroleum hydrocarbon contamination. Pile removal would also generate turbidity, as would dredging.

The foundation of the new pier structure for the Preferred Alternative would utilize stone columns. Stone columns are constructed with a vibratory probe that feeds crushed gravel or quarry spall into potentially liquefiable soils to create a solid foundation. Construction of the columns could resuspend sediments and temporarily generate turbidity within the vicinity of the installation area. The installation of stone columns will affect about 1,414 square feet within an area of about 25,000 square feet. The affected area would still provide habitat after construction, though the surface substrate may be more gravelly than prior to stone column installation.

Existing Site Improvements Alternative

Similar to the No-Build Alternative, the Existing Site Improvements Alternative would also install approximately 20 new piles, the fewest among the proposed Build alternatives.

Elliot Point 1 Alternative

Construction impacts from the Elliot Point 1 Alternative would be similar to those described above for the Preferred Alternative. The Elliot Point 1 Alternative would drive somewhat more piles than the Preferred, No-Build, and Existing Site Improvements alternatives. As noted with the other alternatives, pile driving creates the potential for turbidity and underwater noise impacts to aquatic species.

4.12.5 Cumulative Impacts

The population of Puget Sound has increased from approximately 1.29 million people in 1950 to 4.22 million in 2005; by 2025 the population is expected to reach 5.36 million. The population of Snohomish County has increased an average of 3 percent per year since 1960, from 172,199 to 711,100 inhabitants. The city of Mukilteo has even higher growth rates and has expanded from a population of 775 at its incorporation in 1947 to 20,254 today. This trend is likely to continue for the foreseeable future; 2030 population projections for Snohomish County range from 790,930 to 1,109,202.

Population growth and resource use have contributed to environmental impacts in the region. Historically, the project area landscape was dominated by western lowland mixed conifer and hardwood forest. During European settlement of the
region, farming and logging changed the landscape, reducing forest cover and replacing many native species with introduced species. In recent times continuing habitat conversion for urban and industrial development has led to further habitat fragmentation and filling of wetlands.

Aquatic habitat has also been reduced and degraded due to development since the area was settled by Europeans. Approximately one-third of the Puget Sound shoreline has been modified by seawalls, docks, and other structures. Riprap, bulkheads, docks, and other structures line the entire shoreline in the study area. Water pollution is another threat to aquatic ecosystems; urban runoff contributes to non-point source pollution by degrading water quality and threatening aquatic species. Between 2002 and 2006 the number of marine species of concern in the Salish Sea ecosystem (extending from Canada to Puget Sound) increased from 60 to 64. Green sturgeon, Pacific eulachon, Southern Resident killer whales, and several species of salmonids and rockfish have been recently listed as threatened or endangered under the ESA.

Other projects within the study area could contribute to environmental impacts. In general, the Mukilteo Multimodal Project could result in improved water quality by providing stormwater treatment, removing creosote-treated piles, and remediating contaminated sediments. The project could also provide habitat restoration by removing over-water structures and daylighting Japanese Creek if the Elliot Point 1 Alternative were constructed. However, development of shoreline properties could reduce some urban mixed and marine nearshore habitat as well as increase over-water cover; known development activities are described below.

**Mukilteo Tank Farm Transfer, U.S. Air Force**

The change of ownership for the Mukilteo Tank Farm is not likely to contribute to higher cumulative impacts on ecosystems compared to conditions today. The transfer itself is generally “as is” with no further improvements, although the transaction includes covenants to maintain some environmental protections and address issues related to past practices on the site.

**Mukilteo Tank Farm Master Plan, Port of Everett**

If all or parts of the Mukilteo Tank Farm were developed with other uses, development would need to meet current permitting standards, which would include shoreline setbacks, open space requirements, and upgrades of stormwater systems. Redevelopment to current standards would provide environmental benefits. However, redevelopment would also result in increased traffic, human activity, and noise. A full replacement of all facilities on the site would remove the urban and mixed-use habitat used by wildlife, but open space features and landscaping would provide long-term replacement habitat.

**Sounder Mukilteo Station, Sound Transit**

Further development of the Sounder Mukilteo Station is not likely to contribute to increased cumulative impacts on ecosystems because the property is already developed and provides little habitat. The remaining improvements are largely within the existing footprint.
NOAA Mukilteo Research Station Expansion

Expansion of the NOAA Mukilteo Research Station could result in minor impacts on urban mixed and marine nearshore environments, depending on the facility design.

Mount Baker Terminal, Port of Everett

Construction of the Mount Baker Terminal created additional over-water cover along the shoreline. To offset potential impacts from shading, the Port planted eelgrass shoots west of the terminal. A permanent access roadway is still needed for the terminal, which could encourage development of parts of the Mukilteo Tank Farm, but also could trigger City of Mukilteo permit conditions to include more open spaces with ecosystem benefits.

Restoration of Japanese Creek

The City of Mukilteo plans to restore a section of Japanese Creek to its previous channel. In addition, the City plans to add weirs to a section of the creek to allow fish access to an adjacent wetland, which would increase rearing and foraging habitat. The City also plans to daylight the creek along the Possession Sound shoreline, which would restore riparian and aquatic habitat. The Elliot Point 1 Alternative includes this action as part of the alternative, so it would not have a cumulative impact. However, the Preferred Alternative and other alternatives would not affect the areas above the culvert. Daylighting Japanese Creek and other creek restoration activities would increase riparian and aquatic habitat.

Mukilteo Lighthouse Park

Shoreline restoration efforts for this project have improved nearshore habitat within the park. A proposed pedestrian pier would create a small amount of over-water cover. A potential relocation of the park’s boat launch to the Mukilteo Tank Farm would return the existing boat launch shoreline area to a more natural state, but could affect shoreline habitat at the new location depending on the conditions at the new site.

4.12.6 Mitigation Measures

Mitigation for Long-Term Impacts

Preferred Alternative

The Preferred Alternative incorporates ecosystem protection and enhancement measures in its definition because it would remove creosote piles and over-water coverage at the existing terminal site and at the Mukilteo Tank Farm, which would help offset the impacts of new or replacement structures.

Landscaping elements in the proposed project would compensate for some of the lost urban and mixed-use habitats. Loss of marine nearshore habitat would be offset by removal of the existing terminal and Tank Farm Pier.

Mitigation measures that would help avoid or minimize potential impacts on fish, marine mammals, and other aquatic species include:
• Collecting and conveying stormwater generated by the over-water coverage of the dock to onshore water quality treatment facilities to avoid the potential for water quality impacts in Possession Sound

• Using concrete or steel piles where possible, which would likely be replaced less frequently

• Incorporating grating and/or lights under the pier in the terminal design, where feasible, to minimize the effects of shading on fish species migrating along the shoreline

The project would also comply with the terms and conditions developed through consultation with NOAA Fisheries and the U.S. Fish and Wildlife Service in compliance with the ESA, the Magnuson-Stevens Act, and MMPA, which would be documented in the services’ Biological Opinions and other permits, and included in the project’s Record of Decision by FTA. The project would also meet the permit requirements of local, state, and federal agencies with jurisdiction over aquatic lands and shoreline areas; these permits include commonly applied mitigation measures or BMPs as well as project-specific mitigation requirements.

Removal of the existing terminal facility and the Tank Farm Pier would help to mitigate the increase in overwater structures, resulting in a net reduction of over-water cover of 3.0 acres. Demolition of the pier would also remove approximately 3,900 creosote-treated piles from the marine environment, likely improving water quality in the long term. Removal of the Tank Farm Pier has the potential to mobilize any contaminated sediments underneath the pier. As part of the project’s design and permitting processes, the newly exposed sediment surface will be further characterized to determine if contaminated sediments are present at depths that would be exposed after dredging. WSDOT will consult with the permitting agencies to determine if a cap or other measures are needed to reduce the potential for erosion and transport of contaminated sediment. The detailed measures and the data requirements necessary to define the measures will be guided by the permitting process and its requirements.

Mitigation for hazardous materials, as defined in Section 4.8, Hazardous Materials, includes measures to clean up or contain contamination encountered during project construction.

**No-Build Alternative**

The No-Build Alternative would replace existing over-water structures and could increase over-water coverage. The increase in over-water coverage may require compensatory mitigation for any lost ecosystem function and values. Compensatory mitigation could include funding for the removal of other over-water structures no longer in use or other habitat restoration measures. The exact type of mitigation would be determined in consultation with WDFW, DNR, and other regulatory agencies during project permitting.

**Existing Site Improvements Alternative**

The Existing Site Improvements Alternative would require mitigation similar to that described for the No-Build Alternative.
**Elliot Point 1 Alternative**

Similar to the Preferred Alternative, the Elliot Point 1 Alternative would mitigate the increase of over-water structures by removing the Tank Farm Pier. The Elliot Point 1 Alternative would result in a net reduction of 2.6 acres of over-water cover.

**Mitigation for Construction Impacts**

**Preferred Alternative**

Mitigation for construction impacts would include BMPs, conservation measures, and avoidance and minimization measures that are outlined below and would be further defined through the consultation and permitting process required for the project. Construction BMPs would be implemented to avoid or minimize impacts on ecosystem resources from construction activities. The *Mukilteo Multimodal Project Biological Assessment* (WSDOT 2012) provides more details about many of the projects proposed BMPs and standards. Construction activities would comply with the terms and conditions developed through consultation with NOAA Fisheries and the U.S. Fish and Wildlife Service in compliance with the ESA, the Magnuson-Stevens Act, and MMPA, and through all other permits required for the project.

Noise impacts would be minimized by construction planning and scheduling of in-water work to avoid critical periods in the life cycles of protected species and their habitats; monitoring for marine mammal and bird presence before and during construction; using installation techniques such as vibratory hammers instead of impact pile driving to reduce noise generation whenever possible; conducting pile driving during low tides using wood pile caps with concrete piles when feasible; monitoring ongoing compliance with permit terms and conditions during construction; and using lower level warning sounds and ramping up noise to warn wildlife of pending noise increases.

Impacts on migratory birds would be addressed by timing vegetation and structure removal appropriately, removing noxious weeds, and revegetating those areas and other disturbed areas with native species.

In addition to the terms and conditions defined through ESA consultations, additional measures to minimize general construction impacts include:

- Developing and implementing an approved Construction Stormwater Pollution Prevention Plan, which would serve as the overall stormwater mitigation plan and would include each of the following plans: Temporary Erosion and Sediment Control Plan; Spill Prevention, Control, and Countermeasures Plan; Concrete Containment and Disposal Plan; and Fugitive Dust Plan.

- Selecting construction equipment and techniques to minimize surface impacts, noise, and disturbance to or transport of bottom sediments. WSDOT will consult with the permitting agencies to determine if a cap or other measures are needed to reduce the potential for erosion and transport of contaminated sediment at the Tank Farm Pier site.

- Selecting and implementing BMPs to properly prevent pollutants from entering the water due to construction activities or pile removal.
• Adhering to the conditions specified in dredging and sediment disposal permits, NPDES permits and related construction and water quality permits.
• Using adaptive management strategies if problems are identified.

Other mitigation measures that could avoid or minimize impacts on ecosystems are discussed in Section 4.3 Noise and Vibration, Section 4.7 Air Quality, Section 4.8 Hazardous Materials, and Section 4.11 Water Resources.

Other Alternatives
The No-Build Alternative, the Existing Site Improvements Alternative and the Elliot Point 1 Alternative would have similar construction mitigation measures as the Preferred Alternative, except for measures related to the treatment of hazardous materials or the Tank Farm Pier, which only the Elliot Point 1 Alternative would also feature.

Mitigation for Cumulative Impacts
The development of the Mukilteo Tank Farm may result in the loss of urban and mixed environments and marine nearshore habitat. Appropriately designed landscaping or open space elements in the proposed project vicinity would compensate for some of the lost urban and mixed-use habitats. Compliance with existing federal, state, and local regulations would also reduce environmental impacts.

4.13 Public Services and Utilities
This section evaluates the project’s potential to affect public services and utilities within a study area that includes the SR 525 corridor to the ferry terminal and the areas within 0.5 mile of the alternatives.

4.13.1 Overview of Analysis and Regulatory Context
Regulatory Context
Public services and utilities are areas of analysis required under NEPA and SEPA. Factors to be considered include direct changes to physical facilities or the operations of public service providers, and potential changes in the demand for or quality of the public services and utilities. The study area, roughly the northern half of the city of Mukilteo and a small portion of the city of Everett, includes the service areas of several public service providers in the project area.

4.13.2 Affected Environment
Public services and facilities in the study area include police, fire, and emergency medical response, public schools, and solid waste collection. Public service facilities located in the study area are shown in Figure 4.13-1. This includes the City of Mukilteo’s public works buildings and shops, as well as the facilities identified below.
Figure 4.13-1. Public Services
Police, Fire, and Emergency Medical Services

The Washington State Patrol and the City of Mukilteo Police Department provide police and patrol services in the study area. State Patrol officers provide traffic control along SR 525 and security at the existing ferry terminal.

The City of Mukilteo Fire Department provides fire suppression, rescue, and emergency medical services in the study area. As part of a county-wide mutual aid agreement coordinated through Snohomish County Emergency Management Services, adjacent jurisdictions provide backup emergency response to the study area.

Schools

The Mukilteo School District serves about 14,000 students living in Mukilteo and south Everett. Two schools are in the study area, Mukilteo Elementary School and Olympic View Middle School, both about 1.5 miles south of the proposed ferry terminal sites.

Solid Waste and Utilities

Solid waste and refuse service is provided by Waste Management NW. Water, sewer, electric power, natural gas, telephone, and cable telecommunications providers include the Mukilteo Water and Wastewater District, the Snohomish County Public Utility District No. 1 (SnoPUD), Puget Sound Energy (PSE), Verizon, and Comcast.

4.13.3 Long-Term Environmental Impacts

No-Build Alternative

The No-Build Alternative would not generate additional demand for most public services. It would, however, result in increased traffic congestion along SR 525 and in Mukilteo’s downtown and waterfront areas. As a result, additional demand would be placed on the Washington State Patrol to manage traffic. These traffic delays and congestion could result in longer response times for emergency service providers and would also make access to and from schools, community facilities, and activities in the study area more difficult.

No long-term impacts on utilities would occur.

Preferred Alternative

The Preferred Alternative is not expected to generate additional demand for public services. Reductions in queue length and the elimination of existing congestion and safety points would improve access and response times for public service providers. The significant reduction in queuing on SR 525 could reduce the need for Washington State Patrol traffic control on SR 525 compared to the No-Build Alternative.

No long-term impacts on utilities are expected. The new facility is not anticipated to substantially increase the overall demand for services from utility providers, but it will connect to those utilities.
Existing Site Improvements Alternative

The Existing Site Improvements Alternative would not generate additional demand for public services. The alternative would include some improvements in access and traffic circulation along SR 525 and in the downtown and waterfront areas. Compared to the No-Build Alternative, the project could improve transportation access and circulation in the study area, and safety concerns related to sight distance would be reduced. Queuing and congestion problems would still remain. Overall, compared to the No-Build Alternative, emergency service provision and access to public facilities would be similar or better and demand for the Washington State Patrol to provide traffic management could be reduced, compared to No-Build conditions.

No long-term impacts on utilities are expected to result.

Elliot Point 1 Alternative

The potential long-term impacts of this alternative are similar to those described above for the Preferred Alternative.

4.13.4 Construction Impacts

No-Build Alternative

Traffic congestion resulting from construction activities could affect response times for emergency service providers. This could occur not only in Mukilteo, but also in Edmonds during periods when the terminal is completely closed and ferry traffic is redirected to Edmonds.

The No-Build Alternative includes construction of a new replacement slip and normal repair and maintenance activities. While not likely, minor disruptions in ferry service could occur during these activities.

Preferred Alternative

Construction vehicles on local roadways could cause congestion, but this would not markedly affect emergency service response times or access to public service facilities.

Because the Mukilteo Tank Farm is not currently in use and it is located at the end of most of the utility service areas, construction or relocation of utilities is not expected to cause service disruptions to residents or businesses in the project vicinity. Minor service disruptions could occur during construction of intersection improvements proposed at SR 525 and First Street, or for connecting utilities to the new facilities.

Existing Site Improvements Alternative

Construction impacts for the Existing Site Improvements Alternative would be similar to those discussed for the No-Build Alternative.

Construction of the Existing Site Improvements Alternative would have temporary impacts on project site utilities because service disruptions would be needed to connect new facilities to water, sewer, and gas mains.
Elliot Point 1 Alternative

The potential construction impacts of this alternative are similar to those described above for the Preferred Alternative.

4.13.5 Indirect and Secondary Impacts

Few indirect impacts on public services or utilities have been identified. For the No-Build Alternative, ferry operations would continue to operate similarly to present conditions. The Existing Site Improvements Alternative would be similar. For the Preferred Alternative and Elliot Point 1 Alternative, removing the existing ferry terminal features and operations at Front Street could provide the opportunity for redevelopment of the waterfront area. Utility replacements or upgrades may be necessary to serve future development and would be the responsibility of the developer. The Elliot Point alternatives provide the opportunity to reclaim portions of a currently vacant site, and improve the transportation access to the site, which could enable other developments on portions of the site not used for transportation purposes. These developments could also require improvements in utilities or expand areas requiring public services.

4.13.6 Cumulative Impacts

No cumulative impacts on public services or utilities have been identified for any of the alternatives.

4.13.7 Mitigation Measures

Mitigation for Long-Term Impacts

None of the alternatives involve long-term impacts requiring mitigation.

Mitigation for Construction Impacts

For all alternatives, impacts on public services would be minimized by preparing an Emergency Response Plan in coordination with emergency responders that addresses construction and operation safety issues and includes response procedures for emergencies.

WSDOT would coordinate with local water, stormwater, and sewer districts regarding potential relocations of utility infrastructure. In the case of off-site interruptions in service, customers would be given advance notice. Where utility relocations are necessary in public rights-of-way, utility objects would be placed outside of applicable control zones—areas WSDOT maintains around roadways to minimize risk of roadwork damaging utility objects. If it is not possible to locate utilities outside of control zones, mitigation measures would be applied in compliance with the WSDOT Utilities Manual (May 2013) and in coordination with the City of Mukilteo. Other WSDOT construction BMPs would be maintained throughout construction.
4.14 Other Considerations

This section identifies whether any adverse effects could not be mitigated, and it documents any irreversible and irretrievable commitments of resources that would be involved in the Mukilteo Multimodal Project. It also presents information on the relationship between local short-term uses of the environment and the maintenance and enhancement of long-term environmental productivity.

4.14.1 Irreversible Decisions and Irretrievable Resources

WSDOT and FTA have expended funds for the planning, design, and environmental review of this project, but similar activities would be required for any course of action regarding the terminal, including the No-Build Alternative. The existing terminal has facilities that will need to be replaced due to their age and condition.

For any of the alternatives, some resources would be irretrievable after completion of project construction. These resources would include the physical materials used to build the project such as aggregate to make concrete and asphalt, steel to make rebar and structures, oil to make asphalt, and earth materials for fill. The energy that would be consumed for construction work, and would therefore be irretrievable, would include fossil fuels to operate construction equipment and to transport materials and workers to the site. Although all of these resources are finite in nature, their supply would be adequate for this project and other needs in the near future.

Some excavated soils not reused on site would be disposed of at landfills, and the space used for these soils would not be available for other wastes. However, there is adequate landfill space available to accommodate all wastes that local communities would dispose of in the foreseeable future.

Energy used during operation of the facility would include electricity needed to keep lights and electrical systems running; fossil fuels to operate the ferries; and, indirectly, fossil fuels for vehicles to drive to the ferry terminal. These activities would occur under the No-Build Alternative and with any of the Build alternatives, although the Build alternatives would be more energy efficient because the new terminal building would be built to LEED silver standards. Project operation is not expected to have a substantial effect on energy consumption, energy sources, or fuel available in the region or the state.

All of the alternatives would involve activities that could disturb archaeological sites, resulting in potential damage to archaeological artifacts. Measures to avoid adverse effects would be included in each alternative.

What are the tradeoffs between the short-term uses of environmental resources and long-term gains (or productivity) from the project?

To consider whether the project’s long-term benefits make it worth the short-term disruption and the use of the resources involved in building the project, the EIS considers factors such as duration of project construction and the effects on all elements of the environment from construction. It then weighs these impacts against the project’s anticipated benefits.
All alternatives would expend resources to replace the terminal’s aging facilities with newer, more seismically stable facilities.

Because of the constraints of the existing site, neither the No-Build Alternative nor the Existing Site Improvements Alternative is able to fully address safety and security needs because the terminal area cannot be fully secured. The location of the existing site in the floodplain presents additional safety and operational problems, especially with climate change likely to worsen storm surges and winter storms. In addition, the No-Build Alternative would expend funds and incur construction impacts to replace a facility in a configuration that continues to pose longer-term problems for operations and safety. This includes poor sight distance for vehicles loading and unloading, constrained transit capacity, and continued pedestrian-vehicle conflicts. The Existing Site Improvements Alternative would include overhead passenger loading, which would improve terminal operation somewhat.

All Build alternatives would expend resources to create new transit facilities, add a signalized intersection at First Street and SR 525, and make other street improvements. These improvements would lead to long-term benefits for multimodal connectivity, transit mobility, vehicle travel, and pedestrian connectivity. These mobility improvements would promote economic growth in downtown Mukilteo.

The Preferred Alternative and Elliot Point 1 Alternative both involve higher levels of construction activities, material use, and site preparation activities compared to the No-Build Alternative or the Existing Site Improvements Alternative. This includes preparation of the Mukilteo Tank Farm for construction, the removal of the existing terminal facility and the Tank Farm Pier, dredging, and the development of the terminal and transit center on an entirely new site. However, while the short-term uses of resources would be greater, the long-term gains or benefits would include improved operations for the ferry terminal, reduced congestion, and improved safety and security. Safety and security benefits cannot be calculated quantitatively, but potential consequences of not providing for an improved facility to meet current seismic standards and national security directives range from severe regional transportation mobility disruption to injury and loss of life. These risks would be present as long as the facility remains unimproved. These alternatives are also expected to provide greater social and economic benefits because they relocate the terminal away from existing waterfront businesses and a major community waterfront park, and they would redevelop a large portion of a vacant brownfield site for beneficial public uses.

The removal of the Tank Farm Pier would also provide an environmental benefit by reducing the extent of over-water structures in the area, and removing thousands of creosote-treated wood piles. All Build alternatives would improve stormwater treatment facilities; the Preferred Alternative and Elliot Point 1 Alternative would treat water from a larger area, producing a greater benefit. Building the terminal on a new site at a higher elevation than the existing terminal could help to minimize impacts of service disruption due to long-term flooding associated with rising sea levels.

All of the alternatives would affect archaeological sites. However, an area developed as part of a federal project triggers certain protections for historic resources that would not apply to private development of the same area. Therefore, the Preferred
Alternative (or any other alternative) for this project would only proceed in consultation with interested tribes and DAHP, and include commitments developed through the Section 106 process to resolve the project’s adverse effects on the archaeological sites. The project’s Section 4(f) commitments will incorporate the MOA and add an overlapping regulatory protection to the resources on the site. The project’s federal approval would also stipulate how the project would protect resources and mitigate for unavoidable impacts. The Preferred Alternative’s Section 106 commitments also include designing project elements and features to commemorate the area’s significant cultural and historic sites and increase public understanding of their importance.
5 SECTION 4(f)

5.1 Introduction

This chapter provides a summary of the evaluation of effects on resources protected under a U.S. Department of Transportation (USDOT) statute known as Section 4(f). It also discusses a federal regulation known as Section 6(f) that applies to park and recreation resources that have been acquired or developed with certain federal funds. Appendix I contains the full Section 4(f) evaluation for the project.

5.2 Section 4(f) Guidelines and Regulations

The U.S. Department of Transportation Act of 1966, Section 4(f), generally prohibits USDOT agencies (including the FTA) from approving projects that would use land from:

…a significant publicly-owned park, recreation area or wildlife and waterfowl refuge or any significant historic site, unless there is no feasible and prudent alternative to the use of land from the property and the action includes all possible planning to minimize harm to the property resulting from the use.

Section 4(f) applies to three types of resources:

- Significant publicly owned parks, and significant recreation areas that are open to the public.
- Significant publicly owned wildlife and waterfowl refuges, whether or not they are open to the public.
- Historic sites of national, state, or local significance, whether or not these sites are publicly owned or open to the public. In most cases, only historic properties listed in or eligible for inclusion in the National Register of Historic Places (NRHP) are protected under Section 4(f).

A use is generally defined as a transportation activity that acquires land from a Section 4(f) property. A use can be permanent, temporary, or constructive. A constructive use occurs when the proximity effects of the project are so great that they substantially impair the protected activities, features, or attributes of a property, even though the project does not physically use the property.

Section 4(f) properties may not be used for any transportation project receiving federal funds or approval from a USDOT agency, except where: (a) de minimis impact occurs (described below); (b) there is a specific exception to a use in the Section 4(f) regulations; or (c) there is no feasible or prudent alternative and all possible planning has been done to minimize harm. Section 4(f) also requires that an action include all possible planning to minimize harm to properties covered by the Act.

The Section 4(f) analysis has a study area that combines the study areas from two other analyses completed for the project EIS. For potential uses of historic, cultural, and archaeological resources, the analysis used the Area of Potential Effects (APE) described in Section 4.6 Cultural Resources. For potential uses of parks and recreational resources, the analysis considered all such resources within 0.5 mile of the project.
footprint based on the study area used for Section 4.5 Social Environment and Environmental Justice. Figure 5-1 shows these study areas.

5.3 Section 6(f) Resources

State and local governments often obtain grants through the Land and Water Conservation Fund Act to acquire or make improvements to parks and recreation areas. Section 6(f) of this Act prohibits the conversion of property acquired or developed with these funds to a non-recreational purpose, without the approval of the U.S. Department of the Interior’s National Park Service. Because Section 4(f) lands may have been developed with Section 6(f) funds, a Section 6(f) analysis was also conducted for this project. It confirmed that no potentially affected property was acquired or developed with these funds.

5.4 Section 4(f) Resources

Section 4(f) resources in the study area are shown on Figure 5-1.

Parks and Recreation Resources

The project alternatives are near a number of parks and recreational areas. Figure 5-1 shows the locations of the parks and recreational areas within the study area; these facilities are listed in Table 5-1 and described below.

Table 5-1. Parks and Recreational Section 4(f) Resources

<table>
<thead>
<tr>
<th>Park Resource</th>
<th>Owner/Custodian</th>
<th>Recreational Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cascadia Marine Trail</td>
<td>U.S. waters</td>
<td>Recreation</td>
</tr>
<tr>
<td>Mukilteo Lighthouse Park</td>
<td>City of Mukilteo</td>
<td>Active and passive recreation</td>
</tr>
<tr>
<td>Port of Everett Fishing Pier and Seasonal Day Moorage</td>
<td>Port of Everett</td>
<td>Active recreation</td>
</tr>
<tr>
<td>Silver Cloud Inn Pier</td>
<td>City of Mukilteo</td>
<td>Active recreation</td>
</tr>
<tr>
<td>Mukilteo Community Beach</td>
<td>City of Mukilteo</td>
<td>Shoreline access</td>
</tr>
<tr>
<td>Totem Park</td>
<td>City of Mukilteo</td>
<td>Passive recreation</td>
</tr>
<tr>
<td>Barbara Brennen Dobro Memorial Park</td>
<td>City of Mukilteo</td>
<td>Passive recreation</td>
</tr>
<tr>
<td>Centennial Park</td>
<td>City of Mukilteo</td>
<td>Passive recreation</td>
</tr>
<tr>
<td>Edgewater Park</td>
<td>City of Everett</td>
<td>Active and passive recreation</td>
</tr>
<tr>
<td>Port of Everett Mount Baker Terminal Shoreline Access Area</td>
<td>Port of Everett</td>
<td>Shoreline access (not currently open)</td>
</tr>
<tr>
<td>Japanese Gulch</td>
<td>City of Mukilteo</td>
<td>Passive recreation</td>
</tr>
</tbody>
</table>

The Cascadia Marine Trail is one of 16 non-motorized water trails designated as National Millennium Trails by the White House Millennium Council. It extends through Puget Sound from Olympia to Point Roberts on the U.S.-Canada border.

Mukilteo Lighthouse Park, a 14.4-acre park located west of the current terminal, includes the former Mukilteo State Park property, the former U.S. Coast Guard Light Station property, and adjacent Front Street right-of-way.
The Port of Everett has a fishing pier and seasonal day moorage located on the east side of the existing Mukilteo ferry terminal dock. The pier is documented in the City of Mukilteo’s Public, Private Open Spaces and Recreational Facilities Map. The pier is open year-round to the public, and offers seasonal day moorage slips for boaters.

Adjacent to the Silver Cloud Inn is a public shoreline promenade that includes a pier. This pier supports recreational activities, such as view enjoyment and fishing.

Mukilteo Community Beach provides limited access to the shoreline at the terminus to Park Avenue. SCUBA divers use Mukilteo Community Beach as a launching site.

The Port of Everett Mount Baker Terminal shoreline access area partially overlaps with an area locally referred to as Edgewater Beach. The area is not yet officially open, but it includes parking and a shoreline walkway and access area. As land dedicated to be a public recreational facility, it is a Section 4(f) resource.

Japanese Gulch is a designated open space owned by the City of Mukilteo. It offers informal trails and open space areas around Japanese Creek, adjacent to Mukilteo Lane and 5th Street.

The other four resources are small parks located farther from the project area. Totem Park, at the intersection of SR 525 and Third Street, occupies approximately 0.10 acre, and features a picnic area, public views of Puget Sound, and public art. Barbara Brennen Dobro Memorial Park is a small open-space area featuring unobstructed views of Puget Sound. Centennial Park, located at 1126 5th Street, occupies approximately 0.25 acre and has picnic tables, public art, and a parking area. Edgewater Park, located in Everett, is in the southeast part of the study area, and includes picnic tables, tennis and basketball courts, and a playground.

Historic Resources

Table 5-2 identifies the properties within the project’s APE that are listed or eligible for listing in the NRHP; these historic properties are Section 4(f) resources.

Table 5-2. Historic and Cultural Section 4(f) Resources

<table>
<thead>
<tr>
<th>Resource</th>
<th>Location</th>
<th>NRHP-Eligible?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mukilteo Shoreline Site (45SN393)</td>
<td>Mukilteo Tank Farm Elliot Point</td>
<td>Yes</td>
</tr>
<tr>
<td>Point Elliott Treaty Site (45SN108)</td>
<td>Central Waterfront</td>
<td>Yes</td>
</tr>
<tr>
<td>Old Mukilteo Townsite (45SN404)</td>
<td>Park Avenue/ Front Street</td>
<td>Yes</td>
</tr>
<tr>
<td>Japanese Gulch Site (45SN398)</td>
<td>Japanese Creek/ Mukilteo Tank Farm</td>
<td>Yes</td>
</tr>
<tr>
<td>Mukilteo Light Station (45SN123)</td>
<td>Elliot Point</td>
<td>Yes (listed)</td>
</tr>
</tbody>
</table>

The five properties that are Section 4(f) resources are briefly described below. Additional detail on these properties is provided in Section 4.6 Cultural Resources and in Appendix I Section 4(f) Evaluation.
**Mukilteo Shoreline Site**

The Mukilteo Shoreline Site (designated 45SN393 by DAHP) is a shell midden related to native inhabitants of the Puget Sound region, holding artifacts dating back more than a thousand years.

**Point Elliott Treaty Site**

The Point Elliott Treaty Site (designated 45SN108 by DAHP) is significant for its association with the treaty signers, the history of Indian-White relations, and the development of federal Indian policy in the last half of the 19th century, both nationally and regionally. The treaty, one of five treaties negotiated between 1854 and 1856, represented a major change in relations with the Indian nations in the northwestern United States. The site is also archaeologically significant under NRHP Criterion D because artifacts from the treaty period may be present.

**Old Mukilteo Townsite**

The Old Mukilteo Townsite (designated 45SN404 by DAHP) consists of historic remains from Mukilteo’s business district dating from at least 1880 to 1938.

**Japanese Gulch Site**

The project has identified historic archaeological resources at Japanese Gulch (designated 45SN398 by DAHP), which contains two areas where an early 20th century Mukilteo Japanese community was located.

**Mukilteo Light Station**

The Mukilteo Light Station (designated 45SN123 by DAHP), a lighthouse complex consisting of 11 buildings and structures, is listed in the NRHP. It is a well-preserved complex of buildings and structures typical of those produced by the federal Light House Board in the Pacific Northwest during the late 19th and early 20th centuries. The Mukilteo Light Station is also historically significant for its association with the maritime history of Puget Sound.

### 5.5 Evaluation of Section 4(f) Resource Use

#### 5.5.1 Summary of Effects on Section 4(f) Properties

Tables 5-3 and 5-4 summarize the impacts of the Preferred Alternative on Section 4(f) properties, and provide FTA’s use determinations for the Preferred Alternative. Table 5-3 discusses parks and recreation resources, and Table 5-4 addresses historic resources.
Table 5-3. Summary of the Preferred Alternative’s Effects on Section 4(f) Parks and Recreation Resources

<table>
<thead>
<tr>
<th>Name</th>
<th>Owner/Custodian</th>
<th>Description of Project Activity</th>
<th>Use Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port of Everett Fishing Pier and Day Moorage</td>
<td>Port of Everett</td>
<td>The demolition of the existing ferry terminal would require closing and reconstructing the fishing pier.</td>
<td>Use</td>
</tr>
<tr>
<td>Mount Baker Terminal Shoreline Access Area</td>
<td>Port of Everett</td>
<td>No impact</td>
<td>No use</td>
</tr>
</tbody>
</table>

Table 5-4. Summary of the Preferred Alternative’s Effects on Section 4(f) Historic and Cultural Resources

<table>
<thead>
<tr>
<th>Name</th>
<th>Description of Project Activity</th>
<th>Use Determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mukilteo Shoreline Site (45SN393)</td>
<td>Although the design avoids construction within the known limits of the midden, a potential for impact still exists.</td>
<td>Use</td>
</tr>
<tr>
<td>Point Elliott Treaty Site (45SN108)</td>
<td>The alternative would occupy an area within the site boundaries. It would remove existing ferry facilities not related to the site’s historic characteristics, and develop other portions of the site where there are no visible features related to its historic significance.</td>
<td>Use</td>
</tr>
<tr>
<td>Old Mukilteo Townsite (45SN404)</td>
<td>Adverse effect due to excavation within site.</td>
<td>Use</td>
</tr>
<tr>
<td>Japanese Gulch Site (45SN398)</td>
<td>No effect</td>
<td>No use</td>
</tr>
</tbody>
</table>

5.5.2 Comparison of the Ability of Alternatives to Avoid or Minimize Uses of Section 4(f) Resources

As shown in Table 5-5, all of the project Build alternatives would use the same Section 4(f) resources, and none of the alternatives would completely avoid a Section 4(f) use.

Table 5-5. Comparison of Section 4(f) Uses for all Build Alternatives

<table>
<thead>
<tr>
<th>Section 4(f) Resource Affected</th>
<th>Preferred Alternative</th>
<th>Existing Site Improvements</th>
<th>Elliot Point 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port of Everett Fishing Pier and Day Moorage</td>
<td>Use</td>
<td>Use</td>
<td>Use</td>
</tr>
<tr>
<td>Mount Baker Terminal Shoreline Access Area</td>
<td>No use</td>
<td>No use</td>
<td>De minimis</td>
</tr>
<tr>
<td>Mukilteo Shoreline Site (45SN393)</td>
<td>Use</td>
<td>Use</td>
<td>Use</td>
</tr>
<tr>
<td>Point Elliott Treaty Site (45SN108)</td>
<td>Use</td>
<td>Use</td>
<td>Use</td>
</tr>
<tr>
<td>Old Mukilteo Townsite (45SN404)</td>
<td>Use</td>
<td>Use</td>
<td>Use</td>
</tr>
<tr>
<td>Japanese Gulch Site (45SN398)</td>
<td>No use</td>
<td>No use</td>
<td>Use</td>
</tr>
<tr>
<td>Total Section 4(f) Resources with a Use or Potential Use</td>
<td>4</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
5.5.3 Absence of Prudent and Feasible Avoidance Alternatives

Because none of the project’s proposed alternatives completely avoids using Section 4(f) resources, Section 4(f) regulations require an analysis to determine if there are prudent and feasible avoidance alternatives.

The Preferred Alternative would use four resources that also would be used by the other Build alternatives. Any other alternative within the Mukilteo waterfront area would have a similar likelihood of using these resources, even if some design elements were modified or the alternatives had different footprints. Alternatives outside of Mukilteo that would have avoided these resources were considered but eliminated because they did not meet the project’s purpose and need and worsened environmental effects (see Chapter 2 Alternatives for more information). The No-Build Alternative would not avoid the use of at least one Section 4(f) resource, and as it also does not satisfy the purpose and need, it does not qualify as a prudent and feasible alternative to a use. Therefore, none of the alternatives considered would constitute a feasible and prudent Section 4(f) avoidance alternative.

5.5.4 Determining “Least Harm” Alternatives

Because no alternative completely avoids Section 4(f) uses, FTA can identify one or more “least harm” alternatives, considering factors defined in Section 4(f) regulations. Appendix I lists the factors to be considered; they include the remaining impacts to the Section 4(f) resources after mitigation, the degree to which each alternative meets the project’s purpose and need, and any adverse impacts after mitigation to resources not protected by Section 4(f) resources.

FTA has incorporated in its analysis the results of the environmental analysis, public comments on the Draft EIS, the information gathered through continuing Section 4(f) evaluation and coordination, and Section 106 consultations with other agencies, tribes, and interested parties. Appendix I describes in more detail each of the alternatives’ performance with respect to all of the least harm factors. The text below focuses on the primary conclusions of this complex analysis:

- The Preferred Alternative is most able to mitigate adverse impacts on the affected Section 4(f) properties. It includes measures that protect the affected historic properties, and replace the affected recreation property. Its mitigation measures reduce the remaining harm, after mitigation, to the properties, and offers design opportunities that recognize the historic significance of several of the properties. The mitigation measures are supported by the other agencies with jurisdiction over each of the properties.
- The Preferred Alternative best meets the project’s purpose and need because it offers the most improvements to transportation conditions for pedestrians, bicyclists, transit riders, and vehicles; it has the shortest distances between the transit center, terminal, and the commuter rail station; and it performs at least as well as the other alternatives in all the other purpose and need areas.
- The Preferred Alternative has similar or lower environmental impacts and offers the highest benefits to other environmental resources. It addresses upland and in-water sources of contamination, including the Tank Farm Pier.
and existing terminal facilities; it reduces the ferry system’s impacts on the local transportation system and parking; it supports local land use plans; it avoids displacing a local business; and it opens up the largest area of the waterfront to public use, access, and potential developments consistent with the City of Mukilteo’s plans.

The costs of the Preferred Alternative are reasonable compared to the other alternatives, and would not require the selection of any other alternative.

### 5.5.5 Section 4(f) Evaluation

The full Section 4(f) evaluation in Appendix I provides a more complete description of the factors FTA has considered and the analysis performed to support its finding that:

- FTA has found no feasible and prudent avoidance alternatives to using protected Section 4(f) resources.

- In developing the Preferred Alternative, WSDOT and FTA have conducted all possible planning to minimize harm to each property that would be used.

- Considering the Preferred Alternative’s mitigation and enhancement measures for Section 4(f) uses, as well as its impacts and benefits, the Preferred Alternative would have the least overall harm to Section 4(f) resources and the environment.
CHAPTER 6

Evaluation of Alternatives
6 EVALUATION OF ALTERNATIVES

This chapter compares the alternatives on their effectiveness in addressing the project’s purpose and need, taking into account the proposed facility improvements described in Chapter 2 Alternatives, and the transportation and environmental effects identified in Chapter 3 Transportation and Chapter 4 Environmental Impacts and Mitigation. It assesses the alternatives in terms of their effectiveness at meeting the purpose and need and avoiding or mitigating environmental impacts.

This approach is similar to the one WSDOT and FTA used in 2010 when they conducted the initial evaluation and screening of concepts to identify the alternatives now being considered in this EIS. That screening effort measured concepts on their environmental performance and their ability to satisfy the project’s purpose and need. It focused on three questions:

- Does the concept improve safety and security at the terminal facility compared to existing conditions at the Mukilteo terminal?
- Does the concept improve transportation (including for bicycles, pedestrians, and transit) compared to existing conditions at the Mukilteo terminal?
- How well does the concept avoid adverse environmental effects?

The EIS’s evaluation of alternatives continues to focus on these categories. However, with the additional levels of information available from the engineering and environmental analyses conducted for the EIS, this evaluation provides further measures to compare aspects of the purpose and need, as described below:

- **Safety and Security**
  - Reduce conflicts between local and ferry vehicle traffic
  - Reduce conflicts between vehicles and pedestrians/bicyclists
  - Provide a secure facility as required by the U.S. Department of Homeland Security
  - Address seismic or structural deficiencies

- **Transportation**
  - Improve ferry schedule reliability (timely and reliable loading and unloading)
  - Improve connections between modes (ferry, bus, and rail):
    - Distance
    - Reliable connections (on-time bus, rail, and ferry connections)
  - Provide facilities to support growth in travel demand
  - Improve pedestrian and bicycle access
  - Reduce local transportation system impacts
  - Reduce parking impacts
• **Environmental Impacts**
  - Avoid, minimize, or mitigate adverse effects on all elements of the environment, and provide benefits where possible
  - Comply with applicable laws and regulations (e.g., Clean Water Act, Endangered Species Act, city development regulations, etc.)

• **Consistency with System Plans**
  - Comply with *Washington State Department of Transportation Ferries Division Final Long Range Plan: 2009–2030*
  - Be consistent with regional and local transportation plans, including PSRC’s *Transportation 2040* and city, county, and transit agency long-range plans

### 6.1 Safety and Security

Several issues affect the ability of the alternatives to respond to the safety and security concerns for the current terminal. These issues are summarized in Table 6-1, followed by a discussion of the key differences among the alternatives.

**Table 6-1. Summary of Safety and Security Measures by Alternative**

<table>
<thead>
<tr>
<th>Safety Issue</th>
<th>No-Build</th>
<th>Preferred Alternative</th>
<th>Existing Site Improvements</th>
<th>Elliot Point 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduces conflicts between local and ferry vehicle traffic</td>
<td>No</td>
<td>Yes</td>
<td>Partially, through one-way street configurations</td>
<td>Yes</td>
</tr>
<tr>
<td>Reduces conflicts between vehicles and pedestrians/bicyclists</td>
<td>No</td>
<td>Yes</td>
<td>Partially, with street revisions and overhead loading</td>
<td>Yes</td>
</tr>
<tr>
<td>Provides a securable facility as required by the U.S. Department of Homeland Security</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Addresses seismic or structural deficiencies</td>
<td>Partially over time, as facilities are replaced</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

The No-Build Alternative would not address most of the current terminal’s safety and security issues:

- It would not fully address the potential for near misses and collisions near the SR 525-Front Street intersection and conflicts between local/ferry vehicle traffic, vehicle/pedestrian bicycle movements, and transit/ferry traffic.
- The existing terminal does not meet seismic standards in an area with soils that are highly susceptible to severe shaking or movement in an earthquake. Preservation and maintenance would replace the facilities and meet seismic standards, but this would occur over one or two decades.
- The existing facility cannot be fenced, gated, or readily secured in response to U.S. Coast Guard heightened security orders or U.S. Department of Homeland Security protocols.
The Preferred Alternative and Elliot Point 1 Alternative address the seismic and security needs for the terminal, and they relocate the terminal and the flow of ferry traffic away from the high conflict area of SR 525 and Front Street. Under the Elliot Point 1 Alternative, however, pedestrians traveling between the ferry terminal and Mukilteo Station would still cross ferry traffic at grade.

The Existing Site Improvements Alternative would partially address the traffic safety concerns by revising Front Street to be a one-way street, and by providing overhead loading. There would still be conflicts between ferry traffic and local traffic movements, particularly for pedestrians crossing SR 525 and Front Street. The complete reconstruction and realignment of the terminal would address the seismic safety concerns. However, the vehicle loading areas could not be secured because public streets would still bisect the facility.

6.2 Transportation Effectiveness

WSDOT’s forecasts predict the demand for travel by ferry will nearly double between 2010 and 2040. Much of the growth in demand is because of the projected growth in commuter trips. However, no additional vehicle capacity, beyond the addition of the planned 144-vehicle ferries, is available on the ferries for trips during peak commute periods. By 2040, the number of ferries that will be full of vehicles on a daily basis will more than double, causing longer wait times for users trying to drive onto the ferries. However, the ferries can accommodate many additional walk-on passengers; with improved transit connections, more of this demand can be satisfied.

For all of the alternatives, including No-Build, WSDOT predicts the following increases in demand through 2040:

- A 60 percent increase in demand for vehicle trips during the peak period
- An 80 percent increase in demand for passenger trips during the peak period

Table 6-2 shows the 2040 forecast for the percentage of daily ferries that will be sailing at their full vehicle capacity, including the busier summer periods. This translates to more times when the loading areas will be full of vehicles, with more potential for queuing for longer portions of the day. This increase in full sailings reinforces the purpose and need for the project. The alternatives that encourage options aside from driving would offer the best opportunity to manage the peak demand periods anticipated in the future.

<table>
<thead>
<tr>
<th>Month</th>
<th>2010</th>
<th>2040</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>8%</td>
<td>32%</td>
</tr>
<tr>
<td>May</td>
<td>20%</td>
<td>48%</td>
</tr>
<tr>
<td>August</td>
<td>35%</td>
<td>58%</td>
</tr>
</tbody>
</table>

Table 6-3 summarizes the transportation performance, including the ability of the alternatives to avoid impacts and provide improved connections and service for ferry and transit connections.
Table 6-3. Summary of Transportation Measures by Alternative

<table>
<thead>
<tr>
<th>Transportation Element</th>
<th>No-Build</th>
<th>Preferred Alternative</th>
<th>Existing Site Improvements</th>
<th>Elliot Point 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferry schedule reliability (timely and reliable loading and unloading)</td>
<td>No</td>
<td>Yes</td>
<td>Yes, due to overhead passenger loading</td>
<td>Yes</td>
</tr>
<tr>
<td>Minutes over/under 15-minute reliability target</td>
<td>2 minutes over</td>
<td>5 minutes under</td>
<td>4 minutes under</td>
<td>5 minutes under</td>
</tr>
<tr>
<td><strong>Improved connections between modes (ferry, bus, and rail)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walking Distances</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rail station/Passenger building</td>
<td>1,730 feet</td>
<td>745 feet</td>
<td>1,650 feet</td>
<td>1,610 feet</td>
</tr>
<tr>
<td>Transit center/Passenger building</td>
<td>190 feet</td>
<td>225 feet</td>
<td>590 feet</td>
<td>540 feet</td>
</tr>
<tr>
<td>Transit center/Rail station</td>
<td>1,850 feet</td>
<td>970 feet</td>
<td>1,190 feet</td>
<td>1,080 feet</td>
</tr>
<tr>
<td>Reliable connections (on time bus, rail, and ferry connections)</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Transit facilities to support growth in travel demand</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Pedestrian and bicycle improvements</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>HOV priority lane</td>
<td>No</td>
<td>Yes</td>
<td>Partial</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 6-3 also shows that there would be tradeoffs in transportation performance for several of the alternatives:

- The No-Build Alternative would continue to provide a short walking distance between the passenger building and the existing bus stops, but it would not address traffic problems or provide for growth in transit service. It also would not allow WSDOT to implement its HOV priority program at the terminal.

- The Preferred Alternative would address many of the existing terminal’s traffic problems. The extension of First Street and the larger holding area would provide more room for queues, thereby reducing backups onto SR 525. Circulation and traffic safety in the central waterfront area, including for bicycles and pedestrians, would be improved. The distance between the ferry terminal and the commuter rail station is shorter than the No-Build Alternative. An onsite transit center would provide room for growth in demand, but, similar to the Elliot Point 1 Alternative, the transit center would be located away from other non-terminal uses.

- The Existing Site Improvements Alternative would provide for good reliability and more growth in transit, including a nearby transit center that is close to the ferry terminal and the commuter rail station; however, it does not address traffic problems related to safety and queuing. It accommodates overhead loading but still creates the potential for pedestrians and bicyclists to cross loading and unloading lanes.

- The Elliot Point 1 Alternative also would resolve many of the traffic problems that occur with the current terminal location because ferry traffic would be redirected to the Mukilteo Tank Farm. The extension of First Street would
provide more room for queues, thereby avoiding backups onto SR 525. Circulation in the central waterfront area, including for bicycles and pedestrians, would be improved. The alternative would have more reliable sailing schedules, helping patrons make on-time connections to transit; however, it would create longer walks from the ferry building to the commuter rail station. An onsite transit center would provide room for longer-term growth in transit service, but it would be more isolated from non-terminal uses.

### 6.3 Environmental Effectiveness

Table 6-4 summarizes the potential environmental impacts that would result from all the alternatives. This is followed by a discussion of the environmental areas where the alternatives have notably different impacts.

<table>
<thead>
<tr>
<th>Area of the Environment</th>
<th>No-Build</th>
<th>Preferred Alternative</th>
<th>Existing Site Improvements</th>
<th>Elliot Point 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Permanent Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land use and Economics</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Full acquisitions ( parcels)</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Displaced residences</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Displaced businesses</td>
<td>0</td>
<td>6</td>
<td>7</td>
<td>1</td>
</tr>
<tr>
<td>Compatibility with local land use</td>
<td>Low</td>
<td>High</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Compatibility with shoreline management plans</td>
<td>Low</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td>Noise and Vibration (Human Environment)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Noise impacts above FTA/FHWA thresholds</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Vibration impacts above thresholds</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Visual Quality Impacts</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Social Environment and Environmental Justice Impacts</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Historic and Cultural Resources</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Archaeological sites with adverse effects</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Air Quality</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NAAQS criteria exceeded</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hazardous Materials</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acres of previously remediated site redeveloped</td>
<td>0</td>
<td>9</td>
<td>1</td>
<td>11</td>
</tr>
<tr>
<td>Energy and Climate Change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction energy required (MBtu)</td>
<td>807,000</td>
<td>1,203,000</td>
<td>1,564,000</td>
<td>1,516,000</td>
</tr>
</tbody>
</table>
Table 6-4. Summary of Environmental Impacts by Alternative

<table>
<thead>
<tr>
<th>Area of the Environment</th>
<th>No-Build</th>
<th>Preferred Alternative</th>
<th>Existing Site Improvements</th>
<th>Elliot Point 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Geology and Soils</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability to address seismic and liquefaction risks</td>
<td>Limited</td>
<td>Improved</td>
<td>Improved</td>
<td>Improved</td>
</tr>
<tr>
<td><strong>Water Resources</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ferry operation disruption from location in floodplain</td>
<td>Higher</td>
<td>Lower</td>
<td>Higher</td>
<td>Lower</td>
</tr>
<tr>
<td><strong>Ecosystems</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net change in over-water cover (square feet)</td>
<td>+3,000</td>
<td>-129,100</td>
<td>+12,000</td>
<td>-116,300</td>
</tr>
<tr>
<td>Removal of creosote-treated piles</td>
<td>Existing facility only</td>
<td>Existing facility and approx. 3,900 piles at Tank Farm Pier</td>
<td>Existing facility and fishing pier</td>
<td>Existing facility and approx. 3,900 piles at Tank Farm Pier</td>
</tr>
<tr>
<td><strong>Transportation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local transportation system backups on SR 525</td>
<td>Worse than today</td>
<td>Improved: Reduced queuing on SR 525</td>
<td>Worse than today</td>
<td>Improved: No queuing on SR 525</td>
</tr>
<tr>
<td>Parking impacts</td>
<td>No change</td>
<td>Gain of 28 spaces</td>
<td>Loss of 19 spaces</td>
<td>Gain of 22 spaces</td>
</tr>
<tr>
<td><strong>Construction Effects</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Built environment</td>
<td>High due to multiple terminal closures; terminal closed 3 to 9 months</td>
<td>Low to moderate, with greater levels of construction activity but away from public areas; little to no closure of ferry service</td>
<td>Moderate due to terminal closure and area disruptions; terminal closed 1 to 2 months</td>
<td>Low to moderate, with greater levels of construction activity but away from public areas; little to no closure of ferry service</td>
</tr>
<tr>
<td>Potential to encounter hazardous materials during construction</td>
<td>Low</td>
<td>Moderate</td>
<td>Low to Moderate</td>
<td>Moderate</td>
</tr>
<tr>
<td><strong>Natural environment</strong></td>
<td>Moderate due to in-water construction</td>
<td>High due to in-water construction, pier removal, dredging</td>
<td>Moderate due to in-water construction</td>
<td>High due to in-water construction, pier removal, dredging</td>
</tr>
<tr>
<td><strong>Use of Section 4(f) Properties</strong></td>
<td>Four uses</td>
<td>Four uses</td>
<td>Four uses</td>
<td>Five uses</td>
</tr>
</tbody>
</table>

NAAQS = National Ambient Air Quality Standards; MBtu = million British thermal units

1 There are approximately six tenants located in the Mongrain Building.

Some of the major differences in impacts are due to the direct and indirect impacts of building and operating a facility at the existing terminal location or at the Mukilteo Tank Farm. This makes the No-Build and Existing Site Improvements alternatives similar in many aspects compared to the Preferred Alternative and the Elliot Point 1 Alternative.

**Land Use and Economic Development.** The No-Build and Existing Site Improvements alternatives would conflict with the City’s adoption of Mukilteo Vision 2020 in its Comprehensive Plan. The plan seeks to reconnect the city to its waterfront areas. Keeping the terminal at the existing site and having ferry-related traffic run through the central waterfront would not support these goals. It also would not allow a more pedestrian-oriented waterfront.

The Preferred Alternative would allow the central waterfront to be redeveloped in a more pedestrian-friendly manner because it would remove the existing ferry terminal.
site and many of its related traffic problems. All Build alternatives would displace the fishing pier and seasonal day moorage, but the Preferred Alternative would integrate the relocated facility within its footprint and connect it to a new waterfront promenade that joins up with new sidewalks back to the central waterfront. The promenade also would provide a continuous pathway along the shoreline frontage of the new multimodal facility with viewpoint opportunities. A terminal on the Mukilteo Tank Farm would qualify as a water-dependent use. While some design features may not fully conform with the City of Mukilteo Shoreline Management Program policies, but WSDOT would coordinate with the City of Mukilteo during final design and permitting to maximize conformity.

The Elliot Point 1 Alternative would be similar to the Preferred Alternative, but it does not specifically include a site for relocating the fishing pier, and its promenade along the shoreline would be interrupted at the ferry loading and unloading driveway. Further design modifications could address these factors.

The City’s plans to reopen the Mukilteo Tank Farm lands to public use could be facilitated by the Preferred Alternative and the Elliot Point 1 Alternative. These alternatives would remove the pier, remove many of the abandoned structures on the property, and provide roads, sidewalks, bicycle lanes, transit improvements, utility upgrades, and landscaping in the area. The Elliot Point 1 Alternative would also provide the opportunity to create open space, restore a section of Japanese Creek to an open stream, and improve fish passage. Japanese Creek currently flows into a culvert beneath the railroad tracks where it enters a vault and then separates into two culverts.

**Historic and Cultural Resources.** The Mukilteo area has a particularly rich cultural history, and it has a number of historically and culturally important resources:

- **Mukilteo Shoreline Site**—a large archaeological site encompassing a shell midden and other deposits representing the occupation of the area by Native American peoples dating back more than 1,000 years

- **Point Elliott Treaty Site**—the site where the 1855 treaty between the U.S. government and Puget Sound Native American tribes was signed

- **Japanese Gulch Site**—archaeological deposits associated with early 20th century Japanese mill workers

- **Old Mukilteo Townsite**—archaeological remains of the early Mukilteo business district, including a former train station

Construction of the No-Build Alternative and the Existing Site Improvements Alternative could affect the Mukilteo Shoreline Site because excavation for replaced buildings and utilities could encounter intact archaeological deposits that are known to be in the immediate area of construction. The Elliot Point 1 Alternative would largely avoid excavation of the shoreline site, although a portion of the First Street extension could pave over one edge above archaeological deposits. Utility work could contact a small portion where the midden may be present but has been previously disturbed. The Preferred Alternative would build paved parking areas and a roadway on top of fill, avoiding construction activities that could affect the intact areas of the midden. The Preferred Alternative would not construct buildings with deep foundations over the midden.
Construction associated with the Preferred Alternative, Existing Site Improvements Alternative, and the Elliot Point 1 Alternative would affect the Old Mukilteo Townsite. The Existing Site Improvements Alternative would involve the most construction over this site, including the construction of a new transit center and additional utility work.

The Elliot Point 1 Alternative would affect the Japanese Gulch Site because it would daylight Japanese Creek and build a roadway on top of fill across a portion of the site.

All of the alternatives would occupy areas within the Point Elliott Treaty Site boundaries.

**Hazardous Materials.** The Mukilteo Tank Farm, which includes a large pier, is a site with past contamination issues, many of which have been addressed by the U.S. Air Force. Some areas with localized contamination could still be encountered by construction activities for the Preferred Alternative and Elliot Point 1 Alternative; upland site development could encounter contaminated soils and groundwater, metal tanks, piping, and other potentially contaminated materials. In-water work to remove the pier and its estimated 3,900 creosote piles, as well as dredging a sailing channel for the ferry, could release contaminated materials. The potential to encounter localized contamination will require additional permitting and environmental protection measures. Moreover, it would add complexity to construction activities, but all work would be done to meet regulatory requirements. If hazardous materials were encountered and handled properly, there would be an environmental benefit. Overall the Preferred Alternative and Elliot Point 1 Alternative would have similar likelihoods of encountering hazardous materials and requiring remedial measures. Because the No-Build and Existing Site Improvements alternatives would avoid the Mukilteo Tank Farm, they would not help to address any remaining contamination or support reclamation of that site. Hazardous materials may exist on property needed for the Existing Site Improvements Alternative. If hazardous materials were encountered and handled properly at this site, there would be an environmental benefit.

**Ecosystems and Water Resources.** All the alternatives would remove creosote-treated piles and decking from the existing terminal, which would have some beneficial effects. All would have impacts due to new in-water construction and over-water structures, but the effects would differ in their intensity and location on the waterfront. They would all upgrade stormwater systems to meet current standards. The Preferred Alternative and Elliot Point 1 Alternative would provide much greater upgrades to existing impervious surface areas. The primary differences in the natural resource effects are related to the siting of the ferry dock and the potential removal of the Tank Farm Pier. The Preferred Alternative and Elliot Point 1 Alternative would demolish the Tank Farm Pier and remove its estimated 3,900 creosote-treated timber piles and 138,000 square feet of over-water structures; these actions would have long-term benefits to ecosystems.

The Preferred Alternative and the Elliot Point 1 Alternative would remove the Tank Farm Pier and the existing terminal, resulting in a net reduction in the number of piles, which would benefit ecosystems resources in the long term. However, the Preferred Alternative and Elliot Point 1 Alternative include more extensive in-water construction activity associated with pier and pile removal, dredging, and the marine terminal construction elements. These would cause more short-term ecosystems
effects including noise impacts, increased turbidity, and suspension of sediments that could be contaminated with traces of pesticides and petrochemicals.

**Use of Section 4(f) Properties.** Section 4(f) refers to a USDOT regulation that prohibits or restricts the use of significant parks, recreational resources, wildlife and waterfowl refuges, and significant historic and cultural properties. All of the alternatives involve a use of archaeological sites. FTA has determined that there are no feasible and prudent alternatives to the project's use of Section 4(f) resources, and the Preferred Alternative is the “least harm” alternative. *Chapter 5 Section 4(f) provides a summary of Section 4(f) findings, and Appendix I Final Section 4(f) Evaluation provides the detailed Section 4(f) evaluation.*
CHAPTER 7

Agency, Tribal, and Public Involvement
7 AGENCY, TRIBAL, AND PUBLIC INVOLVEMENT

Public involvement activities include the project’s coordination with and outreach to agencies, tribes, and the public, including community organizations. Agency, tribal, and public involvement activities for the Mukilteo Multimodal Project began in 2004, and have included public, agency, and tribal meetings, online meetings, and stakeholder briefings. Over the course of the project, WSDOT and FTA have provided many opportunities for agencies, tribes, and the public to provide input on the project’s purpose and need, range of alternatives, and potential impacts.

WSDOT and FTA have an extensive communications program to involve the public, agencies, and tribes in developing this EIS in accordance with NEPA, SEPA, Section 106 of the National Historic Preservation Act, USDOT Order 5610.2, WSDOT Executive Order E1025.01, the WSDOT Centennial Accord Plan, and the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU).

This chapter describes the efforts conducted through the publication of the Final EIS. FTA’s regulations implementing NEPA emphasize the importance of public involvement in the EIS process. Similarly, 23 USC 139(l) requires FTA to “(1) Extend an invitation to other Federal and non-Federal agencies and Indian tribes that may have an interest in the proposed project to become ‘cooperating’ or ‘participating’ agencies (2) provide an opportunity for involvement by agencies and the public in helping to define the purpose and need for a proposed project, as well as the range of alternatives for consideration in the impact statement, and (3) establish a plan for coordinating public and agency participation in and comment on the environmental review process.”

The comments received on the Draft EIS and their corresponding responses are included in Appendix K Draft EIS Comments and Responses of this EIS.

7.1 Outreach Goals and Objectives

An open public involvement process with ample opportunities to inform and involve the public, agencies, and tribes results in better projects. Stakeholders should have opportunities to interact with and receive responses from project team members on issues of interest or concern throughout each phase of the Mukilteo Multimodal Project. The project’s Coordination Plan (in Appendix H Coordination Plan, Tribal Consultation Plan, Public Involvement Plan) outlines the goals and objectives of the public involvement process, and discusses the various communication methods (such as briefings and materials) used throughout project development.

7.2 Agency Coordination

As detailed in the Coordination Plan, agency coordination is led by FTA, with support and in conjunction with WSDOT, and includes early and continuous information exchange with the appropriate agencies. FTA’s intent is to work cooperatively to identify and resolve issues that could delay completion of the environmental review process or could result in denial of any approvals required for the project.
7.2.1 Lead Agency

FTA is the NEPA lead agency supervising the preparation of the EIS by WSDOT. WSDOT is the SEPA lead agency. See the Coordination Plan for a description of lead agency responsibilities.

7.2.2 Cooperating and Participating Agencies

Under SAFETEA-LU, participating agencies are those federal and non-federal agencies and tribes that may have an interest in the project. Cooperating agencies are by definition participating agencies, but with a higher degree of responsibility and involvement in the environmental review process. Cooperating agencies are any other federal agencies, tribal governments, state agencies, and local agencies with jurisdiction or special expertise with respect to any environmental issues that should be addressed in the EIS. Such agencies have been invited to serve as cooperating agencies. See the Coordination Plan for further information on the role of cooperating agencies. Table 7-1 lists cooperating agencies and Table 7-2 lists participating agencies.

Table 7-1. Cooperating Agencies

<table>
<thead>
<tr>
<th>Cooperating Agencies</th>
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</thead>
<tbody>
<tr>
<td>City of Everett</td>
</tr>
<tr>
<td>Community Transit</td>
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<tr>
<td>Samish Indian Nation</td>
</tr>
<tr>
<td>Sound Transit</td>
</tr>
<tr>
<td>Suquamish Tribe</td>
</tr>
<tr>
<td>U.S. Air Force</td>
</tr>
<tr>
<td>City of Mukilteo</td>
</tr>
<tr>
<td>Port of Everett</td>
</tr>
<tr>
<td>Snohomish County</td>
</tr>
<tr>
<td>Stillaguamish Tribe</td>
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<tr>
<td>Tulalip Tribes</td>
</tr>
<tr>
<td>U.S. Army Corps of Engineers</td>
</tr>
</tbody>
</table>

Table 7-2. Participating Agencies

<table>
<thead>
<tr>
<th>Participating Agencies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Highway Administration</td>
</tr>
<tr>
<td>National Park Service</td>
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<tr>
<td>U.S. Coast Guard</td>
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<tr>
<td>U.S. Fish and Wildlife Service</td>
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<tr>
<td>Washington State Department of</td>
</tr>
<tr>
<td>Ecology</td>
</tr>
<tr>
<td>Island County</td>
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<tr>
<td>Puget Sound Regional Council</td>
</tr>
<tr>
<td>U.S. Environmental Protection Agency</td>
</tr>
<tr>
<td>Washington State Department of</td>
</tr>
<tr>
<td>Archaeology and Historic Preservation</td>
</tr>
<tr>
<td>Washington State Department of Fish and Wildlife</td>
</tr>
</tbody>
</table>

As required by SAFETEA-LU, FTA and WSDOT asked for comments by agencies and tribes on the purpose and need for the project, the range of alternatives to be considered, and the Draft EIS. WSDOT accepted comments and offered briefings to agencies and tribes during the scoping period in 2010, during the development of the Draft EIS, and during the preparation of the Final EIS. Several agencies and tribes reviewed and commented on the Draft EIS. Appendix K contains responses to all public, agency, and tribal comments received during the Draft EIS comment period.
7.2.3 Tribes

FTA and WSDOT are committed to government-to-government consultation with Native American tribes on projects that may affect tribal rights and resources. The Mukilteo waterfront area is recognized as the site of the signing of the Point Elliott Treaty of 1855, and its cultural history predates that event by a thousand years or more. Elliot Point is a traditional territory of Native American peoples and was a landmark for peoples that lived or traveled within lower Puget Sound and the Salish Sea.

FTA and WSDOT engaged in consultation with affected tribes throughout the environmental review process, and will continue coordination during project construction, in accordance with the following authorities, among others:

- **NEPA** calls for federal agencies to invite the participation of any affected federally recognized Native American tribe in the environmental review process.

- **Section 106 of the National Historic Preservation Act** requires that federal agencies consult with federally recognized tribes, the State Historic Preservation Officer, and others regarding potential impacts and mitigation on historic properties prior to making decisions that could affect those properties.


- **SAFETEA-LU** requires that federal agencies coordinate with tribal governments by inviting them to be “participating agencies.” Participating agency status provides tribal governments with an additional method to engage in the environmental review process, but it does not supersede government-to-government or Section 106 consultation. As participating agencies, tribes are afforded an opportunity to comment at specific project milestones outlined in SAFETEA-LU.

- **WSDOT Centennial Accord Plan** arose from Washington State’s 1989 Centennial Accord and the 1999 Centennial Accord Implementation Guidelines. The Centennial Accord Plan mandated that each state agency must have a procedure to implement effective government-to-government relations. The WSDOT Centennial Accord Plan includes the WSDOT Secretary’s Executive Order on Tribal Consultation (E1025.01), a Dispute Resolution Policy, and detailed descriptions of the programs, services, and funding available to tribes from key WSDOT divisions and offices.

- **WSDOT Executive Order E1025.01** directs WSDOT employees to enter into consultation with tribes on all decisions that may affect tribal rights and interests. It defines consultation as respectful, effective communication in a cooperative process that works toward a consensus, before a decision is made or an action is taken. Consultation with governments occurs independently of
the public participation process. Representatives of tribal governments and tribal members have equal access to the public participation process.

See the Tribal Consultation Plan (in Appendix H) for further information about tribal coordination efforts, including contacts, correspondence, and dates of meetings with tribal representatives. Table 7-3 lists the tribes invited to participate in the development of the EIS.

Table 7-3. Tribes Invited to Participate in the EIS

<table>
<thead>
<tr>
<th>Federally Recognized Tribes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lummi Nation</td>
</tr>
<tr>
<td>Muckleshoot Indian Tribe</td>
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<tr>
<td>Nooksack Indian Tribe</td>
</tr>
<tr>
<td>Samish Indian Nation</td>
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<tr>
<td>Sauk-Suiattle Indian Tribe</td>
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<tr>
<td>Snoqualmie Tribe</td>
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<tr>
<td>Stillaguamish Tribe of Indians</td>
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<tr>
<td>Suquamish Tribe</td>
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<tr>
<td>Swinomish Indian Tribal Community</td>
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<tr>
<td>Tulalip Tribes</td>
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<tr>
<td>Upper Skagit Tribe</td>
</tr>
</tbody>
</table>

FTA and WSDOT are coordinating under Section 106 with the non-federally recognized Duwamish and Snohomish tribes as interested parties.

7.3 Public Involvement and Outreach

7.3.1 Public Involvement Approach and Timeline

The following sections outline public involvement for the Mukilteo Multimodal Project to date and how WSDOT and FTA will approach public involvement through the Record of Decision. Public involvement activities have been and will continue to coincide with major project milestones.

7.3.2 Public Involvement History

Since the Mukilteo Multimodal Project was initiated in 2004, WSDOT and FTA have provided frequent opportunities for interested members of the public, agencies, and tribes to engage, share concerns, and discuss specific project details with WSDOT staff. Public involvement activities to date have included public meetings, agency and tribal meetings, online meetings, and stakeholder briefings.

The environmental review process for the Mukilteo Multimodal Project began with a NEPA EA process in 2004. WSDOT held two public EA scoping meetings in the fall of 2004. Early in 2006, upon review of comments from the public, agencies, and tribes and completion of environmental discipline studies, FTA and WSDOT determined that the potential impacts to natural and cultural resources would warrant a more detailed analysis and an EIS should be prepared instead.
On February 17, 2006, FTA published a Notice of Intent (NOI) to prepare an EIS for the Mukilteo Multimodal Project. FTA and WSDOT requested public comments on the scope of the alternatives and the impacts to be considered, and held two public meetings in March 2006. They also held an agency and tribal scoping meeting for the EIS on March 21, 2006.

The Washington State Legislature put the project on hold in 2007 due to funding and constructability issues associated with the previously identified alternatives. In 2009, WSDOT Ferries Division released its Final Long-Range Plan, which presents a vision for the future of the ferry system that maintains current levels of service and includes limited terminal improvements. Within the framework of the WSDOT Ferries Division Final Long-Range Plan, WSDOT and FTA reinitiated the environmental process in February 2010 with new project concepts for review and evaluation.

7.3.3 Public Involvement for this EIS

FTA and WSDOT reinitiated the environmental review process in January 2010 with scoping. The purpose of the second scoping period was to reintroduce the revised project purpose and need, and gather input from agencies, tribes, and the public on the full range of potential alternatives and potential impacts.

General public involvement for the 2010 scoping period included:

- Targeted stakeholder outreach including briefings and interviews
- Four widely advertised in-person public meetings
- One online open house to reach residents who were unable or preferred not to attend a meeting in person
- An online comment tool that provided an easy and informative electronic method of learning about the concepts and submitting comments
- Notices and information on the project posted on the project website (www.wsdot.wa.gov/projects/ferries/mukilteoterminal/multimodal/); this online resource has information on how to submit a comment and a library of project information

WSDOT and FTA held four in-person public scoping open houses in October 2010 to serve directly affected populations, and one online open house to increase participation among the broader community. Approximately 160 people attended the meetings in Whidbey Island, Mukilteo, Edmonds, and Everett and 15 people participated in the online open house.

At the scoping meetings, project team members answered questions and explained the concepts to participants. WSDOT staff gave a presentation on the project history, the concepts under consideration, and opportunities to get involved. Following the presentation, WSDOT offered participants the opportunity to provide comment, which was captured by members of the project team and included in the Scoping Report (WSDOT 2011).

The next formal opportunity for public involvement came after the release of the Draft EIS in January 2012. WSDOT and FTA used multiple methods to notify
agencies, tribes, and the public about the Draft EIS and the comment period. Comments were accepted by mail, e-mail, via an online comment form, and in person at two public hearings.

Public information and involvement opportunities during the Draft EIS phase included:

- A 45-day comment period initiated with the public release of the Draft EIS and public notices
- Two widely advertised public hearings in Mukilteo and Clinton that were attended by approximately 175 people

The website (www.wsdot.wa.gov/projects/ferries/mukilteoterminal/multimodal/) served as the project’s online resource, providing frequent updates, an online comment form, a project library of information, and the full Draft EIS document.

WSDOT and FTA received a total of 155 comment letters on the Draft EIS, including 135 comments from the public and 18 letters from agencies and tribes. Chapter 8 of the Final EIS provides additional details on the comments received.

WSDOT and FTA notified agencies, tribes, and the public about the availability of this Final EIS via the project website and the project listserv; the Public Involvement Plan, which outlines all the public involvement activities associated with the preparation and publication of this Final EIS, is located in Appendix H. Copies of the Final EIS are available at local libraries (see Appendix F Distribution List for locations).

**Stakeholder Outreach**

In addition to the formal public and agency meetings during scoping and the Draft EIS comment period, WSDOT and FTA contacted a number of parties prior to the start of the scoping comment period and during the development of the Draft and Final EISs to gather insights from agency and tribal staff and community members about the project and to help refine the public involvement approach. This offered a chance to bring stakeholders up to date on the project and to establish a clear understanding of the process for developing and evaluating project alternatives.

WSDOT and FTA conducted several briefings during the Draft EIS public comment period to gather feedback on the alternatives and environmental effects, and they conducted additional briefings as the Final EIS was developed. See Table 7-4 for a list of the stakeholders who received briefings.
Table 7-4. Stakeholders Receiving Briefings

<table>
<thead>
<tr>
<th>Organizations</th>
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<tbody>
<tr>
<td>Federal Legislators</td>
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<tr>
<td>State Legislators</td>
</tr>
<tr>
<td>Ivar’s Restaurant</td>
</tr>
<tr>
<td>Friends of the Mukilteo Waterfront</td>
</tr>
<tr>
<td>Silver Cloud Inn</td>
</tr>
<tr>
<td>Mongrain Building - glass blowing studio</td>
</tr>
<tr>
<td>Mukilteo City Council</td>
</tr>
<tr>
<td>Port of Everett Commissioners</td>
</tr>
<tr>
<td>Island County Commissioners</td>
</tr>
<tr>
<td>Port of South Whidbey Commissioners</td>
</tr>
<tr>
<td>Agency and Tribal Draft EIS Meetings and Natural Resource and Mitigation Briefings</td>
</tr>
<tr>
<td>Island County Regional Transportation Organization</td>
</tr>
<tr>
<td>Tribal Leadership Meetings</td>
</tr>
<tr>
<td>Snohomish County executives Gary Haakensen and Peter Camp</td>
</tr>
</tbody>
</table>

1 See Section 7.3.5 for information about Section 106 consultations with tribal representatives, the Department of Archaeology and Historic Preservation, and the Advisory Council on Historic Preservation.

7.3.4 Government-to-Government Consultations with Tribal Nations

FTA, working with the WSDOT Mukilteo Multimodal Project Tribal Liaison, formally contacted potentially affected tribes to assess their interest in the Mukilteo Multimodal Project. In particular, FTA contacted tribal governments representing the tribes who signed the Point Elliott Treaty because the Mukilteo shoreline is recognized as the area where the treaty was signed and is also an area within the treaty-protected usual and accustomed fishing and hunting grounds of four tribes. FTA and WSDOT have offered each potentially interested tribe the opportunity to act as a cooperating agency throughout the development of the EIS.

Table 7-5 lists government-to-government meetings with the tribes. These meetings have covered a range of environmental and project implementation issues of interest to the tribes, including the development of the Section 106 Memorandum of Agreement (MOA). As the EIS process has continued, the key topics of discussion have been cultural resources, ecosystems, fishing, and the treaty rights of the tribes.
## Table 7-5. Meetings with Tribal Nations

<table>
<thead>
<tr>
<th>Meeting with Tribes</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>Presentation to the Suquamish Tribe</td>
<td>March 17, 2010</td>
</tr>
<tr>
<td>Presentation to the Swinomish Indian Tribal Community</td>
<td>March 17, 2010</td>
</tr>
<tr>
<td>Presentation to the Stillaguamish Tribe of Indians</td>
<td>April 15, 2010</td>
</tr>
<tr>
<td>Presentation to the Lummi Nation</td>
<td>April 29, 2010</td>
</tr>
<tr>
<td>Presentation to the Samish Indian Nation</td>
<td>May 12, 2010</td>
</tr>
<tr>
<td>Presentation to the Snoqualmie Tribe</td>
<td>September 1, 2010</td>
</tr>
<tr>
<td>Presentation to the Tulalip Tribes</td>
<td>September 24, 2010</td>
</tr>
<tr>
<td>Post-Scoping Meeting with Lummi Nation, Samish Indian Nation, Stillaguamish Tribe of Indians, Suquamish Tribe, Swinomish Indian Tribal Community, Sauk-Suiattle Indian Tribe, and Tulalip Tribes</td>
<td>December 10, 2010</td>
</tr>
<tr>
<td>Archaeological and Cultural Investigations Status Meeting with DAHP, Lummi Nation, Samish Indian Nation, Snoqualmie Tribe, Suquamish Tribe, and Tulalip Tribes</td>
<td>February 3, 2011</td>
</tr>
<tr>
<td>Tribal Briefing with Lummi Nation, Samish Indian Nation, Snoqualmie Tribe, Suquamish Tribe, Swinomish Indian Tribal Community, Sauk-Suiattle Indian Tribe, Tulalip Tribes, and U.S. Air Force</td>
<td>February 3, 2011</td>
</tr>
<tr>
<td>Meeting with Tulalip Tribes</td>
<td>August 25, 2011</td>
</tr>
<tr>
<td>Meeting with Snoqualmie Tribe to discuss Cultural Resources Discipline Report</td>
<td>August 26, 2011</td>
</tr>
<tr>
<td>Meeting with Stillaguamish Tribe of Indians to discuss Cultural Resources Discipline Report</td>
<td>September 7, 2011</td>
</tr>
<tr>
<td>Meeting with Tulalip Tribes to discuss Cultural Resources Discipline Report</td>
<td>September 7, 2011</td>
</tr>
<tr>
<td>Meeting with Samish Indian Nation to discuss Cultural Resources Discipline Report</td>
<td>September 8, 2011</td>
</tr>
<tr>
<td>Meeting with Swinomish Indian Tribal Community to discuss Cultural Resources Discipline Report</td>
<td>September 8, 2011</td>
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<tr>
<td>Meeting with Lummi Nation to discuss Cultural Resources Discipline Report</td>
<td>September 8, 2011</td>
</tr>
<tr>
<td>Meeting with Suquamish Tribe to discuss Cultural Resources Discipline Report</td>
<td>September 9, 2011</td>
</tr>
<tr>
<td>Meeting with Tulalip Tribes</td>
<td>September 10, 2011</td>
</tr>
<tr>
<td>Meeting with Tulalip Tribes to discuss Natural Resources</td>
<td>October 19, 2011</td>
</tr>
<tr>
<td>Cultural Resource Design Workshop (individual meetings) with Lummi Nation and Samish Indian Nation</td>
<td>January 24, 2012</td>
</tr>
<tr>
<td>Cultural Resource Design Workshop (individual meeting) with Snoqualmie Tribe</td>
<td>January 25, 2012</td>
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<tr>
<td>Cultural Resource Design Workshop (individual meetings) with Stillaguamish Tribe of Indians and Tulalip Tribes</td>
<td>January 30, 2012</td>
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<tr>
<td>Cultural Resource Design Workshop (individual meeting) with Swinomish Indian Tribal Community</td>
<td>January 31, 2012</td>
</tr>
<tr>
<td>Cultural Resource Design Workshop (individual meeting) with Suquamish Tribe</td>
<td>February 2, 2012</td>
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<tr>
<td>Natural Resources Mitigation Meeting with Snoqualmie Tribe, Suquamish Tribe, and Tulalip Tribes</td>
<td>February 15, 2012</td>
</tr>
<tr>
<td>Draft EIS Briefing Meeting for Tribal Leaders</td>
<td>February 22, 2012</td>
</tr>
<tr>
<td>Meeting with Suquamish Tribe to discuss possible effects on Treaty fishing activities</td>
<td>May 3, 2012</td>
</tr>
<tr>
<td>Informational Meeting with the Sauk-Suiattle Indian Tribe</td>
<td>June 19, 2012</td>
</tr>
<tr>
<td>Meetings with Tulalip Tribes and Suquamish Tribe to discuss sediment sampling</td>
<td>June 21, 2012</td>
</tr>
<tr>
<td>Section 106 MOA Kick-off Meeting</td>
<td>June 26, 2012</td>
</tr>
<tr>
<td>Meeting with Tulalip Tribes to discuss Mukilteo Multimodal Project</td>
<td>June 27, 2012</td>
</tr>
<tr>
<td>Meeting with Lummi Nation to discuss Treaty fishing access</td>
<td>June 27, 2012</td>
</tr>
<tr>
<td>Meeting with Suquamish Tribe to discuss Treaty fishing access</td>
<td>July 12, 2012</td>
</tr>
<tr>
<td>Meeting with Tulalip Tribes to discuss Mukilteo Multimodal Project</td>
<td>July 12, 2012</td>
</tr>
<tr>
<td>Meeting with Swinomish Indian Tribal Community to discuss Treaty fishing access</td>
<td>July 24, 2012</td>
</tr>
</tbody>
</table>
### Table 7-5. Meetings with Tribal Nations

<table>
<thead>
<tr>
<th>Meeting with Tribes</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>MOA Meeting with Samish Indian Nation, Snoqualmie Tribe, Stillaguamish Tribe of</td>
<td>August 21, 2012</td>
</tr>
<tr>
<td>Indians, Suquamish Tribe, and Tulalip Tribes</td>
<td></td>
</tr>
<tr>
<td>Meeting with Suquamish Tribe to discuss Treaty fishing access</td>
<td>September 13, 2012</td>
</tr>
<tr>
<td>Meeting with Suquamish Tribe to discuss Treaty fishing access</td>
<td>October 23, 2012</td>
</tr>
<tr>
<td>Meeting with Snoqualmie Tribe to discuss Cultural Resources and the draft MOA</td>
<td>October 24, 2012</td>
</tr>
<tr>
<td>Meeting with Lummi Nation</td>
<td>October 24, 2012</td>
</tr>
<tr>
<td>Meeting with the Muckleshoot Indian Tribe to discuss Cultural Resources and the</td>
<td>October 25, 2012</td>
</tr>
<tr>
<td>draft MOA</td>
<td></td>
</tr>
<tr>
<td>Meeting with Tulalip Tribes to discuss Cultural Resources and the draft MOA</td>
<td>November 6, 2012</td>
</tr>
<tr>
<td>Meeting with Snoqualmie Tribe to discuss Cultural Resources and the draft MOA</td>
<td>November 15, 2012</td>
</tr>
<tr>
<td>Meeting with Stillaguamish Tribe of Indians to discuss Cultural Resources and the</td>
<td>November 16, 2012</td>
</tr>
<tr>
<td>draft MOA</td>
<td></td>
</tr>
<tr>
<td>Meeting with Samish Indian Nation to discuss Cultural Resources and the draft MOA</td>
<td>November 16, 2012</td>
</tr>
<tr>
<td>Meeting with Suquamish Tribe to discuss Cultural Resources and the draft MOA</td>
<td>November 19, 2012</td>
</tr>
<tr>
<td>Monthly Meeting with Snoqualmie Tribe</td>
<td>November 28, 2012</td>
</tr>
<tr>
<td>Meeting with Tulalip Tribes to discuss cultural design criteria</td>
<td>November 29, 2012</td>
</tr>
<tr>
<td>Meeting with Swinomish Indian Tribal Community and Lummi Nation to discuss cultural design criteria and the draft MOA</td>
<td>December 3, 2012</td>
</tr>
<tr>
<td>Meeting with Tulalip Tribes to discuss protocol for addressing discovery</td>
<td>December 11, 2012</td>
</tr>
<tr>
<td>Meeting with Lummi Nation</td>
<td>December 11, 2012</td>
</tr>
<tr>
<td>Meeting with Samish Indian Nation to discuss the EIS, cultural design criteria, and the draft MOA</td>
<td>January 13, 2013</td>
</tr>
</tbody>
</table>

#### 7.3.5 Section 106 Consultation Meetings

FTA and WSDOT have held Section 106 consultation meetings (see Table 7-5), and continued to consult with affected tribes, ACHP, DAHP, and other consulting parties during the development of the MOA to address effects on cultural resources.

#### 7.3.6 Public Involvement Methods

In addition to public and agency meetings and community briefings, WSDOT used a variety of communications methods to involve the public and key stakeholders in the environmental review process. To ensure project information is widely available, WSDOT maintains a variety of communications tools and materials. These materials will continue to be updated as the project progresses.

Table 7-6 provides a list of public involvement methods used throughout the environmental review process.
Table 7-6. List of Public Involvement Activities

<table>
<thead>
<tr>
<th>Season/Year</th>
<th>Project Milestone</th>
<th>Stakeholder Briefings</th>
<th>Public Meetings</th>
<th>E-mail</th>
<th>Handouts</th>
<th>Database and Comment Tool</th>
<th>Website</th>
<th>News Release</th>
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<tr>
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<td>NEPA EA Scoping</td>
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<td>✓</td>
<td>✓</td>
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<td>NEPA EIS Scoping</td>
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<td>✓</td>
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<tr>
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<td>Additional NEPA EIS Scoping</td>
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<td>✓</td>
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<tr>
<td>Winter 2012</td>
<td>Draft EIS Publication</td>
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<td>✓</td>
<td>✓</td>
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</tr>
<tr>
<td>Spring 2013</td>
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<td>✓</td>
<td>✓</td>
<td>✓</td>
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<tr>
<td>Summer 2013 (Anticipated)</td>
<td>ROD Issuance</td>
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<td>✓</td>
<td></td>
<td></td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

**Project Website**

The project website provides up-to-date information and announcements about upcoming project milestones and public involvement opportunities, a project library, and contact information for the project. During the public scoping comment period, the website featured a public comment button that directed visitors to the Google Map comment tool. The project website address is [www.wsdot.wa.gov/projects/ferries/mukilteoterminal/multimodal/](http://www.wsdot.wa.gov/projects/ferries/mukilteoterminal/multimodal/).

**Database**

A WSDOT database tracks public, agency, and stakeholder comments, and facilitates e-mail updates about the project and public engagement opportunities.

The database includes key stakeholders; community organizations; interested residents; interested ferry riders; government officials; media; contacts made at public meetings and requests from the website, e-mail, and other communication tools; and residents and businesses within 500 feet of the project area.

**Information Materials**

WSDOT and FTA developed and frequently update the resource materials described below. These information materials are distributed at public meetings, project briefings, and other project-related events. All materials are also available on the project website.

**Project Timeline**

The project timeline provides a graphic overview of key milestones and corresponding public involvement opportunities.

**Fact Sheet**

The project fact sheet provides a brief overview, descriptions of each alternative, ways to provide comment, a schedule and milestones, and information on the purpose and need for the project.
“Community Guide” to the EIS

This document served as an overview of the environmental review process. The Community Guide to the Draft EIS included specific information about the Draft EIS phase (WSDOT 2012). For the Final EIS, a fact sheet was prepared instead of a community guide.

Community Resources

WSDOT tapped into existing community resources to share project information and encourage participation in the scoping process. These resources include community newsletters, blogs, Facebook pages for organizations in the project area, and websites.

7.4 Preferred Alternative

WSDOT selected Elliot Point 2 Alternative as its Preferred Alternative in May 2012 after considering the Draft EIS’s results; comments from the public, agencies, and tribes; the alternative’s ability to meet the purpose and need; and the balance of environmental benefits compared to impacts. As described in Chapter 2 Alternatives, WSDOT identified several design refinements to improve the Elliot Point 2 Alternative, reflecting public and agency comments and suggestions. Public outreach was conducted to ensure the public and interested stakeholders were informed of the decision. WSDOT sent an e-mail notice to the project e-mail list, and posted an announcement and a project folio (fact sheet) on the project website in May 2012 to advertise this project milestone.

This Final EIS is one of the final steps in the NEPA and SEPA process before the lead agencies decide whether or not they will take further action on the project. FTA is anticipated to issue a Record of Decision no sooner than 30 days after the Final EIS is released. This would allow WSDOT to move forward with securing funding, completing final design, obtaining permits, starting construction, and then moving into operations.
CHAPTER 8

Draft EIS Public, Agency, and Tribal Comments
8 DRAFT EIS PUBLIC, AGENCY, AND TRIBAL COMMENTS

This chapter summarizes the results of the public comment and review period following the release of the Draft EIS on January 27, 2012. The 45-day comment period extended to March 12, 2012, and included advertised meetings and hearings in Mukilteo and Clinton. To prepare the Final EIS, WSDOT and FTA reviewed the comments received from the public, agencies, and tribes, and prepared responses to substantive comments as part of this Final EIS in Appendix K Draft EIS Comments and Responses. This chapter summarizes the public, agency, and tribal Draft EIS review process and describes the comments received.

8.1 Draft EIS Public Review Process

FTA and WSDOT issued the Draft EIS and released it to the public, agencies and tribes on January 27, 2012 with the publication of its Notice of Availability in the Federal Register. The publication of the Notice of Availability marked the beginning of the 45-day Draft EIS comment period. A similar notice for Washington’s SEPA purposes was placed in Ecology’s register. These notices explained how to review and comment on the Draft EIS during the comment period, and included the dates and locations for the public hearings. A legal notice was placed in the Seattle Times.

Prior to the Notice of Availability in the Federal Register, hard copies of the Draft EIS, or a hard copy of the Executive Summary and CD copy of the Draft EIS, were mailed to parties identified in the Draft EIS distribution list. This distribution included copies to libraries in the project area. The Draft EIS was posted on the project website.

Public opportunities to review and comment on the Draft EIS were advertised through a variety of channels that are described below.

Mail, E-mail, and Social Media

WSDOT and FTA mailed a postcard announcing the Draft EIS public comment period and public hearings to residents and businesses within the project impact area. Two e-mail notices were sent to the Mukilteo/Clinton route alert list and project listserv to encourage project stakeholders to attend a public hearing and/or provide comments on the Draft EIS. Several project announcements were included in WSDOT Assistant Secretary David Moseley’s Weekly Update. Notices were also posted via WSDOT and WSDOT’s Twitter accounts.

Advertising

Display advertisements were placed in the following local news publications:

- Everett Herald (Online and Print)
- Mukilteo Beacon (Print)
- Seattle Times (Print—North Zone and Online)
- Snohomish County Tribune (Print)
- South Whidbey Record (Online)
- Whidbey Examiner (Online and Print)
The advertisements started with the release of the Draft EIS on January 27 and continued through the public hearings on February 22 and 23. Posters on vessels on the Mukilteo/Clinton ferry route and in the Mukilteo and Clinton terminals also helped increase awareness of the Draft EIS release and the invitation for the public to participate in the public hearings.

Media
A press release was distributed to local media outlets prior to the release of the Draft EIS to announce the upcoming comment period and encourage attendance at the public hearings. The press release generated media coverage in the following publications and television media:

- Everett Herald
- Mukilteo Beacon
- King 5
- KOMO TV
- Snohomish County Tribune
- South Whidbey Record
- Northwest Cable News
- Whidbey News-Times
- Whidbey Examiner

Public Hearings
WSDOT hosted two public hearings in Mukilteo and Clinton to provide information about the Draft EIS and opportunities for the formal public comment. Approximately 175 people attended these meetings, which were held at:

**Mukilteo**  
February 22, 2012  
Rosehill Community Center  
5 to 8 PM

**Clinton**  
February 23, 2012  
Clinton Community Hall  
5 to 8 PM

Both public meetings included an informal open house, an overview presentation, and a formal hearing for public comment. Attendees were asked to sign in upon arrival and received a Community Guide to the Draft EIS and a comment form. Title VI forms were available upon request. Throughout the evening, project team members explained the alternatives and answered questions at stations throughout the room. Project staff gave an overview presentation, explaining the project history, alternatives under consideration, and key Draft EIS findings.

Following the presentation, a moderator initiated the formal hearing portion of the meeting. Attendees were invited to sign-up to provide verbal comments. WSDOT and FTA representatives listened to all public comments and a court reporter transcribed the comments.
Information from the public hearings was posted in the Project Library section of the project website:
www.wsdot.wa.gov/projects/ferries/mukilteoterminal/multimodal.

All comments received and WSDOT’s and FTA’s responses are reproduced in Appendix K Draft EIS Comments and Responses. In all, WSDOT and FTA received 155 submittals during the comment period: 5 letters from federal agencies, 3 letters from tribes, 2 letters from state agencies, 8 letters from local agencies and organizations, and 137 comment submittals (letters, e-mails, comment forms) from individuals.

8.2 Draft EIS Comment Summary

Most of the comments received focused on support or opposition to one or more alternatives, but some commenters also noted environmental issues, transportation and traffic impacts, parking, cost, and funding in their comments.

Table 8-1 shows the number of comments that indicated a preference for a specific alternative. Comments that indicated support for moving to the Mukilteo Tank Farm but did not differentiate between Elliot Point 1 and Elliot Point 2 were counted as supporting both alternatives. Similarly, comments that asked to keep the terminal where it is today without specifying a preference for either No-Build or Existing Site Improvements were counted as supporting both of those alternatives.

<table>
<thead>
<tr>
<th>Alternative</th>
<th>Support</th>
<th>Oppose</th>
</tr>
</thead>
<tbody>
<tr>
<td>No-Build</td>
<td>22</td>
<td>27</td>
</tr>
<tr>
<td>Existing Site Improvements</td>
<td>8</td>
<td>26</td>
</tr>
<tr>
<td>Elliot Point 1</td>
<td>33</td>
<td>18</td>
</tr>
<tr>
<td>Elliot Point 2</td>
<td>49</td>
<td>16</td>
</tr>
</tbody>
</table>

8.2.1 Comments from Agencies, Tribes, and Local Jurisdictions

WSDOT and FTA received comments from 18 agencies, tribes, and local jurisdictions. The majority of agency comment letters supported either Elliot Point 1 or Elliot Point 2, and further endorsed the project’s purpose and need. Two tribes and a third organization representing other tribes provided letters emphasizing the need to protect natural resources, to recognize tribal treaty rights, and avoid impacts on archaeological sites. Two of the tribal letters expressed no preference for specific alternatives, and the third preferred to keep the terminal at the current location and identified Elliot Point 2 as the better of the Mukilteo Tank Farm options.

Local Agencies and Jurisdictions

- The Port of Everett submitted a comment letter in favor of Elliot Point 1, but also indicated support for Elliot Point 2.
  - Elliot Point 1 is the stronger option as it provides for better public access and the ability to move vehicles off the streets, thereby reducing congestion and enhancing public transportation – both of which accomplish the envisioned multimodal goals for the Tank Farm.
The Island County Commission submitted a letter in favor of Elliot Point 2 that opposed maintaining the terminal in its current location and noted the importance of protecting cultural resources.

- Elliot Point 2 best aligns the transportation connections for all, now and into the future…Elliot Point 2 leaves the eastern-most shoreline area undisturbed in construction and available for use by the tribes for historic commemoration and environmental restoration.

The City of Mukilteo submitted a detailed comment letter approved by the City Council in a 5 to 2 vote on March 5, 2012, and signed by Mayor Joe Marine. The letter expressed support for Elliot Point 1, and included a review of the relative performance of each of the alternatives against the City’s objectives for the project.

- We support Elliot Point 1 as the preferred alternative for the final environmental impact statement (FEIS).

The City of Everett submitted a letter in support of a modified Elliot Point 1.

- Elliot Point 1 addresses the City’s public access concerns providing appropriate public access to Edgewater Beach…the City also supports your efforts to daylight Japanese Creek.

The Skagit-Island Regional Transportation Planning Organization (RTPO) submitted comments in support of a modified Elliot Point 2. The RTPO alternative would include an overnight parking garage, reverse the proposed parking area with the vehicle holding area, and replace employee parking with amenities that benefit the community. The RTPO encouraged WSDOT and FTA to consider economic and transportation impacts in Clinton and recommended that the design should allow flexibility to add a second slip in the future.

- We believe an overnight parking garage is essential to enhance transit and reduce congestion and LOS impacts during the 2010-2040 planning period. As such, we propose that a supplemental EIS be issued to include a “hybrid” of the Elliot Point 2 alternative […].

Community Transit submitted a letter in support of Elliot Point 2, indicating several positive aspects of Elliot Point 1 as well, noting safety, improved transit operations, and the ability to meet long-term transit demand as key benefits of both alternatives.

- It appears that the Elliot Point 2 alternative would create the best operating environment for transit. The Elliot Point 1 and 2 alternatives would also appear to present the least impact to transit operations during construction.

The Port of South Whidbey submitted a letter in support of additional parking facilities at the terminal to facilitate improved accessibility for Whidbey Island commuters. The Port also indicated opposition to the No-Build Alternative.

- The Commission identified both advantages and disadvantages of the other three alternatives without a clear preference, they were unified in their request that construction closures of the Mukilteo Terminal be absolutely minimized due to the
disruptive effect on transportation, commerce and commuters when ferries are not running or are diverted to Edmonds.

State and Federal Agencies

- NOAA submitted comments noting several issues and potential concerns related to dredging for Elliot Point 1 and 2. The letter did not state a preference for a specific alternative.
  - What process will be used to mitigate down-gradient migration of sediments? NOAA is concerned with potential impacts to its seawater intake west of the proposed new ferry terminal. Much of the sediments are known to be contaminated.
  - Uninterrupted access to NOAA’s lab and parking for staff is important; it is not clear in the Draft EIS and must be assured.

- NOAA Fisheries – Northwest Fisheries Science Center (NWFSC) indicated concerns related to several environmental disciplines. Specific concerns included seawater water supply, water quality, erosion caused by propeller wash pattern, contamination, churning of surface water leading to supersaturation, increased runoff, and impacts of new lighting on wildlife. NWFSC requested additional analysis on local water currents to help inform consideration of in-water impacts from construction and operations.

- The U.S. Department of Interior (DOI) submitted a letter identifying potential impacts on habitats of federally listed bull trout and marbled murrelets. These species are threatened and DOI encouraged WSDOT and FTA to select the alternative that minimizes impacts on these species. Potential impacts include shoreline modification, exposure to contaminants from past activities, operations, and dredging. The letter did not identify a preferred alternative.

- Washington State Department of Natural Resources (DNR) submitted comments indicating its interest in working on a dredge disposal management plan to ensure contaminated sediments are disposed of properly. DNR did not identify a preferred alternative.
  - DNR supports the following mitigation measures proposed in the EIS to avoid or minimize potential impacts to aquatic habitats and species. Collecting and conveying stormwater… to avoid water quality impacts; using concrete piles where possible… incorporating grating and/or lights under the pier to minimize effects of shading on fish species.

- Washington State Department of Archaeology and Historic Preservation submitted a comment letter thanking WSDOT for the opportunity to review the Draft EIS and indicated that they have no comments at this time, but anticipated further comments and consultation through the Section 106 review process.

- The U.S. Air Force submitted a comment letter thanking WSDOT for the opportunity to review the Draft EIS. An attachment to the letter provided several specific comments and edits to the Draft EIS language. A preferred alternative was not identified.
• The U.S. Environmental Protection Agency (EPA) provided detailed comments, and voiced general support for the project and its potential to produce environmental benefits. Key issues included potential residual contamination on the Mukilteo Tank Farm, as well as impacts on marine species, air quality, and project area historical resources. While EPA did not suggest a preferred alternative, its comment noted that Elliot Point 2 appeared to encompass the most features that could meet regional transportation needs, minimize environmental impacts, and maximize environmental benefits. EPA asked for further information to be developed for the Final EIS in a number of areas, and recommended additional features and mitigation measures.

Tribes

• The Suquamish Tribe submitted a letter expressing concern about impacts to archaeological resources, as well as ecological processes and resources, including impacts on fish, invertebrates, and marine vegetation habitat and resources. The tribe requested further studies of potential effects related to the removal of the Tank Farm Pier and associated construction and dredging.
  ➢ Suquamish currently does not have a preferred alternative […] but would not support alternatives that would require ground-disturbing activities within the archaeological sites.
  ➢ WSF has not provided a complete and comprehensive description of direct, indirect, temporary, long-term, and cumulative impacts associated with the Mukilteo Multimodal project… Suquamish does not have a preferred alternative and would not support alternatives that require ground disturbing activities within the archeological site(s).

• The Tulalip Tribes submitted a comment letter stating their preference for keeping the terminal in its existing location. The letter also highlighted the importance of protecting any cultural resources in the project area and minimizing impacts on tribal fishing rights.
  ➢ Tulalip prefers the options for keeping the ferry terminal in its existing location. If one of the other sites is selected, a more intensive archeological survey should be conducted to identify possible burial sites before any excavation for construction takes place.
  ➢ Maintaining the terminal at the existing location would cause the least new impacts to archeological and environmental resources. Both Elliot Point options could cause new negative impacts to archeological resources. Of the two proposed sites, Elliot Point 2 would provide the least environmental harm.
  ➢ Tulalip is opposed to any construction activities that may disturb any of the cultural resources, archeological artifacts or human remains on the site.
  ➢ The project must be evaluated to ensure no impermissible diminution or restriction of treaty fishing access occurs. The Draft EIS does mention the direct impacts to tribal fishing in the Environmental Justice section; however it does not mention or describe the indirect impacts to tribal fishing caused by the vessel traffic between the Mukilteo and Clinton terminals.
• The Skagit River System Cooperative (SRSC), on behalf of the Swinomish Indian Tribal Community and the Sauk-Suiattle Indian Tribe, submitted comments primarily focused on the environmental impacts of the project.

    ➢ All four alternatives [...] recommit the project area to a hardened shoreline with substantial overwater coverage for decades to come. This recommitment precludes shoreline softening and restoration activities that may lead to a more productive nearshore environment.

    ➢ The SRSC member Tribes are on record with the Air Force that removal of the Tank Farm Pier is necessary prior to Federal Transfer to local control to meet the Air Force’s Trust responsibility to the Tribes. If the Tank Farm is transferred to a local entity that does not have Trust responsibility there is no assurance the impact to tribal resources will be removed.

    ➢ The long-term impacts of the ferry terminal in the form of hardened shorelines and overwater coverage should be directly mitigated in kind.

8.2.2 General Public Comments

Public comments include e-mails, letters, comment forms, and public testimony from individual members of the public, community groups, local elected officials, and the Clinton Ferry Advisory Committee (FAC). The majority of these expressed support for the Elliot Point alternatives; Elliot Point 2 received slightly more support than Elliot Point 1. A number of parties voiced support for the No-Build Alternative, primarily for cost and funding reasons. There were few comments supporting the Existing Site Improvements Alternative and a limited number of commenters voiced general opposition to the project and any of its alternatives, including No-Build.

Many comments focused on environmental impacts and noted the importance of maintaining and enhancing multimodal connections and encouraging a more walkable and accessible waterfront. Others discussed traffic impacts along SR 525 to Old Town Mukilteo; maintaining community character and waterfront businesses; providing additional commuter parking; restoring lost marine habitat; and establishing measures to help reduce wait times and long queues on SR 525.

The Clinton FAC submitted a comment letter supporting Elliot Point 2 and encouraging WSDOT and FTA to improve multimodal connections and encourage walk-on ferry riders.

The following sections summarize the public comments, with representative quotes illustrating the nature of typical comments for each topic.

Alternatives

No-Build

• Many comments expressed opposition to the No-Build Alternative, frequently citing congestion and the need to accommodate future growth as key reasons.

  ➢ Very bad, very short-sighted idea. Would only prolong the agony.

  ➢ Don’t leave as is. We need to move into the future.
I believe the dock needs to be moved to enhance public transportation options. The walk to the Sounder is too far and could discourage use of such transit options.

Although more commenters expressed opposition for the No-Build Alternative, those in favor of the alternative identified cost as a significant factor.

There is NOTHING wrong with the current Mukilteo terminal. The state is too broke to even go through the planning process, let alone build something there is absolutely no need for.

Please keep the terminals safe, accessible and all of that good stuff without wasting our precious money.

Some comments in support of the No-Build Alternative expressed concern for adding a four-lane roadway on the Mukilteo waterfront and indicated that the Mukilteo Tank Farm site should be redeveloped as green space for the community.

Existing Site Improvements

Existing Site Improvements received by far the fewest comments in support. It was typically opposed because of higher costs and greater impacts on the existing waterfront area, including traffic. Several individuals expressed concern about the economic impacts, particularly the loss of Ivar’s restaurant.

The one plan I wholeheartedly oppose is the rebuild in its current location. Doing so would not only eliminate Ivar’s which is a tremendous asset to the community, it would totally cut off access to the shoreline.

There is an irreplaceable community there that would be wrecked by “fixing” the existing terminal.

Elliot Point Alternatives

The majority of public comments expressed support for one or both of the Elliot Point alternatives. Elliot Point 2 received more support than Elliot Point 1.

While the majority of comments on Elliot Point 1 and Elliot Point 2 were supportive of these alternatives, several comments expressed concern that the alternatives occupy valuable waterfront space that could be better developed for public waterfront access.

Both Elliot Point options turn prime NW waterfront into a parking lot, not even for people enjoying the area, but SR 525 through transit. Beachfront access is minimal and this resource is essentially wasted in favor of a parking lot with a view.

Public comments generally supported removing the Tank Farm Pier, a key feature of both Elliot Point alternatives.

Elliot Point 2 & 1 both remove the old Tank Farm Pier, which should be considered a "must" in any of the proposals, as the rotting creosote pilling (sic) would be removed and the "Net Change in overwater cover" is significant.
Elliot Point 1

- Proponents of Elliot Point 1 identified the following benefits: improved safety, space to accommodate growth, congestion relief, and the ability to reduce vehicle queues on SR 525.
  - Elliot Point 1 leaves contiguous land open to the west for future transit-oriented development in the area between Lighthouse Park and the commuter rail station. This siting also leverages development of the infrastructure to support pedestrian and vehicular access to all facilities, coordination that is a cost-efficient use of public funding.
  - Elliot Point 1 is the most reasonable and safest option. This plan keeps the traffic at the docks where it should be instead of having the traffic line up the Speedway.
  - I think the Elliot Point 1 option does the best job in meeting future demand, maximizing waterfront New Urban redevelopment, and restoring the Japanese Gulch natural resource area.

Elliot Point 2

- Elliot Point 2 received slightly more support from the public than did Elliot Point 1. Comments in support of Elliot Point 2 cited the following benefits: access to the Sounder commuter rail station, reduced congestion, improved safety, least environmental impact, lower cost, and the opportunity for future waterfront development.
  - Elliot Point Option 2, because it will best meet the safety standards the state is looking for, provide the least intrusive environmental impact to the land and water sites and provide the most minimal total cost, that the state legislators would approve.
  - I like this alternative because of the proximity to transit options. I believe this is important to encourage use of public transportation especially with the size of expected growth.
  - Elliot Point 2 is a compact plan that creates opportunities for future waterfront development and resolves existing problems. All the Transit is close together with a short walk from one to the other.

Comments on the Purpose and Need

The public comments related to the purpose of the overall project typically encouraged WSDOT Ferries Division to plan for future growth. Some commenters would like to see a third vessel on the Mukilteo-Clinton route and others indicated support for accommodating vehicle growth by adding a second slip or implementing a reservations system. Several comments questioned whether improvements were truly needed:

- I cannot urge you more strongly to build an adequate terminal, add a 3rd ferry, and serve the mobility needs of the millions of vehicles that annually depend on the Clinton/Mukilteo ferries, both now and decades into the future.

- I believe the ridership-based need assessment for the terminal improvements is vastly overstated.
Comments on Environmental Impacts

Key themes from comments that referenced specific elements of the Draft EIS or potential environmental impacts are summarized below.

**Air Quality**

- There is concern that the Elliot Point alternatives would result in negative impacts on air quality in nearby residential areas.
  - The DEIS Air Quality studies are very general in nature and do not address how the outcome of adding either Elliot Point alternative below my residential neighborhood will affect me or other people living here…either of the Point Elliot Ferry Options could lead to cumulatively significant environmental impacts…

**Transportation**

- There is widespread support for enhanced multimodal connections and many comments referenced the importance of the multimodal and safety aspects of the project.
  - The alternatives do not provide adequate connections to the commuter rail station.
  - Promote walk-on ridership with strong pedestrian connections.
  - We cannot safely cross the street when the ferry is unloading.

- Several comments expressed concerns about construction impacts for the No-Build and Existing Site Improvements alternatives if the Mukilteo ferry terminal were closed and ferry traffic were rerouted to Edmonds.
  - As I understand with the No-build and Existing Site Improvements options there could be a three to nine month closure of the Mukilteo terminal. For us this would be a show stopper!
  - Not an option! I am responsible for the delivery of the Everett Herald, USA Today and New York Times Newspapers [to Whidbey Island]. A dock shutdown would put me out of business.

- Some commenters were concerned about traffic conditions at nearby intersections with SR 525 including Goat Trail Road, 76th Avenue, and Washington Street.

- Several individuals suggested extensive traffic revisions to improve the flow of traffic to and from the ferry.
  - None of these alternatives address congestion on 525 above the waterfront. Nearly all improvements help commuters but nothing here helps the local residents who actually live along 525. I believe you should incorporate the study that the City has under consideration, where they're looking at a new road down Japanese Gulch, extending north from Paine Field Boulevard just to the west of the Boeing plant and leading directly to the tank-farm area.
  - I would like WSDOT to consider, in addition to improving the ferry dock and holding lanes, that some modification/replacement of the existing approach bridge and roadway should be considered, including replacing the highway bridge, with one that takes the ferry bound traffic directly over the railroad and avoiding any traffic controls, also a fly-over ramp for traffic coming off of the ferry would improve traffic flow.
WSDOT also should consider the full re-routuing of SR-525 to avoid Mukilteo entirely, as it is a residential area, and the traffic is not compatible with the community. A new approach within the Japanese Creek gully would help alleviate traffic issues, as would an approach along the waterfront, either from Everett or Harbour Pointe.

- There is strong support for additional public parking near the ferry terminal, particularly among Whidbey Island commenters.
  - I would like to see some parking provided for people who walk on to visit Whidbey Island. [...]. Many people drive their cars because there is no overnight parking or street parking in Mukilteo.

- A number of commenters questioned why the project did not include pedestrian improvements to the SR 525 bridge.
  - Currently the bridge is the only access to the waterfront and the sidewalk is unsafe.

**Land Use, Economics, and Other Community Issues**

- Among commenters who live or work in Mukilteo, many are in favor of enhancing public waterfront access and pedestrian connections, and encouraging redevelopment of the waterfront area.
  - The most important issue for me as a Mukilteo resident is to improve and reclaim as much of current terminal parking and facility buildings for city use and redevelopment.
  - Maintain existing anchor businesses along waterfront and facilitate mixed use, pedestrian oriented New Urban redevelopment.

- Some comments expressed concern that the Elliot Point alternatives do not allow space for development along the waterfront for community enjoyment.

- Many commenters expressed concern about impacts on businesses such as the tenants in the Mongrain Building and Ivar’s restaurant.
  - ‘Existing Site’ would take away a neighborhood landmark restaurant, and a commercial building that holds unique arts facilities. This is unacceptable.

- Several expressed support for preserving the charm of Old Mukilteo.
  - The restoration of Old Town Mukilteo, the reclamation of our lost coastline, and the preservation of the serenity of the residences to the East of Old Town MUST BE YOUR NUMBER ONE CONSIDERATION.

- Others noted air quality, noise, visual, access, and parking impacts as overall concerns.
  - Elliot Point 1 and 2 do not account for increased pollution levels on residential neighborhoods…and would build a 4-lane road the entire length of the waterfront.

**Ecosystems**

- Several members of the scuba diving community expressed concern about impacts on sand slopes, creosote piles, and the Tank Farm Pier because they are habitats for juvenile fish, crab, and crustaceans. Several commenters suggested providing artificial reefs if the pier were to be removed.
The area around and under the fuel dock is teeming with wildlife, while much of the surrounding floor is a desert by comparison. It would be a shame if the new construction set this part of the shore back by 20 years.

The oil dock itself provides a HUGE habitat for muscles [sic], worms of various types and, at times, hundreds of Dungeness and red rock crab. We have also noted a recent increase in the number of rat fish under the dock. Please consider that some type of replacement habitat should be provided.

- Some comments supported daylighting Japanese Creek.
  - I like daylighting the creek – would be good even if not required.

**Cultural Resources**

- Several commenters indicated support for minimizing impacts on cultural resources and incorporating design elements that reflect the cultural history of the area.
  - I think as part of the design, there should be a meaningful public, prominent monument to commemorate the Point Elliot Treaty, perhaps on the eastern part of the site.
  - The tribal considerations are important! Make a historical site marker/memorial of some sort.

**8.2.3 Response to Comments**

WSDOT and FTA reviewed all of the comments received from the public, agencies, and tribes. Some factual corrections and language clarifications were made in the Final EIS text as a result of the comments. Appendix K lists the commenters, reproduces the comments, and provides FTA’s and WSDOT’s responses.