

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

Safety Issue	No-Build	Preferred Alternative	Existing Site Improvements	Elliot Point 1
Reduces conflicts between local and ferry vehicle traffic	No	Yes	Partially, through one-way street configurations	Yes
Reduces conflicts between vehicles and pedestrians/bicyclists	No	Yes	Partially, with street revisions and overhead loading	Yes
Provides a securable facility as required by the U.S. Department of Homeland Security	No	Yes	No	Yes
Addresses seismic or structural deficiencies	Partially over time, as facilities are replaced	Yes	Yes	Yes

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 6-2. Percentages of Ferry Sailings that are Full (All Alternatives)

Month	2010	2040
January	8%	32%
May	20%	48%
August	35%	58%

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

Transportation Element	No-Build	Preferred Alternative	Existing Site Improvements	Elliot Point 1
Ferry schedule reliability (timely and reliable loading and unloading)	No	Yes	Yes, due to overhead passenger loading	Yes
Minutes over/under 15-minute reliability target	2 minutes over	5 minutes under	4 minutes under	5 minutes under
Improved connections between modes (ferry, bus, and rail)				
<i>Walking Distances</i>				
Rail station/Passenger building	1,730 feet	745 feet	1,650 feet	1,610 feet
Transit center/Passenger building	190 feet	225 feet	590 feet	540 feet
Transit center/Rail station	1,850 feet	970 feet	1,190 feet	1,080 feet
Reliable connections (on time bus, rail, and ferry connections)	No	Yes	Yes	Yes
Transit facilities to support growth in travel demand	No	Yes	Yes	Yes
Pedestrian and bicycle improvements	No	Yes	Yes	Yes
HOV priority lane	No	Yes	Partial	Yes

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 6-4. Summary of Environmental Impacts by Alternative

Area of the Environment	No-Build	Preferred Alternative	Existing Site Improvements	Elliot Point 1
Permanent Effects				
Land use and Economics				
Full acquisitions (parcels)	0	1	5	1
Displaced residences	0	0	0	0
Displaced businesses	0	6 ¹	7 ¹	6 ¹
Compatibility with local land use	Low Compatibility	High Compatibility	Low Compatibility	High Compatibility
Compatibility with shoreline management plans	Low Compatibility	Moderate Compatibility	Moderate Compatibility	Moderate Compatibility
Noise and Vibration (Human Environment)				
Noise impacts above FTA/FHWA thresholds	0	0	0	0
Vibration impacts above thresholds	0	0	0	0
Visual Quality Impacts	Low	Low	Low	Low
Social Environment and Environmental Justice Impacts	Low	Low	Low	Low
Historic and Cultural Resources				
Archaeological sites with adverse effects	1	2	2	3
Air Quality				
NAAQS criteria exceeded	0	0	0	0
Hazardous Materials				
Acres of previously remediated site redeveloped	0	9	1	11
Energy and Climate Change				
Construction energy required (MBtu)	807,000	1,203,000	1,564,000	1,516,000

Table 6-4. Summary of Environmental Impacts by Alternative

Area of the Environment	No-Build	Preferred Alternative	Existing Site Improvements	Elliot Point 1
Geology and Soils				
Ability to address seismic and liquefaction risks	Limited	Improved	Improved	Improved
Water Resources				
Ferry operation disruption from location in floodplain	Higher	Lower	Higher	Lower
Ecosystems				
Net change in over-water cover (square feet)	+3,000	-129,100	+12,000	-116,300
Removal of creosote-treated piles	Existing facility only	Existing facility and approx. 3,900 piles at Tank Farm Pier	Existing facility and fishing pier	Existing facility and approx. 3,900 piles at Tank Farm Pier
Transportation				
Local transportation system backups on SR 525	Worse than today	Improved: Reduced queuing on SR 525	Worse than today	Improved: No queuing on SR 525
Parking impacts	No change	Gain of 28 spaces	Loss of 19 spaces	Gain of 22 spaces
Construction Effects				
Built environment				
	High due to multiple terminal closures; terminal closed 3 to 9 months	Low to moderate, with greater levels of construction activity but away from public areas; little to no closure of ferry service	Moderate due to terminal closure and area disruptions; terminal closed 1 to 2 months	Low to moderate, with greater levels of construction activity but away from public areas; little to no closure of ferry service
Potential to encounter hazardous materials during construction	Low	Moderate	Low to Moderate	Moderate
Natural environment				
	Moderate due to in-water construction	High due to in-water construction, pier removal, dredging	Moderate due to in-water construction	High due to in-water construction, pier removal, dredging
Use of Section 4(f) Properties				
	Four uses	Four uses	Four uses	Five uses

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.

