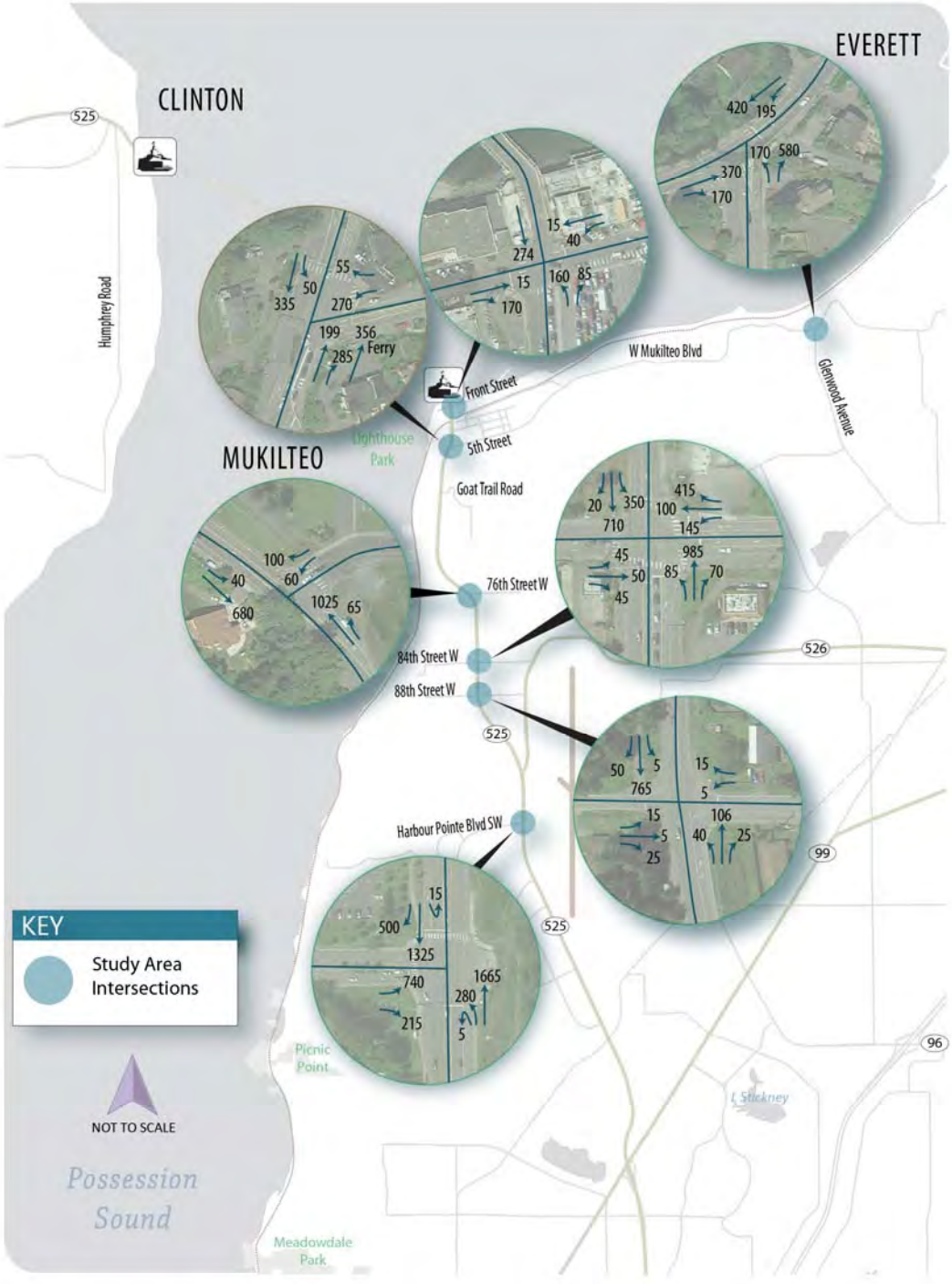
Exhibit 3-20. 2040 No-Build Alternative PM Peak Hour Volumes



Existing Site Improvements Alternative

Exhibit 3-21 and Exhibit 3-22 illustrate the inbound and outbound forecasted vehicle volumes for ferry-related vehicles in the terminal area during the PM peak hour. Vehicle circulation for this alternative changes compared to No-Build Alternative. One way, eastbound-only travel on Front Street and southbound-only travel on Park Avenue is identified in the alternative. This alternative also includes a new two-way First Street extension that connects SR 525 to the existing Mukilteo Station parking lot and Park Avenue.

This alternative redirects buses to First Street to access the bus bays, and then loops them around the designated bus bays back to First Street to exit. This change would improve bus operations during ferry loading and unloading because buses would be able to access the transit center, which provides an adequate number of bus stops.

Loss of some overnight parking capacity due to relocation of the bus bays would reduce inbound vehicle volumes. The new bus bays would be located on a site that currently provides paid overnight parking. With construction of the bus bays, those existing park-and-ride users are expected to move elsewhere.

Exhibit 3-21. 2040 PM Peak Hour Inbound Vehicle Volume Flows – Existing Site Improvements Alternative

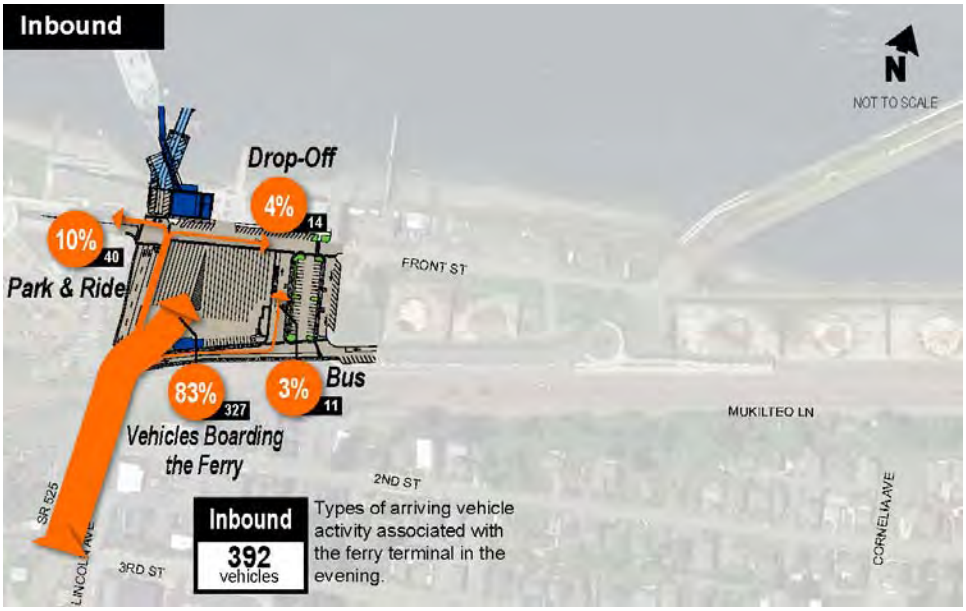
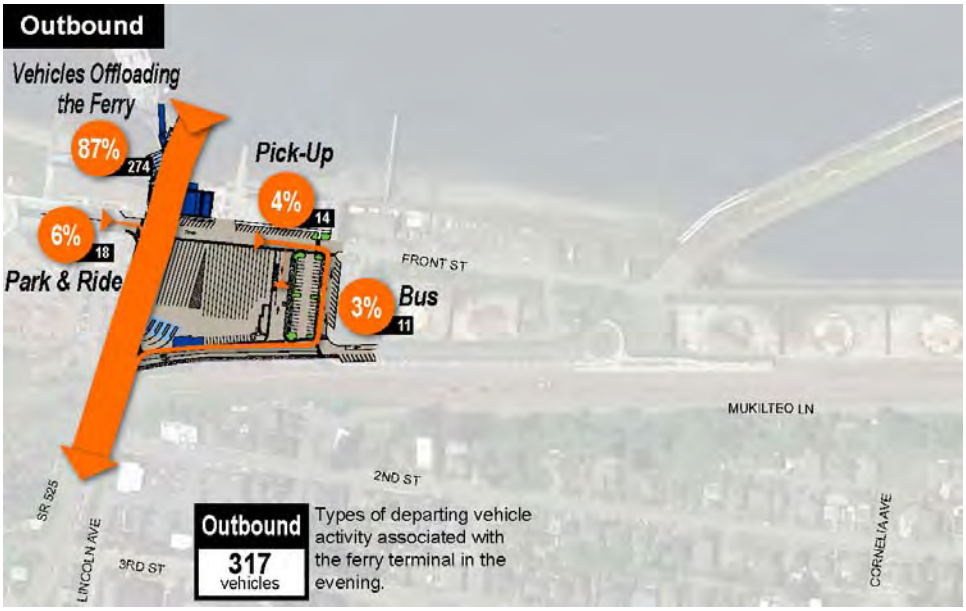


Exhibit 3-22. 2040 PM Peak Hour Outbound Vehicle Volume Flows – Existing Site Improvements Alternative



Projected 2040 PM peak hour turning movement volumes on SR 525 and Mukilteo Boulevard are the same for Existing Site Improvements Alternative compared to the No-Build Alternative, except for the roadways surrounding the Mukilteo ferry terminal (see Exhibit 3-23 for Mukilteo ferry terminal area volumes).

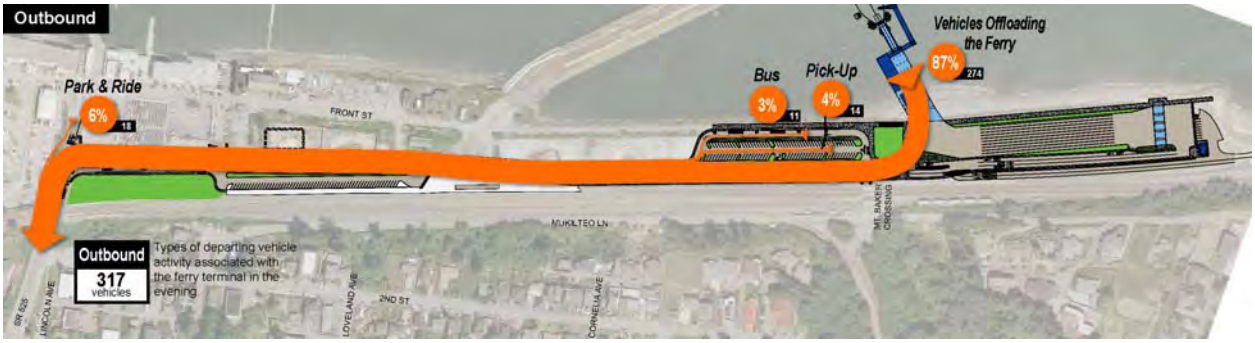
Exhibit 3-23. 2040 PM Peak Hour Volumes for Existing Site Improvements Alternative – Ferry Terminal Vicinity

Elliot Point 1 Alternative

Exhibit 3-24 and Exhibit 3-25 illustrate forecasted inbound and outbound PM peak hour ferry vehicle volume flows. This alternative shifts a majority of inbound and outbound vehicle traffic onto First Street, with high turning volume at the intersection of SR 525 and First Street. Inbound traffic traveling to the ferry would traverse the length of the First Street, entering the toll booth at the east end of the site. Outbound traffic would travel through the new intersection of First Street and Mount Baker crossing, then along First Street before turning left onto SR 525.

Exhibit 3-24. 2040 PM Peak Hour Inbound Vehicle Volume Flows – Elliot Point 1 Alternative

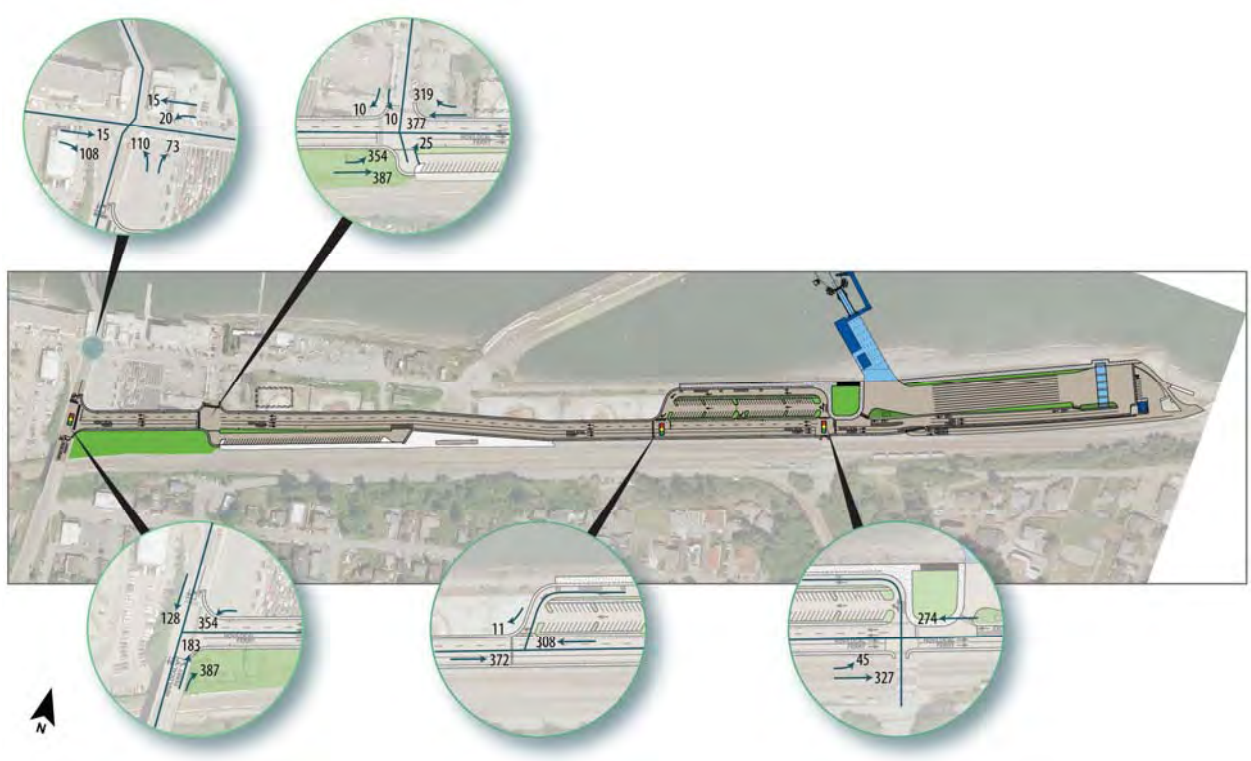
Exhibit 3-25. 2040 PM Peak Hour Outbound Vehicle Volume Flows – Elliot Point 1 Alternative



Buses and pick-up/drop-off vehicles also would use First Street but enter the bus bay and parking area to the west of the new terminal. Bus and pick-up/drop-off vehicles must yield to unloading ferry traffic when exiting the parking lot and bus bay. Park-and-ride vehicles are expected to continue to use SR 525 and Front Street to access parking spots.

Projected 2040 PM peak hour turning movement volumes on SR 525 and Mukilteo Boulevard for the Elliot Point 1 Alternative are the same as for the No-Build Alternative, except for the roadways surrounding the Mukilteo ferry terminal. Exhibit 3-26 illustrates the turning movement volumes for the proposed roadway modifications and changes in local roadway operations.

Exhibit 3-26. 2040 PM Peak Hour Volumes for Elliot Point 1 Alternative – Ferry Terminal Vicinity



Elliot Point 2 Alternative

Exhibit 3-27 and Exhibit 3-28 illustrate inbound and outbound PM peak hour flows for ferry-related vehicles. First Street operates similarly to the Elliot Point 1 Alternative at the western end, with high turning movements at the intersection of SR 525 and First Street. However the terminal holding area has been moved farther to the west. Vehicles heading to or from the ferry would turn into the holding area off of First Street.

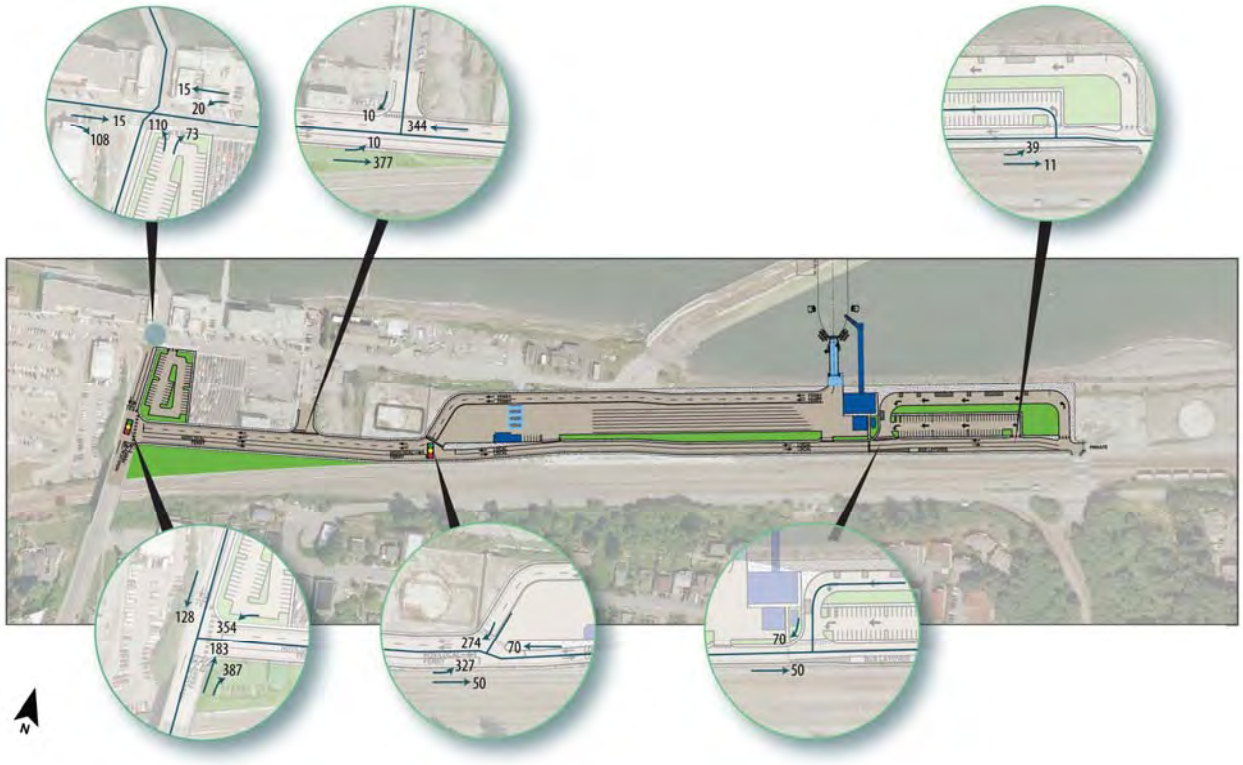
Other vehicles such as buses and pick-up/drop-off vehicles would continue down the length of First Street to their designated areas on the east side of the terminal. Buses and pick-up/drop-off vehicles leaving the terminal would merge with off-loading traffic at the signalized intersection of First Street and the terminal holding area. Park-and-ride vehicles are expected to continue to use available surface parking lots.

Exhibit 3-27. 2040 PM Peak Hour Inbound Vehicle Volume Flows – Elliot Point 2 Alternative

Exhibit 3-28. 2040 PM Peak Hour Outbound Vehicle Volume Flows – Elliot Point 2 Alternative

Projected 2040 PM peak hour turning movement volumes on SR 525 and Mukilteo Boulevard for the Elliot Point 2 Alternative are the same as for the No-Build Alternative, except for the roadways surrounding the Mukilteo ferry terminal. Exhibit 3-29 illustrates the turning movement volumes for the proposed roadway modifications and changes in local roadway operations.

Exhibit 3-29. 2040 PM Peak Hour Volumes for Elliot Point 2 Alternative – Ferry Terminal Vicinity



3.4.4 Traffic Operations

An LOS analysis was conducted for the study intersections using the software program Synchro 7 (Build 773) for intersections outside of the existing and proposed ferry terminal area.

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 shows a difference among the alternatives. Because projected 2040 roadway volumes are the same for the No-Build Alternative and the Build alternatives intersections along SR 525 between Fifth Street and Harbour Point Boulevard and the Mukilteo Boulevard/ Glenwood Avenue intersection, the intersection operations for all alternatives are projected to be similar. The LOS for the study area intersections south and east of Fifth Street are summarized in Exhibit 3-30. Also, the No-Build Alternative and Build alternatives

would maintain a similar break in off-loading traffic to allow side street traffic to turn onto SR 525.

Exhibit 3-30. 2040 Level of Service Summary (PM Peak Hour)

Intersection	Control Type	LOS	2010 Existing Delay (sec/veh)	LOS	2040 No-Build and Build Alternatives Delay (sec/veh)
SR 525/Harbour Pointe Blvd	Signal	C	21	D	51
SR 525/88th Street SW	Stop Sign	E	43	F	> 200
SR 525/84th Street SW/SR 526	Signal	C	28	D	52
SR 525/76th Street SW	Stop Sign	C	20	D	29
SR 525/Fifth Street	Signal	D	51	E	55
W Mukilteo Blvd/Glenwood Ave	Stop Sign	B	14	C	24

As shown in Exhibit 3-30, vehicle delay at intersections increases from 2010 to 2040, which is mostly caused more by increases in background traffic volumes than by the small growth in ferry vehicle traffic. In 2040, the SR 525/88th Street and SR 525/Fifth Street intersections have a failing LOS service because they exceed the standard set by the City of Mukilteo of LOS D or better. Traffic turning from 88th Street or crossing SR 525 would experience a large delay because of insufficient gaps in traffic along SR 525.

Intersection delay for buses would be the same as vehicle traffic (shown in Exhibit 3-30), except for intersections along First Street for the Build alternatives, which would incorporate transit signal priority.

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 Exhibit 3-31 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. 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.

Exhibit 3-31. No-Build Alternative Level of Service Summary (PM Peak Hour)

		Existing 2010		No-Build 2040	
		LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
SR 525/Front Street	Stop Sign	E	48	E	52

Existing Site Improvements Alternative

People driving to the Mukilteo ferry terminal would turn at a new SR 525/ First Street intersection and travel east to the tollbooth entrance roadway. Vehicles would queue along the curb lane of SR 525, as they do today, and along First Street. Authorized HOVs would drive in the inside lane, bypassing the shoulder queuing, and enter into mixed traffic immediately before the tollbooths. This alternative provides enough space to queue two to three vehicles between the tollbooths and the SR 525/Front Street intersection. To ensure that vehicles are always present at the tollbooth, this intersection should permit ferry traffic to move approximately every 50 seconds. Because regular ferry traffic and authorized HOVs move separately at the intersection, there is a potential for short-term blockage of eastbound First Street traffic until vehicles proceed through the tollbooths. If the intersection interferes with the number of vehicles able to pass through the tollbooths, the number of vehicles in SR 525 shoulder queuing would increase.

The LOS for intersections in the immediate vicinity of this alternative are summarized in Exhibit 3-32. Overhead passenger loading would slightly reduce the duration of intersection blockage during ferry loading/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.

Exhibit 3-32. Existing Site Improvements Alternative Level of Service Summary (2040 PM Peak Hour)

		No-Build Alternative		Existing Site Improvements Alternative	
Intersection	Control	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
SR 525/Front Street	Stop Sign	E	52	E	48
SR 525/First Street	Signal		n/a	B	17
Park Avenue/First Street	Stop Sign		n/a	A	10

Elliot Point 1 Alternative

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

The LOS for intersections in the immediate vicinity of this alternative are summarized in Exhibit 3-33. The delay at the SR 525/Front Street intersection would decrease by almost 38.0 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 impact this intersection directly. The modified intersections resulting from the First Street extension would operate at an acceptable LOS.

Exhibit 3-33. Elliot Point 1 Alternative Level of Service Summary (2040 PM Peak Hour)

		No-Build Alternative		Elliot Point 1 Alternative	
		LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
SR 525/Front Street	Stop Sign	E	52	B	14
SR 525/First Street	Signal		n/a	A	6
Park Avenue/ First Street	Stop Sign		n/a	A	10
West driveway/ First Street	Stop Sign		n/a	A	9
East driveway/ First Street	Signal		n/a	A	1

Elliot Point 2 Alternative

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

The LOS for intersections in the immediate vicinity of this alterative are summarized in Exhibit 3-34. The LOS at the SR 525/Front Street intersection would decrease by almost 38.0 seconds compared to No-Build Alternative. This is because the ferry terminal would be relocated and the holding and unloading operations would no longer impact this intersection directly. The modified intersections resulting from the First Street extension would operate at an acceptable LOS.

Exhibit 3-34. Elliot Point 2 Alternative Level of Service Summary (2040 PM Peak Hour)

		No-Build Alternative		Elliot Point 2 Alternative	
		LOS	Delay (sec/veh)	LOS	Delay (sec/veh)
SR 525/Front Street	Stop Sign	E	52	B	14
SR 525/First Street	Signal		n/a	A	7
Park Avenue/First Street	Stop Sign		n/a	A	10
Tollbooth/First Street	Signal		n/a	B	11

3.4.5 Roadway Network Safety

The types of collisions and proportions of collision severity described in *Section 2.2.4* along SR 525 would not be impacted by the Build alternatives because no modifications to SR 525 south of Third Street are proposed. Aspects of the physical roadway environment that would be refined during the design process include appropriate turning radii at intersections, safe lane widths, adequate lighting, safe sight distances, and other approved geometric standards to improve safety.

3.5 NON-MOTORIZED TRANSPORTATION

This section summarizes the changes to the non-motorized environment identified in each alternative and how it affects pedestrians and bicyclists. The non-motorized environment, which includes sidewalks, crosswalks, overhead passenger loading, bicycle lanes, and other pedestrian and bicycle-related facilities around the terminal vary with each alternative.

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 for each alternative.

3.5.1 Pedestrian Conditions and Facilities

Pedestrian conditions refer to the pedestrian environment of the project area, including conflicts with motorized modes (especially during ferry loading and unloading), presence of sidewalks and crosswalks, integration with other pedestrian facilities and destinations, and the general pedestrian experience.

None of the alternatives includes modifications to the SR 525 bridge over the BNSF tracks, such as wider sidewalks or bicycle lanes. WSDOT has determined this bridge

to be structurally sound, and has no immediate plans to replace the structure as part of the State Highway System Plan. This bridge has 3-foot-wide sidewalks on both sides. Other potential projects that could affect the SR 525 corridor that are not associated with this project are discussed further in *Chapter 6 Cumulative Impacts*.

No-Build Alternative Pedestrian Conditions and Facilities

This alternative maintains the same footprint as the current terminal. Specific components of the ferry terminal are replaced to maintain operations, but no other changes are made. As part of this alternative, the existing terminal passenger building, which is located on the northwest corner of the SR 525/Front Street intersection, would be replaced. Also, the transfer span signal is being relocated closer to the intersection. Both of these modifications improve accessibility to the passenger building and pedestrian-vehicle visibility at the intersection. No other improvements in the terminal area are identified.

Existing Site Improvements Alternative Pedestrian Conditions and Facilities

This alternative includes overhead passenger loading from a new passenger building to the ferry, which would change pedestrian flows immediately next to the terminal (also *see Section 3.5.4*). Addition of overhead passenger loading necessitates the relocation of the terminal entrance from the northwest corner of the SR 525/Front Street intersection to the northeast corner. This improvement would not fully eliminate pedestrian crossings at the SR 525/Front Street intersection, especially during unloading or loading of ferry vehicles. However, because the bus stop and passenger buildings would be relocated, the number of pedestrians crossing this location would be significantly lower. Pedestrians connecting between the transit center, passenger building, and Mukilteo Station would no longer cross SR 525.

The proposed signalized SR 525/First Street intersection would allow for a signal-controlled pedestrian crossing of SR 525, which does not currently exist north of Fifth Street. The extension of First Street between Park Avenue and SR 525 would include sidewalks on both sides of the road.

Elliot Point 1 Alternative Pedestrian Conditions and Facilities

This alternative includes sidewalks on both sides of the First Street extension from the intersection of SR 525 to the tollbooths at the eastern end of the site. The sidewalk would extend through Mukilteo Station on the south side of First Street. Overhead passenger loading is included at the Mukilteo ferry terminal, with a

connection to the sidewalk network on the west side of the vehicular transfer span. A sidewalk would be provided on the north side of the private access road to the Port of Everett Mount Baker Terminal, which is located to the east of the ferry vehicle holding area.

Along the Mukilteo ferry terminal's waterfront, a promenade would be constructed. The eastern and western portions of the promenade would be separated by the terminal building and pedestrians on either side of the promenade would be unable to cross to the other side. The western part of the promenade would be accessed through the Port of Everett employee parking area. Pedestrians walking between the eastern and western promenade would leave the shoreline promenade and use sidewalks provided through the transit center, along First Street (south of the Mukilteo ferry terminal holding area) and the Mount Baker Terminal parking area.

The Mount Baker railroad crossing would be open to pedestrians only as part of this alternative, but is currently closed because there are no connecting pedestrian or roadway facilities north of the railroad tracks. This intersection would provide an at-grade crossing of the BNSF tracks, which would increase the number of people crossing at this location. The Mount Baker crossing is used today to access the public beach adjacent the Port of Everett Mount Baker Terminal

The new signalized Mount Baker crossing/First Street intersection is a pedestrian-vehicle conflict point—a location where vehicle and pedestrian flows cross and create the potential for collisions. Pedestrians walking to or from Mukilteo Station or the surrounding neighborhoods would likely cross at this intersection. Vehicles unloading from the ferry or destined for the tollbooths pass through this intersection. Both the pedestrian and vehicle volumes are expected to be high at this location.

Pedestrians transferring to or from buses would have no interaction with vehicles and would have a direct connection between the passenger terminal and bus bays.

Other conflict points occur at the entrance and exit of the parking lot and the bus bays. These points would have relatively low vehicle volumes.

New overhead lighting would also be developed along First Street and for the terminal facilities, including the vehicle holding area, the commuter rail parking area, and the new bus bays.

Elliot Point 2 Alternative Pedestrian Conditions and Facilities

This alternative includes sidewalks along the First Street extension from SR 525 to the east end of the proposed Mukilteo ferry terminal. On the south side of First Street, sidewalks would be continuous without any driveway crossings between SR 525 and the Mount Baker crossing. Starting where the Mukilteo ferry terminal approaches the shoreline (about the midpoint of the holding area), a waterfront promenade would be constructed that would extend to the eastern end of the transit center. This promenade would be separated by the vehicle transfer span and pedestrians on either side of the promenade would be unable to cross to the other side. Pedestrians walking between the eastern and western promenade would leave the shoreline promenade and use sidewalks provided along the Mukilteo ferry terminal holding area, along First Street (south of the Mukilteo ferry terminal holding area), and through the transit center. Access to the passenger building and overhead passenger loading would be located between the holding area and the transit center.

This alternative does not have locations were high pedestrian and vehicle volumes have the potential to conflict. Pedestrians transferring to or from buses would have a short walk to the passenger building. Pedestrians transferring to Mukilteo Station would have one unsignalized crossing of First Street, which has low vehicle volumes at this location. The placement of the vehicle holding area to the east of the loading area contributes the most to this reduction in conflict between pedestrians and vehicles.

New overhead lighting would also be developed along First Street and for the terminal facilities, including the vehicle holding area, the commuter rail parking area, and the new bus bays.

3.5.2 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 tollbooths to pay their ferry fare.

No-Build Alternative

The manner in which bicycles arrive at the Mukilteo ferry terminal, are processed through the tollbooths, 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.

Existing Site Improvement Alternative

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

Elliot Point 1 Alternative

This alternative provides bicycle lanes in both directions along First Street between SR 525 and the Mount Baker crossing. Bicyclists would share a travel lane with vehicles accessing the tollbooths and when unloading from the ferry west of Mount Baker crossing. A bicycle lane would be provided in the holding area for bicyclists to bypass queuing ferry traffic and reach a staging area. Bicyclists would be able to share the lanes with vehicle traffic or use the designated HOV lane.

Elliot Point 2 Alternative

This alternative provides a westbound bicycle lane on First Street between the east transit center driveway and SR 525. No bike lanes are provided in the eastbound direction along First Street.

3.5.3 Non-Motorized Volumes and Destinations

This section summarizes the pedestrian and bicycle volume changes during the PM peak hour for the No-Build Alternative and Build alternatives. Pedestrian volumes are projected to increase during the PM peak period. In 2040, during the PM peak hour, a projected 456 people will walk and 5 people will bike to the Mukilteo ferry terminal from area destinations. The number of people arriving from Clinton in Mukilteo is significantly lower, with 36 people walking and 1 person bicycling from the ferry.

No-Build Alternative

Pedestrians and bicyclists would follow the same routes as they do today (see Exhibit 3-35 and Exhibit 3-36).

Exhibit 3-35. 2040 PM Peak Hour Inbound Non-Motorized Volume Flows – No-Build Alternative

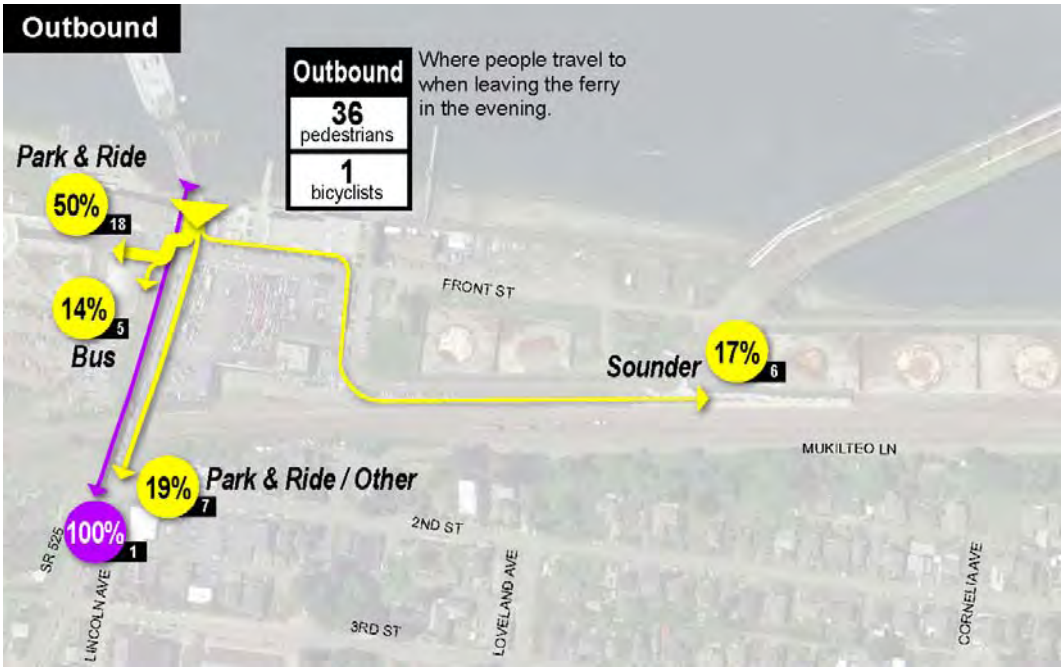
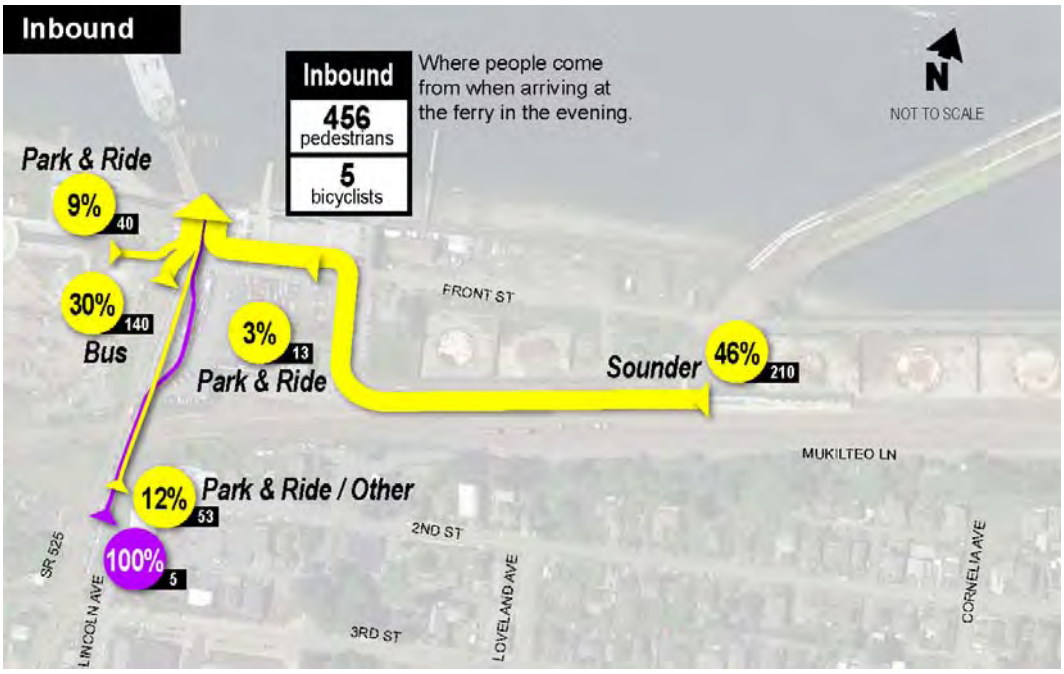


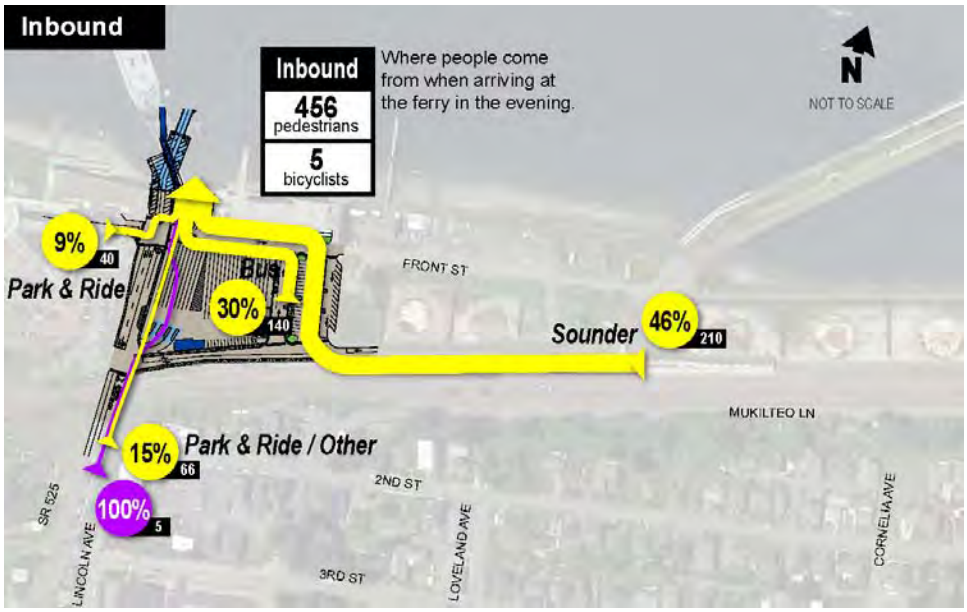
Exhibit 3-36. 2040 PM Peak Hour Inbound Non-Motorized Volume Flows – No-Build Alternative



Existing Site Improvements Alternative

This alternative would relocate the passenger building and the transit center, which changes how people travel to and from the Mukilteo ferry terminal. Exhibit 3-37 illustrates how people would walk and bike to the Mukilteo ferry terminal during the 2040 PM peak period. Most people travel to the Mukilteo ferry terminal from destinations east of SR 525, which includes Mukilteo Station, the transit center, and passenger pick-up/drop-off areas. People from Mukilteo Station and the transit center would likely concentrate their travel on the west side of Park Avenue and the north side of Front Street (the pedestrian walkway on the south side of Front Street would be retained, but is less favorable during ferry vehicle loading). Approximately 24 percent of walk-on passengers are forecasted to access the Mukilteo ferry terminal along SR 525 and areas to the west (most of these passengers would be using park-and-ride facilities).

Exhibit 3-37. 2040 PM Peak Hour Inbound Non-Motorized Volume Flows – Existing Site Improvements Alternative

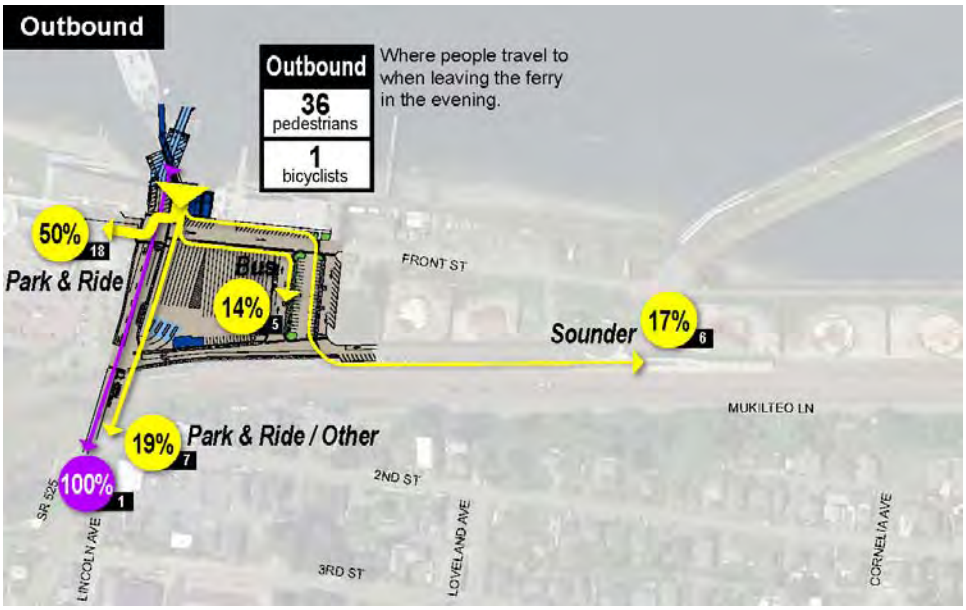


Bicyclists traveling to the Mukilteo ferry terminal would pass through the SR 525/First Street intersection and enter the holding area.

Exhibit 3-38 illustrates how people would walk and bike to the Mukilteo ferry terminal during the 2040 PM Peak Period. The walk-off passenger flows in the outbound direction would be less than 10 percent of the inbound walk-on flow. These flows would be evenly split between the east and west side of SR 525.

Passengers who walk off the ferry and then leave using their car parked nearby would make up the largest share of pedestrians, at 50 percent of outbound passengers. The remaining walk-off passengers would either walk south across the SR 525 bridge to the surrounding areas, to the bus bay, or Mukilteo Station. Bicycle flows would be entirely on SR 525.

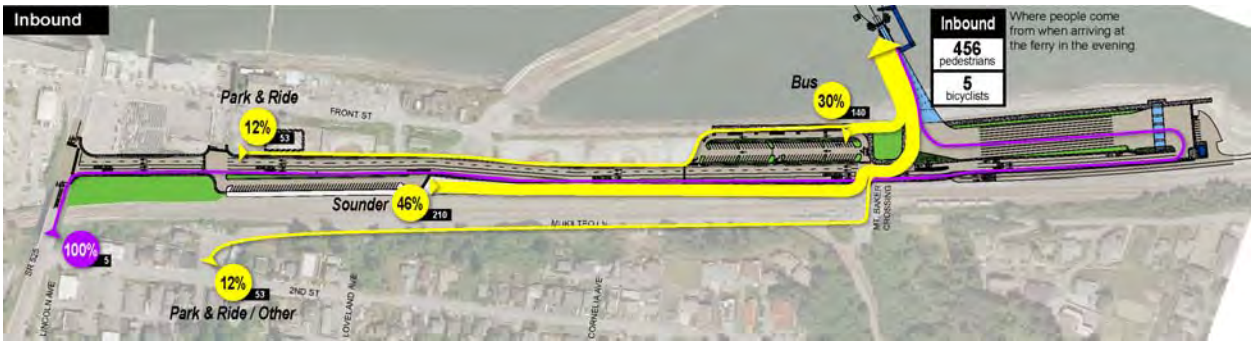
Exhibit 3-38. 2040 PM Peak Hour Outbound Non-Motorized Volume Flows – Existing Site Improvements Alternative



Elliot Point 1 Alternative

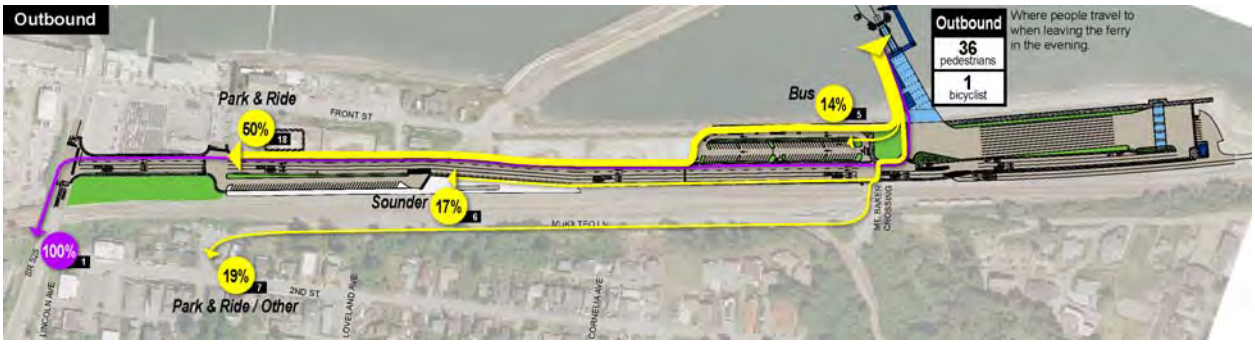
As illustrated in Exhibit 3-39, inbound trips would primarily occur in two flows, from the bus bays to the terminal and from Mukilteo Station to the terminal. Other pedestrian trips would be evenly distributed onto the north side of First Street and the new Mount Baker crossing and Mukilteo Lane. Approximately 58 percent of the pedestrians would pass through the intersection of First Street and Mount Baker crossing. Bicycle flows would travel the entire length of First Street to access the toll booths at the eastern end of the project area.

Exhibit 3-39. 2040 PM Peak Hour Inbound Non-Motorized Volume Flows – Elliot Point 1 Alternative



Outbound pedestrian flows shown in Exhibit 3-40 would be concentrated along the northern sidewalk on First Street heading to parking located in the vicinity of SR 525. Over 85 percent of trips must travel greater than 0.34 mile on First Street or Mukilteo Lane to arrive at their destination. Trips to the surrounding neighborhoods or Mukilteo Station, which represent close to 40 percent of the trips, branch off immediately after exiting the terminal building and travel through the East driveway/ First Street intersection near the Mount Baker crossing. Bicycle flows would be primarily on First Street and are expected to cross the BNSF tracks at SR 525.

Exhibit 3-40. PM Peak Hour Outbound Non-Motorized Volume Flows – Elliot Point 1 Alternative

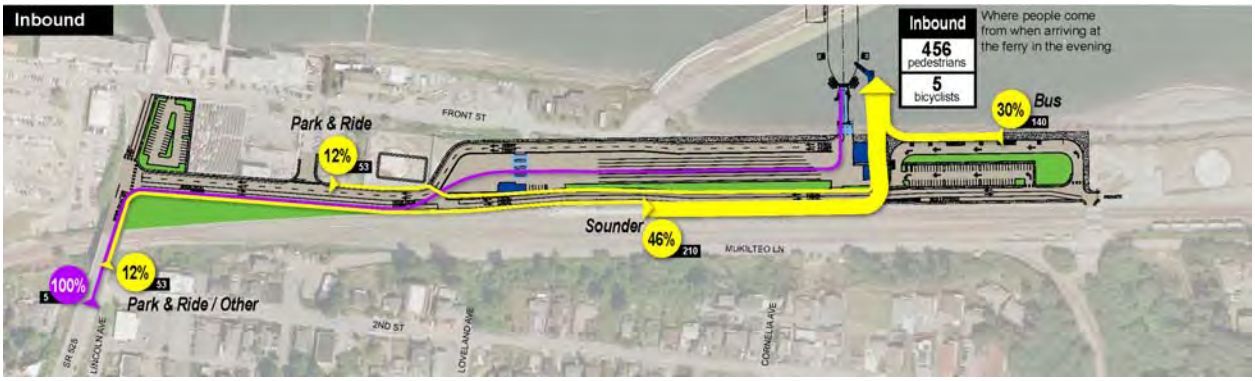


Elliot Point 2 Alternative

Exhibit 3-41 illustrates inbound pedestrian and bicycle flows. The largest pedestrian flows would be on the east end of the waterfront promenade and the south side of First Street connecting the bus bays and Mukilteo Station with the terminal. Pedestrian flows from the surrounding neighborhoods would travel across the SR 525 bridge, over the BNSF tracks, and along the south side of First Street, passing by Mukilteo Station. Bicycles would follow a similar path, but enter the holding area via the toll booths off First Street.

The west end of the waterfront promenade is not expected to be used by pedestrians accessing the Mukilteo ferry terminal because of the potential for pedestrian-vehicle conflicts if pedestrians were permitted to cross in front of the vehicle transfer span.

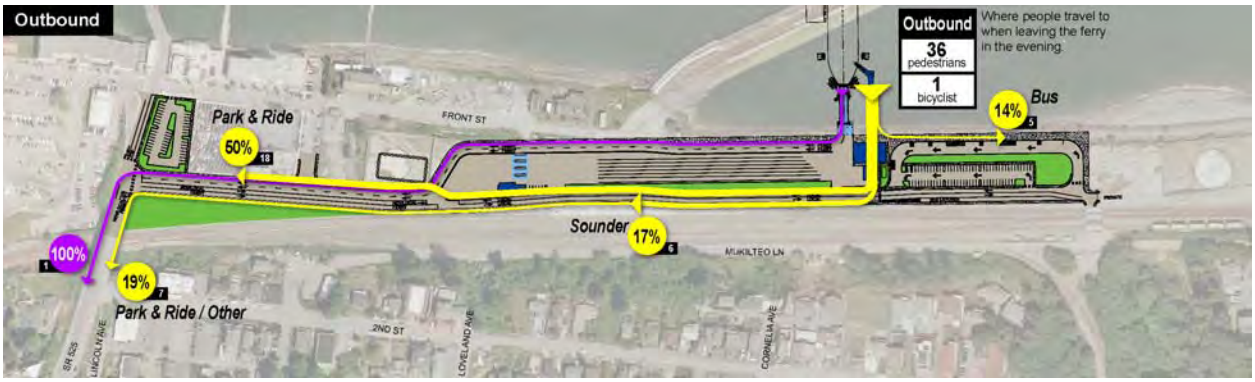
Exhibit 3-41. PM Peak Hour Inbound Non-Motorized Volume Flows – Elliot Point 2 Alternative



Outbound trips shown in Exhibit 3-42 are primarily oriented west of the terminal with over 85 percent of pedestrians traveling along the sidewalks on either the north or south side of First Street. Pedestrians heading to parking in the vicinity of SR 525 are expected to travel on the north side of First Street and pedestrians heading to the surrounding neighborhoods would travel on the south side of First Street.

Bicyclists are expected to travel along the north side of the holding area, merging onto First Street at the toll booth entrance. After merging onto First Street, bicyclists would turn left at SR 525.

Exhibit 3-42. PM Peak Hour Outbound Non-Motorized Volume Flows – Elliot Point 2 Alternative



3.5.4 Pedestrian Connections

Exhibits 3-43 through 3-46 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.

Exhibit 3-43. Pedestrian Pathways and Walk Distances to the Mukilteo Ferry Terminal

Exhibit 3-44. Estimated Walk Distances

Alternatives	Mukilteo Station to Passenger Building (feet)	Ferry to Mukilteo Station (feet)	Bus Stop / Transit Center to Passenger Building (feet)	Ferry to Bus Stop / Transit Center (feet)	Second Street to Passenger Building (feet)	Ferry to Second Street (feet)	Between Bus Stop and Mukilteo Station (feet)
Existing / No-Build	1,730	1,960	190	430	880	1,120	1,850
Existing Site Improvements	1,660	2,050	580	980	850	1,240	1,110
Elliot Point 1	1,630	2,010	730	1,100	3,180	3,550	1,060
Elliot Point 2	770	1,030	410	680	2,700	2,970	1,020

Exhibit 3-45. Walk Travel Times to the Mukilteo Ferry Terminal (2040 PM Peak)

Alternatives	Mukilteo Station to Passenger Building (minutes)	Bus Stop / Transit Center to Passenger Building (minutes)	Second Street to Passenger Building (minutes)	Between Transit Center and Mukilteo Station (minutes)
Existing	9	1	4	10
No-Build	9	1	4	10
Existing Site Improvements	8	3	4	5
Elliot Point 1	9	3	14	9
Elliot Point 2	5	1	12	6

Exhibit 3-46. Walk Travel Times from the Mukilteo Ferry Terminal (2040 PM Peak)

Alternatives	Ferry to Mukilteo Station (minutes)	Ferry to Bus Stop / Transit Center (minutes)	Ferry to Second Street (minutes)
Existing	10	2	6
No-Build	11	2	7
Existing Site Improvements	9	4	6
Elliot Point 1	11	4	16
Elliot Point 2	6	3	13

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 (see Exhibits 3-45 and 3-46 for the No-Build Alternative). Because the intersections remain stop-controlled, pedestrians would have the right-of-way when crossing the SR 525/Front Street and Park Avenue/Front Street intersections. Increases in walk time are important to consider because they describe the ability for people to make timely transfers between travel modes.

Existing Site Improvements Alternative

This alternative would change the location of the passenger building entrance from the northwest corner of the SR 525/Front Street intersection to the northeast corner, incorporate overhead passenger loading, and construct a new transit center east of the holding area.

As shown in Exhibit 3-45, walk times for people 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, people walking from Mukilteo Station would no longer have to wait for the ferry vehicle loading/unloading process. Walk times from the transit center and the passenger building would increase because the distance between the destination would increase by approximately 350 feet.

The delay to pedestrians when crossing local intersections and ferry vehicle unloading/loading would increase because of traffic growth and the additional unload/load time for the 144-vehicle ferries (compared to the existing 124-vehicle ferries). Walk times from the transit center and the passenger building would increase because the distance between the destinations would increase by approximately 390 feet, compared to existing. The walk time between the transit center and Mukilteo Station would be reduced by almost 5 minutes (see Exhibit 3-45).

As shown in Exhibit 3-46, travel times for people traveling to Mukilteo Station and the Second Street park-and-ride from the Mukilteo ferry terminal would decrease compared to the No-Build Alternative. Walk times to the transit center would increase compared to the No-Build Alternative.

Exhibits 3-47 and 3-48 provide a comparison in walk travel time changes between the No-Build Alternative and the Build alternatives; the change in pedestrian walk

time is summarized for each Build alternative compared to the No-Build Alternative walk times for the same origins and destinations.

Exhibit 3-47. Comparison in Walk Travel Time Compared to No-Build Alternative (2040 PM Peak)

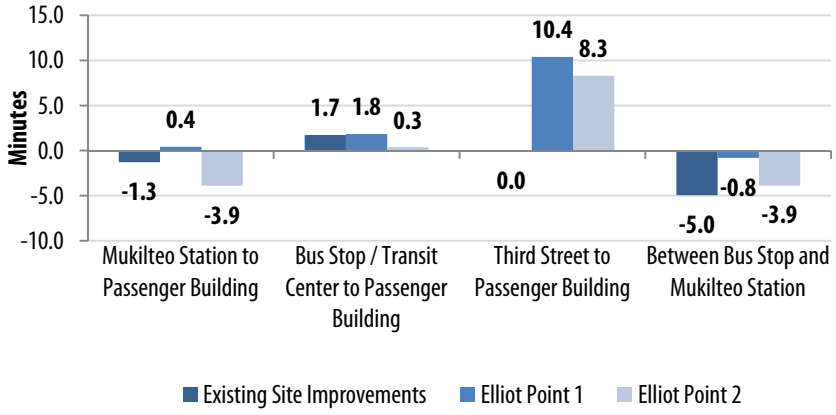
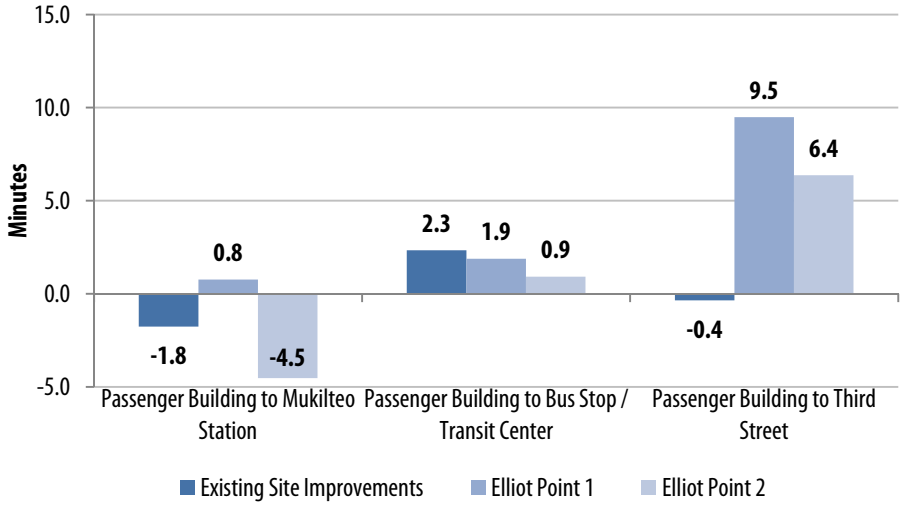


Exhibit 3-48. Comparison in Walk Travel Time Compared to No-Build Alternative (2040 PM Peak)



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 (see Exhibits 3-45 and 3-46).

People 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.

Some people who work, live, or park their vehicles in the pay-to-park lots south of Second Street would likely use Mukilteo Lane and cross the railroad tracks at the existing Mount Baker crossing. The existing railroad crossing was assumed to be open to pedestrians and emergency vehicle traffic only. The average walk time from these parking lots to the passenger building would be approximately 14 minutes, and from the ferry to the Second Street park-and-ride lot would be approximately 16 minutes. The increase in walk time for both directions would be about 10 minutes because the distance between these connections would increase by more than 2,300 feet (see Exhibits 3-43 and 3-44).

Elliot Point 2 Alternative

This alternative would relocate the Mukilteo ferry terminal to the western portion of the Mukilteo Tank Farm, which changes how ferry passengers would arrive and depart from the Mukilteo ferry terminal (see Exhibit 3-4). People walking from Mukilteo Station would likely use the new sidewalk along the First Street extension and cross into the Mukilteo ferry terminal at the proposed midblock crossing located at the west driveway/First Street intersection.

The average walk time from Mukilteo Station to the passenger building would be approximately 5 minutes (see Exhibit 3-45) and the return trip would be approximately 6 minutes (see Exhibit 3-46), both 4 minutes shorter compared to the No-Build Alternative. The walk connections between Mukilteo Station and the Mukilteo ferry terminal would be approximately 4.0 minutes shorter compared to the No-Build Alternative (see Exhibit 3-46 and Exhibit 3-47).

People 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 not have to cross vehicle traffic to access the passenger terminal because it would be located east of the ferry dock. 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.

People walking from Mukilteo would either cross the railroad using the SR 525 bridge or the existing at-grade Mount Baker crossing depending on their destination. This existing Mount Baker railroad crossing was assumed to be open to pedestrians and emergency vehicle traffic only. This alternative would increase the walk time between the Second Street parking lot and the Mukilteo ferry terminal by more than 6 minutes because it increases the walk distance by more than 1,700 feet.

3.5.5 Non-Motorized Safety

An important non-motorized safety consideration is the number of locations where people must share travel space or cross another travel modes' path, which are referred to as conflict areas. This section summarizes safety considerations for the multimodal connections surrounding the Mukilteo ferry terminal for people walking and bicycling. *Section 3.3.9* includes a summary of safety issues related to pedestrian and bicycles at the ferry terminal.

No-Build Alternative

No changes would be made to the pedestrian or bicycle environment. *Section 3.5.1* describes safety improvements for a new passenger building and modifications to vehicle control on the transfer span.

Existing Site Improvements Alternative

This alternative includes overhead passenger loading, which would reduce conflict between pedestrians and vehicles during the ferry load/unload process and maintain adequate ADA grade connections between the passenger building and the ferry.

People connecting between the transit center and the ferry would still have to cross Front Street, but they could cross at the Front Street/Park Avenue intersection, which is less congested than the SR 525/Front Street intersection. People connecting between Mukilteo Station and the ferry would cross First Street and Front Street, at

locations where vehicle volumes and speeds are low. This alternative includes a signalized crossing of SR 525 at First Street, which would reduce conflicts and ease crossing.

Sidewalk completeness and quality remain similar to existing conditions.

Elliot Point 1 Alternative

Safety concerns for pedestrians in relation to sidewalk connectivity and vehicular conflicts would be reduced under this alternative for some people. Bus passengers would not cross roadways between the transit center and the Mukilteo ferry terminal. People connecting between Mukilteo Station and the ferry would cross at the signalized Mount Baker crossing/First Street intersection. With high vehicle and pedestrian volumes crossing paths at this intersection, the chance of collision would increase, especially for train passengers who may be rushing to catch a train and may not follow the intersection controls.

This alternative introduces conflicts between pedestrians and train traffic at the new at-grade Mount Baker crossing of the BNSF tracks. This crossing has three active tracks and would require pedestrians to travel along Mukilteo Lane, which has no non-motorized facilities.

This alternative provides sidewalks along both sides of First Street, the public and employee parking lot, and other areas around the passenger terminal.

Elliot Point 2 Alternative

This alternative has similar pedestrian-vehicle conflicts to the Elliot Point 1 Alternative, except the people connecting between Mukilteo Station and the Mukilteo ferry terminal would cross First Street where vehicle volumes are lower (they would not have to cross ferry loading and unloading traffic). Bus passengers would have no conflicts with vehicular traffic. Sounder passengers would have a good connection between the terminal and Mukilteo Station with one crossing of First Street. This crosswalk would be unsignalized and have low vehicle volumes and a short crossing width. Other pedestrian-vehicle conflicts could occur at new signalized intersections on First Street, but generally would have low pedestrian volumes.

This alternative would provide sidewalks along both sides of First Street, the public and employee parking lot, and other areas around the passenger terminal.

3.6 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. This section describes changes to transit operation, bus zones, bus layover, and operations.

3.6.1 Transit Serving Mukilteo Terminal

For all Build alternatives, an improved bus stop area is proposed that would meet ADA requirements and would incorporate bus layover into the alternative's design. Proposed signalized intersections in the Build alternatives would include transit signal priority, which adjusts signal operation to favor transit movements when a bus is present. Transit signal priority would reduce the amount of delay buses could incur at intersections, and if programmed aggressively, would provide a green light for buses approaching an intersection most of the time.

All 2040 alternatives assumed bus headways were the same as existing schedules, because the transit agencies do not have specific plans for adjusting schedules in the future. For an estimate on the average number of people boarding buses (transit load factor) see *Section 3.6.4.* For a summary of walk times between the transit center, Mukilteo ferry terminal, Mukilteo Station, and Mukilteo, see *Section 3.5.4.*

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 time in Exhibit 3-49. The travel time between Second Street and the existing bus stop at the SR 525/Front Street intersection would be the same. Although it would be expected that the travel time would increase because of additional background traffic, the addition of the northbound right-turn lane would reduce congestion at the SR 525/Front Street intersection. The two existing bus bays would remain at the same location near the SR 525/Front Street intersection. Access to Mukilteo Station would remain unchanged. The City of Mukilteo expressed concern over transit operators continuing to lay over at Mukilteo Lighthouse Park; this may be restricted in the future. Operating issues identified for existing conditions, such as inadequate bus stop size and difficulty turning buses around in Mukilteo Lighthouse Park would still occur for this alternative (see *Section 2.4.5*). These operating issues impact the ability

for buses to start service on schedule, which negatively impacts schedule reliability and the ability for other passenger to make connections.

Exhibit 3-49. Transit Travel Times Serving Mukilteo Ferry Terminal (PM Peak Period)

Alternatives	From First Street to Bus Stop/ Transit Center (minutes)	From Bus Stop/ Transit Center to First Street (minutes)
Existing	0.6	0.2
No-Build	0.6	0.2
Existing Site Improvements	0.6	0.9
Elliot Point 1	1.4	1.8
Elliot Point 2	1.7	1.8

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 as well as paratransit service. The facility could include passenger amenities such as benches, shelters, passenger information, and lighting. Space for six bus bays 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 departed.

Buses would enter the transit center (traveling to the Mukilteo ferry terminal) by turning right at the proposed SR 525/First Street intersection from the inside lane (bypassing any ferry queuing) and then turning left west of Park Avenue. Passenger drop-off would occur on both sides of the transit center; the eastern edge of the transit center is Park Avenue. As part of the alternative refinement, buses would circulate through the transit center and lay over against the eastern edge of the holding lanes (a fence would separate the transit center from the Mukilteo ferry terminal); there would be space for approximately four buses to lay over along the western edge of the transit center. Buses leaving the transit center would exit on Park Avenue and turn left, assisted by transit signal priority, at the proposed SR 525/First Street intersection. Because the transit center would be slightly farther than the existing stop location and because buses pass through a new signal, the route time would increase by 0.7 minute compared to the No-Build Alternative when traveling away from the transit center (see Exhibit 3-48). The Park Avenue/First Street intersection was used as the reference point for determining transit travel times.

The transit center would be closer to Mukilteo Station than the existing SR 525 bus stops near Front Street by approximately 740 feet (see Exhibit 3-43). The facility would meet Everett Transit and Community Transit bus zone space requirements. Layover space for buses is not included in this alternative, but is included in mitigation (see *Section 7.5).* 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, and would serve scheduled routes and paratransit service. The facility would meet Everett Transit and Community Transit bus zone requirements, but separate layover space is not included on 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 *Chapter 7 Mitigation*.

Buses traveling to the transit center would turn right at the proposed SR 525/ First Street intersection using the inside lane. Buses would travel east on First Street and enter the transit center through the west driveway/First Street intersection. The west driveway is also used by WSF employees, the public, and ferry passengers to access a parking lot. Transit signal priority would be provided at intersections along First Street; however, transit signal priority would not interrupt ferry vehicle unloading. Because the transit center is farther than the existing stop location and because buses pass through three new signals, the route time would increase by 0.8 minutes to the transit center and by 1.6 minutes away from the transit center, compared to the No-Build Alternative (see Exhibit 3-48).

The transit center would be located approximately 290 feet closer to Mukilteo Station than the existing SR 525 bus stops near Front Street (see Exhibit 3-43). This alternative would have no impact on the Mukilteo Station parking area (see *Section 3.7.1*); however, Sounder passenger pick-up/drop-off would likely occur in the terminal parking lot because the roadway would be modified and the existing roundabout would be eliminated.

Elliot Point 2 Alternative

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

This alternative would relocate the current bus stops at 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 *Chapter 7 Mitigation*.

Buses traveling to the transit center would turn right at the proposed SR 525/First Street intersection using the inside lane. Buses would travel east on First Street and enter the transit center through a transit-only driveway. Transit signal priority would be provided at intersections along First Street; however, transit signal priority would not interrupt ferry vehicle unloading.

Layover for approximately four buses would be provided on the south side of First Street across from the transit center. 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 (see Exhibit 3-49).

The transit center would be located approximately 830 feet closer to Mukilteo Station than the existing SR 525 bus stops near Front Street (see Exhibit 3-43). This alternative would relocate the Mukilteo Station parking to the transit center area. Moving the parking for Mukilteo Station passengers would increase their walk time by approximately the same time it takes to walk from the transit center to Mukilteo Station (approximately 9.1 minutes as summarized in Exhibit 3-44). Sounder passenger pick-up/drop-off would likely occur in the terminal facility parking lot south of the transit center.

3.6.2 Transit Serving Clinton Terminal

Island Transit is anticipating continuation of transit service to the Clinton ferry terminal and the potential for increased peak period service to accommodate the growing demand. As part of Island Transit's strategy for improved transit service

connections, they are planning to expand the size of existing park-and-ride lots and evaluate additional park-and-ride lot locations along the SR 525 corridor.

3.6.3 Schedule Alignment and Reliability

To improve the competitiveness of transit as a mode of choice for travelers, transit agencies attempt to schedule their bus and rail service to match high-demand locations, such as a ferry terminal. For multimodal transit centers it is important to consider the following:

- Coordinating schedules with transit providers
- Improving travel time reliability
- Connecting between transit services

Coordinating Schedules

WSF anticipates the Mukilteo-Clinton ferry schedule would not change with either the No-Build or Build alternatives. Community Transit, Everett Transit, and Island Transit could increase the number of buses serving key routes with additional capital and operations funding. This would reduce the time between buses from approximately 30 minutes to 20 minutes.

Improving Travel Time Reliability

Transit agencies responsible for providing bus-based service often work with local jurisdictions to improve bus travel time reliability by installing transit signal priority and bus lanes. Roadway congestion can be difficult to predict and is a problem experienced by most transit providers when developing route schedules. Improvements that reduce delay to transit from congestion can improve schedule reliability and potentially reduce bus operation costs. To assist transit movements to the Mukilteo ferry terminal, all proposed signalized intersections would include transit signal priority. Another way to increase schedule reliability is to increase the number of buses serving a route during heavily congested times of the day, but this option would require additional capital and operations funding.

An impact on bus travel time (not necessarily reliability) is the increased distance buses would travel with the Existing Site Improvements, Elliot Point 1, and Elliot Point 2 alternatives, compared to existing conditions. The Build alternatives benefit transit operations by eliminating bus route stoppage due to ferry loading operation,

providing adequate space to accommodate bus stops, allowing for layover, and internal transit circulation, compared to existing conditions.

Sounder commuter rail is not subject to road-based congestion because of its grade-separated right-of-way and the provision of rail preemption where the rail line crosses roadways at grade. Rail schedule reliability would not be impacted by the No-Build Alternative or Build alternatives.

Connecting Between Transit Services

The distance people have to travel between transit services and the facility available to complete the connections are also important considerations in schedule alignment. As shown in Exhibit 3-44 and Exhibit 3-45, most of the walk times between the Mukilteo ferry terminal and destinations such as Mukilteo Station and the transit center would increase for the Existing Site Improvements and Elliot Point 1 alternatives. Walk travel times would generally be shorter for the Elliot Point 2 Alternative. The differences in travel time between the alternatives would be less than 2.4 minutes, which would have little impact on connections between transit services. Both the Elliot Point 1 and Elliot Point 2 alternatives would increase the walk travel time from the Mukilteo ferry terminal and downtown Mukilteo.

3.6.4 Average Passenger Loads

Year 2040 average passenger loads were estimated for transit routes serving the Mukilteo and Clinton ferry terminals for a PM peak period from 3:00 PM to 7:00 PM. A load factor of 1.0 indicates that the seating and standing room capacity on a bus is full; load factors can exceed 1.0, but this indicates a crush-load condition and is not preferred by transit agencies. When buses reach and exceed load factors of 1.0, buses typically cannot board additional passengers unless other passengers alight.

Mukilteo Terminal Average Passenger Loads

Exhibit 3-50 summarizes the existing and projected 2040 ridership and load factors, the number of buses serving the Mukilteo ferry terminal, and coach type (load factors are calculated at 1.5 times the seat capacity for the coach type). As shown in Exhibit 3-50, the average load factor increases slightly for most routes because of the growth in passenger ridership. However, even with projected transit growth, the current bus service could accommodate future passenger demands for Mukilteo service in the evening.

Exhibit 3-50. Projected 2040 Transit Average Passenger Loads (Arriving at Mukilteo between 3 PM and 7 PM)

Route	417	880	113	190	70	18
2010 Ridership	40	23	35	11	84	49
2010 Load Factor	0.19	0.11	0.09	0.07	0.39	0.13
2040 Ridership	35	75	65	22	179	163
Estimated 4-Hour Bus Service	5	5	10	4	4	9
Coach Type	60-foot	60-foot	40-foot	40-foot	40-foot	40-foot
Seat Capacity	60	60	40	40	40	40
Estimated 2040 Load Factor	0.08	0.17	0.11	0.09	0.75	0.30

Routes serving major employers, such as Route 70 which serves Boeing, may experience a concentration in ridership at the close of business or shift turnover. The way transit load factors are calculated in Exhibit 3-49 distributes growth over all bus trips within the 4-hour period. Individual buses may experience much higher load factors. For example, Route 70 is projected to more than double ridership from 2010 to 2040 (a 114 percent increase). If this percent increase was applied to existing load factors that were recorded for each bus trip, the scheduled 4:23 PM bus would have a load factor of 1.32 with a 40-foot coach and 0.88 with a 60-foot coach (37 passengers were recorded on the existing 4:23 PM bus arriving at the Mukilteo ferry terminal).

Clinton Terminal Average Passenger Loads

Exhibit 3-51 summarizes the existing and projected 2040 ridership and load factors, the number of buses serving the Clinton ferry terminal, and coach type (load factors are calculated at 1.5 times the seat capacity for the coach type). As shown in Exhibit 3-51, the average load factor increases for all routes because of the growth in passenger ridership.

Exhibit 3-51. Projected 2040 Transit Average Passenger Loads (Departing Clinton between 3 PM and 7 PM)

Route	1	7	8
2010 Ridership	198	121	25
2010 Load Factor	0.64	0.40	0.19
2040 Ridership	533	351	56
Estimated 4-Hour Bus Service	8	8	3
Coach Type	40-foot	40-foot	40-foot
Seat Capacity	40	40	40
Estimated 2040 Load Factor	1.11	0.73	0.31

With projected transit growth, the current bus service could accommodate future passenger demands for Clinton service in the evening, except for Route 1 which has an estimated load factor of 1.11 in 2040. A load factor greater than 1.0 on Route 1 indicates the potential need for additional buses or larger coaches during the PM peak period.

3.6.5 Public Transportation Safety

No-Build Alternative

The public transportation safety elements discussed under existing conditions for the Mukilteo ferry terminal are the same for the No-Build Alternative.

Existing Site Improvements Alternative

This alternative would relocate and reconstruct the transit center, which would be designed to increase passenger safety with adequate lighting, clearly marked crossing locations, and a shelter. Overhead passenger loading would separate the pedestrian and vehicle loading and unloading processes, which would improve safety at the Mukilteo ferry terminal. Also, overhead passenger loading would maintain adequate ADA grades.

Elliot Point 1 and Elliot Point 2 Alternatives

People walking between the Mukilteo ferry terminal and the transit center would not have to cross vehicle traffic (either in the holding area or local roadway), which would eliminate pedestrian-vehicle conflicts. The transit center, local roadways, and intersection would provide adequate lighting to discourage criminal activity.

3.7 PARKING

3.7.1 Mukilteo Ferry Terminal Parking

No increase in paid parking space is projected for the No-Build Alternative and Build alternatives, and on-street parking restrictions in Mukilteo were assumed to remain unchanged. Changes in parking by alternative are shown in Exhibit 3-52. The projected increase in ferry-related park-and-ride demand from 2010 to 2040 was 43 percent or an additional 62 vehicles. Based on a survey of how many spaces are typically occupied, adequate capacity will exist to accommodate this increase in demand.

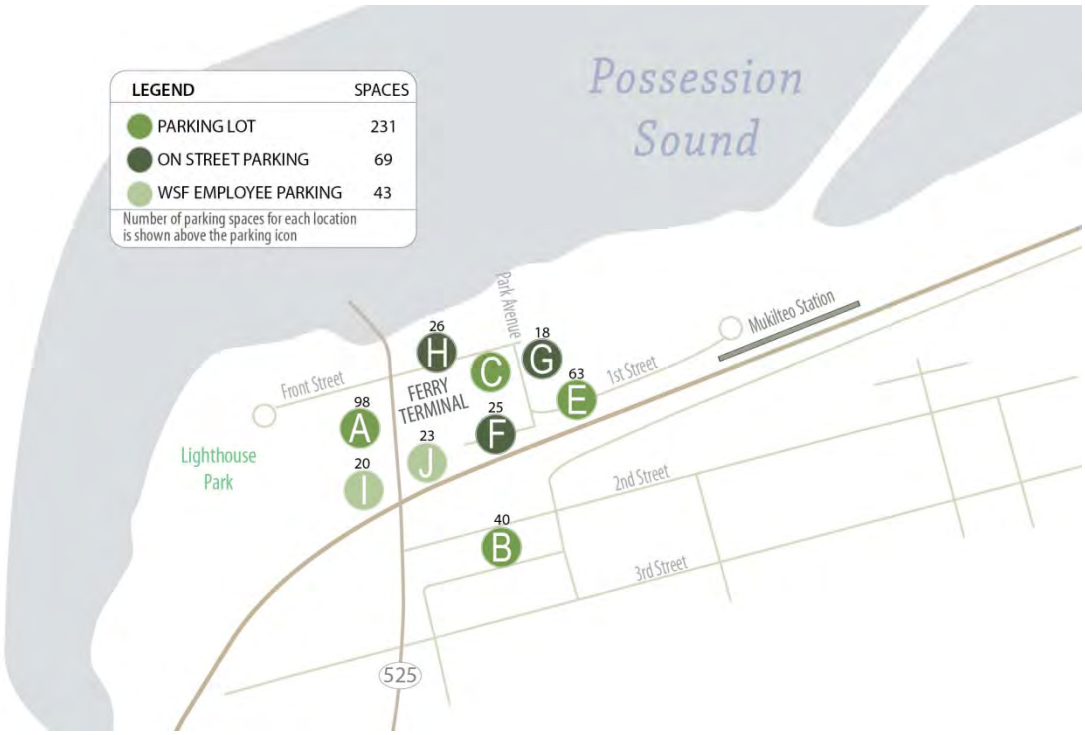
Exhibit 3-52. Parking Space Change by Alternative

		No-Build	Existing Site Improvements	Elliot Point 1	Elliot Point 2	
PARKING LOT	Parking Location	Number of Spaces				Notes
A	Southwest corner of SR 525 and Front Street	98	109	109	109	Off-Street private lot / paid (total does not include 5 vendor and 6 unmarked stalls)
B	Second Street between SR 525 and Park Avenue	40	40	40	40	Off-Street private lot / paid
C	Former Buzz Inn property (southwest corner of Front Street and Park Avenue)	n/a	n/a	n/a	n/a	This 45-space lot for Ivar's Mukilteo Landing is not included in totals because its use would be displaced
D	Port of Everett Mount Baker Terminal	30	30	10	30	Combined Port of Everett and public lot
E	Mukilteo Station Parking	63	63	63	72	Sound Transit park-and-ride lot
K	New Lot at Terminal	--	--	43	--	Off-Street public lot
	Subtotal	231	242	265	251	
	Net change compared to No-Build		11	34	20	
ON-STREET						
F	First Street between SR 525 and Park Avenue	25	0	0	0	On-street / time restrictions
G	Park Avenue between Front Street and First Street	18	13	12	17	On-street / time restrictions
H	Front Street between SR 525 and Park Avenue	26	26	26	26	On-street / time restrictions
	Subtotal	69	39	38	43	
	Net change compared to No-Build		-30	-31	-26	
	Total Parking Lot and On-Street Parking Spaces	300	281	303	294	
	Net change compared to No-Build		-19	3	-6	
WSF PARKING						
I	WSF employee parking (west of SR 525)	20	40	40	41	WSF employees only
J	WSF employee parking (at Mukilteo ferry terminal)	23	13	0	5	WSF employees only
	Subtotal	43	53	40	46	
	Net change compared to No-Build		10	-3	3	

No-Build Alternative

This alternative would have no change to parking capacity near the Mukilteo ferry terminal (see Exhibits 3-52 and 3-53). The No-Build Alternative would provide slightly more than the minimum of 40 spaces needed for WSF employee parking.

Exhibit 3-53. No-Build Alternative Parking Area Map



Existing Site Improvements Alternative

This alternative would reduce the amount of on-street and parking lot parking capacity by 19 spaces (see Exhibit 3-54).

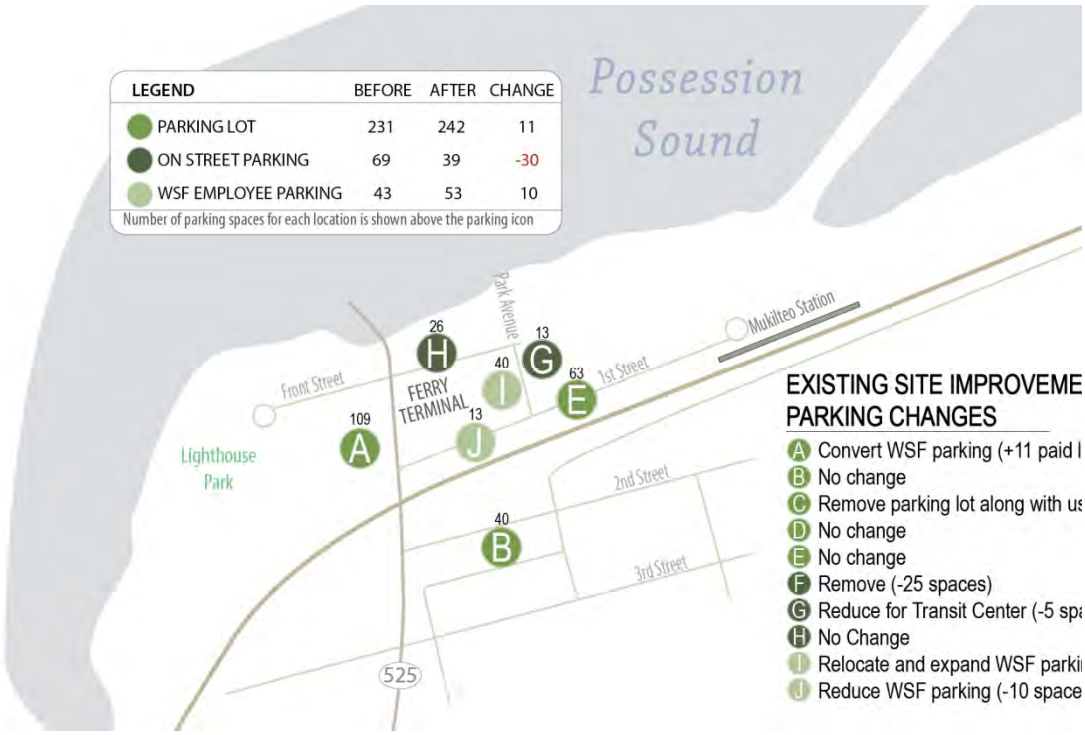
On-Street Parking

This alternative would reduce the amount of on-street parking spaces near the Mukilteo ferry terminal (see Exhibit 3-54).

Parking Lots

The net spaces in parking lots would be reduced by 11 spaces. The removal of Ivar's restaurant would reduce parking demand in the area.

Exhibit 3-54. Existing Site Improvements Alternative Parking Area Map



WSF Employee Parking

Parking for ferry terminal employees would increase from 43 spaces to 53 spaces; this amount exceeds the design criteria for 40 spaces. WSF currently uses 20 parking spaces in the existing parking lot (Lot A), but would no longer use them for employee parking; 11 parking spaces adjacent to 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 3 spaces (see Exhibit 3-55).

On-Street Parking

The Elliot Point 1 Alternative would result in a net loss of 31 on-street parking spaces (see Exhibit 3-55). The widening and realignment of First Street would reduce the number of on-street parking spaces along Park Avenue and eliminate parking on

First Street 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 would be used to access local businesses and the shoreline, there would be little impact on ferry passengers.

Parking Lots

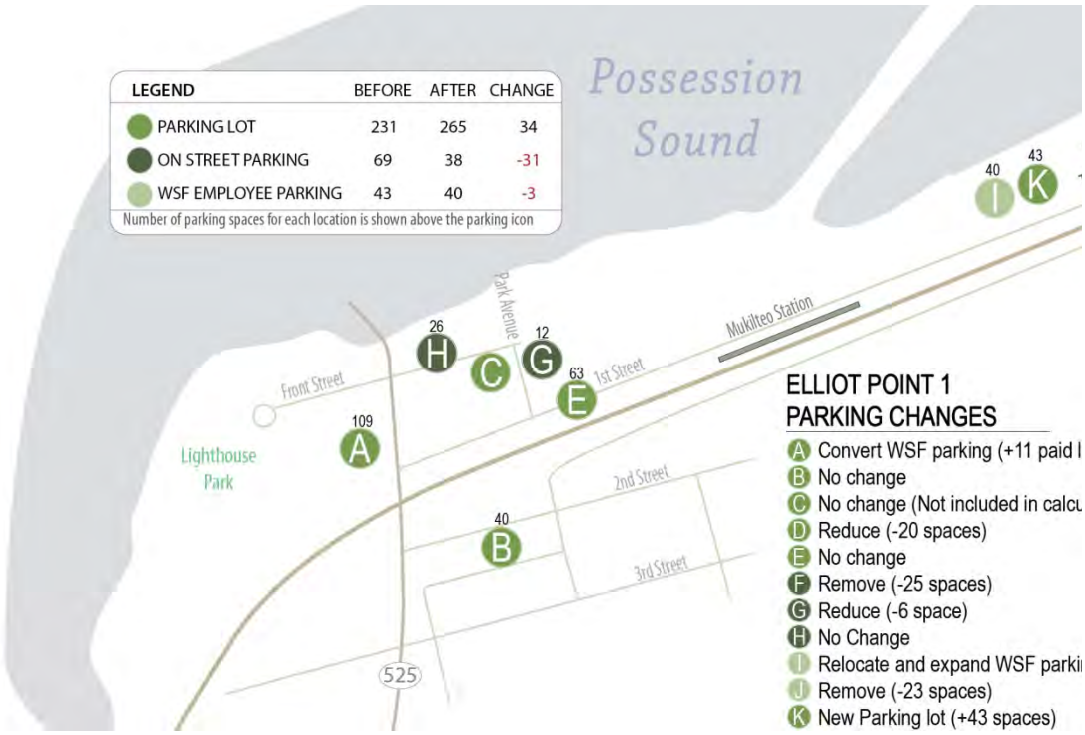
The number of parking spaces provided in parking lots would increase by 34 spaces. A new public parking lot at the Mukilteo ferry terminal would be constructed west of the holding area and Japanese Creek. ADA compliant parking spaces would be provided at the adjacent transit center. The terminal parking would replace some of the lost on-street parking. It also would replace parking removed at the Mount Baker Terminal. Not all of the terminal parking would be removed; 10 parking spaces would be retained for Port employees, but all the public parking spaces to the shoreline access area would be removed.

The Elliot Point 1 Alternative would increase the walk time from parking areas in Mukilteo, such as the Second Street parking lot, by approximately 9 to 10 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 *Chapter 4* of the *Draft Environmental Impact Statement (EIS)*.

WSF Employee Parking

WSF 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 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.

Exhibit 3-55. Elliot Point 1 Alternative Parking Area Map



Elliot Point 2 Alternative Parking

This alternative would reduce the amount of on-street and parking lot parking capacity by 6 spaces (see Exhibit 3-56).

On-Street Parking

This alternative would result in a net loss of 26 on-street parking spaces (see Exhibit 3-56). The widening and realignment of First Street would reduce the number of on-street parking spaces along Park Avenue and eliminate parking on First Street between SR 525 and Park Avenue, which could place additional parking demand on parking spaces west of Park Avenue.

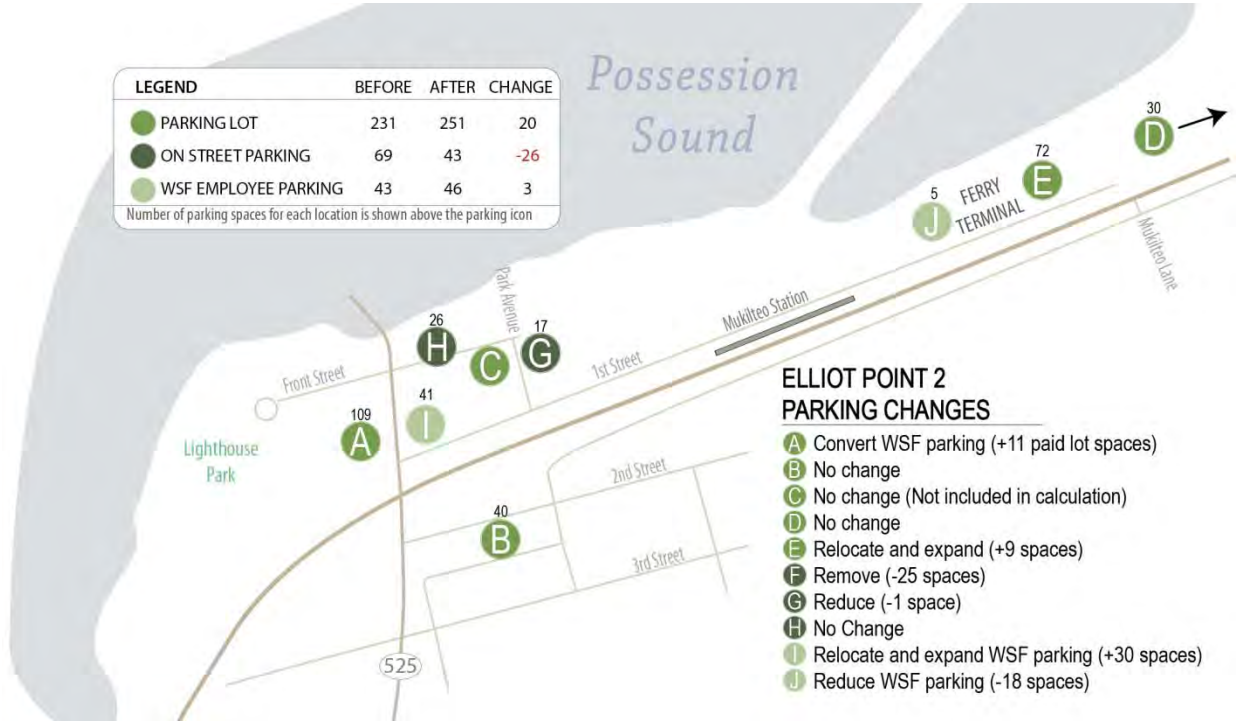
Parking Lots

The number of parking spaces provided in parking lots would increase by 20 spaces. The Sound Transit Mukilteo Station parking lot would be relocated and expanded. In addition, the parking spaces at the Mukilteo ferry terminal would be signed and managed for Mukilteo Station parking only, which could limit the use of this

parking area for ferry terminal pick up/drop off activity. The relocated Mukilteo Station parking lot would be approximately 900 feet from Mukilteo Station, which would maintain the station's parking supply but would increase passenger walk time by approximately 4 minutes. For general travelers this would be an inconvenience, but for persons with disabilities it would reduce their access to Mukilteo Station.

The Elliot Point 2 Alternative would increase the walk time from parking areas in Mukilteo, such as the Second Street parking lot, by approximately 6 to 8 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 *Chapter 4* of the *Draft EIS.*

Exhibit 3-56. Elliot Point 2 Alternative Parking Area Map



WSF Employee Parking

WSF employee parking would be relocated to the western portion of the existing holding area, and approximately 41 spaces would be provided. An additional 5 spaces would be provided in the new holding area. The remainder of the existing holding area and the existing WSF employee parking area would be vacated. The existing 11 parking spaces adjacent to Lighthouse Park would be converted to regular lot spaces, which would expand that lot's capacity from 98 spaces to 109 spaces.

3.7.2 Clinton

As part of Island Transit's strategy to improve transit service connections, they are planning to expand the size of existing park-and-ride lots and will evaluate additional park-and-ride lot locations along the SR 525 corridor.

3.7.3 Parking Safety

Safety issues within parking areas largely consist of parking area design and lighting, which will be considered further during the design process. Also, collisions within parking lots are typically less severe due to low vehicle speeds.

3.8 FREIGHT

3.8.1 Rail Operations

Rail operations would not be impacted 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 dude to the opened shoreline access area would not impact rail operations.

3.8.2 Truck Freight

At the Mukilteo ferry terminal, truck freight traffic would continue to be directed to the designated holding area freight lane for No-Build and Existing Site Improvements alternatives. These lanes permit the truck lane to load independently of other ferry vehicle traffic. For the Elliot Point 1 and Elliot Point 2 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. The increase in travel times (intersection delay) of truck freight traveling on SR 525 from ferry vehicle growth is small because most of the delay is associated with an increase in background (non-ferry related traffic) volumes.

3.8.3 Airports

The Build alternatives are not proposing modifications to SR 525 south of First Street, which includes the section of SR 525 between Paine Field Boulevard and Harbour Pointe Boulevard. The modification to SR 525 occurs outside of the 2-mile

radius, which requires coordination with the Federal Aviation Administration to ensure that airway-highway clearances are adequate. However, it is unlikely that any new roadway and transportation structures would be more than 200 feet in height above ground level.

3.8.4 Freight Safety

Freight vehicles require a larger turning radius compared to passenger vehicles, and collisions can occur with fixed objects or other vehicles when adequate turning radii are not available. For the No-Build and Existing Site Improvements alternatives, freight traffic would be required to perform the same two turns described in *Section 2.7.4*. Accessing the tollbooths and holding area, as described for the Elliot Point 1 Alternative, would require freight trucks to perform a sharp left turn before approaching the toll booth. The configuration of lane stripes to direct vehicle traffic to the appropriate tollbooth would be considered further during the design process. The Elliot Point 2 Alternative would stagger the eastbound through movements at the tollbooth entrance to ensure non-ferry vehicle traffic stops far enough back to provide adequate space for freight vehicles to complete the turn.

4 CONSTRUCTION IMPACTS

This chapter describes the anticipated impacts from construction of the No-Build and Build alternatives. Construction activities would be different depending on the alternative selected. 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 the peak periods of travel.

4.1 GENERAL CONSIDERATIONS FOR ALL ALTERNATIVES

4.1.1 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 by SR 525. Construction access through the Mount Baker 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.

4.1.2 Construction Timing and Activities

WSF policy limits construction activities to the off-peak season unless the construction activity is an emergency or would not impact ferry riders. Although the impact of construction activities would be less during the off-peak season between September and May, the off-peak season still sees substantial demands during

evening commute periods. . Similar to current conditions, ferry shoulder queuing on SR 525 could extend past Goat Trail Road and passengers could be waiting for over an hour to load the ferry during construction activities. During long ferry waits, people may exit their vehicles, which exposes them to traffic, including the increased construction-related vehicles, on SR 525. It would be appropriate to examine alternative construction trip travel measures that modify when trips occur.

4.1.3 Duration of Construction

The No-Build Alternative would still involve construction activities for the replacement of the Mukilteo ferry terminal's aging infrastructure. The No-Build Alternative construction consists 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 (Elliot Point 1 and Elliot Point 2 alternatives). The Existing Site Improvements Alternative would have construction activities lasting 1 to 2 years; the Elliot Point 1 and Elliot Point 2 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. Major activities for any of the Build alternatives could begin by 2016, and the terminal would likely begin operation in 2019 or 2020. Site development and site preparation activities, such as property acquisition, demolition, or some utility relocation activities, could occur after the environmental process is complete, which is expected by 2014.

4.1.4 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 and is described in *Sections 4.2* through *4.5*. In summary, WSF would stage the No-Build Alternative work to limit the closure to only 4 to 9 months. The Existing Site Improvements Alternative construction activities that would close the terminal are anticipated to last 3 to 6 months. The Elliot Point 1 and Elliot Point 2 alternatives

construction could occur without closure or with a short closure overnight or on a weekend.

4.2 NO-BUILD ALTERNATIVE

The No-Build Alternative includes what would reasonably be needed to maintain the existing ferry terminal at a functional level. Under this alternative, an improved multimodal transportation facility to meet future demand or operational needs would not be developed. Instead, 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.

For this alternative, the construction activities associated with maintenance and structure replacements that would close the terminal are anticipated to last 4 to 9 months. Other construction activities consist of smaller projects lasting approximately 1 to 6 months over the next 20 years and are not expected to result in closure of the Mukilteo ferry terminal.

During initial construction, activities requiring temporary facility closure could be scheduled for weekends and nights to minimize disruptions to ferry users. During Mukilteo 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, or Community Transit would need to temporarily reroute some of their service.
- *Park-and-Ride:* People who travel from Mukilteo to Clinton and leave vehicles in parking lots in Mukilteo may not be impacted if passenger-only service is maintained between Mukilteo and Clinton. Community Transit would likely provide service between Edmonds and Mukilteo for people who want to commute from parking areas in Mukilteo to Edmonds if passenger-only ferry service was not provided. The lack of passenger-only ferry service could also 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, which is a long commute for bicyclists. Some bicyclists may choose alternate modes.
- *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-ons 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 impact 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.

4.3 EXISTING SITE IMPROVEMENTS ALTERNATIVE

This alternative would reconstruct the Mukilteo ferry terminal and its related facilities at the current site, which would be expanded and realigned to accommodate additional vehicle holding required to support the larger ferry vessels. Front Street and Park Avenue would become one-way roadways and First Street would be extended to a new intersection with SR 525.

The Mukilteo ferry terminal would continue to operate during the 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 in 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 alternatives. Construction-related truck traffic would occur on SR 525, primarily related to 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.

4.4 ELLIOT POINT 1 ALTERNATIVE

The Elliot Point 1 Alternative would relocate the ferry terminal to the eastern portion of the Mukilteo Tank Farm, extending to the Port of Everett's Mount Baker Terminal.

The existing terminal would remain fully functional until the new multimodal facility is ready, then it would be removed. 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.

The extension of First Street would likely occur late in construction to avoid impacts on the existing facilities. During this 3- to 4-month construction period, all ferry traffic would use Front Street and Park Avenue to access First Street, increasing congestion.

Depending on construction phasing, development of the First Street extension could affect access to the Mukilteo Station parking lot.

4.5 ELLIOT POINT 2 ALTERNATIVE

The Elliot Point 2 Alternative would relocate the ferry terminal to the western portion of the Mukilteo Tank Farm. First Street would be realigned and extended west as a four-lane roadway, with a signalized entrance to the new ferry terminal. Construction impacts would resemble those of the Elliot Point 1 Alternative, except the impact on Mukilteo Station parking would have a longer duration because it is removed and relocated as part of this alternative.

5 INDIRECT AND SECONDARY IMPACTS

This chapter describes the indirect and secondary effects expected to be associated with this project. 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 WSF Long-Range Plan model) are consistent with the State Growth Management Act (GMA) plans in Island County and Snohomish County. Therefore, the potential for "induced growth" is largely 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.

6 CUMULATIVE EFFECTS

This section explores cumulative effects on transportation. Cumulative effects are the incremental impacts of all effects of the project including past and present actions in the study area, and the effects of reasonably foreseeable, planned projects in the study area. Most of the cumulative impacts to transportation are already assumed in the future year transportation projections used for the direct impact analysis in *Chapter 3 Transportation Effects*. This includes expectations for increased local and regional population and employment growth, and 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.

6.1 REDEVELOPED EXISTING MUKILTEO FERRY TERMINAL SITE

If either of the Elliot Point alternatives is selected, most of the existing Mukilteo ferry terminal site would be vacated. While redevelopment of the site could increase vehicle and passenger trips, the growth is expected to be within the range of growth already predicted in the regional growth forecasts and traffic growth rates used for the traffic analysis. The City is also exploring opportunities to create additional parking spaces on the southeast corner of the Mukilteo Tank Farm site. This could create an opportunity to offset some of the displaced parking spaces due to the build alternatives, but it also could increase traffic or require added traffic control revisions on First Street depending on the Mukilteo alternative.

The City of Mukilteo desires to improve public access throughout the City of Mukilteo and to the shoreline. A waterfront promenade is proposed with the goal of providing access along the shoreline from Mukilteo Lighthouse Park to the public beach access near the Port of Everett Mount Baker Terminal along the shoreline. Both the Elliot Point 1 and Elliot Point 2 alternatives would construct a portion of this promenade where the transit center and holding area is adjacent to the shoreline.

6.2 SOUND TRANSIT MUKILTEO STATION

Sound Transit's Mukilteo Station, which is located southeast of the existing ferry terminal, has additional development phases still pending. These include a second phase of the project to add a platform on the south side of the tracks, and a pedestrian bridge to connect the two platforms.

Sound Transit also plans to develop a 130-space joint-use multi-level parking structure, but a specific site and layout has not yet been confirmed. Sound Transit is coordinating its planning and design process for the second phase with the Mukilteo Multimodal Project, because the Build alternatives could alter the current station's access or layout.

The development of a multi-level parking structure for Mukilteo Station would improve accessibility for park-and-ride transfers to rail service. Rail service growth in the future is anticipated to increase as congestion builds on area roadways, which increases travel time for vehicles, buses, and vanpools. For the Elliot Point 1 and Elliot Point 2 alternatives, the parking structure could be constructed on the footprint of the surface parking and transit center area. For the No-Build and Existing Site Improvements alternatives, other site locations for the parking structure would need to be identified.

To evaluate cumulative effects associated with Sound Transit's garage, the Mukilteo ferry terminal project team considered traffic impacts from a 130-stall parking structure. Because the structure would likely replace Sound Transit's surface parking, analysts assumed the garage would add 75 vehicle trips traveling to the structure, and 20 vehicle trips leaving the structure during the PM peak hour. For the No-Build and Build alternatives, the SR 525/Fifth Street intersection would continue to operate below the City of Mukilteo's acceptable LOS D standard (see *Section 3.4.4*). However, with the proposed mitigation for the SR 525/Fifth Street intersection (see *Section 7.1.3*), it would operate at an acceptable LOS even with the potential increase in vehicular traffic from a parking structure.

6.3 NOAA FISHERIES SERVICE MUKILTEO RESEARCH STATION EXPANSION

NOAA Fisheries Service operates a laboratory immediately east of the Mukilteo ferry terminal and plans to expand this facility, subject to a property transfer from the U.S. Air Force. While the plans are in early stages, they appear unlikely to result in high levels of trips to the facility, beyond future levels already assumed in the traffic analysis in *Chapter 3 Transportation Effects.*

6.4 PORT OF EVERETT MOUNT BAKER TERMINAL

While the Elliot Point 1 Alternative would complete a permanent access road to the Mount Baker Terminal, other alternatives would not. Instead, the Port of Everett would complete the access road once the U.S. Air Force property transfer is complete, assuming the transfer occurs as expected, otherwise, the Port could seek a permanent easement from the U.S. Air Force or the ultimate property owner. Traffic conditions would be similar to those already assumed with the Mukilteo Multimodal Project.

6.5 MOUNT BAKER CROSSING

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 including an area that is within the City of Everett. It is gated to vehicles to restrict access, but would be open to pedestrians to travel to the shoreline access area near the Mount Baker Terminal when the area is officially open. The Elliot Point 1 and Elliot Point 2 alternatives assume that the crossing would be for pedestrians and emergency vehicle access only. General traffic, Port of Everett traffic, or ferry traffic would not be permitted to use the crossing.

The City of Mukilteo has expressed interest in opening the Mount Baker crossing to general purpose traffic. The Mukilteo Multimodal Project does not propose a general purpose traffic rail crossing at this location. If the City of Mukilteo, City of Everett, Port of Everett, or other agency proposed opening Mount Baker crossing to vehicular traffic, it could conflict with ferry terminal operations. Permitting general purpose traffic to cross at this location as part of the Elliot Point 1 Alternative would increase volumes at a complicated intersection that controls vehicular traffic entering and exiting the Mukilteo ferry terminal and would increase the number of vehicles traveling through the residential neighborhoods south of the BNSF tracks. Restricting vehicular traffic traveling to or from the ferry would be difficult and

would rely on other motorists to report violators and require periodic police presence for enforcement.

6.6 SR 525 BRIDGE

The SR 525 bridge over the BNSF tracks 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 the quality of pedestrian travel in the area and 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, affecting access to the waterfront, Mukilteo ferry terminal, and Mukilteo Station.

7 MITIGATION MEASURES

This chapter describes measures that could mitigate the adverse impacts identified in this discipline report. They are relatively conceptual at this stage. The Final EIS will include more detail and indicate which ones would be incorporated into this project.

7.1 MUKILTEO FERRY TERMINAL

7.1.1 Access Lanes and Vehicle Holding Area

The number of vehicle lanes on First Street between the Mount Baker crossing and the tollbooths could be expanded to extend the priority HOV bypass lane for the Elliot Point 1 Alternative. Currently, the proposed design has one inbound lane to access the tollbooths and one outbound lane. The outbound lane is required for safety and for allowing people who accidently enter the holding area a way to leave without impacting operations. An additional lane could be provided by reducing the landscaping on the north side of the holding area and shifting the holding area to the north.

7.2 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.

7.2.1 SR 525/Front Street Intersection

No-Build and Existing Site Improvements Alternatives

The 2040 intersection LOS E is for non-ferry traffic, which incurs 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:

1. *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).
2. *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.

Elliot Point 1 and Elliot Point 2 Alternatives

The SR 525/Front Street intersection is projected to operate at LOS B for these alternatives; therefore, no mitigation is needed.

7.2.2 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 (see *Section 3.4.2*). 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.

The following mitigation actions would reduce delay for 88th Street movements:

- *Provide left-turn lanes on SR 525*.
- *Convert lanes on 88th Street SW to right-turn pockets. Disallow left-turns and through movements from 88th Street, diverting traffic to the 92nd Street traffic light*. This would improve operations for eastbound and westbound right-turning vehicles from LOS F to LOS C.

7.2.3 SR 525/Fifth Street Intersection

The SR 525/Fifth 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 (see *Section 3.4.2*) 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, Existing Site Improvements, and Elliot Point 2 Alternatives

To improve the LOS at this intersection, the following mitigation action could be taken:

- *Convert the Fifth 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 to provide additional merge space for traffic turning from Fifth Street*. 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 tollbooths 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/Fifth Street intersection, it would operate at LOS C. This improvement would decrease the delay for vehicles turning left from Fifth Street onto southbound SR 525 from LOS F to LOS E; the delay for this movement could be decreased to LOS D or better by constructing a dual left-turn lane from Fifth Street to southbound SR 525.

However, the improvement described above for the other Build Alternatives would likely be needed during the summer months.

7.3 FERRY CROSSING LEVEL OF SERVICE

As summarized in *Section 3.3.6*, by 2040 the Mukilteo-Clinton ferry route is projected to fail to meet the WSF Level 1 Standard; therefore, WSF should consider operational strategies to reduce peak period travel demand. However, ferry capacity utilization is not high enough to warrant additional capacity investments above the already planned replacement of the current 124-vehicle ferries with 144-vehicle ferries. The 2030 Long-Range Plan has identified nine categories of strategies to manage demand:

1. Vehicle Reservation Systems
2. Transit Enhancements
3. Non-motorized Enhancements
4. Optimized Fare Collection Techniques
5. Enhanced User Information
6. Scheduling
7. Traffic and Dock Space Management
8. Promotion and Marking of Non-SOV Modes
9. Parking and Holding

A vehicle reservation system is identified by WSF in their 2009-2030 Long-Range Plan as a primary demand management strategy, which would reduce congestion related to ferry traffic. However, a vehicle reservation system is not viable at the Mukilteo ferry terminal per the *2010 Final Vehicle Reservation System Predesign Study*, which provides the following reasons:

- Mukilteo currently meets the minimal operating needs; however, the holding area includes leased land that is available for 5 years. Without a long-term

solution at Mukilteo, it may not be possible to effectively support reservations on this route.

- Without a relocated Mukilteo terminal or a permanent solution at the current site (the Buzz Inn property is secured for only a 5-year lease term) the implementation risk for full reservation deployment is too high to justify the additional terminal investments needed. If the terminal situation is resolved in such a way as to reduce the operational risks, then extending reservations to this route could be revisited at that time.

The ability of the project to implement some of these demand management strategies varies by alternative. After identifying a locally preferred alternative, WSDOT would begin work with stakeholders to identify specific strategies to manage demand and improve terminal operations.

7.4 NON-MOTORIZED TRANSPORTATION

Bicycle Facilities

Elliot Point 2 Alternative

Bicycles leaving the ferry would be required to mix with vehicle traffic, which could increase the time it takes to unload the ferry. A westbound bicycle lane could be provided along First Street from SR 525 to the tollbooth entrance road, and extended to the parking area, complementing the proposed eastbound bicycle lane. Also, a bicycle lane should be provided from the transfer span to First Street along the ferry exit roadway. This would improve bicyclist comfort, reduce conflicts with unloading vehicle traffic, and could decrease ferry unloading time.

7.5 TRANSIT

The Elliot Point 1 and Elliot Point 2 alternatives would relocate the current bus stops at the SR 525/Front Street intersection to a transit center east of the new terminal. This relocation would degrade connections made to Mukilteo Lighthouse Park and businesses along Front Street by increasing the walking distance. Mitigation could include additional bus stops on First Street near Park Avenue.

Community Transit and Everett Transit buses would be able to use curb lane stops during most times of the day, except during peak afternoon/evening time periods when vehicle queues from the tollbooths could block the eastbound bus stop

location. This blockage would occur more frequently for the Elliot Point 2 Alternative. Alternatively, for the Elliot Point 2 Alternative, bus stops could be placed east of the new tollbooth entrance. They could be used by all bus trips, including those during the afternoon peak periods, and could maintain pedestrian connectivity to the waterfront and Mukilteo Lighthouse Park, as well as enhance connectivity to Mukilteo Station.

7.5.1 Bus Layover

To address concerns about the lack of layover space, and the preference of the City of Mukilteo and the transit providers to not layover in Mukilteo Lighthouse Park, WSDOT could consider providing layover space at the new transit centers.

Existing Site Improvements Alternative

This alternative could provide bus layover space for approximately three buses along the western edge of the transit center with some modifications to the transit center layout. Buses would circulate through the transit center after dropping off passengers, and lay over against the eastern edge of the holding lanes, separated from the Mukilteo ferry terminal by a fence.

Elliot Point 1 Alternative

This alternative could provide layover space for five or six buses along the south side of the bus zone. This mitigation would reduce the width of the parking area travel lane and landscaping area.

Elliot Point 2 Alternative

This alternative could designate one of the three travel lanes on First Street as bus layover space. Layover space for approximately four buses could be provided. Buses would circulate through the transit center after dropping off passengers, and lay over against the southern curb of the First Street extension, south of the transit center.

7.6 PARKING

7.6.1 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.

Existing Site Improvements Alternative

The preliminary design for this alternative would result in a loss of 30 parking spaces near the Mukilteo ferry terminal. Mitigation to offset the loss could be difficult due to the lack of available lane, but some spaces could be created on First Avenue or as off-street spaces in coordination with the City of Mukilteo. Also, the transit center parking lot could be expanding, which would require WSDOT to manage it (see Exhibit 7-1). WSDOT could manage the lot with proof of eligibility for parking, such as signed WSF employee parking spaces with vehicle decals or public parking through ticketing.

Exhibit 7-1. Design Refinements for Existing Site Improvements Alternative

7.6.2 Elliot Point 1 Alternative

Although preliminary designs for this alternative would mitigate the displaced spaces from Mukilteo Station, safety at Mukilteo Station is a concern because access to the parking lot would be changed with the addition of the First Street extension. To improve safety, the Mukilteo Station parking lot could be refined to switch the orientation of the parking stalls and improve the vehicle approach angle to the driveway exit onto First Street. Combining the separate parking entrances at the new terminal parking lot could add about 10 spaces (see Exhibits 7-1 and 7-3). For the loss of on-street spaces, WSDOT could work with the City to define potential on-street or off-street replacements.

7.6.3 Elliot Point 2 Alternative

To offset on-street parking loss, the WSF employee parking lot that is proposed on the existing terminal site could be expanded. Converting this parking lot to shared public and WSF employee parking use would require the lot to be managed. Other on-street or off-street spaces could also be developed in coordination with the City of Mukilteo.

Reconfiguring the layout of the Elliot Point 2 Alternative might allow some or all of Mukilteo Station's replacement parking to be located closer to the platform (see Exhibit 7-4). WSDOT could also explore opportunities to place disabled parking at Mukilteo Station.

Exhibit 7-3. Design Refinements for the Elliot Point 1 Alternative

Exhibit 7-4. Design Refinements for Elliot Point 2

8 CONSTRUCTION MITIGATION

8.1 GENERAL CONSTRUCTION MITIGATION

For all alternatives, a construction traffic control plan would mitigate construction impacts. Like the plan developed for the Port of Everett Rail/Barge Transfer Facility, the plan could:

- Restrict some daytime construction activities to minimize traffic and noise impacts.
- Schedule major activities such as larger concrete pours or large-volume deliveries to be outside of peak seasonal or peak commute periods. Double-length trucks would also be limited to off-peak periods.
- Manage truck traffic to avoid multiple trucks on local streets such as Front Street and Park Avenue at the same time.
- Construct one- or two-way First Street intersection first and route all construction traffic on First Street.

The closure of the Mukilteo ferry terminal is anticipated to last approximately 3 to 6 months for the No-Build Alternative, 1 to 2 months for the Existing Site Improvements Alternative, and over a weekend for the Elliot Point 1 and Elliot Point 2 alternatives. During the closure of the Mukilteo ferry terminal, all ferry-related traffic would be routed to the Edmonds ferry terminal.

8.1.1 Long-Term Closure: No-Build and Existing Site Improvements Alternatives

For extended closure of the Mukilteo ferry terminal, WSF could implement the following construction mitigation strategies:

- ***Communication and education campaign.*** This strategy would alert and educate ferry passengers on how to complete their trip. The campaign should focus on ways to complete a trip without taking a vehicle on the ferry.
- ***Signage.*** Additional signage on SR 104 beyond the current shoulder queuing lane would be needed to instruct ferry traffic to not block driveways and intersections. Signage elements would also be needed throughout the region (such as I-5) to redirect traffic to Edmonds. Additional signage around the Edmonds ferry terminal would be needed to provide direction for local circulation.
- ***Holding lanes and shoulder queuing.*** Vehicles and bicycles would need to be reallocated within the Edmonds terminal holding lanes to accommodate both the Edmonds-Kingston and Mukilteo-Clinton routes.
- ***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-rides, buses, and rail transit.
- ***Bus service from Edmonds to Mukilteo.*** Bus 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 WSF staff 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 is 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 closure of the Mukilteo ferry terminal, WSF would initiate a communication campaign similar to what they have done in the past.

8.2 ADDITIONAL MITIGATION FOR MUKILTEO STATION PARKING IMPACTS

To mitigate the construction impacts of the Elliot Point 1 and Elliot Point 2 alternatives on access and parking for the 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.

9 REFERENCES

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APPENDIX A

Collision Review

Intersection	PDO	Injury	Fatality	Head On	At Angle	Side Swipe	Rear End	Front End	Object	Other	Ditch / Overturn	Ped / Bike	Daily Volume [a]	Average Annual Collisions (5 Yr Ave)	Average Annual Collision Rate (coll/MEV)
SR 525 / Harbour Pt Blvd	59	30	0	0	13	11	53	2	6	0	0	4	46,725	17.80	1.04
SR 525 / Private Drwy (Key Bank)	4	0	0	0	2	0	1	0	1	0	0	0	32,700	0.80	0.07
SR 525 / Private Drwy (Karmichael)	1	0	0	0	0	1	0	0	0	0	0	0	32,700	0.20	0.02
SR 525 / S Paine	18	5	0	0	2	1	6	0	13	0	1	0	32,700	4.60	0.39
SR 525 / 92nd St SW	10	3	0	0	3	1	7	2	0	0	0	0	32,700	2.60	0.22
SR 525 / 88th St SW	6	2	0	0	5	0	2	0	0	0	1	0	18,675	1.60	0.23
SR 525 / Private Drwy (Marriott)	3	0	0	0	0	0	1	0	2	0	0	0	22,881	0.60	0.07
SR 525 / 84th St SW	27	16	0	2	12	1	21	3	1	0	1	2	27,088	8.60	0.87
SR 525 / Private Drwy (Cascadia)	3	1	0	0	0	0	0	4	0	0	0	0	23,081	0.80	0.09
SR 525 / 81st Pl SW	3	0	0	0	1	0	1	1	0	0	0	0	23,081	0.60	0.07
SR 525 / 80th St	1	0	0	0	1	0	0	0	0	0	0	0	23,081	0.20	0.02
SR 525 / 80th St SW	2	2	0	1	0	0	3	0	0	0	0	0	23,081	0.80	0.09
SR 525 / 76th St SW	5	6	0	0	5	1	4	0	1	0	0	0	19,075	2.20	0.32
SR 525 / Private Drwy (School)	0	1	0	0	0	0	0	0	0	0	1	0	16,644	0.20	0.03
SR 525 / Clover Ln	3	1	0	0	0	0	3	1	0	0	0	0	16,644	0.80	0.13
SR 525 / Private Drwy (Homes)	2	0	0	0	0	0	2	0	0	0	0	0	16,644	0.40	0.07
SR 525 / Horizon Heights Blvd	2	1	0	0	1	0	1	0	1	0	0	0	16,644	0.60	0.10
SR 525 / 15th Pl	1	1	0	0	1	0	0	0	1	0	0	0	16,644	0.40	0.07
SR 525 / Goat Trail Rd	4	3	0	0	3	0	2	0	2	0	0	0	16,644	1.40	0.23
SR 525 / Private Drwy (Unknown)	0	1	0	0	0	0	0	0	0	0	0	1	16,644	0.20	0.03
SR 525 / Church St	1	0	0	0	0	1	0	0	0	0	0	0	16,644	0.20	0.03
SR 525 / 6th St	5	3	0	0	5	0	3	0	0	0	0	0	16,644	1.60	0.26
SR 525 / Private Drwy (Liquor)	7	2	0	0	7	0	2	0	0	0	0	0	16,644	1.80	0.30
SR 525 / 5th St	21	7	0	1	11	1	10	3	1	0	0	1	14,213	5.60	1.08
SR 525 / 4th St	2	0	0	0	2	0	0	0	0	0	0	0	14,213	0.40	0.08
SR 525 / 3rd St	3	1	0	0	3	0	0	1	0	0	0	0	14,213	0.80	0.15
SR 525 / 2nd St	12	0	0	0	7	1	1	3	0	0	0	0	14,213	2.40	0.46
Ferry Toll Booth	2	1	0	0	2	0	1	0	0	0	0	0	14,213	0.60	0.12
W Mukilteo Blvd & Glennwood Ave	3	0	0	0	0	0	3	0	0	0	0	0	16,513	0.60	0.10
Intersection Total	210	87	0	4	86	19	127	20	29	0	4	8			
Intersection Percent	72%	67%	0%	57%	92%	54%	58%	95%	76%	0%	100%	100%			
Road Segment Total	83	43	2	3	7	16	91	1	9	1	0	0			
Road Segment Percent	28%	33%	100%	43%	8%	46%	42%	5%	24%	100%	0%	0%			
Corridor Total	293	130	2	7	93	35	218	21	38	1	4	8	21,089	170	1.33

a Daily volumes at study intersections based on PM peak hour counts and a 0.08 k-factor from the 24-hour count data. Daily volumes at non-study intersections based on adjacent volumes at study intersections.

APPENDIX B

Transportation Methods and Assumptions Technical Memorandum

Washington State Ferries

Mukilteo Multimodal Terminal Project Transportation Methods and Assumptions Technical Memorandum

Prepared for

Washington State Department of Transportation
Washington State Ferries

Consultant Team

Parametrix, Inc.
The Transpo Group

January 2011

Stakeholder Acceptance

The undersigned parties concur with the traffic methods and assumptions for the Mukilteo Multimodal Terminal Project's Transportation Discipline Report (TDR) presented in this document. Any changes to this document will be reflected in an Appendix following the completion of the Final TDR.

WSDOT Urban Planning Office

Signature

Date

WSDOT Northwest Region

Signature

Date

WSDOT Washington State Ferries

Signature

Date

Community Transit

Signature

Date

City of Mukilteo

Signature

Date

Everett Transit

Signature

Date

City of Everett

Signature

Date

Island Transit

Signature

Date

City of Edmonds

Signature

Date

Sound Transit

Signature

Date

Port of Everett

Signature

Date

Island County MPO/RTPO

Signature

Date

Environmental Protection Agency

Signature

Date

National Oceanic and Atmospheric Administration

Signature

Date

United States Air Force

Signature

Date

Puget Sound Regional Council

Signature

Date

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Acronyms and Abbreviations

DEIS	draft environmental impact statement
EIS	environmental impact statement
GP	general purpose
HCM	Highway Capacity Manual
HOV	high-occupancy vehicle
HV	heavy vehicle
LOS	level of service
MOE	measure of effectiveness
MUTCD	Manual on Uniform Traffic Control Devices
PHF	peak-hour factor
SEPA	State Environmental Policy Act
SR	State Route
TDR	Transportation Discipline Report
v/c	volume/capacity
WSDOT	Washington State Department of Transportation
WSF	Washington State Ferries

1 Introduction and Project Description

This technical memorandum outlines the methods and assumptions to be used to develop the Transportation Discipline Report (TDR) for the Mukilteo Multimodal Terminal Project. This includes concurrence on the analysis years, the limits of the study, travel demand forecasting and modeling methodologies, safety analysis methods, and operational analysis parameters and methods.

In 2004, the Washington Department of Transportation (WSDOT) began the Mukilteo Multimodal Project Environmental Impact Statement (EIS) with the purpose of improving the transportation service provided by the Mukilteo Ferry Terminal and its operations in providing safe, reliable and effective service for general purpose transportation, transit, high occupancy vehicles (HOV), pedestrians, and bicyclists.

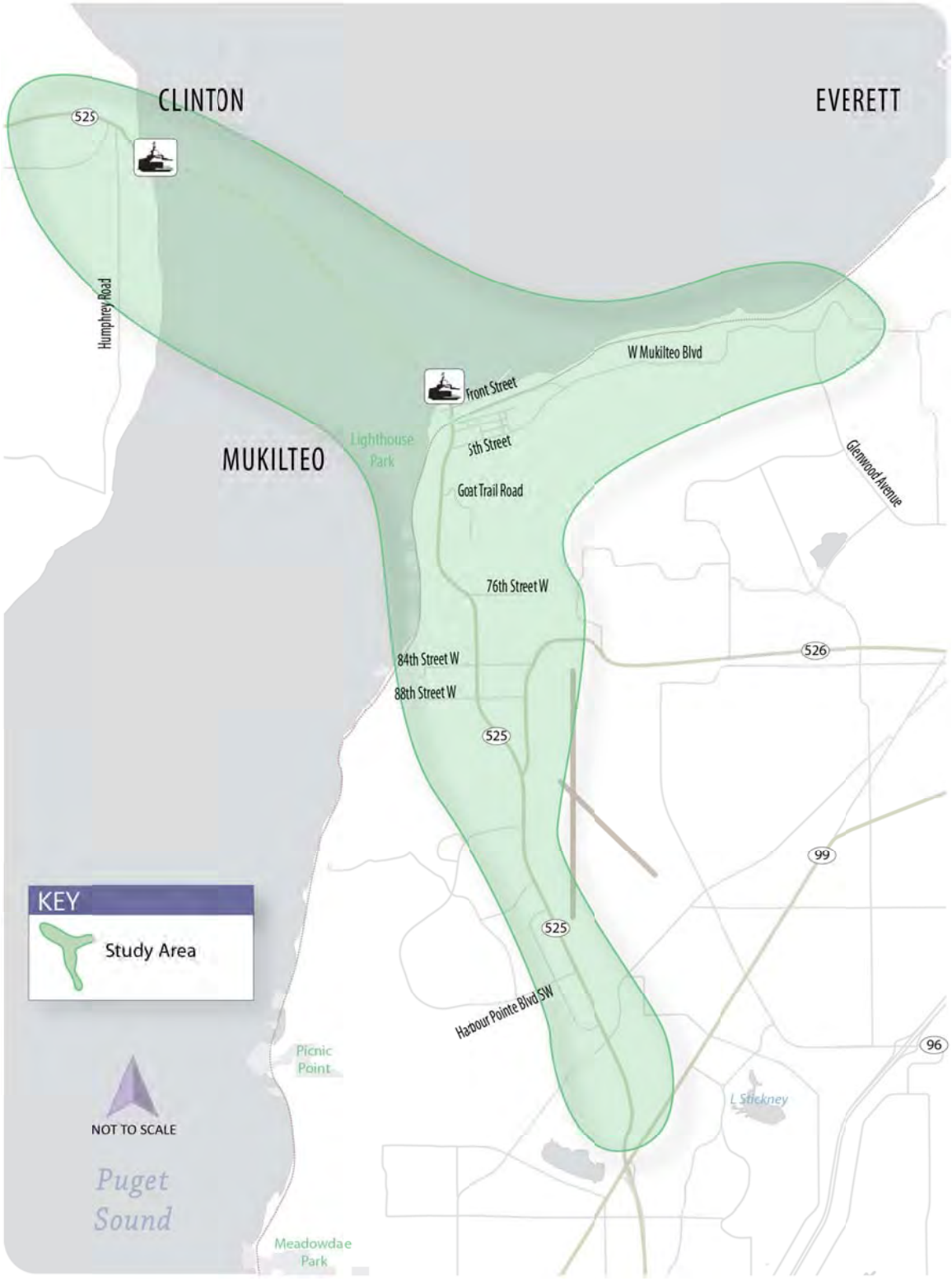
The Mukilteo/Clinton ferry route is part of State Route (SR) 525, the major transportation corridor connecting Whidbey Island to the Seattle-Everett metropolitan area. It is Washington State Ferries (WSF) second busiest route for vehicle traffic and has the third largest annual ridership in the WSF system. The existing Mukilteo ferry terminal is aging and needs major repairs to improve safety, reliability and multimodal connections.

The EIS is intended to satisfy the requirements of the National Environmental Policy Act (NEPA) and the State Environmental Policy Act (SEPA). As part of the Mukilteo Multimodal Project EIS, WSDOT is conducting a transportation analysis that will assess and evaluate each alternative studied in the EIS and be included as the Transportation Discipline Report (TDR).

The limits for this project include the Clinton and Mukilteo ferry terminals and a portion of SR 525 extending south from the Mukilteo terminal (see Exhibit 1). For Mukilteo, the transportation analysis includes the existing ferry terminal location or sites defined in the EIS for potential future ferry terminal locations. The study area for the TDR includes the immediate vicinity around these sites, which includes parking lot facilities, ferry queue storage areas, roadways used to access the terminals, and the connections to transit, as appropriate for each site. For Clinton, the analysis includes a parking area usage survey and analysis of ridership, including walk-on arrival and departure multi-modal connections.

The Mukilteo Multimodal Terminal TDR will provide supporting documentation for the Draft EIS (DEIS), which is being prepared for the overall project and is expected to be completed by the summer of 2011.

Exhibit 1. Mukilteo Multimodal Terminal Project Study Area



1.1 Description of the Proposed Action

The Mukilteo Multimodal Terminal Project will improve ferry operations, including the efficiency of vehicle and walk-on passenger loading and unloading, improve safety for passengers, and offer better and safer access for pedestrians and bicycles as well as convenient transit connections.

The focus of this TDR will be on the transportation connections supporting the Mukilteo Ferry Terminal location and the impact of ferry related traffic on the street system. Also included in the TDR will be a summary of mitigation measures for improving bicycle, pedestrian, transit, freight, and general purpose (GP) auto traffic as appropriate.

2 Data Collection

2.1 Turning Movement Counts

On November 17 and 18, 2010 turning movement counts were collected at the following locations from 6:30 AM to 9:00 AM and 3:30 PM to 6:30 PM:

- SR 525/Harbour Pointe Boulevard Southwest;
- SR 525/88th Street Southwest; and,
- SR 525/5th Street.

On January 19 and 20, 2011, turning movement counts were collected at the following locations from 6:00 AM to 9:00 AM and 2:30 PM to 6:30 PM:

- SR 525/84th Street SW/SR 526;
- SR 525/76th Street SW;
- SR 525/Goat Trail Road; and,
- SR 525/Front Street.

Turning movement counts were collected while school was in session and between 6:30 AM and 9:30 AM and 3:30 PM and 6:30 PM.

2.2 Daily Traffic Counts

Daily traffic counts (also referred to as tube counts) were collected at the following locations, for all approaches, at the following locations from November 7, 2010 through November 13, 2010.

- SR 525/Harbour Pointe Boulevard Southwest;
- SR 525/88th Street Southwest; and,
- SR 525/5th Street.

Daily traffic counts were also collected from January 18, 2011 through January 25, 2011 at the following locations:

- SR 525/Goat Trail Road;
- SR 525 south of 76th Street SW and north of Island View Lane; and,
- SR 525 north of Harbour Pointe Boulevard and south of Paine Field Boulevard/Harbour Place.

Annual traffic conditions on SR 525 and at the Mukilteo and Clinton terminal will be described based on available data.

The daily traffic volume counts provide information for all 7 days of the week including Friday, Saturday, and Sunday, for 24 hours. This information allows

comparisons by time of day and day of week to determine the time periods when traffic volumes are the highest.

2.3 Roadway Characteristics

Roadway geometric data and speed limits will be collected via site visit and available online aerial imagery. Collision data and existing signal timing plans will be obtained from WSDOT.

2.4 Parking Data Collection

On November 10, 2010 and December 15, 2010 parking studies were conducted, using either tube counters or field verification of parking stall use, for formal parking lots serving the ferry terminals at the following locations:

- Clinton: Lot between Humphrey Road and SR 525, north of Berg Road;
- Mukilteo: Lot south of Front Street and west of SR 525 (behind Diamond Knot Brewery); and,
- Mukilteo: Lot south of 2nd Street and east of SR 525 (across from Arnie's Restaurant)
- Mukilteo: Lot south of 1st Street and south of the ferry terminal holding area.

2.5 Non-Motorized Data Collection at Ferry Terminals

Non-motorized data was collected on November 17, 2010 at the Mukilteo Ferry Terminal and November 18, 2010 at the Clinton Ferry Terminal. Data collection included the number of people traveling between key destinations, such as the bus stops, Sounder Station, park and ride lots, and the ferry terminal. Data was collected for a 3 hour peak period in the morning and evening.

2.6 Public Transportation

Transit route ridership, schedule (current and estimated changes), and route performance data was requested from Community Transit, Everett Transit, Island Transit, and Sound Transit.

Data regarding Ferry terminal operations were provided by WSF and included Mukilteo to Clinton passenger ridership, and details regarding ticketing and holding area operations.

3 Travel Forecasts/Traffic Operations Analysis

The TDR study area includes existing and proposed ferry terminal sites in Clinton and Mukilteo. Traffic forecasts, non-motorized connectivity, and transit and roadway operations analysis reported in the TDR will focus on the impacts of changes to cross sound ferry ridership, mode choice, and connections to transit services.

3.1 Existing Traffic Volume Standardization

The existing year for the analysis will be 2010. Because traffic counts used for the analysis were collected in different months, a factor is applied to ensure the volumes are comparative for use in the operational analysis. This adjustment is based on annual traffic volumes for each month to determine a seasonal adjustment factor and is provided by WSDOT Transportation Data Office in the State Route Assignment of Factors Traffic Data Matrix. This matrix compiled August 08, 2008, shows an SR 525 November volume adjustment of 0.99 and a January factor of 1.04. Traffic volumes from November will be increased by 107.6 percent and 113.0 percent for January to match May counts—this is the average ferry ridership month (calculated from the difference between the November and July factors).

The all-day traffic counts will be used to evaluate the peak hour traffic volumes, which will capture the school, ferry, and work trip peaks using SR 525 and the ferry terminal area. Annual ferry ridership data will be shown to demonstrate the variation in walk-on and drive-on traffic.

3.2 Travel Demand Model Assumptions and Forecasts

The travel forecasts will be developed for a 2040 horizon year, consistent with the Puget Sound Regional Council (PSRC) Transportation 2040. The Washington State Ferries (WSF) travel demand model will be used to forecast local and regional travel forecasts on the highways and arterials, and transit networks surrounding the existing and proposed ferry terminal locations. The WSF model will also be used to develop and refine estimates of future ferry ridership, including both vehicle and walk-on passengers at the terminal.

The 2040 year was chosen to keep the Mukilteo Multimodal Project consistent with now adopted regional forecasting efforts. In 2010, the PSRC adopted "Transportation 2040" as the update to their long range regional transportation plan. Consequently, most jurisdictions are using 2040 as the horizon year in updates to their comprehensive plans. In addition, many transportation infrastructure projects use a future analysis year at least 20 years beyond its estimated year of opening for environmental review documents--in this case 2016. This would suggest a 2036 future analysis year

or later. For these reasons, the TDR will consider transportation conditions in 2040 as the future analysis year for this project.

A key component of the travel forecasts will be to identify how the walk-on ridership estimates at the proposed ferry terminal locations connect with transit services (including bus and rail), parking, carpooling, and pick-up/drop-off activity. The travel forecasts will be developed for the PM peak period (and hour) ferry ridership and PM peak hour roadway volumes for each of the alternatives. Conversion factors, developed as part of the WSF long-range plan, will be used to estimate daily ridership projections. Seasonal factors will also be applied to adjust forecasts to an average ridership month (May).

Because the WSF model assumes a highly constrained vehicle capacity on the vessels (an increase from the existing 124 average car capacity vessels to 144 average car capacity vessels in the future) with no increase in the number of sailings per day, there is little to no potential for induced growth beyond the planned growth already assumed in the model. Also, the new 144 average car vessels will have essentially the same passenger (non-vehicle) capacity as the current 124 average car vessels, which is estimated at approximately 1,000 people. The WSF Long Range Plan assumes high growth for walk-on ferry passengers in the future (73 percent to 2030) based on the land use forecasts. Therefore, because of the amount of walk-on passenger growth already assumed in the WSF model and the highly constrained vehicle capacity of the vessels, there is little to no potential for additional induced growth to occur through the EIS analysis horizon of 2040.

Ferry ridership demand will be developed for the PM peak periods. Traffic volumes for the roadway operations analysis will be developed for the PM peak hour for the years 2010 and 2040 (because the model is a PM peak only model). The derived growth rate from 2010 to 2040 for the PM peak hour will be applied to the traffic volumes for 2010.

3.3 Model Overview

The WSF model was selected as the preferred model because it has been recently updated to support development of the WSF long-range plan (2009-2030). It uses incremental choice methods and a two-staged forecasting analysis procedure that relies on actual ferry travel patterns and survey-based estimation of parameters such as travel time and cost elasticities. The model includes all transit networks and specifically focuses on the intermodal connections at both the Clinton and Mukilteo ferry terminals.

The WSF model is largely consistent with the PSRC model except that it has several additional features and was expanded geographically to capture most of the WSF "travel shed" outside of the four-county PSRC region. The additional features are primarily focused on modeling intermodal connections at the ferry terminals and sub choice incremental models for determining

walk-ons and auto boardings. The model network stretches from Olympia to Vancouver, BC and the Olympic Peninsula to the Cascade Mountains.

The model was calibrated to a 2006 base year and estimates 2030 travel conditions. Because the WSF model only provides forecasts to 2030, a growth factor will be applied to the 2030 forecasts to develop 2040 forecasts. The growth factor will be based on land use and travel forecasts from the most recent version of the 2040 PSRC model (using the constrained transportation project list) and the State Office of Financial Management.

3.4 Preparation of 2040 No Build Forecasts

The future year 2030 No Build model network and land use assumptions shall remain consistent with the most recent version of the WSF 2030 model. The 2030 No Build model (WSF model) shall assume the existing ferry terminal remains unchanged, but include assumptions related to expanded vessel capacity. The development of the travel forecasts will be conducted in two distinct stages. The first stage will develop the 2040 ridership forecasts at the terminal and the associated mode of access and egress. The second stage will focus on the highway and arterial volume forecasts at the study intersections. Exhibit 2 illustrates the process described below in Stage 1 and Stage 2. Planned roadway projects will be identified from the PSRC Transportation 2040 demand model. Projected transit growth and transit system capacity and scheduling changes will be identified in coordination with Community Transit, Everett Transit, and Sound Transit.

3.4.1 Stage 1 – Ferry Ridership Forecast

The WSF model includes 28 travel districts that represent major origin-destination patterns from the results of the 2006 WSF travel survey. Growth factors shall be developed for each of the 28 travel districts within the model. The districts that are comprised within the 2040 PSRC model will be evaluated first to identify the land use growth rates between 2030 and 2040. For those districts not included in the PSRC model and which comprise travel patterns that use the Mukilteo ferry (primarily Whidbey Island), population and employment data from the State Office of Financial Management will be used to identify an appropriate growth rate between 2030 and 2040. The calculated growth rates will be applied to the specific origins and destinations that use the Mukilteo ferry based on the 28 districts.

Once the growth in PM peak period passenger ridership for the Mukilteo route is determined, the mode of access and egress percentages to and from the ferry terminals at Mukilteo and Clinton will be estimated. The modes of access and egress consist of auto-driver, auto-passenger, bus, rail, park & ride, drop-off/pick-up, bicycle, or walk. When district to district passenger ridership growth is applied to each of the 2030 modes of access and egress this assumes a constant market share. The 2030 model forecasts assumed specific trends in

the type of modal access and egress based on vehicle capacity limits of the ferry, availability of transit connections, and costs. The trends regarding the shift in the share of walk-on and the other various modal connections will be extrapolated to 2040. In other words, the trends will be assumed to continue beyond 2030. For example, if the growth in walk-on is trending towards rail, that trend will be assumed to continue at the same rate between the years of 2030 and 2040, unless there is a known capacity constraint.

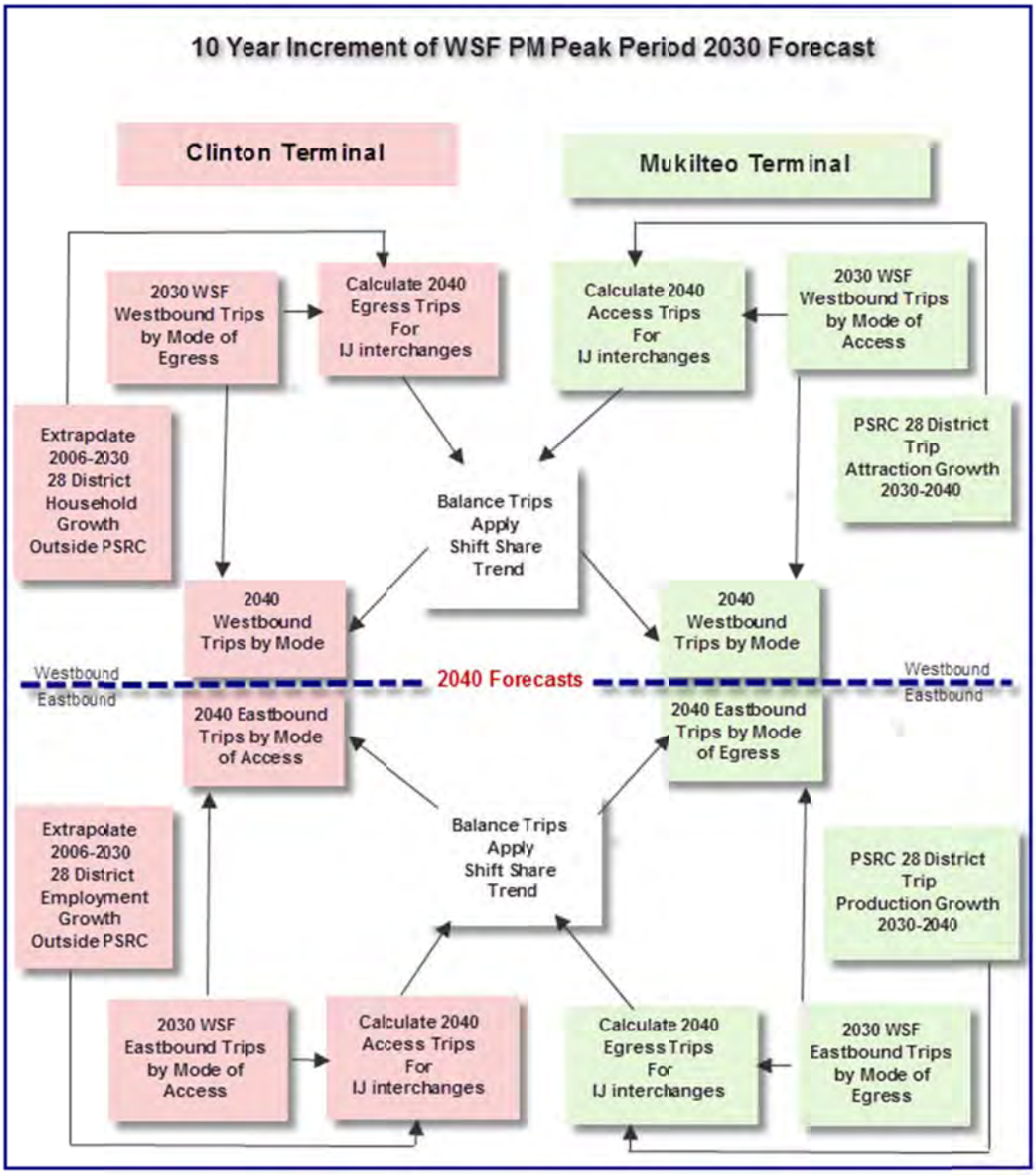
3.4.2 Stage 2 - Roadway Forecasts

Once the ridership forecasts have been established, growth rates between 2030 and 2040 for the highways and arterials in proximity to the Mukilteo terminal will be developed using the PSRC model. These growth rates will be applied to the WSF model forecasts for the same locations to determine 2040 highway and arterial traffic volumes during the PM peak hour.

3.5 Preparation of 2040 Build Forecasts

The 2030 No Build (WSF) model will be used as a starting point to develop ridership forecasts for the Build alternatives. The Build alternatives will represent improvements or relocation of the existing Mukilteo terminal. Depending on the alternative, the improvements would likely be at a scale that is too microscopic for a travel demand model to account for appropriately. To better reflect possible changes to the travel forecasts based on terminal design considerations, the forecasts will be adjusted manually to account for terminal design details that could impact overall travel demand and mode share. It is not expected that the ridership forecasts will change.

Exhibit 2. 10-Year Increment of WSF PM Demand Model



3.6 Post-Processing Routine

The model volumes developed from the 2040 No Build and Build forecasts shall be post-processed and translated into PM peak hour vehicle and person volumes for use in the long-range transportation analysis for each of the Build alternatives. Growth factors between existing conditions model output and the 2040 No Build and Build forecasts shall be applied to existing field-collected counts to arrive at appropriate 2040 volume projections. The vehicle and person volume forecasts shall be further documented in the TDR Report.

3.7 Ferry Terminal Operations Analysis

The ferry terminal operations analysis for this TDR will utilize the VISSIM Version 5.2 micro-simulation tool. The model development and calibration process is briefly described below and will also be documented in the methodology section of the Mukilteo Ferry Terminal TDR. This documentation will also be included as an appendix to the TDR.

The model will be calibrated for a one-hour peak time period occurring between 3:00 PM to 6:00 PM to the following measures of effectiveness (MOEs):

- General purpose vehicle and transit volume throughputs match count data across a one-hour peak period at screenline locations within 10 percent;
- Pedestrian dispersion to the transit network and street system is comparable to field data collected; and
- Visually-acceptable congestion and queuing was used at ramp terminals compared to the field study.

The calibrated existing conditions model will be converted into a design year 2040 model by applying the following changes:

- Include planned and programmed projects in the No Build and Build models.
- Code project conditions according to the best available plans. Driver behavior and link characteristics may be revised per the design improvements of local street systems.
- Update traffic volumes and bus service per design year.

The following MOEs will be used to provide a comparison between existing conditions, and the No Build and Build alternatives for year 2040:

- Average vehicle delays (seconds per vehicle) and intersection level-of-service (LOS) equivalents for the peak hour;
- Walk time (between transit and the terminal in minutes);
- System delay during ferry loading/unloading (minutes);
- Queues (feet); and,
- Travel times (seconds or minutes).

Transit layover space at the ferry terminal will be evaluated based on existing route schedules and additional information provided by the transit agencies serving the Mukilteo and Clinton ferry terminals.

The implementation of a reservation system at the Mukilteo and Clinton terminals will be discussed in the TDR.

3.8 Non-Motorized Analysis

A non-motorized analysis will evaluate access, circulation, and safety for pedestrians and bicyclists, and the quality of connections to transit or other surrounding destinations for each of the alternatives. Other surrounding destinations studies include park-and-ride, kiss-and-ride, bus transit, rail transit, and general dispersion into neighborhoods and business areas. Walk-on passenger surveys will be used to evaluate future mode share and assess the impacts of each alternative on access, circulation, and safety for pedestrians and bicyclists. Major pedestrian and bicycle travel patterns, and their associated destinations or origins adjacent to the ferry terminal will be identified as part of the data collection effort. The origins and destinations of the walk-on passengers will be summarized by the percentage that connect to rail, bus, parking, pick-up/drop-off, bike, or walking.

The following MOEs will be used to evaluate and compare between existing conditions and the No Build and Build alternatives for year 2040:

- How well they accommodate inter-modal transfer with local bus and commuter rail (total distance and wait time for signals);
- Differences in walking and bicycling travel times to major origin-destination points (minutes);
- How well they reduce conflicts between pedestrians/bicyclists and motorized vehicles within the study area (number of at-grade conflict points and pedestrian/vehicle volumes at each location); and,
- Identification of gaps in the non-motorized transportation system will be highlighted and projects to mitigate these identified gaps will be identified.

3.9 Surface Street Intersection Operations Analysis

The surface street intersection operations analysis will include the following intersections:

- SR 525/Harbour Pointe Boulevard Southwest;
- SR 525/88th Street Southwest;
- SR 525/84th Street Southwest/SR 526;
- SR 525/76th Street Southwest;
- SR 525/5th Street;
- SR 525/Front Street; and
- West Mukilteo Boulevard/Glenwood Avenue.

The surface street intersections will be analyzed with the Highway Capacity Manual (HCM) methodology using the Synchro 7 software application developed by Trafficware.

Results will be summarized into tables. For signalized intersections, average intersection delay, intersection LOS, and intersection volume/capacity (v/c) ratio will be used as MOEs. For all-way, stop-controlled, unsignalized intersections, average intersection delay and intersection LOS will be used as MOEs. For stop-controlled, unsignalized intersections with one or more free-flowing approaches (such as two-way, stop-controlled intersections), average intersection delay as well as worst approach LOS, average delay, and v/c ratio will be used as MOEs. Intersections with LOS F will be identified as not meeting the City of Mukilteo's concurrency standard, which adopted a LOS of E or better as acceptable delay on major arterials, minor arterials, and intersections.

The model will be used to evaluate the one-hour peak period occurring between 6:00-9:00 AM and 3:00-6:00 PM (based on available counts). For all intersections, the 95th percentile queues will be tabulated to compare the length of queue to the available storage. Results will be taken from Synchro Highway Capacity Manual (HCM) reports and based upon recent aerial imagery of study area intersections.

Existing conditions analysis will be based on traffic volumes collected the week of November 8, 2010 on the Tuesday, Wednesday, and/or Thursday. Traffic volumes collected in July 2010 will be factored based on the annualized ridership of the Clinton-Mukilteo Ferry route. Additional Synchro volume input assumptions include:

- Pedestrian volumes from the counts will be used where available. Where unavailable, pedestrian volumes will be estimated based on adjacent intersections;
- Future condition pedestrian volume counts will be based on cross sound ridership estimations in the vicinity of the ferry terminals;
- Heavy vehicle (HV) percentages will be used from the turning movement counts. Where unavailable, a HV percentage of 2 percent will be assumed as this is the standard default used in the industry; and,
- An intersection peak-hour factor (PHF) is a factor that adjusts the peak hour volumes to reflect the peak 15 minutes within the hour. A PHF of 0.95 will be used as a default for the design year analysis with an existing PHF of 0.90 or greater. For intersections with an existing PHF lower than 0.90, the design year analysis will increase the existing PHF by 0.05.

Signal operations will be coded from information supplied by jurisdictions maintaining the signals. If information is unavailable, signal operations will be

coded based on field visits, optimized signal timings from Synchro, and/or standard inputs from the Manual on Uniform Traffic Control Devices (MUTCD) and HCM. For the future conditions analysis, it is assumed that the signal networks will be optimized for future volumes.

4 Collision Analysis

WSDOT's collision data for the study area intersections will be reviewed for a recent five-year period. An analysis will be conducted to identify historical trends and to determine where the highest concentration of collisions have occurred. This will include possible contributing factors and how the project may impact those factors. It will also include a review of collision types, severity, rates, and factors contributing to the safety trends. The potential effects of the project on safety trends will be described for the 2040 design year.