

3.9. Transportation

This section summarizes transportation conditions for motorized, non-motorized, transit, and ferry travel, and programmatically analyzes the transportation implications of the three alternatives: Alternative 1 (No Action), which allows growth in accordance with adopted plans and regulations, and Alternatives 2 and 3, which would modify plans and regulations allowing for moderate and high growth respectively (see Chapter 2). Alternative 3 presents two options for the transportation network. Alternative 3a would provide for a vehicular bridge connecting Wyatt Way NE from approximately Ericksen Avenue NE to Ferncliff Avenue NE, while Alternative 3b would provide a pedestrian/bicycle connector at that location.

3.9.1. Affected Environment

This section describes the existing transportation conditions in the Proposed Action analysis area (Figure 2-1) and immediate vicinity. This includes the roadway network, traffic volumes, traffic operations, traffic safety, transit service, and non-motorized facilities. This analysis focuses on the overall motorized and non-motorized transportation network rather than particular locations in the Ferry, Gateway, and Waterfront Park Study Areas.

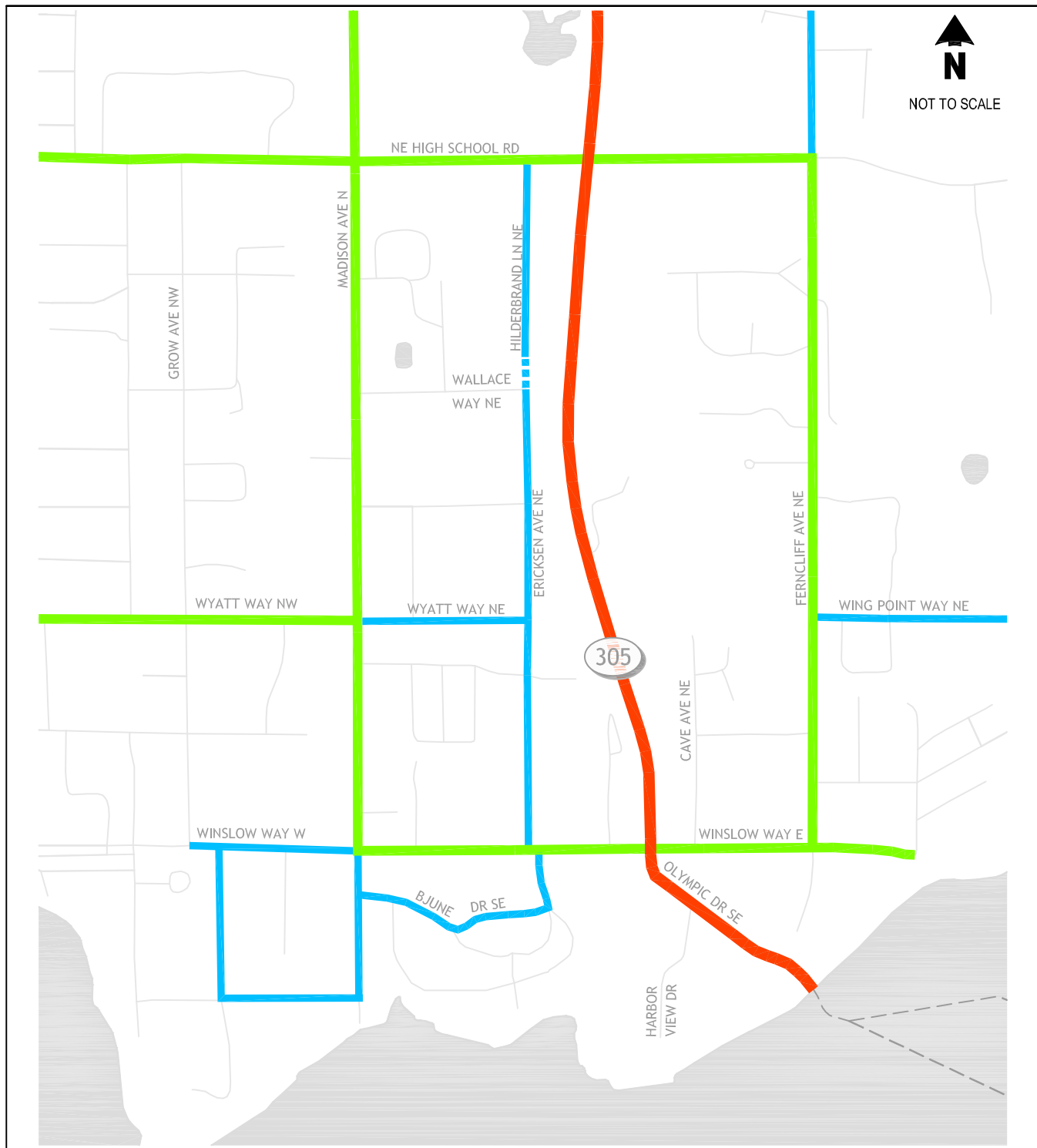
Existing Transportation Network

This subsection describes the existing transportation network for roadways, pedestrian facilities, bicycle facilities, transit, and parking.

Roadways

The analysis area is located in the City near the ferry terminal and the Winslow area (Figure 2-1). In general, the street network serving the analysis area and adjacent area consists of secondary and collector arterials connecting to the regional state highway (SR 305), which provides the only roadway access to and from the island. Roadway functional classification in the analysis area and vicinity is shown in Figure 3.9-1.

Principal Arterials carry the highest levels of traffic in the system at the greatest speed for the longest uninterrupted distance, often with some degree of access control. They are primarily used for through trips, and provide access to the local street system and connections to the regional transportation system.



- Principal Arterial
- Secondary Arterial
- Collector



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Figure 3.9-1 - Roadway Functional Classification
Bainbridge Island Ferry/Gateway District and Waterfront Park
September 2007

- SR 305 is classified as a Principal Arterial. It is also designated as a Highway of Statewide Significance (HSS) by WSDOT. SR 305 is the main north-south roadway and provides the only roadway access to and from Bainbridge Island. It is a three- to four-lane roadway within the analysis area, known as Olympic Drive SE south of Winslow Way E, with left- and right-turn pockets and a posted speed of 30 miles per hour (mph) to 55 mph. There is no on-street parking along SR 305.

Secondary Arterials carry high levels of traffic at a moderate speed, sometimes for through trips. They often serve as access to high-intensity land uses such as major employers or larger commercial centers. They are primarily used for connections within the local transportation system.

- Winslow Way E provides the main east-west connection between the analysis area and the Winslow downtown commercial area. It is a two-lane roadway with turn pockets and a posted speed of 20 mph to 25 mph. There is no on-street parking east of SR 305; however on-street parking is provided just east of Bjune Drive SE to just west of Madison Avenue N.
- Ferncliff Avenue NE provides a north-south connection from Winslow Way E to Grand Avenue NE east of SR 305 serving the Ferry and Gateway Study Areas. It is a two-lane roadway with a posted speed of 25 mph. South of NE High School Road, Ferncliff Avenue NE provides a parallel corridor to SR 305 and access to the ferry terminal. There is no on-street parking on Ferncliff Avenue NE.
- Madison Avenue N provides the main north-south connection from SW Parfitt Way to NE Yaquina Avenue and serves downtown Winslow. It is a two-lane roadway with left-turn channelization and a posted speed of 25 mph to 30 mph. There is no on-street parking on Madison Avenue N.
- NE High School Road provides a parallel east-west connection to Winslow Way E north of the analysis area and the Winslow downtown commercial area that provides access to SR 305. It is a two-lane roadway with turn pockets and a posted speed of 25 mph. There is no on-street parking on NE High School Road.

Collectors connect residential roads to arterials. Collectors operate at a lower speed and carry lower levels of traffic than arterials.

- Ericksen Avenue NE currently terminates at the intersection with Wallace Way NE. For all future scenarios, Ericksen Avenue NE connects Winslow Way E to NE High School Road west of SR 305 via Hildebrand Lane NE. It is a two-lane road with a posted speed limit of 25 mph. Limited on-street parking is provided on Ericksen Avenue NE.
- Bjune Drive SE provides access to the area south of Winslow Way E via Madison Avenue N to the west and Winslow Way E to the north. It is a two-lane

roadway with a posted speed of 15 mph. On-street parking is provided on Bjune Drive SE.

- Wyatt Way NE provides an east-west connection from Ericksen Avenue NE to Madison Avenue N. West of Madison Avenue N, Wyatt Way NW changes to a Secondary Arterial. East of Madison Avenue N, Wyatt Way NE is a two-lane roadway with a posted speed limit of 25 mph. There is no on-street parking provided on Wyatt Way NE.

Remaining streets in the analysis area are considered [Residential streets](#), which are intended to carry low levels of traffic at low speeds and to provide access to residential areas. Some of the key Residential streets serving the analysis area include:

- Harborview Drive SE provides access for the Eagle Harbor Maintenance Facility (WSF shipyard) area via Olympic Drive SE. It is a narrow two-lane roadway with a posted speed limit of 25 mph. There is no on-street parking provided on Harborview Drive SE.
- Cave Avenue NE provides access for the residential and commercial area north of Winslow Way E and east of SR 305. It is a narrow two-lane roadway with a posted speed of 25 mph. There is no on-street parking on Cave Avenue NE.

Parking

On-street parking is primarily available along roadways in the southern portion of the analysis area (Winslow Way E and Bjune Drive SE). Parking is controlled through the use of time limits or permits. In the northern portion of the analysis area parking is restricted along SR 305 and Ferncliff Avenue NE. Along Cave Avenue NE the roadway is insufficiently wide to accommodate on-street parking on a regular basis.

In the analysis area there are public parking lots primarily serving ferry commuters. The largest is adjacent to the ferry terminal south of Winslow Way E.

Parking spaces in downtown Winslow were estimated in 1998 (City of Bainbridge Island 1998):

- Winslow Way E on-street: 116
- Bjune/Brien, on-street and permit: 142
- Madison on-street: 3
- Lot space north of Winslow Way E, includes permit: 252
- Lot spaces south of Winslow Way E, includes private and permit: 360
- Total in Winslow downtown: 873

City regulations limit ferry commuter parking to 1,121 spaces in the Ferry and Core Districts as a whole.

Pedestrian Facilities

The following describes the mixture of pedestrian facilities within the analysis area that includes sidewalks, walkways, roadway shoulders, earth paths, and shared roadways.

Most sidewalks in the analysis area are located within the southern portion of the area, just north of the ferry terminal. These are along Olympic Drive SE, Ferncliff Avenue NE, Winslow Way E, Bjune Drive SE, and along Harborview Drive SE. The sidewalks are typically 5 feet wide though along Winslow Way E, east of Olympic Drive SE, they are over 9 feet wide to allow for street trees. Along SR 305 north of Winslow Way E there is an 11-foot shoulder on the west side of the roadway, and on the east side the width varies from no shoulder to 4 feet. A pedestrian and bicycle bridge was recently constructed where SR 305 crosses the Ravine stream. This is part of a trail recently constructed and parallel to SR 305 extending from Knechtel Way NE to Winslow Way E.

The streets immediately adjacent to the analysis area also have sidewalks. Ferncliff Ave NE has a continuous 5-foot sidewalk from NE High School Road to Winslow Way E. The sidewalk shifts from the west side to the east side at Wing Point Way NE. NE High School Road has sidewalks on both sides of the roadway from Ferncliff Avenue NE to Hildebrand Lane NE. Ericksen Avenue NE has a sidewalk on the west side from Winslow Way E to Wallace Way NE. The sidewalk continues on both sides along Hildebrand Lane NE to NE High School Road.

Two footpaths are located east of SR 305. The first path is in the Knechtel Way NE right-of-way between Ericksen Avenue NE and SR 305, which would link residences at Vineyard Lane to shops and businesses along Ericksen Avenue NE or the commercial core of the City. The second path is in the Wallace Way NE right-of-way east of Ericksen Avenue NE, running north to SR 305. There are no formal paths or trail crossings of the Ravine except for the Waterfront Trail and the recently constructed trail paralleling SR 305.

Bicycle Facilities

Bicycle routes in the analysis area are designated along Winslow Way E and Ferncliff Avenue NE (see Figure 2-7 for adopted bicycle facilities). Just outside of the analysis area bicycle routes are designated along Ericksen Avenue NE, Hildebrand Lane NE, Wing Point Way NE, and Bjune Drive SE. The only bicycle facilities present in the analysis area are striped lanes on Winslow Way E from Ferncliff Avenue NE to SR 305. Adjacent to the analysis area there are striped lanes on NE High School Road and Ferncliff Avenue NE. Ericksen Avenue NE has striped shoulders that are used as bicycle lanes.

Transit

Kitsap Transit provides all transit services to the City. Services and programs include fixed route service, paratransit, vanpool programs, rideshare programs, and park-and-ride lots.

The ferry terminal serves as the transit hub for the City. Twelve transit routes are scheduled to meet peak morning and evening demand related to ferry terminal travel, with little or no midday service. Service is generally one-directional with the exception of the Winslow Shuttle, which runs throughout the day (Figure 3.9-2).

Ferry Service Facilities

Washington State Ferries (WSF) provides ferry service for vehicles and pedestrians directly to Bainbridge Island from Seattle through the ferry terminal located in the analysis area. The ferry facilities provided by WSF at this location include the following:

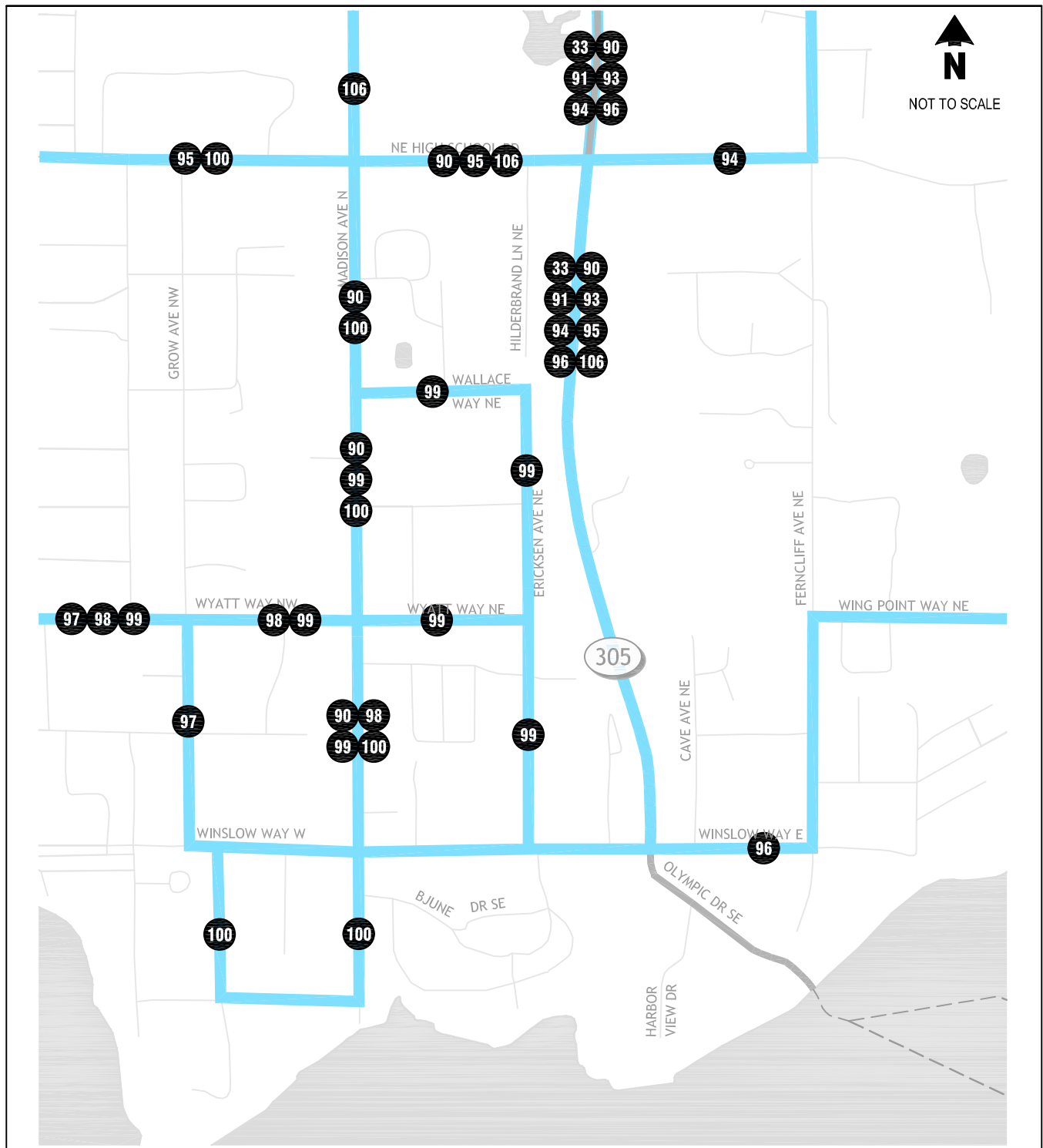
- Two-slip loading dock
- Terminal building with an overhead walkway for pedestrian loading
- Ticket booths and a holding area for 220 vehicles
- Employee parking area with 65 spaces
- Transit staging area serving about 16 bus routes
- Bicycle barn and Flex-car parking area
- Kiss and Ride and taxi loading and unloading area
- Public parking lot, 175 spaces

The terminal area also houses several small commuter-related businesses and a number of privately-operated parking lots.

The terminal building and loading ramp have been determined to be structurally deficient and in need of upgrades to provide increased load-bearing capacity and seismic stability.

Existing Operations

This subsection describes how the transportation network currently operates and functions, and addresses traffic volumes, levels of service, collisions, pedestrian and bicycle usage, transit ridership, and parking usage.



 Transit Route



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Figure 3.9-2 - Existing Transit Routes
Bainbridge Island Ferry/Gateway District and Waterfront Park
September 2007

Existing Traffic Volumes

Existing (2006) PM peak hour traffic volumes in the analysis area are shown in Figure 3.9-3. The highest traffic volumes in and near the analysis area occur on principal and secondary arterials including SR 305, Winslow Way E, Madison Avenue N, and NE High School Road. Volumes on these roadways are typically 500 vehicles per PM peak hour or more. The greatest volumes are on SR 305 north of NE High School Road (approximately 1,200 PM peak hour vehicles). Collectors within the analysis area typically carry less than 400 PM peak hour vehicles.

Level of Service

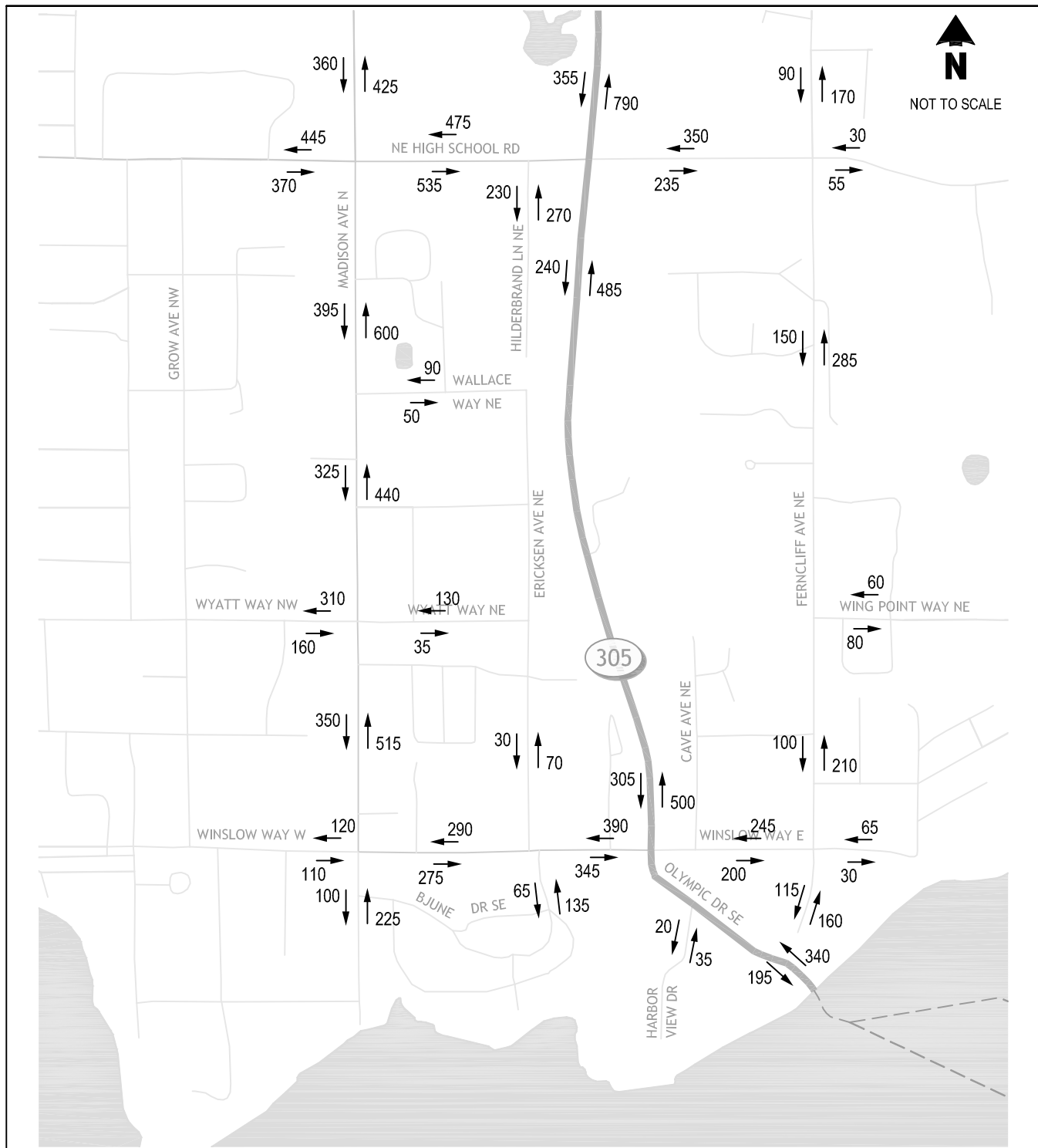
Level of service (LOS) designations are qualitative measures of congestion that describe operational conditions within a traffic stream and take into consideration such factors as volume, travel speed, and delay. LOS as defined in the Highway Capacity Manual (Transportation Research Board 2000), is the industry standard for measuring the performance of the transportation system. The following level of service approach was used to analyze the existing conditions and various alternatives.

Intersection Level of Service Approach

The LOS for study intersections was analyzed for the PM peak hour period on a typical weekday. This analysis was done using the Highway Capacity Manual (HCM) methodology, as published by the Transportation Research Board (2000), and Synchro v.6 and Sidra v.3 software programs.

At intersections, LOS is measured as stopped delay per vehicle and is typically reported using the total intersection delay at signalized intersections. At two-way stop-controlled intersections, LOS is reported for the worst turning movement. LOS is reported for the entire intersection when it is all-way stop-controlled. The LOS criteria for stop-controlled intersections have different threshold values than those for signalized intersections, primarily because drivers expect different levels of performance from distinct types of transportation facilities. In general, stop-controlled intersections are expected to carry lower volumes of traffic than signalized intersections. Thus, for the same LOS, a higher level of delay is acceptable at signalized intersections than for stop-controlled intersections.

Traffic operations for an intersection are described with a range of levels of service (LOS A through F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. Table 3.9-1 summarizes the LOS criteria for signalized and stop-controlled intersections.



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Figure 3.9-3 - Existing Weekday 4:45 - 5:45 PM Traffic Volumes
Bainbridge Island Ferry/Gateway District and Waterfront Park
September 2007

Table 3.9-1. Level of Service Criteria for Intersections

Average Delay per Vehicle (seconds per vehicle)		
LOS Designation	Signalized Intersections	Stop-Controlled Intersections
A	≤ 10	≤ 10
B	> 10 – 20	> 10 – 15
C	> 20 – 35	> 15 – 25
D	> 35 – 55	> 25 – 35
E	> 55 – 80	> 35 – 50
F	> 80	> 50

Source: Highway Capacity Manual (Transportation Research Board 2000)

LOS = level of service

Level of Service Standard

The City's LOS standard designates the minimum operational performance of the roadway system that must be maintained. If a roadway falls below the minimum LOS standard, improvements or other mitigation must be made to bring the facility back to the designated LOS standard. LOS standards are normally prescribed for the PM peak hour (most congested hour) of the traffic system, which typically occurs between 4:45 and 5:45 in the evening on Bainbridge Island. The LOS standards for Bainbridge Island zones are identified below.

Urban Zone – Applies to roadways and intersections in the most developed areas of the City, mainly the greater Winslow area.

- Secondary Arterial – LOS D
- Collector – LOS D
- Residential – LOS C

Neighborhood Service Centers Zone – Applies to roadways and intersections in the City-defined Centers of Rolling Bay, Island Center, and Lynwood Center.

- Secondary Arterial – LOS D
- Collector – LOS C
- Residential – LOS C

Suburban Zone – Applies to roadways and intersections outside of the Winslow core and the Neighborhood Service Center Zone, i.e., the remainder of Bainbridge Island.

- Secondary Arterial – LOS C
- Collector – LOS C
- Residential – LOS B

SR 305 Corridor – Applies to state highways and is established by the State.

- LOS D-mitigated for City planning purposes

The LOS standard for state facilities, including SR 305, which is designated an HSS, is set by WSDOT under RCW 47.06.140. The HSS designation requires that SR 305 be evaluated using a LOS standard set by WSDOT. While WSDOT internally evaluates roadways using its own methodology, WSDOT has assigned a level of service standard for SR 305 as LOS D-mitigated for City planning purposes. This standard requires that congestion be mitigated when the peak period operation of the state facility falls below LOS D.

Existing Level of Service

Traffic conditions for the major intersections in the analysis area are summarized for the PM peak hour and illustrated in Figure 3.9-4. The City has an adopted minimum LOS standard of D for secondary arterials and collectors in and near the analysis area, as described above. No intersections currently operate below the City's minimum LOS standard. One intersection, NE High School Road/Hildebrand Lane NE, operates at the City's minimum standard.

Collision Data

WSDOT and the City provided traffic collision statistics for the period between January 1, 2000 and December 2006. As identified in the 2004 *Island Wide Transportation Study*, high accident locations are defined as follows:

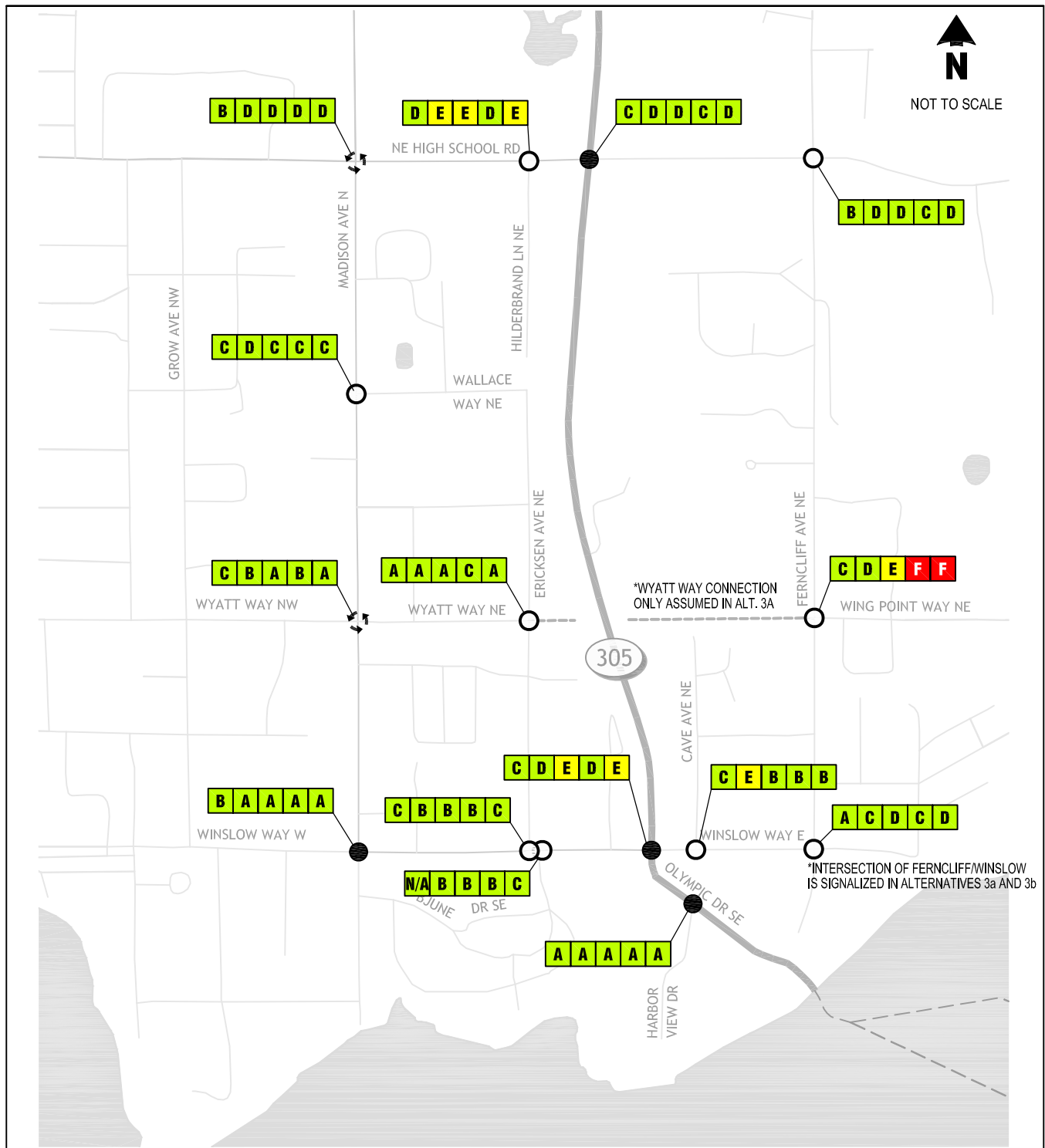
- Unsignalized intersections: an average of 5 or more reported accidents per year.
- Signalized intersections: an average of 7 or more reported accidents per year.

A study of 12 intersections in and around the analysis area (generally those intersections appearing on Figure 3.9-1) indicated a combined total of 27 collisions per year between 2000 and 2006. None of these accidents have been fatal. A total of 33 collisions (17%) resulted in injuries during this 6-year time period (Appendix D).

The intersections that experienced the most accidents are SR 305/NE High School Road, with an annual average of 5.6 collisions, and NE High School Road/Hildebrand Lane NE, with an annual average of 4.6 collisions. These intersections are close to the high collision criteria threshold, but have not yet exceeded the threshold.

Parking

Various counts over the years indicate that ferry parking is utilized at over 90%. Generally, available ferry parking fills up during AM peak commute hours.



LEGEND

- = SIGNALIZED INTERSECTION
- = UNSIGNALIZED INTERSECTION
- ↻ = ROUNDABOUT

EXISTING	ALTERNATIVE 1	ALTERNATIVE 2	ALTERNATIVE 3a	ALTERNATIVE 3b
X	X	X	X	X



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Figure 3.9-4 - Weekday 4:45 - 5:45 PM Intersection Levels of Service
Bainbridge Island Ferry/Gateway District and Waterfront Park
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Pedestrian and Bicycle Mobility

Most pedestrian flow in the analysis area takes place along Winslow Way E in both directions, along Olympic Drive SE to the ferry terminal, and along Harborview Drive SE into Waterfront Park. Primary bicycle flow is directed to and from the ferry terminal.

The largest single generator of pedestrian and bicycle movement in the analysis area is the ferry terminal. An analysis of these movements indicated the largest pedestrian and bicycle AM and PM peak hour movement was between the terminal and Winslow Way E west of Olympic Drive SE. For pedestrians the ferry terminal parking lot and Ferncliff Avenue NE were approximately equal in generating and attracting trips. Based on a general field observation, Ferncliff Avenue NE trips were a combination of residents and ferry riders using neighborhoods to park vehicles. The remainder of the pedestrian trips either used Harborview Drive SE or SR 305 north of Winslow Way E. (See Appendix D for pedestrian and bicycle volume figures.)

There are a number of pedestrian and bicycle route inadequacies in the analysis area near the ferry terminal (Transpo 2007). Many sidewalks are narrow or restricted with fixed objects, and the Olympic Drive SE pedestrian crossing at Harborview Drive SE has some safety issues. Bicycles entering or exiting the terminal must mix with vehicles with inadequate lane widths. Bicyclists are particularly vulnerable when attempting to make left turns at the intersection of Olympic Drive SE and Winslow Way E. Some of these problems will be resolved with WSDOT's interim improvements, which include a signal for non-motorized travelers at Harborview Drive SE and Olympic Drive SE.

Ferry-generated bicycle traffic also occurs along Ferncliff Avenue NE, SR 305, and Harborview Drive SE, in order of volume.

Significant pedestrian activity occurs along Winslow Way E and Winslow Way W near retail shops and professional businesses, and on the Waterfront trail.

Transit

There are 12 transit routes serving the City, and most service the ferry terminal as shown on Figure 3.9-2. The highest average daily ridership recorded in 2006 is on the Poulsbo/Bainbridge, Kingston/Bainbridge, and Winslow shuttle routes, as follows:

- Route 90, Poulsbo/Bainbridge: 985 passengers
- Route 91, Kingston/Bainbridge: 410 passengers
- Route 100, Winslow shuttle: 207 passengers

The other nine routes had average daily ridership in the range of 91 to 155. Details of routes and service frequencies are provided in Appendix D.

Ferry Service Operations

Two ferries currently make 23 weekday round trips between Winslow and Colman Dock in Seattle, carrying a total of approximately 6,000 vehicles and 18,900 total riders (WSF 2006). This schedule maximizes use of the two boats during the AM and PM peak periods, operating on headways between 40 and 60 minutes.

The vehicle capacity of 220 per boat is typically exceeded by demand during several weekday peak period runs in the eastbound direction in the morning and in the westbound direction in the afternoon. This creates vehicle queues in the morning that extend out of the vehicle holding area onto Olympic Drive SE and SR 305, and sometimes on Winslow Way E. Weekday afternoon eastbound demand sometimes exceeds capacity and causes queuing, occurring most often in the summer season.

Passenger demand also peaks for the eastbound morning runs and westbound afternoon runs, but does not exceed the capacity of 2,500 per boat. Peak period vehicle, bicycle, and pedestrian volumes are described above.

Programmed Improvement Assumptions

Roadway

The City's adopted circulation plans have programmed roadway improvements between 2007 and 2030, as illustrated in Table 3.9-2. These improvements would generally be implemented outside but adjacent to the analysis area and are considered in the proposed networks of all alternatives studied in this Draft EIS (Figure 2-4).

Table 3.9-2. Programmed Roadway Improvements

Improvement		2014 Improvement	2030 Improvement
1.	Madison Avenue N/Wyatt Way NE roundabout	X	
2.	Madison Avenue N/Winslow Way E channelization improvements	X	
3.	Ericksen Avenue NE/Bjune Drive SE/Winslow Way E turn restrictions	X	
4.	Winslow Way E, Ericksen Avenue NE, and Hildebrand Lane NE traffic calming	X	
5.	Wallace Way NE/Hildebrand Lane NE all-way stop or traffic circle	X	
6.	Ericksen-Hildebrand connection	X	
7.	Ferncliff Avenue NE and NE High School Road, northbound left turn channelization		X
8.	Madison Avenue N and Winslow Way E signal		X

Parking

Future plans for the ferry terminal may include structured and surface parking. The City is also planning a parking garage in the Winslow area.

Pedestrian and Bicycle Mobility

Programmed pedestrian and bicycle improvements include interim pedestrian ferry terminal improvements such as a signal for non-motorized travelers at Harborview Drive SE and Olympic Drive SE, bicycle lanes, sidewalk improvements, and intersection improvements at Winslow Way E and SR 305.

WSF is studying pedestrian and bicycle options for the ferry terminal as part of the overall terminal design. The pedestrian/bicycle options under preliminary consideration and their effectiveness in terms of access, mobility, safety and design, are summarized in Appendix D.

In addition, programmed non-motorized improvements include adopted bicycle and trail improvements identified on Figure 2-7, sidewalk and bicycle lane improvements on Winslow Way E between SR 305 and Grow Avenue NW, and other sidewalk improvements. The City has recently constructed a Ravine trail running parallel to SR 305 north of Winslow Way E (Figure 2-7). Where the Ravine stream passes underneath SR 305, a non-motorized crossing has been constructed.

Transit

Kitsap Transit recently prepared a SR 305 Corridor Vision study for the study corridor extending from SR 3 in Poulsbo to Winslow Way E. The study identifies and evaluates long-range (20 to 50 years) high-capacity transit improvements. Transit options such as Bus Rapid Transit, Light Rail Transit, and other emerging technologies are being considered. It also contains an interim improvement recommendation (up to the year 2020) that includes a reversible transit lane concept for SR 305. The center lane would be for transit vehicles only, with reversible flow – inbound (southbound) in the morning and outbound (northbound) in the afternoon. When proposals are approved and funded, they would be considered programmed.

Ferry Service Facilities and Operations

WSF has future plans to improve terminal facilities, and in 2006 began an EIS process to determine a preferred plan for providing future ferry terminal facilities. Several options are under consideration to provide an improved terminal building, a larger passenger loading ramp, a large transit center, increased vehicle holding capacity, and access improvements for all modes.

On-time ferry operations depend heavily on the ability to minimize loading and unloading times. WSF plans to meet a 15-minute total loading and unloading to maintain future operations with the current schedule, and plans to modify the ferries to expand the passenger unloading area to facilitate this.

City Plans and Policies

The City has adopted plans and policies that guide transportation plans, projects, and resources. Relevant goals and policies in the City's Comprehensive Plan Transportation Element and the City's Non-Motorized Transportation Plan are described below.

City of Bainbridge Island Comprehensive Plan Transportation Element

The City of Bainbridge Island Comprehensive Plan Transportation Element contains goals and policies pertinent to this study.

- **Goal 2: Environment.** Develop, operate, and maintain a transportation system that respects the natural environment, including the quality of the Island's air, water, and natural habitat.
- **TR 2.1 Environment Sensitivity.** Minimize impacts of road construction on environmentally sensitive areas; minimize damaging runoff and pollution from road use and maintenance; implement programs that encourage the planning of low-maintenance, vegetated groundcover and trees along roadways.
- **Goal 4: Operations and Mobility.** Improve the operation and mobility of the Island's transportation system through the identification and implementation of system improvements that maintain Level of Service (LOS) standards and meet the Comprehensive Plan goals.
- **TR 4.1 Road Development Guidelines.** Construct, modify, and maintain roads to: 1) meet safety needs, 2) provide for transit, pedestrian travel, and bicycling, 3) correct LOS deficiencies, 4) improve connectivity and emergency response times, and 5) meet Comprehensive Plan goals, including Goal 1 and supporting policies that address community character.
- **TR 4.8 Island Mobility.** Identify and support improvements that will improve connectivity across SR 305.
- **Goal 7: Ferry Traffic.** Coordinate with WSF and other possible providers to operate ferry service to Bainbridge Island that meets local service and commuter needs, coordinates with all travel modes, and provides equitable regional service.
- **TR 7.2 Ferry Priority.** Support the ferry system efforts to maximize the convenience of pedestrian, bicycle, transit and HOV use on ferry runs through providing priority status and improvement to encourage non-SOV use.

Bainbridge Island Non-Motorized Transportation Plan

The City adopted an island-wide Non-Motorized Transportation Plan in 2003. Several goals and policies are pertinent to this study.

- **Goal 1: Mobility and Connectivity.** Develop a non-motorized transportation system that effectively serves the needs of pedestrian, bicycle, and equestrian users and

encourages non-motorized travel and provides a continuous network of attractive sidewalks, footpaths, multi-purpose trails, and bikeways throughout the Island that are also connected to regional systems.

- **NM 1.1** Provide safe and appropriately scaled, continuous non-motorized access that connects neighborhoods with Neighborhood Service Centers, Winslow, the ferry terminal, schools, parks and recreation areas, shoreline road-ends, transit connections, and regional destinations.
- **NM 1.3** Locate and design bicycle facilities that effectively accommodate both commuters and recreational users. The system shall include separated bicycle pathways, on-road bicycle lanes, and paved shoulders and shared facilities.
- **NM 1.4** Develop a system of trails for non-motorized use that connects Neighborhood Service Centers, the ferry terminal, schools, parks road ends, shoreline trails and greenways of Bainbridge Island, including existing equestrian use trails.
- **NM 1.10** Pursue development of non-motorized facilities on publicly owned (unopened) rights-of-way, street ends, utility corridors and other lands available for public use. Dedicate them permanently for non-motorized use where appropriate. Man-made obstructions in existing public rights-of-way shall be required to be removed.
- **NE 1.11** Enhance regional connections with the phased development of a safe, non-motorized, multi-purpose, travel corridor between the Agate Pass Bridge and the Bainbridge Island ferry terminal, on each side of the SR 305 right-of-way that generally retains a vegetation buffer between the highway and adjoining uses.
- **Goal 3: Safety and Maintenance.** Promote the safe use of non-motorized facilities through effective transportation improvements, maintenance operations and enforcement.
- **NM 3.4** Strongly encourage The Washington State Department of Transportation to make improvements at intersections that promote safe crossings of SR 305.

The plan also proposed specific facilities in the analysis area including a two-way separated non-motorized pathway on both sides of SR 305 and a pedestrian overpass at Knechtel Way NE connecting to the former John Nelson Park over SR 305 near Vineyard Lane.

3.9.2. Impacts

This section identifies the projected transportation impacts of the No Action and Proposed Action alternatives. This analysis focuses on the overall motorized and non-motorized transportation network rather than particular locations in the Ferry, Gateway, and Waterfront Park Study Areas.

Forecasts

Forecast Methodology

The City's transportation model (using the VISUM v.9.5 software program) was used to forecast future weekday PM peak hour traffic volumes in the analysis area. The projected volumes for 2030 provided the basis for all traffic analysis associated with the Proposed Action alternatives.

Network Assumptions

A variety of network assumptions were tested with each alternative (Figures 2-4 through 2-6; Table 3.9-3). In general, Alternative 1 would implement adopted road network improvements identified in the City's Comprehensive Plan, principally located outside the analysis area. In addition to these improvements, Alternative 2 would implement further intersection improvements inside the analysis area as well as a gridded street concept in the Ferry Study Area. Alternative 3 would implement the same improvements as Alternative 1, and would provide for the greatest number of new road connections and intersection improvements in the analysis area.

Table 3.9-3. Road Network Assumptions by Alternative

Improvement	Alt 1	Alt 2	Alt 3
1. Madison Avenue N/Wyatt Way NE roundabout	X	X	X
2. Madison Avenue N/Winslow Way Channelization Improvements	X	X	X
3. Ericksen Avenue NE/Bjune Drive SE/Winslow Way E turn restrictions	X	X	X
4. Winslow Way E, Ericksen Avenue NE, and Hildebrand Lane NE traffic calming	X	X	X
5. Wallace Way NE/Hildebrand Lane NE all-way stop or traffic circle	X	X	X
6. Ericksen-Hildebrand connection	X	X	X
7. Ferncliff Avenue NE and NE High School Road, northbound left turn channelization	X	X	X
8. Madison Avenue N and Winslow Way E signal	X	X	X
9. Cave Avenue NE/Winslow Way E turn restrictions		X	X
10. Winslow Way E/Olympic Drive SE intersection at SR 305 and Olympic Drive SE/Winslow Way E: crosswalks all ways, no pedestrian underpass, bicycle lane location; and northbound and southbound left turn lanes added		X	
11. Intersection at SR 305 and Olympic Drive SE/Winslow Way E: no east-west crosswalks, new pedestrian underpass, and northbound and southbound left turn lanes added			X
12. Ferncliff Avenue NE and Winslow Way E four-way stop control with channelization		X	
13. Ferncliff Avenue NE and Winslow Way E signal			X
14. Two-way internal circulation at ferry terminal		X	
15. New internal circulation on ferry terminal with one-way flow			X
16. New local connection between Cave Avenue NE and Ferncliff Avenue NE along a 5-acre property			X

Improvement	Alt 1	Alt 2	Alt 3
17. New crossing for all travel modes over the Ravine at Wyatt Way NE (Option 3a). Alternative option: pedestrian/bicycle crossing only (Option 3b)			X
18. New Harborview Drive SE connection to Bjune Drive SE with Ravine estuary crossing			X

Land Use Forecasts and Trip Generation

In addition to network assumptions, the City's transportation model was used to test the assumed growth patterns for each alternative. Table 3.9-4 shows projected employment and housing data reflecting the growth assumptions in 2030 for the three alternatives compared to 2006 data in the analysis area. Land use assumptions used in the model are further detailed in Appendix D. It should be noted that the land use data are based on transportation analysis zones that extend beyond the Proposed Action analysis area, and thus the employment and dwelling unit totals are higher than estimated in Section 3.4, *Land Use*, which focuses on the analysis area boundaries.

Table 3.9-4. Projected Housing and Employment Data Based on Transportation Analysis Zones

Land Use Type	2030 Alternatives					
	2006	Alternative 1	Alternative 2		Alternative 3	
	Total	Total	Total	Change ¹	Total	Change ¹
Residential dwelling units: Total	340 ²	1,053	982	-6.7%	1,831	73.9%
Employees: Total	509 ²	888	980	10.4%	1,045	17.7%

Source: Morse pers.comm.

1. Percentage Change from Alternative 1

2. These numbers include Harbor Square development, which was completed in Fall 2006

As shown above, residential dwelling units, generally in the form of multifamily housing, account for most of the growth in the analysis area. Alternative 2 assumes fewer additional dwelling units compared to Alternative 1. Alternative 3 assumes a substantial increase in the number of residential dwelling units in the analysis area, by almost 75% more than Alternative 1.

Under Alternatives 2 and 3, employment is expected to increase between a 10% and 20% increase, respectively, compared with Alternative 1. Approximately 50% of the overall growth in employment is attributed to office and service employment in the analysis area.

Land use data for Alternative 1 were based on current Comprehensive Plan land use designations. The assessment of the amount of vehicular traffic that Alternatives 2 and 3 would generate was based on the land use assumptions described in Chapter 2.

The trip generation estimates were derived from the City's travel demand forecasting model, which accounts for the production and attraction of trips between land uses. Three types of trips are identified below:

- vehicular trips between uses in the analysis area,
- vehicular trips between the analysis area and other areas on Bainbridge Island, and
- vehicular trips between the analysis area and external locations off of Bainbridge Island.

Table 3.9-5 compares the 2030 PM peak hour trip generation estimates for each of the three alternatives.

Table 3.9-5. 2030 PM Peak Hour Trip Generation Summary

Trip Generation	Alternative 1 (No Action)		Alternative 2		Alternative 3	
	Trips	%	Trips	%	Trip	%
Connects within analysis area	200	11	240	12	380	16
Connects within Bainbridge Island	1,365	77	1,490	77	1775	74
Connects external to Bainbridge Island	205	12	215	11	235	10
Total Gross Trips	1,770	100	1,945	100	2,390	100

As shown, the analysis area would generate approximately 1,770 gross PM peak hour trips under Alternative 1. Alternatives 2 and 3 would generate approximately 1,945 to 2,390 gross PM peak hour trips. The trip generation estimates are directly related to the land use data assumed for each alternative. Alternatives 1 and 2 would generate similar types of trips. Alternative 3 would generate higher levels of traffic than Alternatives 1 or 2. For each alternative, the effects of these trips on the road networks are described below.

Ferry Ridership Forecasts

Ferry ridership demand is projected to increase significantly in the future. WSF estimates that in 2030 the peak period ridership for all modes will increase as shown in Table 3.9-6, and the passenger mode split for a typical pm peak hour sailing will be as shown in Table 3.9-7.

Table 3.9-6. Peak Period Ferry Ridership

Travel Mode	2007 Volume	2030 Volume
Vehicles	1280	1600
Passengers	5400	9800

Source: Transpo 2007

Peak period = 4-hour pm westbound

Table 3.9-7. Estimated 2030 PM Peak Period Passenger Mode Split

Travel Mode	2030 Volume
Walk-on Passengers	2,200
Transit	1,232
Bicycles	110
Pedestrians (includes walking, parking, pick-up, bicycle barn)	858

Source: Transpo 2007

Identification of Performance Measures

Performance measures were identified and evaluated for existing conditions, the 2030 forecast for Alternative 1, and for Alternatives 2 and 3. The measures characterize the relative differences in performance between each of the alternatives and establish potential transportation impacts. They are meant to be used as broad level comparisons consistent with a programmatic EIS evaluation. The measures should be reviewed together to gain the most accurate impression of the effects of each alternative on the transportation system.

■ Level of Service

- Intersections: LOS calculations estimate the average delay encountered by vehicles at an intersection. For the purposes of this EIS, intersection LOS results of E are determined to exceed the City's adopted LOS standards, but require monitoring over the period through 2030 since the LOS is close to the standard and the analysis is based on programmatic development assumptions that are best estimates at this point in planning. Intersection LOS results of F are considered an exceedance of the standard, for which additional mitigation measures are proposed.
- Corridor LOS: This performance measure provides an estimate of how long it will take a vehicle to travel along a corridor and accounts for the delay encountered at each intersection and elsewhere along the corridor. Average speed thresholds are used to determine impacts as described in more detail below.

- Queue lengths: This performance measure is related to LOS in that longer queue lengths typically occur where higher delays occur. Queue length estimates are

used to determine if the queues at an intersection may extend to and block any upstream intersections, driveways, or turning lanes. Queue lengths exceeding 500 feet may impact access and operations.

- **Parking:** Parking impacts are determined in a qualitative manner based on an order of magnitude review of potential parking demand and ability to meet established standards or to provide alternative approaches such as shared parking.
- **Pedestrian and Bicycle Mobility:** Existing and proposed pedestrian and bicycle route proposals were evaluated against each other based on four criteria: access, mobility, safety, and design. Access refers to the ability of the proposed system to provide direct connections between neighborhoods, neighborhoods and commercial centers, and neighborhoods and the ferry terminal. Mobility measures significant vertical changes in travel grades or other obstructions that hinder or facilitate travel. Safety measures potential vehicle and pedestrian or bicycle conflicts or modal separation. Design measures the adequacy and design elements of the proposed facilities relative to other alternatives.
- **Transit Service:** For purposes of this EIS analysis, impacts on transit service are discussed in terms of transit staging and circulation in the immediate analysis area.
- **Ferry Service Impacts:** Ferry service impacts for facilities are defined as facilities inadequate to meet future passenger and vehicle demand. Impacts for operations are defined as increased wait times, especially during peak periods.

Comparative Analysis

This subsection compares the effects of each alternative on the transportation system, as measured by intersection LOS, queues, corridor LOS, parking, pedestrian and bicycle mobility, transit service, and ferry service. The impacts of each alternative are then addressed in more detail following the comparative analysis.

Intersection Level of Service

Intersection LOS results for existing and 2030 alternatives are shown in Table 3.9-8. The table also identifies those intersections that fail to meet the City's LOS standard of LOS D and a relative comparison of how much an intersection is estimated to operate above the LOS standard. Alternatives 1 and 3a would result in fewer intersections failing to meet the City's LOS standard than Alternatives 2 and 3b. In all cases, mitigation measures are proposed in Section 3.9.3.

Table 3.9-8. 2007 and 2030 PM Peak Hour Intersection Level of Service Summary

Intersection	LOS Standard	Traffic Control ¹	Existing (2007)		Alternative 1 (No Action)		Alternative 2		Alternative 3a ¹¹		Alternative 3b ¹²	
			Delay ³	LOS ²	Fails to Meet Standard ^{2a,9}	Delay	LOS	Fails to Meet Standard?	Delay	LOS	Fails to Meet Standard?	Delay
Olympic Drive SE / Harborview Drive SE	D	Signal	4.1	A		6.6	A		9.0	A		2.7
SR 305 / Winslow Way E	D	Signal	25.3	C		52.7	D		57.0	E		59.9
SR 305 / NE High School Road	D	Signal	27.0	C		39.1	D		37.4	D		38.1
Cave Avenue NE / Winslow Way E	D	TWSC	15.6	C		39.5	E		14.7	B		12.2
Ferncliff Avenue NE / Winslow Way E	D	TWSC/Signal ⁴	9.4	A		17.3	C		26.8	D		43.0
Erickson Avenue NE / Winslow Way E ⁹	D	TWSC	20.7	C		12.9	B		13.4	B		19.8
Madison Avenue N / Winslow Way NE	D	AWSC/Signal ⁵	11.2	B		7.4	A		7.4	A		7.6
Ferncliff Avenue NE / Wing Point Way NE	D	TWSC	18.1	C		30.6	D		35.8	E		67.0
Ferncliff Avenue NE / NE High School Road	D	AWSC	12.7	B		33.9	D		28.1	D		33.2
Erickson Avenue NE / Wyatt Way NE	D	AWSC	8.9	A		9.6	A		9.7	A		9.7
Hildebrand Lane NE / NE High School Road	D	TWSC	27.7	D		36.9	E		37.3	E		38.5

Intersection	LOS Standard ¹	Traffic Control ¹	Existing (2007)		Alternative 1 (No Action)		Alternative 2		Alternative 3a ¹¹		Alternative 3b ¹²	
			Delay ³	LOS ²	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
Madison Avenue N / Wyatt Avenue NE	D	AWSC/ Roundabout ^{6,7}	15.2	C	10.1	B	9.6	A	12.1	B	9.5	A
Madison Avenue N / Wallace Way NE	D	TWSC	15.3	C	27.2	D	24.2	C	21.8	C	23.2	C
Madison Avenue N / NE High School Road	D	Roundabout	15.9	B	48.8	D	51.3	D	45.4	D	50.9	D
Bjune Drive SE / Winslow Way E ¹⁰	D	TWSC	NA	-	13.7	B	14.0	B	13.6	B	16.4	C

¹ AWSC = all-way stop control, TWSC = two-way stop control

² LOS = Levels of Service, based on Highway Capacity Manual (2000) methodology.

³ Average delay in seconds per vehicle.

⁴ Ferncliff Ave NE/ Winslow Way E intersection is two-way stop-controlled under Alternatives 1 and 2, and is signalized under Alternatives 3a and 3b.

⁵ Madison Ave NW/Winslow intersection is all-way stop-controlled under existing conditions and is signalized under all future alternatives.

⁶ This intersection is AWSC under existing conditions and is a roundabout for all future alternatives. Roundabout operations are analyzed using the Sidra software program.

⁷ Roundabout operations are analyzed using the Sidra software program.

⁸ Intersection exceeds the LOS standard by less than an average delay of 5 seconds as indicated by open circle - ○

⁹ Intersection exceeded the LOS standard by more than an average delay of 5 seconds as indicated by closed circle - ●

¹⁰ Under the existing intersection control, this intersection operates as a combined intersection with the Erickson Avenue NE/Winslow Way E intersection. Results for the existing Erickson Avenue NE/Winslow Way E account for the Bjune Drive SE roadway.

¹¹ Alternative 3a: Wyatt Way NE road connection

¹² Alternative 3b: Wyatt Way NE bicycle/pedestrian connection

Queues

Failing intersections can cause vehicles to back up, or queue, beyond turn lanes and through adjacent intersections. In addition, long queues can develop on intersection approaches under poor traffic conditions. Queue length estimates are developed using a calibrated VISSIM (v4.3) traffic microsimulation model and forecast traffic volumes. Queues that are anticipated to be longer than 500 feet, which is an indication of potential blocking problems, under 2030 PM peak hour conditions are shown for all three alternatives in Table 3.9-9.

Table 3.9-9. 2030 Intersection Queues Longer than 500 Feet

Intersection	Alternative 1	Alternative 2	Alternative 3a	Alternative 3b
Madison Avenue N/ NE High School Road	NB, WB	NB	NB	NB, WB
Madison Avenue N/ Wyatt Way NE			WB	
Ericksen Avenue NE/ Wyatt Way NE			WB	
SR 305/NE High School Road	NB through	NB through	NB	NB
Ferncliff Avenue NE/ NE High School Road				NB
Ferncliff Avenue NE / Winslow Way E		SB, EB		
Ferncliff Avenue NE/ Wyatt Way NE/ Wing Point Way NE			EB	
Olympic Drive SE/ Winslow Way E	WB through/left-turn	NB, EB	EB	EB

NB = northbound, SB = southbound, EB = eastbound, WB = westbound

¹. Alternative 3a: Wyatt Way NE road connection

² Alternative 3b: Wyatt Way NE bicycle/pedestrian connection

With only the programmed transportation plan improvements Alternative 1 growth would result in queues at three intersections. Alternative 2 would result in queues at four intersections. Alternative 3a (with the road connection at Wyatt Way NE) would result in queues at six intersections, and Alternative 3b (with the pedestrian/bicycle connection at Wyatt Way NE) would result in queues at four intersections.

Corridor Level of Service

Corridor LOS is a measure of transportation efficiency along any roadway by estimating the average travel speed along a corridor. HCM presents guidelines on quantifying travel-time based LOS for urban streets. Table 3.9-10 summarizes the HCM travel time LOS definitions based on travel speeds.

Table 3.9-10. Corridor Level of Service for Urban Streets

Urban Street Class	I	II	III	IV
Range of Free Flow Speed ¹ (mph)	55 - 45	45 - 35	35 - 30	35 - 25
Typical Free Flow Speed (mph)	50	40	35	30
LOS	Average Travel Speed			
A	> 42	> 35	> 30	> 25
B	> 34 - 42	> 28 - 35	> 24 - 30	> 19 - 25
C	> 27 - 34	> 22 - 28	> 18 - 24	> 13 - 19
D	> 21 - 27	> 17 - 22	> 14 - 18	> 9 - 13
E	> 16 - 21	> 13 - 17	> 10 - 14	> 7 - 9
F	<= 16	<= 13	<= 10	<= 7

Source: Highway Capacity Manual (Transportation Research Board 2000)

¹ The free flow speed is the average speed of the traffic stream when traffic volumes are sufficiently low that drivers are not influenced by the presence of other vehicles and when intersection traffic controls are not present or is sufficiently distant as to have no effect on speed choice.

Corridor LOS was analyzed for Winslow Way E, Ferncliff Avenue NE, NE High School Road, Madison Avenue N, and SR 305, as shown in Table 3.9-11. Travel speeds are developed using a calibrated VISSIM (v4.3) traffic microsimulation model and forecast traffic volumes. In general, travel speeds and corridor LOS are similar across all alternatives.

Results show northbound SR 305 from Winslow Way E to NE High School Road would experience LOS F. Travel Speeds along SR 305 and Winslow Way E are highly influenced by operations at the SR 305/Winslow Way E intersection. Delays can vary significantly at this intersection because of the influence of ferry unloading and loading operations. Therefore, the average travel speeds for the Winslow Way E and SR 305 corridors should be viewed in conjunction with other system performance measures.

Table 3.9-11. 2030 PM Peak Hour Corridor Travel Speed & LOS

Land Use Type	Arterial Class	2030 PM Peak Hour Travel Speed & LOS			
		Alternative 1	Alternative 2	Alternative 3a ⁴	Alternative 3b ⁵
Eastbound Winslow Way NE ¹	IV	C (13.1 mph)	E (8.6 mph)	D (12.1 mph)	D (12.0 mph)
Westbound Winslow Way NE ¹	IV	NA ⁶	C (14.0 mph)	C (14.6 mph)	C (12.0 mph)
Northbound Ferncliff Avenue NE ²	IV	C (15.4 mph)	C (15.5 mph)	C (18.1 mph)	C (17.5 mph)
Southbound Ferncliff Avenue NE ²	IV	B (21.6 mph)	B (19.2 mph)	B (24.4 mph)	B (24.5 mph)
Eastbound NE High School Road ¹	IV	D (12.5 mph)	C (13.1 mph)	C (14.1 mph)	D (12.4 mph)
Westbound NE High School Road ¹	IV	D (12.4 mph)	C (13.3 mph)	C (13.5 mph)	D (12.9 mph)
Northbound Madison Avenue N ^{2,3}	IV	D (9.9 mph)	D (10.7 mph)	D (9.5 mph)	D (11.0 mph)
Southbound Madison Avenue N ²	IV	C (17.2 mph)	C (17.5 mph)	C (17.2 mph)	C (17.2 mph)
Northbound SR 305 ²	II	F (10.8 mph)	F (11.6 mph)	F (10.1 mph)	F (10.2 mph)
Southbound SR 305 ²	II	D (18.1 mph)	D (21.6 mph)	C (22.6 mph)	D (21.2 mph)

¹ Extending from Ferncliff Avenue NE to Madison Avenue N

² Extending from Winslow Way E to NE High School Road

³ The northbound queue at Madison Avenue N / NE High School Road is expected to extend through several upstream intersections. The corridor LOS reported for northbound Madison Avenue N is likely inaccurate.

⁴ Wyatt Way NE road connection

⁵ Wyatt Way NE bicycle/pedestrian connection

⁶ No vehicles were modeled to travel this full route (from the east leg of Ferncliff/Winslow to the west leg of Madison/Winslow).

Parking

Parking demand is based on the amount and mix of land uses. In general, Alternatives 1 and 2 have more similar land use mixes and would create less demand than Alternative 3. Alternatives 2 and 3 provide greater opportunities to provide shared parking, which would allow for reduced commercial/office parking standards, which these alternatives propose.

Pedestrian and Bicycle Mobility

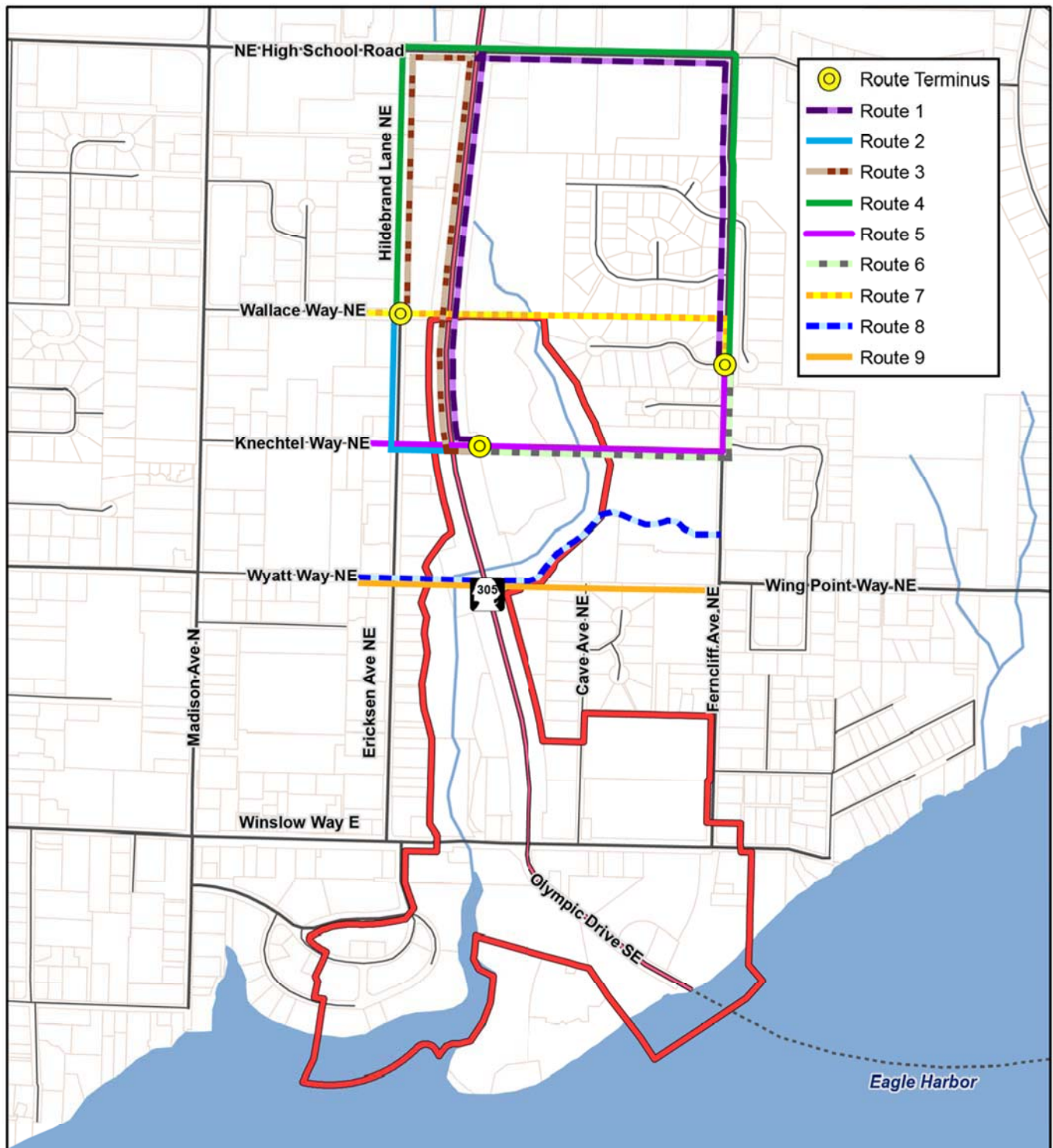
For the purposes of this EIS, pedestrian and bicycle routes were analyzed in the Ferry Gateway Study Areas and Waterfront Park. Planned routes in the Ferry and Gateway Study Areas are based on the draft Ferry/Gateway Urban Design Plan and the

proposed Non-Motorized Transportation Plan amendments described in Chapter 2, particularly Figure 2-7. Waterfront Park routes are based on the conceptual alternatives described in Chapter 2. In general routes are already well-defined in the Ferry and Waterfront Park Study Areas, and alternative proposals consist of improvements to existing routes with a few new connections as development occurs. Routes in the Ferry Study Area and Waterfront Park Study Area are addressed under each alternative below.

Gateway Study Area routes are addressed in more detail in this subsection as these potential routes have the greatest ability to change present non-motorized travel patterns in the analysis area, and the potential routes have not been studied to the same degree as in other districts such as through the WSF planning efforts.

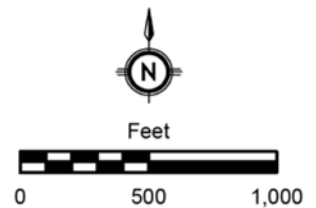
To facilitate an evaluation of the three alternatives (particularly in the Gateway Study Area) non-motorized access routes were defined. These routes identify likely pedestrian/bicycle pathways between the analysis area and commercial and residential districts, and from one side of the analysis area to the other (Figure 3.9-5). Table 3.9-12 lists the routes and various analysis criteria. See Appendix D for a more detailed description of the route characteristics.

- **Route 1** links the existing and future residential development surrounding Vineyard Lane with the neighborhoods to the east of the analysis area. The route begins at the intersection of Vineyard Lane and SR 305 and then travels along SR 305, NE High School Road and Ferncliff Avenue NE to Klickitat Place NE.
- **Route 2** links the Vineyard Lane neighborhood with the commercial district located at and north of the intersection of Wallace Way NE and Hildebrand Lane NE. The route begins at the intersection of Vineyard Lane and SR 305 where it crosses SR 305 and travels along the Knechtel Way NE right of way and then north along Ericksen Avenue NE to Wallace Way NE.
- **Route 3** links the same two communities as Route 2 by using SR 305, NE High School Road and Hildebrand Lane NE.
- **Route 4** links the neighborhoods east and west of the analysis area. The route begins at the intersection of Klickitat Place NE and then travels northward along Ferncliff Avenue NE, NE High School Road, and Hildebrand Lane NE to the intersection of Ericksen Avenue NE and Wallace Way NE.
- **Route 5** links neighborhoods east and west of the analysis area but along the new proposed Knechtel Way NE pedestrian bicycle connection. The route would begin and end at the same intersections as Route 4 and traverse Ericksen Avenue NE, then along the new Knechtel Way NE pedestrian bicycle connection, and then north along Ferncliff Avenue NE.



- State Route
- Major Roads
- Minor Roads
- Seattle-Bainbridge Ferry
- Parcel
- Analysis Area

Sources: City of Bainbridge Island (2007); Jones & Stokes (2007)



Jones & Stokes

Figure 3.9-5 - Pedestrian/Bicycle Routes
Bainbridge Island Ferry/Gateway District and Waterfront Park
September 2007

- **Route 6** would link the Vineyard Lane neighborhood with the community east of the analysis area via the new Knechtel Way NE pedestrian bicycle connection. The route would begin and end at the same intersections as Route 1.
- **Route 7** would provide an alternative connection between communities on either side of the analysis area via the new pedestrian/bicycle connection along Wallace Way NE and then south along Ferncliff Avenue NE. The route would begin and end at the same intersections as Route 4.
- **Routes 8 and 9** also link the communities east and west of the analysis area via the proposed Wyatt Way NE connection in Alternative 2 and Alternative 3 respectively. Both routes begin at the same intersections as Route 4 and travel along Ericksen Avenue NE to Wyatt Way NE and then north along Ferncliff Avenue NE.

Criteria were selected to analyze each route and provide comparison between the alternatives. Existing and proposed pedestrian and bicycle route proposals were evaluated against each other based on four criteria: access, mobility, safety and design. Access refers to the ability of the proposed system to provide direct connections between neighborhoods, neighborhoods and commercial centers, and neighborhoods and the ferry terminal. Mobility is a measure of significant vertical changes in travel grades or other obstructions that hinder or facilitate travel. Safety is a measure of potential vehicle and pedestrian or bicycle conflicts or modal separation. Design is a measure of the adequacy and design elements of the proposed facilities relative to other alternatives. A comparison of the evaluated routes is provided in Table 3.9-12.

Table 3.9-12 shows that from an access perspective the Alternative 1 (1, 3, and 4) routes are significantly longer than most of the Alternative 2 and 3 routes. One of the routes, Route 2, is the same in length for all alternatives. Regarding mobility, routes associated with Alternatives 2 and 3 require less elevation gain than routes associated with Alternative 1. Safety is a measure of exposure, and in the case of routes associated with Alternatives 2 and 3, pedestrians would be safer as they would avoid walking in or along some portions of roadway or avoid crossing some streets. The last measure, design, indicates the relative difficulty in constructing pedestrian bridges over SR 305 and the Ravine. Routes 5 and 7 have the longest structures spanning SR 305. The additional length is the result of longer approach ramps as compared to Routes 8 or 9. All of the routes would have the same vertical clearance over SR 305. In the case of the Ravine crossing, Route 7 would have a shorter span and bridge height over the Ravine than the other alternatives. The Ravine widens and becomes deeper as one moves south and therefore Routes 5, 8, or 9 have longer span lengths.

Table 3.9-12. Pedestrian/Bicycle Route Analysis – Gateway Study Area

Route	Associated Alternative	Access (distance in feet)	Mobility (total elevation gain in feet)	Safety	Design (structure span distance and height)
1	Alternative 1	5,400	70	Lesser	NA
2	Alternatives 1, 2, and 3	1,200	20	Lesser	NA
3	Alternative 1	4,200	10	Lesser	NA
4	Alternative 1	4,400	65	Greater	NA
5 (Knechtel Way NE)	Alternatives 2 and 3	2,000	55	Greater	SR 305: 280 ft, 20 ft Ravine: 300 ft, 65 ft.
6	Alternative 2 and 3	1,700	50	Greater	SR 305: NA Ravine: 300 ft, 65 ft.
7 (Wallace Way NE)	Alternatives 2 and 3	2,000	45	Greater	SR 305: 610 ft, 20 ft. Ravine: 200 ft, 30 ft.
8 (Wyatt Way NE to Ravine rim)	Alternative 2	3,700	50	Greater	SR 305: 250 ft, 20 ft. Ravine: 300 ft, 65 ft.
9 (Wyatt Way NE through connection)	Alternative 3	4,000	35	Greater	SR 305: 250 ft, 20 ft. Ravine: 300 ft, 65 ft.

Transit Service

Beyond the immediate vicinity, transit operations are assumed to be consistent across all future alternatives. The future conditions assume that Kitsap Transit will operate a total of 33 buses for 12 transit routes from the ferry terminal. While future transit service is similar for all alternatives, the ability of each alternative to provide for effective staging and circulation is reviewed. In general, Alternatives 2 and 3 provide more effective staging and circulation proposals to accommodate future transit improvements, and Alternative 1 would not be able to support the increased transit service.

Ferry Service

Alternative 1 would continue to use the existing terminal and passenger loading ramp that have been identified as structurally deficient, and is not expected to provide adequate service for future ferry users. Both Alternative 2 and Alternative 3 would improve these facilities, thus improving passenger service.

The increase in passenger demand would be expected to exceed the capacity of the existing facilities. This could result in increased loading and unloading times for Alternative 1, which could affect WSF's ability to maintain the scheduled peak period headways. Facility improvements for Alternatives 2 and 3 would increase the size of the passenger loading ramp and are not expected to affect the ability of WSF to meet the schedule.

Vehicle demand is projected to exceed the 220 vehicle per boat capacity for more runs in 2030 than it currently does in 2007. Because WSF has no plans to increase service to Bainbridge beyond the current two-boat schedule, the increased vehicle demand will cause increased waiting time, and as a result increase queuing on Olympic/SR 305 as vehicles wait for the next boat if the vehicle holding area is not increased also. The longest vehicle wait times and longest queues are expected to continue to occur during the morning peak period. Alternatives 2 and 3 would increase the vehicle holding area to 520 vehicles.

For a typical weekday commute, the expected average number of queued vehicles, maximum number of queued vehicles, and maximum queue lengths outside of the holding area for each alternative are shown in Table 3.9-13 for the projected maximum am peak wait time of 137 minutes.

Table 3.9-13. 2030 Typical Weekday AM Maximum Queue Lengths

	Alternative 1	Alternative 2	Alternative 3
Vehicle Holding Area Capacity	220	520	520
Average Number of Queued Vehicles	81	3*	3*
Maximum Number of Queued Vehicles	356	56	56
Maximum Queue Length(feet)	7,120	2,720	2,720

Source: Transpo 2007

*estimated

During the average morning commute period between 6:00 am and 9:00 am, the average vehicle queue for Alternative 1 would extend about ¼ mile north of Winslow Way E, and the maximum vehicle queue would extend 1 ¼ miles north of Winslow Way E to beyond NE High School Road. For Alternatives 2 and 3, the average length of the typical morning queue would not extend to Winslow Way E, and the maximum queue would be about 1/8 mile north of Winslow Way E. The WSF study estimated that the holding area would need a capacity of 576 vehicles to prevent the maximum queue from extending onto the City's street system.

Alternative 1: No Action

Alternative 1 would maintain the current Comprehensive Plan land use and zoning allowances, resulting in a smaller total net increase in growth than Alternatives 2 and 3. Existing and future development would travel on a road network that provides for some improvements, particularly outside of the analysis area. Some intersections would experience congestion. There would be fewer vehicular and non-motorized connections to distribute traffic, pedestrians, and bicycles. Transit levels would increase and would continue to focus on access to the ferry terminal; however the terminal area would not see substantive alterations to accommodate the increased transit travel. The effects of Alternative 1 on the road network, trips, traffic volumes, levels of service, travel speed, parking, pedestrian and bicycle facilities, transit, and City goals and policies are described below.

Network Assumptions

Programmed improvements are assumed in Alternative 1, including intersection improvements, channelization improvements, traffic calming, turn restrictions and other measures shown on Table 3.9-2. These improvements are largely planned outside of the analysis area boundaries shown in Figure 2-4.

Trip Distribution

Alternative 1 would retain the land use designations in the City's current Comprehensive Plan. Alternative 1 would have the lowest gross trip generation of the three alternatives estimated at 1,770 additional network trips.

Under Alternative 1, approximately 25% of the traffic traveling to and from the analysis area from the north would travel along Ferncliff Avenue NE; approximately 20% would use SR 305; and 15% would use Ericksen Avenue NE. For east/west travel, approximately 20% would use Winslow Way E and approximately 10% would use Wyatt Way NE via Ericksen Avenue NE (Table 3.9-5).

Traffic Volumes

Traffic volume forecasts for Alternative 1 are shown in Figure 3.9-6. Under Alternative 1, Winslow Way E, between SR 305 and Madison Avenue N, would experience the greatest increase in traffic in the analysis area with 450 new vehicles during the PM peak hour, an 80% increase over existing traffic volumes. This corridor would carry approximately 1,100 PM peak hour trips under Alternative 1 compared to approximately 550 vehicles in the existing condition. NE High School Road, between SR 305 and Madison Avenue N, would experience the least growth in traffic in the analysis area. This corridor would carry approximately 1,200 PM peak hour vehicles under Alternative 1 compared to approximately 1,000 vehicles in the existing condition, an increase of approximately 15%.

Intersection Level of Service

Under Alternative 1, two City intersections would operate below the City's adopted minimum standard of LOS D (Figure 3.9-4; Table 3.9-8) as follows:

- Cave Avenue NE/Winslow Way E (LOS E)
- Hildebrand Lane NE/NE High School Road (LOS E)

The intersection at Cave Avenue NE and Winslow Way E would operate at LOS E; however, it would fail to meet the adopted LOS standard (LOS D) by less than an average delay of 5 seconds. The intersection at Hildebrand Lane NE and NE High School Road would operate at LOS E; however, it would fail to meet the adopted LOS standard by less than an average delay of 5 seconds. Monitoring measures are identified in a later mitigation section.

Average PM peak hour traffic volumes forecast for Alternative 1 along the studied roadway segments are expected to operate within the planned capacity of the roadway network.

Queues

Alternative 1 growth would result in queues longer than 500 feet, which indicates possible blocking problems, at three intersections and assumes adopted transportation plan improvements are in place. Comparably, Alternatives 2 and 3 both have more intersections that have queues longer than 500 feet (Table 3.9-9). Of note, the northbound queue at Madison Avenue N/NE High School Road is significant and may spill back through several upstream intersections. This occurs across all future alternatives.

Significant queue lengths generally indicate poor traffic operations along a corridor; however, they should be viewed in conjunction with other system performance measures to identify potential mitigation. Monitoring of these identified corridors is recommended.

Corridor Level of Service

In general, Alternative 1 would have comparable travel speeds and corridor LOS relative to all of the other alternatives as shown in Table 3.9-11. Only slight differences in corridor LOS are apparent. Only the northbound SR 305 corridor is expected to operate at LOS F and this is directly due to the effect of offloading ferry traffic and is consistent across all alternatives. Note that due to the northbound queues at Madison Avenue N/NE High School Road, the corridor LOS for northbound Madison Avenue N is reflective of only the vehicles that travel the full length of the corridor. All other analyzed corridors are expected to operate at LOS D or better.

Parking

Parking supply requirements for new developments are detailed in Chapter 18.81 of the BIMC. Currently, the parking ratios in the Ferry and Gateway Districts vary with the type of land use. Alternative 1 would maintain present parking standards as follows:

- In the Ferry District, requirements are 1 space per dwelling unit within 0.5 mile of the ferry terminal, and 1.5 spaces per dwelling unit within 0.5 to 1 mile of the ferry terminal. Commercial uses must have a minimum of 1 space per 1,000 square feet and a maximum of 3 spaces per 1,000 square feet. Employee parking is required at 1 space per peak shift.
- In the Gateway District, residential uses farther than 1 mile from the ferry terminal must have a minimum of 2 spaces per dwelling unit. Within 0.5 mile of the ferry terminal, 1 space per dwelling unit is required, and within 0.5 to 1 mile of the terminal 1.5 spaces per dwelling unit are required. Commercial uses must have a minimum of 4 spaces per 1,000 square feet and a maximum of 5 spaces per 1,000 square feet.

Specific quantities of parking demands and supplies are not identified for this planning level analysis. However, based on the land use mix under Alternative 1, residential parking demands would be greater than under Alternative 2 and commercial parking demands would be less than under Alternative 2. Parking demands for all uses under Alternative 1 would be much lower than under Alternative 3. Parking for Alternative 1 land uses is expected to be provided by surface lots and to a lesser extent by parking garages. Parking standards would remain higher for commercial and office uses compared with Alternatives 2 and 3.

By retaining current parking and zoning allowances, Alternative 1 would provide no incentives to reduce surface parking lots in the ferry terminal area. Parking for the ferry terminal would remain as presently configured, currently organized by each individual land owner, each with its own entrance and exit, resulting in an uncoordinated and confusing parking layout as well as inappropriate intersections and conflicts between pedestrians, bicyclists and vehicles. As noted in the draft Ferry Gateway Urban Design Plan, property owners are under no obligation to provide any commuter parking with redevelopment of their parcels, which could lead to an overall lack of commuter parking in the ferry terminal area. (Van Meter et al. 2007)

Pedestrian and Bicycle Mobility

Under Alternative 1 access to the ferry terminal would be modified by interim planned improvements including the signalization of the pedestrian crossing of Olympic Drive SE at Harborview Drive SE, bicycle lanes, sidewalk improvements, and intersection improvements at Winslow Way E and SR 305. Minor modifications would be made to trails in Waterfront Park (Table 2-3). Adopted trails and bicycle facilities (Figure 2-7) and other sidewalk improvements would be completed, including a trail running north from Cave Avenue NE (Trail A, Figure 2-7) in the Gateway Study Area.

Alternative 1 is evaluated below in terms of access, mobility, safety, and design.

Access: Under Alternative 1 in the Ferry Study Area access routes to the ferry terminal and other destinations would not change.

In the Waterfront Park Study Area existing trails would be improved (Table 2-3) but no new connections are proposed.

Access from the Gateway Study Area to the ferry terminal would be provided either by the southbound SR 305 shoulder, the recently completed Ravine trail, the trail north of Cave Avenue NE (Trail A, Figure 2-7), or Ferncliff Avenue NE. Within the Gateway Study Area Alternative 1 would provide no direct access from development on Vineyard Lane to neighborhoods to the east. This will require the use of the long and circuitous Route 1. Access to the west would also be significant if a paved surface is required (Route 3). Access between neighborhoods on either side of the Gateway Study Area would be limited by the lack of Ravine crossings. Pedestrian and bicycle trips would be over a mile in length (Route 4).

Mobility: Under Alternative 1 mobility in the Ferry Study Area would improve with the installation of an additional sidewalk along Ferncliff Avenue NE and sidewalks along Cave Avenue NE. However Waterfront trail users would continue to leave the trail at Harborview Drive SE and climb the hill to Olympic Drive SE and access to the ferry terminal. In the Waterfront Park Study Area mobility would not change. Mobility in the Gateway Study Area would vary by route, as a function of elevation gains and walking surfaces. As shown in Table 3.9-12 the elevation gain for Routes 1

and 4 would be the largest, 70 to 65 feet, with access to the west being relatively level, 10 to 20 feet. The unpaved path used for Route 2 makes travel in the winter difficult; in this case a longer route would be necessary along SR 305 (Route 3).

Safety. Under Alternative 1 safety in the Ferry Study Area would slightly improve with the installation of sidewalks along Cave Avenue NE and Ferncliff Avenue NE. Additionally the WSF interim improvements will assist pedestrian and bicycle movements along and across Olympic Drive SE. In the Waterfront Park Study Area the planned improvements to the existing trails and connections to meet ADA requirements would improve safety (Chapter 2, Section 2.4).

Under Alternative 1 safety in the Gateway Study Area would vary by route. As shown in Table 3.9-12 routes that require walking along shoulders or crossing roadways have a “lesser” safety evaluation compared to other routes within the analysis area.

Design. Under Alternative 1 sidewalks in the Ferry Study Area along Cave Avenue NE and Ferncliff Avenue NE would be constructed to a minimum width of 5 feet. Interim improvements are programmed to improve some pedestrian and bicycle facilities in the ferry terminal area south of Winslow Way E. Unless addressed by interim improvements, the current conditions, including narrow sidewalks along Olympic Drive SE would remain. The current sidewalks have numerous obstacles and insufficient width to meet federally mandated ADA requirements. Additionally the number of pedestrians and bicycles accessing the ferry terminal exceeds the capacity of these facilities, particularly during the evening peak hour egress from the terminal when ferries are unloading (Transpo 2007).

In the Waterfront Park Study Area trail improvements would be designed to meet City standards and ADA requirements.

The trail proposed north of Cave Avenue NE would meet City and ADA standards.

In summary, the existing conditions are not conducive to pedestrian and bicycle travel within the Ferry Study Area. Narrow sidewalks and obstacles congest pedestrian travel or do not meet ADA requirements. Bicycles are required to mix with heavy vehicle volumes or cross traffic to enter left turn lanes. Alternative 1 would provide for interim improvements that may not fully address current inadequate conditions. Within the Waterfront Study Area the abundance of sidewalks and trails provides for the flow of pedestrians and bicycle. The Gateway Study Area has a number of north-south corridors to facilitate pedestrian movements but lacks sidewalks and bicycle lanes. In the east-west direction, the Ravine restricts non-motorized movements from Vineyard Lane to commercial areas, and from the neighborhoods on either side of the Ravine.

Transit Service

Under Alternative 1, transit service to the Bainbridge Island ferry terminal is anticipated to double. Based on Kitsap Transit forecasts, bus service is estimated to increase from the current 16 buses to 33 buses in 2030, an increase of 17 buses. Of the 33 buses serving the ferry terminal, 23 buses are expected to serve off-island and north-island routes, and 10 buses would serve local routes.

Access to and from the ferry terminal is expected to remain consistent with existing conditions. As a result, all 17 new buses are expected to queue on Olympic Drive SE with some having to stage north of the Olympic Drive SE/Winslow Way E intersection due to the limited southbound storage area on Olympic Drive SE between Winslow Way E and existing transit center. As a result, transit would continue their late departures and not depart the transit center until after off-loading ferry traffic no longer blocks the transit center access.

Ferry Service

For Alternative 1 the existing ferry facilities would continue to be used. The structurally deficient and undersized terminal building and passenger loading ramp would not provide a safe or efficient service for ferry users, and on-time performance could suffer. The small vehicle holding area would result in a significant queue extending onto City streets on weekday mornings that would impact their operation.

Consistency with Goals and Objectives

Alternative 1 is consistent with policy TR 2.1 to minimize impacts on environmentally sensitive areas by avoiding new crossings of the Ravine, but inconsistent with policy TR 4.1 to improve connectivity and emergency response times because it does not provide an additional east-west connection across SR 305, and does not improve access around the ferry terminal. Alternative 1 promotes several non-motorized goals and objectives since adopted non-motorized plans would be implemented. However, there would fewer connections than with Alternatives 2 or 3.

Summary of Alternative 1 Impacts

Under Alternative 1 (No Action Alternative), no intersections are expected to operate at LOS F while two intersections are expected to operate at LOS E. In addition, three intersections would experience queue lengths of 500 feet or more (approximately 20 vehicles). Queuing occurs generally in the northbound direction along the Madison Avenue N and SR 305 corridors with northbound Madison Avenue N queues expected to be excessive. Average travel speeds along all roadways are within standards with the exception of northbound SR 305, which is reflective of the ferry off-loading in the PM peak hour.

Parking under Alternative 1 would maintain existing parking requirements and separately owned parking lots would provide the primary parking for the ferry terminal. These lots would require separate entrances adding to motorists' confusion and conflicts with pedestrians and vehicles. On street parking would remain. There would be fewer incentives to redevelop surface parking lots under Alternative 1.

In terms of pedestrian and bicycle impacts, Alternative 1 provides fewer improvements than Alternatives 2 and 3, and may not fully alter existing conditions. Existing conditions are not conducive to pedestrian and bicycle travel within the Ferry Study Area. Narrow sidewalks and obstacles congest pedestrian travel or do not meet ADA requirements. Bicycles are required to mix with heavy vehicle volumes or cross traffic to enter left turn lanes. Within the Waterfront Study Area the abundance of sidewalks and trails provides for the flow of pedestrians and bicycles. The Gateway Study Area has a number of north-south corridors to facilitate pedestrian movements but lacks sidewalks and bicycle lanes. In the east-west direction, the Ravine restricts non-motorized movements from Vineyard Lane to commercial areas to the west and from the neighborhoods on either side of the Ravine.

Increased transit service is anticipated to result in increased queuing on Olympic Drive SE and storage on SR 305, north of Winslow Way E. This would affect the speed and reliability of the buses serving the ferry terminal. Ferry users would experience delays as a result of limited storage capacity of the existing holding area. This would result in significant queuing onto City streets in the AM peak hour.

Access and circulation within the analysis area are expected to remain consistent with the existing condition. Growth in residential and commercial land use by 2030 is anticipated to generate an increase in pedestrian and bicycle travel, therefore increasing the potential for conflicts with vehicles.

Alternative 2

Alternative 2 would modify Comprehensive Plan and zoning land use allowances, resulting in a moderate net increase in growth, particularly in selected locations in the Gateway and Ferry Study Areas for multifamily development, and mixed uses in the ferry terminal vicinity. More land would be designated for park and open space uses. Existing and future development would travel on a road network that provides for road and intersection improvements both within and outside of the analysis area; a gridded street system would be added to the ferry terminal area as part of a mixed use concept. With moderate growth levels, some intersections would experience additional congestion. There would be more non-motorized connections offering additional choices for pedestrians and bicycles. Transit levels would increase relative to existing conditions and transit vehicles would access a redeveloped ferry terminal. The effects of Alternative 2 on the road network, trips, traffic volumes, levels of service, travel speeds, parking, pedestrian and bicycle facilities, transit, and City goals and policies are described below.

Network Assumptions

Alternative 2 assumes all of the network improvements assumed for Alternative 1. Additional road network assumptions for Alternative 2 (Figure 2-5) would include additional SR 305 intersection improvements, maintaining the four-way stop at Ferncliff Avenue NE and Winslow Way E but with channelization improvements, and two-way circulation at the ferry terminal (Table 3.9-3).

Trip Distribution

Trip generation correlates with the intensity of development, and Alternative 2 would fall between Alternatives 1 and 3. The percentage of trips in each destination category (analysis area, Bainbridge Island, off-island) would also fall between Alternatives 1 and 3. Alternative 2 adds more employment to the Ferry and Gateway Study Areas, which would cause more trips to stay in the analysis area and less traffic to travel to external, off-island job locations.

Travel patterns for Alternative 2 would be similar to Alternative 1 with a slightly larger percentage of trips on Ferncliff Avenue NE (50% more than Alternative 1 to and from the north).

Traffic Volumes

For Alternative 2, the greatest increase in traffic compared to Alternative 1, both volume and percentage increase, would occur along Winslow Way E between SR 305 and Ferncliff Avenue NE. This roadway is forecasted to carry approximately 800 PM peak hour trips under Alternative 1 (No Action) and approximately 1,000 PM peak hour trips under Alternative 2, an increase of approximately 25%. Traffic volumes on SR 305 and Winslow Way E would be similar to volumes under Alternative 1 (Figure 3.9-7).

Intersection Level of Service

Under Alternative 2 a total of three intersections in the analysis area would operate below the City's adopted LOS standard (Table 3.9-8 and Figure 3.9-4).

- SR 305/Winslow Way E (LOS E)
- Ferncliff Avenue NE/Wing Point Way NE (LOS E)
- Hildebrand Lane NE/NE High School Road (LOS E)

The intersections at SR 305/Winslow Way E, Ferncliff Avenue NE/Wing Point Way NE, and Hildebrand Lane NE/NE High School Road are forecast to operate at LOS E; however, they all would fail to meet the adopted minimum LOS standard (LOS D) by average delays of less than 5 seconds. Monitoring measures are identified in a later mitigation section.

Under Alternative 2 the average PM peak hour traffic volumes along the studied roadway segments would operate within the planned capacity of the roadway network.

Queues

Alternative 2 would impact four intersections with queues greater than 500 feet for some movements. Alternative 2 would impact one intersection more than Alternative 1 and two less than Alternative 3a. Alternative 2 is forecast to have queues at Ferncliff Avenue NE/Winslow Way E that are unique to this alternative. See Table 3.9-9. Of note, the northbound queue at Madison Avenue N/NE High School Road would be significant and may spill back through several upstream intersections. This would occur across all future alternatives. Significant queue lengths generally indicate poor traffic operations along a corridor; however, they should be viewed in conjunction with other system performance measures to identify potential mitigation. Monitoring of these identified corridors is recommended.

Corridor Level of Service

In general, Alternative 2 would have comparable travel speeds and corridor LOS relative to all of the other alternatives as shown in Table 3.9-11. Only slight differences in corridor LOS are apparent. Only the northbound SR 305 corridor is expected to operate at LOS F and this is directly due to the effect of offloading ferry traffic and is consistent across all alternatives. All other analyzed corridors are expected to operate at LOS D or better. Note that due to the northbound queues at Madison Avenue N/NE High School Road, the corridor LOS for northbound Madison Avenue N is reflective of only the vehicles that travel the full length of the corridor.

Parking

Alternative 2 promotes alternative onsite parking standards and on street parking throughout the Ferry and Gateway Study Areas. In addition, at the ferry terminal, additional parking recommendations include structured parking concepts. These area-wide and locational features are described below. Parking requirements for Waterfront Park (Core District) would remain the same.

Under Alternative 2, residential parking standards would be retained in the Ferry and Gateway Study Areas. However, office uses (within mixed-use developments) would require a minimum of 2 spaces per 1,000 square feet; retail spaces would require a minimum of 2.5 spaces per 1,000 square feet; and restaurant uses would require a minimum of 4 spaces per 1000 square feet. These proposed standards are modified from current standards that require a minimum of 1 space per 1,000 square feet in the Ferry District and a minimum of 4 spaces per 1,000 square feet in the Gateway District. The alternative standards in conjunction with increased building heights for structured parking are intended to provide for shared parking opportunities and

incentives for structured parking. This would reduce the current amount of land devoted to surface parking lots.

Alternative 2 assumes future development of the ferry terminal area surface parking lots under a unified plan, which may involve land swaps and land purchases. In addition, a large sub grade parking structure is anticipated to be financed either by a private or public entity.

Specific quantities of parking demands and supplies are not identified for this planning level analysis and would be determined through project level environmental review as individual projects in the analysis area are developed. Alternative 2, in general, would have a different land use mix than Alternative 1 and would need fewer residential parking spaces and more commercial and office parking spaces. Alternative 2 projected levels of growth are much lower than Alternative 3, and thus Alternative 2 would have a lower parking demand.

Opportunities for shared parking may be feasible in areas with mixed-use development. Shared parking is when two or more land uses share the same parking spaces, particularly where persons utilizing the spaces are unlikely to need the spaces at the same time of day. As noted in the *Shared Parking Handbook* prepared for Metropolitan Portland (Stein Engineering 1997):

By taking into account different peak parking demands, shared parking areas reduce the total number of parking spaces required compared with simply adding together the parking requirements of each individual land use. The major benefit of shared parking is a reduction in the land devoted to parking, especially in the amount of paved surface, which preserves more land for green space or development density.

Thus Alternative 2 would provide for both added parking structures and shared parking between complementary uses, allowing a more urban mixed use form on the ferry terminal property and elsewhere in the Ferry and Gateway Study Areas.

Pedestrian and Bicycle Mobility

Under Alternative 2, pedestrian and bicycle improvements to the Ferry Study Area would include an Olympic Drive SE pedestrian overpass at the intersection with Harborview Drive SE, including an elevator on the west side, a sidewalk along the west margin of the ferry terminal site, and a sidewalk from the terminal along the east side of Olympic Drive SE to Winslow Way E. Crosswalks would be available on all four legs of the Olympic Drive SE and Winslow Way E intersection. Bicycle improvements would include bicycle lanes along both sides of Olympic Drive SE and a center bicycle lane for northbound bicycles turning left at Winslow Way E. Sidewalks would also be constructed along both sides of Ferncliff Avenue NE. In the Waterfront Park Study Area existing trails would be improved (Table 2-3) and

connections within the park would be modified as the layout of park and recreation facilities changes, but no new connections to or from the park would be provided.

Also under Alternative 2 three multiuse trails would be constructed in the Gateway Study Area (Figure 3.9-5). These east-west paths would run along the Wallace Way NE (Route 7), Knechtel Way NE (Routes 5 and 6), and Wyatt Way NE (Route 8) street alignments between Ericksen Avenue NE and Ferncliff Avenue NE. All three east-west trails would cross SR 305 with a new pedestrian overpass at each location. The Wyatt Way NE alignment would follow the Ravine rim after crossing SR 305 (Figure 2-5).

A recreational trail would be constructed along the Ravine rim from Winslow Way E to NE High School Road (Trail B, Figure 2-7), and another would be located north of Cave Avenue NE (Trail A, Figure 2-7).

Alternative 2 routes are described below in terms of access, mobility, safety, and design (Figure 3.9-5). The topography along the Ravine crossings is depicted in Appendix D.

Access. Under Alternative 2 pedestrian access routes in the northern Ferry Study Area would be modified slightly in existing corridors. On the ferry terminal site itself, the gridded street system of the proposed mixed-use development would allow for more internal movement on sidewalks and paseos (public places or paths designed for walking). Access to the ferry terminal would be improved from the Waterfront trail with the installation of a pedestrian overpass linking the trail to the terminal near its southern terminus. In the Waterfront Park Study Area existing trails would be improved (Table 2-3) and connections in the park could be modified with the new layout of park and recreation facilities, but no new connections are proposed.

Under Alternative 2, ferry terminal access from the Gateway Study Area would be slightly improved with new sidewalks on Cave and Ferncliff Avenues NE and a rim trail linking to Cave Avenue NE. Alternative 2 would provide greater connectivity than Alternative 1.

Direct access would be provided from Vineyard Lane developments to neighborhoods to the east (Routes 5 to 8). On the west, the key difference between Alternative 2 and Alternative 1 is that the distance to commercial centers on a *paved* route would be 1,200 feet under Alternative 2 (Route 2) instead of 4,200 feet under Alternative 1 (Route 3).

Alternative 2 would enhance access outside the Gateway Study Area between neighborhoods and commercial centers on the west side of SR 305 and neighborhoods on the east side with Ravine crossings by providing more route choices and shorter distances between Gateway and commercial destinations (Routes 5 to 8).

Mobility. Under Alternative 2 mobility in the Ferry Study Area would be improved by alternative pedestrian routes, elevators, improvements to walking surfaces, and elimination of obstacles. Crosswalk revisions at the Olympic Drive SE and Winslow Way E intersection would reduce pedestrian crossing distances and improve waiting areas. Also the linking of Waterfront trail to the ferry terminal via stairs, elevator and pedestrian overpass will reduce the effect of the elevation gain from the intersection of the trail and Harborview Drive SE. New sidewalks throughout the ferry terminal area would remove obstacles to pedestrian movements. Bicycles, as they exit the terminal and travel north will share roadways leading to Cave and Ferncliff Avenues NE as compared to existing conditions where they weave through the ferry parking lots. In the Waterfront Park Study Area, mobility is not expected to change significantly.

Under Alternative 2 mobility in the Gateway Study Area would vary by route, as a function of elevation gains and walking surfaces. In general, elevation gains would be slightly less than under Alternative 1. Trail surfaces west of SR 305 would likely be paved and east of SR 305 trail surfaces may be pervious, except at the Ravine crossings.

Safety. Under Alternative 2 safety in the Ferry Study Area would be improved by eliminating the pedestrian surface crossing of Olympic Drive SE at Harborview Drive SE, by installing bicycle lanes along both sides of Olympic Drive SE, and by providing a northbound left turn lane for bicycles on Olympic Drive SE.

Safety in the Gateway Study Area would vary by route. The construction of SR 305 overpasses would eliminate surface crossings of this roadway and the need to walk along the shoulders.

Design. Under Alternative 2 in the Ferry Study Area all sidewalks and walkways would be widened to more easily accommodate the high pedestrian volumes. In the Waterfront Park Study Area trail improvements would be designed to meet City standards and ADA requirements.

In the Gateway Study Area new sidewalks would meet city standards and all trails would be constructed 10-feet wide. The length and height of structures required for the new east-west trails would vary by route. The longest structure over SR 305 would be along Wallace Way NE (Route 7). The shortest Ravine overpass would be along the Wallace Way NE route and would also be the shortest height.

In summary, under Alternative 2 the proposed non-motorized improvements in the Gateway Study Area would shorten travel distance between neighborhoods on the east side of the Ravine, and between neighborhoods on either side of SR 305. Pedestrian and bicycle trips to the south and the City business core would be adequately served by Ferncliff Avenue NE or the Ravine trail. All of the crossings would improve safety by elevating the crossing of SR 305 and paving the dirt

footpaths to Ericksen Avenue NE. Alignments under Alternative 2 would have similar elevation gains. The crossing with the fewest design issues is the Wallace Way NE alignment, which has the shortest Ravine crossing distance. The SR 305 crossing structures for all of the alignments could be shortened by the use of fills.

It is likely that construction of the Ravine crossings will need to be phased over time. In this case selecting the first one to be constructed will require a more in depth analysis of each crossing and evaluation of a number of factors. Based on the factors evaluated in this report the suggested order of construction would be Wallace Way NE followed by Knechtel Way NE and then Wyatt Way NE.

Transit Service

Alternative 2 would separate transit access into two points of access: north-island and off-island routes would access the ferry terminal from Olympic Drive SE, while buses serving local routes would access via Cave Avenue NE and Ferncliff Avenue NE (ingress via Cave Avenue NE and egress via Ferncliff Avenue NE). It is expected that adequate storage for all buses serving the ferry terminal will be provided on-site. For Alternative 2, a new traffic signal at Olympic Drive SE and Harborview Drive SE would improve transit operations through transit priority signal timing. The local circulator buses using Cave Avenue NE and Ferncliff Avenue NE would benefit by not having to compete with off-loading ferry traffic, which is expected to improve both transit and off-loading ferry traffic operations.

Ferry Service

For Alternative 2 the ferry terminal building and passenger loading ramp would be rebuilt to accommodate the projected 2030 passenger volume and meet building code requirements. Compared to Alternative 1, Alternative 2 would provide a safer and more efficient facility and better service. The increased vehicle holding area would contain nearly all of the queue of waiting vehicles and would not significantly impact City traffic operations.

Consistency with Goals and Objectives

Alternative 2 is consistent with policies TR 4.8 and TR 7.2 by improving pedestrian, bicycle, and transit access to the ferry terminal and improving non-motorized connections across SR 305. Alternative 2 would support a number of non-motorized goals primarily by providing connectivity between neighborhoods, Winslow, the ferry terminal, schools, parks and recreations areas (e.g. policies NM 1.1, NM 1.4, and NM 1.10). The improvements under Alternative 2 also support NM 1.3 by providing bicycle facilities that accommodate commuters and recreational users. However, this alternative does not support Goal NE 1.11 to provide separated multiuse paths along the SR 305 corridor. Lastly, NM 3.4 is supported by improving existing crossings of SR 305 at Winslow Way E, Harborview Drive SE, and Waterfront trail at the ferry terminal.

Summary of Alternative 2 Impacts

Under Alternative 2 three intersections are expected to operate at LOS E. Queues of 500 feet or more are expected to occur at one more intersection in addition to the three identified for Alternative 1. As in Alternative 1, SR 305 and Madison Avenue N corridors are expected to experience queuing, with northbound Madison Avenue N queues expected to be excessive. More queuing is also expected on Winslow Way E and NE High School Road between Ferncliff Avenue NE and SR 305, which is reflective of the increased traffic volumes in that corridor. Average travel speeds are consistent with Alternative 1.

Alternative 2 will reduce development parking requirements. The parking demand will be satisfied through shared parking which is possible when multiple land uses are combined in one development. Parking at the ferry terminal would be improved by constructing one structure to satisfy demand and restrict the number of access points. On street parking in all of the study areas would be maintained and expanded where feasible.

Under Alternative 2, access to the ferry terminal would be improved from the Waterfront trail with the installation of a pedestrian overpass linking the trail to the terminal near its southern terminus. In the Waterfront Park Study Area existing trails would be improved. The proposed non-motorized improvements in the Gateway Study Area would shorten travel distance between neighborhoods on the east side of SR 305 and the commercial areas, and between neighborhoods on either side of SR 305. All of the crossings would improve safety by elevating the crossing of SR 305 and paving the dirt footpaths to Ericksen Avenue NE. It is likely that construction of the Ravine crossings will need to be phased over time. In this case selecting the first one to be constructed will require a more in depth analysis of each crossing and evaluation of a number of factors. Based on the factors evaluated in this report the suggested order of construction would be Wallace Way NE followed by Knechtel Way NE and then Wyatt Way NE.

Transit operations are anticipated to experience improved operations as compared to Alternative 1 due to increased bus storage capacity and transit priority signal timing. Ferry users would experience improved operations due to increased holding area capacity.

Alternative 2 would remove driveways along Olympic Drive SE to improve off-loading ferry traffic operations and safety. In addition, access management along Winslow Way E from Ferncliff Avenue NE to SR 305 would be implemented by consolidating driveways to defined points of access. This would improve safety by reducing the potential for conflicting vehicle turning movements and improve traffic flow on Winslow Way E.

Alternative 3

Alternative 3 would modify Comprehensive Plan and zoning land use allowances, resulting in a higher increase in growth in more locations than Alternatives 1 and 2, but similarly focusing on multifamily and mixed use development. Existing and future development would travel on a road network that provides for a greater number of road and intersection improvements both within and outside of the analysis area. New vehicular connections would cross the upper and lower Ravine at Wyatt Way NE and at Harborview Drive SE, and a gridded street system would be added to the ferry terminal area as part of a mixed use concept. With higher growth levels, some intersections would experience additional congestion, although spread over the greater number of road connections. There would be greater non-motorized connections offering additional choices for pedestrians and bicycles, similar to Alternative 2. Transit levels are anticipated to increase relative to existing conditions, and transit vehicles would access a redeveloped ferry terminal. The effects of Alternative 3 on the road network, trips, traffic volumes, levels of service, travel speeds, parking, pedestrian and bicycle facilities, transit, and City goals and policies are described below.

Network Assumptions

Alternative 3 (Figure 2-6) would provide the greatest number of additional connections of the three alternatives, and would add the following improvements beyond Alternative 1: SR305/Winslow Way E intersection improvements; a signal at Ferncliff Avenue NE and Winslow Way E; and new road connections between Cave Avenue NE and Ferncliff Avenue NE, Wyatt Way NE across the Ravine, and Harborview Drive SE over the Ravine estuary (Table 3.9-3).

Trip Distribution

Alternative 3 would generate the highest levels of traffic, as it would support the greatest density and level of development. This alternative includes a greater mix of land uses. Mixed-use development would encourage internal trips and support more pedestrian and non-motorized activity. Alternative 3 would have the highest percentage of traffic connecting in the analysis area, as compared with the other Alternatives (Table 3.9-5). Alternative 3 would have a slightly lower percentage of traffic connecting to external locations off of Bainbridge Island.

Similar to Alternatives 1 and 2, most traffic under Alternative 3 would use Ferncliff Avenue NE. Many of these trips would use the new extension of Wyatt Way NE from Ericksen Avenue NE to Ferncliff Avenue NE. This new connection would provide a viable parallel east-west corridor in addition to Winslow Way E and NE High School Road.

Traffic Volumes

Alternative 3 proposes two options connecting Wyatt Way NE between Ericksen and Ferncliff Avenue NE: Alternative 3a would provide a new roadway connection, and Alternative 3b would provide a bicycle/pedestrian connection. The traffic volumes associated with Alternative 3a and Alternative 3b are shown in Figures 3.9-8 and 3.9-9, respectively.

The greatest increase in traffic volumes for Alternatives 3a and 3b would occur along Ferncliff Avenue NE, which is forecast to carry approximately 630 PM peak hour trips under Alternative 1, approximately 820 PM peak hour trips under Alternative 3a, and approximately 765 PM peak hour trips under Alternative 3b, an increase of approximately 20 to 30% over Alternative 1.

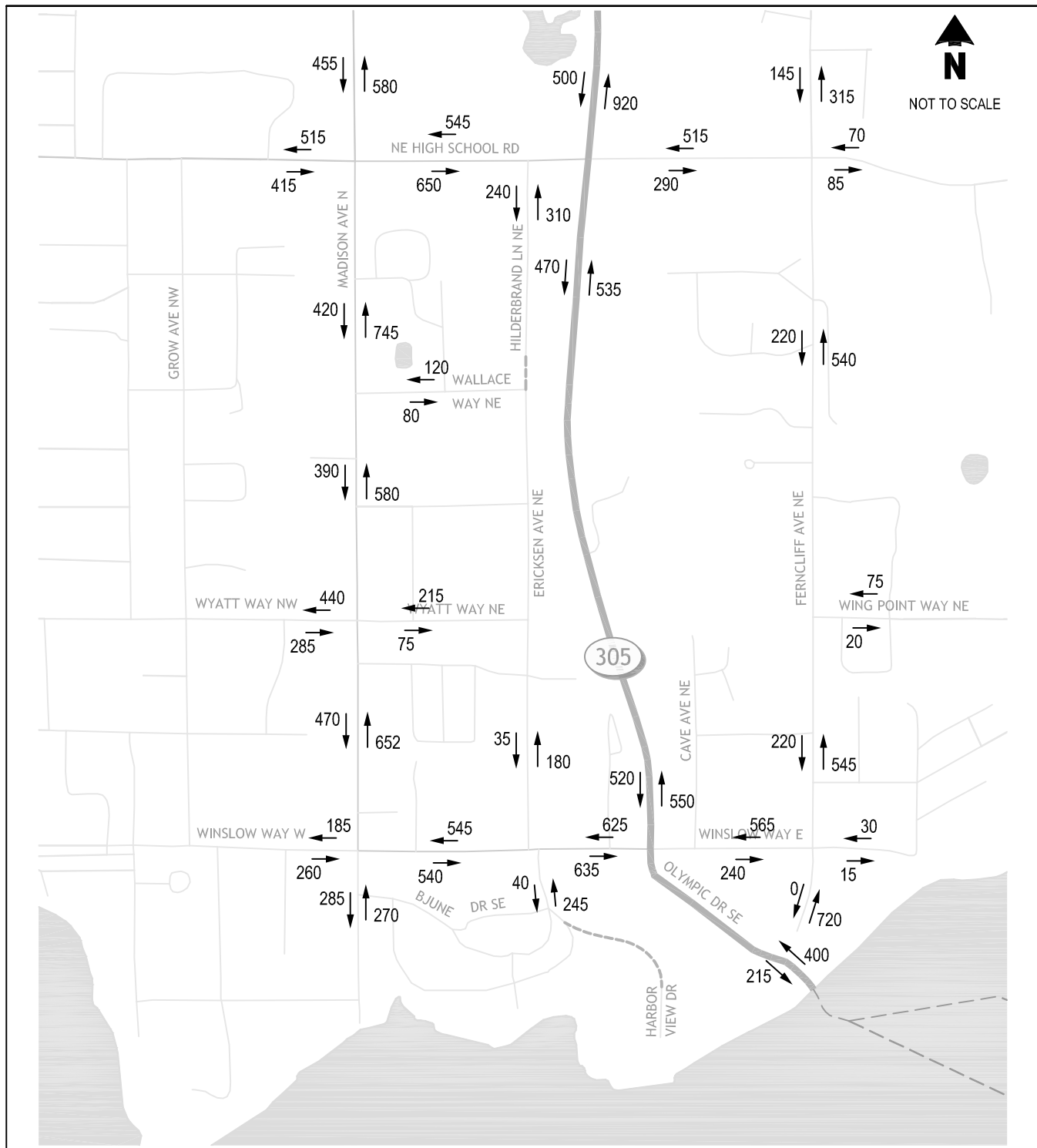
The addition of the Wyatt Way NE connection would result in shifts of traffic from existing roadways to the new roadway connection. Traffic primarily shifts from NE High School Road and Winslow Way E.

Under Alternatives 1 and 3b, NE High School Road is expected to carry 790 and 805 PM peak hour vehicles, respectively. Under Alternative 3a NE High School Road is expected to carry 675 vehicles. This represents a shift of approximately 70 to 115 vehicles. Under Alternatives 1 and 3b, Winslow Way E is expected to carry 1,015 and 1,085 PM peak hour vehicles, respectively. Under Alternative 3a Winslow Way E is expected to carry 925 vehicles. This represents a shift of approximately 90 to 160 vehicles.

Finally, under Alternatives 1 and 3b, Wyatt Way NE is expected to carry 295 and 290 PM peak hour vehicles, respectively, while under Alternative 3a Wyatt Way NE is expected to carry 645 vehicles. This demonstrates how east-west oriented traffic along NE High School Road and Winslow Way E shift to the Wyatt Way NE connection under Alternative 3a.

Intersection Level of Service

Alternatives 3a and 3b would generate the highest levels of traffic of the Alternatives, but assume different connections. Under Alternatives 3a, only the Ferncliff Avenue NE/Wing Point Way NE intersection (LOS F) would fail to meet the City's minimum LOS D standard (Table 3.9-8 and Figure 3.9-4). The intersection at Ferncliff Avenue NE and Wing Point Way NE would operate at LOS F due mainly to the new extension of Wyatt Way NE from Ericksen Avenue NE to Ferncliff Avenue NE.



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Figure 3.9-9 - Alternative 3b Weekday 4:45 - 5:45 PM Traffic Volumes
Bainbridge Island Ferry/Gateway District and Waterfront Park
September 2007

Under Alternative 3b, three intersections would fail to meet the City's minimum LOS D standard (Table 3.9-8 and Figure 3.9-4):

- SR 305/Winslow Way E (LOS E)
- Ferncliff Avenue NE /Wing Point Way NE (LOS F)
- Hildebrand Lane NE/NE High School Road (LOS E)

The intersections at SR 305/Winslow Way E and Hildebrand Lane NE/NE High School Road would operate at LOS E; however, they both would fail to meet the LOS standard (LOS D) by an average delay of less than 5 seconds. The intersection at Ferncliff Avenue NE and Wing Point Way NE would operate at LOS F due to the high northbound traffic volumes on Ferncliff Avenue NE.

These intersections can be improved to meet the City's LOS standard through the measures identified in a later mitigation section.

Under Alternatives 3a and 3b, the average PM peak hour traffic volumes along the studied roadway segments would operate within the planned capacity of the roadway network.

Queues

Vehicle queues greater than 500 feet are expected at six intersections under Alternative 3a and at four intersections under Alternative 3b (Table 3.9-9). Alternative 3a would impact three intersections more than Alternative 1 and two more than Alternative 2.

Alternative 3b would impact four intersections, similar to Alternative 2. Alternative 3b would impact one more intersection than Alternative 1. Unlike the other alternatives, Alternative 3b is projected to impact Ferncliff Avenue NE/NE High School Road with northbound queues.

Of note, the northbound queue at Madison Avenue N/NE High School Road is significant and may spill back through several upstream intersections. This would occur for all future alternatives. Significant queue lengths generally indicate poor traffic operations along a corridor; however, they should be viewed in conjunction with other system performance measures to identify potential mitigation. Monitoring of these identified corridors is recommended.

Corridor Level of Service

In general, Alternative 3 would have comparable travel speeds and corridor LOS relative to all of the other alternatives as shown in Table 3.9-11. Only slight differences in corridor LOS are apparent. Only the northbound SR 305 corridor is expected to operate at LOS F and this is directly due to the effect of offloading ferry traffic and is consistent across all alternatives. All other analyzed corridors are expected to operate at LOS D or better. Note that due to the northbound queues at

Madison Avenue N/NE High School Road, the corridor LOS for northbound Madison Avenue N is reflective of only the vehicles that travel the full length of the corridor.

Parking

Similar to Alternative 2, Alternative 3 promotes alternative onsite parking standards and on street parking throughout the Ferry and Gateway Study Areas. In addition, at the ferry terminal, additional parking recommendations include structured and sub grade parking under a unified concept. Parking requirements for Waterfront Park and the Core District would remain the same.

Specific quantities of parking demands and supplies are not identified for this planning level analysis and would be determined through project level environmental review as individual projects in the analysis area are developed. With greater growth levels than Alternatives 1 or 2, it is expected that the parking demand would be higher overall under Alternative 3. However, shared parking concepts would apply, similar to Alternative 2.

Much of the parking for Alternative 3 would be provided through a combination of parking garages and some surface parking. This alternative would provide the densest levels of mixed-use development; because of the density of use, parking garages could be more easily accommodated and would be feasible for developers to build. Accommodating parking in garages, either as part of a development or as a stand-alone garage, provides for a more efficient use of land, allows for more developable area, a more pedestrian oriented environment, and often has less impact on the environment. Alternative 3 also provides the greatest mix of land use, which could provide opportunities to share parking between uses.

Pedestrian and Bicycle Mobility

Under Alternative 3 pedestrian and bicycle improvements to the Ferry Study Area would also be the same as under Alternative 2, but Alternative 3 would also install a pedestrian underpass on the south side of the Olympic Drive SE and Winslow Way E intersection, would eliminate the east-west crosswalks at the intersection of Winslow Way NE and Olympic Drive SE and would replace stairs with ramps at the Harborview Drive SE pedestrian overpass.

In the Waterfront Park Study Area, Harborview Drive SE would be realigned to cross the Ravine estuary and connect with Bjune Drive SE.

Under Alternative 3 pedestrian and bicycle trails in the Gateway Study Area would be comparable to those under Alternative 2, except the Wyatt Way NE alignment would be straight after crossing SR 305 rather than following the rim of the Ravine. In addition there would be either a multiuse trail (Alternative 3b) or a roadway constructed with sidewalks and bicycle lanes (Alternative 3a).

The routes are described below in terms of access, mobility, safety, and design (Figure 3.9-5). The topography of potential Ravine crossings is depicted in Appendix D.

Access. Under Alternative 3 access in the Ferry Study Area would change slightly as compared with Alternative 2. The removal of crosswalks at the Olympic Drive SE and Winslow Way E intersection will require pedestrians traveling in an east–west direction to travel south along Olympic Drive SE to gain access to the underpass. The gridded street system and paseos would be similar to those under Alternative 2. Alternative 3 would provide the same pedestrian and bicycle access points in the Waterfront Park Study Area as Alternative 2.

Under Alternative 3 access outside the Gateway Study Area between neighborhoods and commercial centers on the west side of SR 305 and neighborhoods on the east side would be enhanced with the more direct connection along Wyatt Way NE to Wing Point Way NE than under Alternative 2. Ferry terminal access from the northern portion of the Gateway Study Area would be provided by the southbound SR 305 shoulder, the completed Ravine trail, or a new trail linking the Wallace Way NE, Knechtel Way NE, and Wyatt Way NE alignments with a new trail to Cave Avenue NE.

In the Gateway Study Area the alternative route lengths would remain the same as under Alternative 2, with the exception that Route 9 along Wyatt Way NE would be approximately 300 feet longer, then Route 8. The more direct route to Wing Point Way NE offsets the additional length.

Mobility. Under Alternative 3 mobility would be enhanced in the Ferry Study Area with a second crossing of Olympic Drive SE and by installing ramps at the Harborview Drive SE overpass. However pedestrians traveling along Winslow Way E would be required to descend to the underpass level when crossing Olympic Drive SE and ascend back to street level, and elevation gain of approximately 25 to 30 feet. In the Waterfront Park Study Area the construction of the Waterfront trail would likely result in reduced grades for pedestrians climbing from the estuary to Bjune Drive SE, as the roadway profile would use a reduced grade over a longer distance than the existing trail’s steep pitches that follow the existing topography.

Under Alternative 3 mobility in the Gateway Study Area would be similar to Alternative 2 with the exception of Wyatt Way NE.

The proposed Wyatt Way NE pedestrian/bicycle connection (Alternative 3b, considered similar in elevation to Route 8 under Alternative 2) would require an additional 15 feet of elevation gain compared to a roadway connection (Alternative 3a) since the elevation would likely be smaller and the grades less steep when constructing a roadway. Walking surfaces on Route 9 would be the same as Route 8,

except if the roadway connection were included as part of Route 9, it is likely that the pedestrian and bicycle connections east of SR 305 would be paved.

Safety. Under Alternative 3 safety in the Ferry Study Area would appear to be improved over Alternative 2 by eliminating pedestrian crossings in the south crosswalk at the intersection of Winslow Way E and Olympic Drive SE. However, requiring pedestrian traffic to reroute to the underpass may lead to pedestrians illegally crossing Olympic Drive SE. In the Waterfront Park Study Area pedestrian safety would be improved as the new Harborview Drive SE connection to Bjune Drive SE. The new roadway alignment would eliminate some pedestrian crossings of Harborview Drive SE and would improve the visibility of pedestrians at the Waterfront trail crossing.

In the Gateway Study Area safety would be similar to Alternative 2.

Design. Under Alternative 3 the pedestrian underpass in the Ferry Study Area would be constructed with a minimum width of 10 feet, and new sidewalks along the relocated Harborview Drive SE will be constructed with a minimum width of 5 feet.

Under Alternative 3 the design elements within the Gateway Study Area would remain the same as Alternative 2.

In summary, the relative effectiveness of east-west crossings of the Ravine is similar under Alternatives 2 and 3. The Olympic Drive SE underpass would make pedestrian travel along Winslow Way E more difficult.

Transit Service

Alternatives 3a and 3b would have a similar transit access configuration as Alternative 2, with the addition of a new traffic signal at Ferncliff Avenue NE and Winslow Way E. This new signal would improve transit operations through transit priority signal timing.

Ferry Service

Alternative 3 would have the same ferry facility improvements as Alternative 2, and would show the same improvement in service and operations.

Consistency with Goals and Objectives

The goals and objectives analysis for Alternative 2 is largely applicable to Alternatives 3 a and b. Alternative 3 is potentially inconsistent with TR 2.1 to minimize impacts on environmentally sensitive areas because it would cross the Ravine estuary (Alternatives 3a and 3b) and the Ravine along the Wyatt Way NE alignment (Alternative 3a). Alternative 3a is consistent with TR 4.1 to improve connectivity and emergency response times because it would provide an additional connection across the Wyatt Way NE alignment, and both Alternatives 3a and 3b would potentially improve emergency response times to incidents on Harborview

Drive SE as emergency response vehicles would be removed from potential congestion around the ferry terminal. Under Alternative 3a, the Wyatt Way NE connection would also conform to TR 4.8 by providing an additional connection across SR 305. A grade-separated crossing over SR 305 would reduce traffic impacts from ferry arrivals or departures.

The evaluation of non-motorized goals and objectives completed for Alternative 2 is applicable to Alternatives 3a and 3b.

Summary of Alternative 3 Impacts

Under Alternative 3a, one intersection would not meet the City's LOS D standard. Under Alternative 3b three intersections would not meet the City's LOS D standard with only one of those three operating at LOS F. There are six intersections under Alternative 3a and four intersections under Alternative 3b with average queue lengths of 500 feet or greater. Average corridor speeds would be similar to Alternative 1. Alternative 3 would provide improved transit operations as compared to the other alternatives.

Alternative 3 would reduce parking code requirements. The parking demand would be satisfied through shared parking which is possible when multiple land uses are combined in one development. The parking demand would be higher than Alternative 2 commensurate with the higher land use densities. Because of the expected use intensity, parking garages could be more easily accommodated. Parking at the ferry terminal would be improved by constructing one structure to satisfy demand and restrict the number of access points. On street parking in all of the study areas would be maintained and expanded where feasible.

The relative effectiveness of east-west non-motorized crossings of the Ravine is comparable under Alternative 2 and Alternative 3. The Olympic Drive SE underpass would make pedestrian travel along Winslow Way E more difficult.

Transit and ferry terminal impacts would be similar to Alternative 2. Transit operations would improve compared to Alternative 1 due to increased bus storage capacity and transit priority signal timing. Ferry users would experience improved operations due to increased holding area capacity.

Alternatives 3a and 3b would implement a one-way couplet system for the ferry terminal area: Cave Avenue NE would become a one-way street southbound (south of Winslow Way E) and Ferncliff Avenue NE would become a one-way street northbound (south of Winslow Way E; see Appendix D). The result of this one-way configuration would improve circulation and safety by reducing the potential for conflicting vehicle turning movements. Access to the site would be reduced by prohibiting two-way operations. Traffic volumes on eastbound Winslow Way E would be reduced while westbound traffic would experience an increase as vehicles

access the one-way southbound Cave Avenue NE. This would result in increased westbound left-turn queuing at Cave Avenue NE and Winslow Way E.

3.9.3. Mitigation Measures

A preliminary evaluation of mitigation measures to reduce potential significant adverse environmental impacts on transportation was completed at a planning level. At this stage of the planning process, the improvements have not been evaluated in detail, nor have feasibility or cost analyses been completed. In general, mitigating impacts to the transportation system can be addressed through improvements that add capacity, measures that reduce travel demand, or through adopting new policies that allow for higher levels of congestion.

Incorporated Plan Features

Road Network

Alternative 1 would implement programmed road network improvements consistent with Table 3.9-2. Alternatives 2 and 3 would additionally provide for road network improvements beyond Alternative 1 to improve mobility and support growth to meet the community vision, as identified in Table 3.9-3.

Alternative Modes of Transportation

Mixed-use development supported by all alternatives, and particularly Alternatives 2 and 3, is expected to provide a more pedestrian-oriented environment, and could provide opportunities to share parking between uses.

Alternative 1 would implement adopted non-motorized plans, with some new connections such as north of Cave Avenue (Trail A, Figure 2-7), and would implement interim ferry terminal pedestrian and bicycle improvements. Alternatives 2 and 3 would include Alternative 1 improvements and plan for more non-motorized connections for pedestrians and bicycles, as follows:

- East-west connections – upper Gateway Study Area: Wallace Way NE, Knechtel Way NE, and Wyatt Way NE
- North-south connections – upper Gateway Study Area: Ravine rim trail between Winslow Way E to Wallace Way NE (Trail B, Figure 2-7)
- Waterfront Park: Improved pedestrian/bicycle bridge from Gateway Study Area to Waterfront Park and trail improvements to improve accessibility (Table 2-3).

Non-motorized facilities would be designed to meet ADA and other appropriate standards.

The improvements and expansion of pedestrian and bicycle facilities under all alternatives would encourage a mode shift from autos to walking or biking.

As part of the Bainbridge Island Ferry Terminal project other possible improvements are being analyzed. Each one includes separated transit areas with the following access configurations:

- Transit ramps on Olympic Drive SE for all transit routes
- Transit access for off-island transit routes via the Cave Avenue NE/Winslow Way E intersection, and access for on-island transit routes via the Ferncliff Avenue NE/Winslow Way E intersection
- Transit ingress access via the Ferncliff Avenue NE/Winslow Way E intersection, egress for off-island transit routes via a bus ramp on Olympic Drive SE, and egress for on-island transit routes via the Ferncliff Avenue NE/Winslow Way E intersection.

Applicable Regulations and Commitments

City plans and policies will guide future improvements and development projects, including LOS standards, priorities for connectivity and mobility improvements, and other factors. A partial list of policies is included in Section 3.9.1.

The City has adopted a Commute Trip Reduction Program, codified in BIMC Chapter 10.24. Its purpose is to promote alternative commute modes, reduce the number of single-occupant vehicle commute trips and vehicle miles traveled to help reduce traffic congestion, automobile-related air pollution, and energy use in the City. It applies to businesses with at least 100 employees.

The City has adopted and codified a Transportation Concurrency Ordinance in BIMC15.32. The purpose of the ordinance is to review development applications and confirm that adequate transportation improvements or strategies needed to maintain adopted LOS standards are in place at the time of development, or that a financial commitment is in place to provide the improvements or strategies within six years.

The City's design and construction standards and specifications will apply to construction within the public right-of-way.

At the time of site-specific developments, the City may condition projects through SEPA review.

Other Potential Mitigation Measures

To mitigate impacts to intersection operations, the following potential mitigation measures should be considered:

- Alternatives 1, 2, and 3 would result in some intersections projected to perform at LOS E. As all intersections projected to operate at LOS E are forecast to exceed the threshold by five seconds or less, and due to the programmatic nature of forecasting potential growth and conditions, it is recommended that these

intersections be monitored for potential noncompliance with the LOS threshold. The City could accomplish monitoring through the concurrency or SEPA process for site specific development, or through periodic study, such as in conjunction with any area-wide studies or with a traffic count program. Through regular monitoring and more information, the City may determine that impacts are or are not likely and the best course of mitigation.

- Alternative 3 would result in a LOS designation of F at Ferncliff Avenue NE/Wingpoint Way NE. To achieve the adopted LOS D, a signal or roundabout could be installed. A roundabout is preferred. Specific design details would be determined with project level environmental review.

These measures would improve intersection operations so that these intersections would meet the City's LOS standards under all alternatives.

An alternative approach would be to modify the City's LOS standard to reflect the City's desired improvements, available revenues, and growth levels.

Alternative mode measures could include consideration of a bus by-pass lane to the ferry terminal. Such a measure could be evaluated in more site-specific studies conducted by WSF or others.

3.9.4. Significant Unavoidable Adverse Impacts

Implementation of Alternatives 1, 2, or 3 will result in increased traffic in the City, with Alternatives 1 and 2 supporting comparable increases and Alternative 3 supporting the largest increase. Although the effects of additional vehicles on traffic congestion can be mitigated to meet City standards through the recommended roadway and alternative mode improvements, the actual increase in traffic is considered a significant unavoidable adverse impact. The combination of recommended roadway improvements that the City selects will reflect a balance between desired efficiency improvement, policy decisions, and available revenue.

Based on an evaluation of access, mobility, safety and design of the proposed non-motorized improvements, no significant unavoidable adverse impacts are anticipated.