SWIFT BUS RAPID TRANSIT PROJECT

SR-99 between Everett Station and the Aurora Village Transit Center

SEPA Environmental Checklist

Prepared for:

OTAK
Community Transit

May 2008

ESA Adolfson

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ENVIRONMENTAL CHECKLIST

A. BACKGROUND

1. Name of the proposed project:

Swift Bus Rapid Transit (BRT)

2. Name of Applicant:

Snohomish County Public Transportation Benefit Area Corporation (Community Transit)

3. Address and telephone number of applicant and contact person:

John Anthony, BRT Implementation Manager
Community Transit
7100 Hardeson Road
Everett, WA 98203
Telephone: (425) 348-7100

4. Date checklist prepared:

May 27, 2008

5. Agency requesting checklist:

Community Transit is the SEPA lead agency for the proposed action.

6. Proposed timing or schedule (including phasing, if applicable):

Construction of the *Swift* BRT system is scheduled to begin in October 2008, with operation expected to begin in September 2009. Construction of station locations will occur along Pacific Avenue, Rucker Avenue, Evergreen Way, and State Route (SR) 99.

Site work at each station location will consist of construction of the transit platform and access ramps, and installation of barrier and boundary railings, shelters and amenities, ticket vending machines, card readers, lighting, and variable-message signing. Construction is expected to occur between October 2008 and late June 2009.

It is assumed that for a pair of intersections (four stations) all site construction can be completed in two weeks, not including erection of the shelter and amenities. Overall, an eight-month construction period is envisioned, with the first six months focused on completing the site and concrete work for all stations, and the

last two months focused on erecting the shelters and amenities. Community Transit prefers to install the shelters near the start of *Swift* BRT service.

7. Plans for future additions, expansion, or further activity related to or connected with this proposal:

The traffic analysis for *Swift* BRT (Mirai, 2008) identified a range of traffic strategies that, while not required for operation of *Swift* BRT, will enhance transit operations if implemented in the future. Potential enhancements include increased use of Traffic Signal Priority (TSP) for transit; intersection queue jump or bypass; and provision of a continuous dedicated Business Access and Transportation (BAT) lane throughout the corridor. Such enhancements will provide increased system efficiency, streamlined travel through the corridor, and better pedestrian access to the stations. Traffic improvements could include additional crossing treatments to improve pedestrian access to bus stations and construction of queue bypass lanes by modifying traffic islands. Queue bypass lanes allow transit to avoid waiting with general traffic to get through a congested intersection by using right-turn-only lanes or bypass lanes. Other traffic improvements could include changing lane configurations and signal controls to provide queue jumps for transit. A queue jump is a signal phasing modification that gives transit the right-of-way through a signalized intersection.

If implemented in the future, traffic improvements will be subject to separate review under SEPA. However, many potential enhancements identified to date may be exempt from future SEPA review, such as signal modifications and other minor roadway improvements. Other enhancements may require future SEPA action, such as construction of new BAT lanes where new right-of-way acquisition is necessary.

8. Environmental information that has been prepared, or will be prepared, directly related to this project:

- Community Transit *Swift* Bus Rapid Transit Project Flow Control and Water Quality Treatment Requirements memorandum, Otak, February 2008. Attached as Appendix A.

- Draft *Swift* Bus Rapid Transit Project SR-99 between Everett Station and the Aurora Village Transit Center: Land Use, Aesthetics, and Environmental Justice Technical Memorandum, ESA Adolfson, April 2008. Attached as Appendix B.

- Cultural Resources Assessment for the *Swift* Bus Rapid Transit Project, Snohomish County, WA, Cultural Resources Consultants, Inc., February 25, 2008. Attached as Appendix C.

- *Swift* Bus Rapid Transit Implementation Traffic Report, Mirai Transportation Planning and Engineering, April 2008. Attached as Appendix D.

- SR-99 Corridor Bus Rapid Transit Planning Study, Mirai Associates, IBI Group, VIA Suzuki Architecture, December 2004.

9. Applications that are pending for governmental approvals or other proposals directly affecting the property covered by the proposal:

There are no other known pending government approvals related to the proposal or that will directly affect the *Swift* BRT station locations.

10. List of governmental approvals or permits that will be needed for the proposal:

- Right-of-Way Use permits – City of Everett, Snohomish County, City of Lynnwood, City of Edmonds, and City of Shoreline

- Building permits – City of Everett, Snohomish County, City of Lynnwood, City of Edmonds, and City of Shoreline

- Electrical permits – Washington Department of Labor and Industries with inspections and/or coordination by City of Everett, Snohomish County PUD, City of Lynnwood, City of Edmonds, and City of Shoreline

11. Brief, complete description of the proposal, including the proposed uses and the size of the project and site:

Project Description

Community Transit is proposing to operate *Swift* BRT service between Everett Station and the Aurora Village Transit Center along Pacific Avenue, Rucker Avenue, Evergreen Way, and State Route SR-99.

The *Swift* BRT system will operate along a 16.7-mile route, traversing the cities of Everett, Lynnwood, Edmonds, Shoreline, and unincorporated Snohomish County. The service route will run from the Everett Station northern terminus (3201 Smith Avenue) in the City of Everett, travel west via Pacific Avenue to Rucker Avenue, and then travel south along Rucker Avenue/Evergreen Way/Pacific Highway/SR-99 to the southern terminus at the Aurora Village Transit Center (1524 N 200th Street) in the City of Shoreline (Figure 1). For purposes of this SEPA Checklist, the service route is hereafter referred to as the "SR-99 corridor" or the "project corridor."

The *Swift* BRT route will capitalize on previously made infrastructure investments, including over 6 miles of Business Access/Transit (BAT) lanes and over 10 miles of Traffic Signal Priority (TSP) improvements. BAT lanes provide queue bypass for transit. The lanes are shared with right-turning traffic along a roadway. At signalized intersections, the BAT lanes change to a right-turn only lane except for transit which can continue through the intersection. TSP allows traffic signal timing to be adjusted based on transit request to either extend a current green time or to provide an early delivery of green time for transit. BAT lanes and TSP improvements will assist the timeliness of the *Swift* BRT service. The City of Everett plans to implement both BAT and TSP improvements on Evergreen Way within its jurisdiction in the near future.

The project proposes 14 paired *Swift* BRT stations and one single full-service *Swift* BRT station (29 total) located about one mile apart at key transit service intersections along the route. A BRT station is also proposed at an existing bay in the Aurora Village Transit Center. The stations will be designed to maximize safety and efficiency for *Swift* BRT customers. Measuring about 10 feet wide by 40 feet long behind the existing sidewalk, the *Swift* BRT shelters will include a large, well-lit, all-weather canopy, protected seating areas, ticket vending machines, and both static and electronic customer information signs. The shelters will sit atop a 60- to 70-foot-long platform that will be ADA compliant and have design features to aid customers in entering and exiting the coaches (see Figure 2 for shelter design schematics).

The *Swift* BRT stations will be operated at 15 locations along the project corridor (29 stations total for north- and south-bound directions) with northern and southern termini at existing transit centers (see Figure 1). Table 1 lists the stations from north to south throughout the corridor (southbound stations listed first).

Table 1. *Swift* BRT Stations

Station Name / Location / Intersection	***Direction***	***Station ID***	***Jurisdiction***
Everett Station		Northern Terminus	Everett
Pacific/Wetmore	Westbound	2836	Everett
Pacific/Colby	Eastbound	2835	Everett
41st Street	Southbound	2820	Everett
40th Street	Northbound	2819	Everett
50th Street	Southbound	2816	Everett
50th Street	Northbound	2815	Everett
Pecks Drive	Southbound	2810	Everett
Madison Street	Northbound	2807	Everett

Station Name / Location / Intersection	*Direction*	*Station ID*	*Jurisdiction*
Casino Road	Southbound	2796	Everett
Casino Road	Northbound	2795	Everett
4th Avenue W	Southbound	2788	Everett
4th Avenue W	Northbound	2787	Everett
112th Street	Southbound	2784	Everett
112th Street	Northbound	2783	Everett
Airport Road	Southbound	2782	Snohomish County
Airport Road	Northbound	2781	Everett
Lincoln Way	Southbound	2780	Snohomish County
Lincoln Way	Northbound	2779	Snohomish County
148th Street	Southbound	2778	Snohomish County
148th Street	Northbound	2777	Snohomish County
174th Street	Southbound	2770	Lynnwood
176th Street	Northbound	2767	Lynnwood
196th Street	Southbound	2764	Lynnwood
200th Street	Northbound	2761	Lynnwood
204th Street[1]	Southbound	2760	Lynnwood
216th Street	Southbound	2754	Edmonds
216th Street	Northbound	2753	Lynnwood
238th Street	Southbound	2748	Edmonds
238th Street	Northbound	2747	Edmonds
Aurora Village Transit Center		Southern Terminus	Shoreline

1. The 204th Street station (Station 2760) in Lynnwood is a southbound stop only. This location will be acquired initially but constructed and operated sometime after *Swift* BRT service is initiated.

The *Swift* BRT service will utilize 15 custom–made, 60-foot, articulated, hybrid buses featuring unique branding, aerodynamic styling, three wide passenger doors, interior bike racks, ADA compliant wheelchair areas, and on-board electronic customer information.

Purpose, Need, and Objectives

The purpose of the proposed *Swift* BRT service is to promote and enhance transit ridership in the SR-99 corridor by significantly improving transit image, capacity, speed, and reliability, and to provide continuous service into and out of the City of Everett.

The Rucker Street/Evergreen Way/SR-99 corridor is a high-priority corridor that connects five cities and two counties. In recent years, traffic congestion has become a serious and growing problem. Drivers along much of the corridor experience delays moving through intersections. During evening and morning peak commute periods, several intersections along the project corridor experience significant congestion and delay, causing traffic in some cases to back up for approximately three signalization cycles.

Over the next 20 years, vehicle travel is expected to double. The SR-99 corridor has the heaviest volume of transit riders in the Community Transit system (about 1.5 million riders a year) and connects with a dense network of local and regional transit services. Everett Transit Route 9 also has the heaviest ridership in the SR-99 corridor. Public transportation could be an important factor in maintaining existing and future mobility in the corridor. However, existing transit service is slow, infrequent, and lacks continuous service into and out of Everett (Snohomish County's largest city and employment center) during non-peak periods. Currently, transit patrons are required to transfer between Community Transit and Everett Transit systems.

In response to worsening traffic conditions in the Puget Sound area, Community Transit will sponsor the region's first BRT system. The *Swift* BRT service will provide more convenient transit options for workers, shoppers, and casual travelers, and will augment existing local bus service provided by Community Transit, Everett Transit (serving the City of Everett), and King County Metro (serving the Aurora Village Transit Center). The *Swift* BRT system will provide frequent, limited-stop, 20-hour per day bus service using higher capacity buses along the corridor.

Objectives and benefits of the proposed *Swift* BRT service include improved transit system efficiency through:

- Closure of service gaps. Continuous service into and out of Everett Station from outlying communities 20 hours per day, seven days a week and at a significantly increased frequency (every 10 minutes, 5:00 a.m. to 7:00 p.m. on weekdays; every 15 to 20 minutes in the evenings and on weekends).

- Travel time savings and improved reliability. *Swift* BRT will reduce travel times by approximately 30 percent over the length of the route (from 71 to 51 minutes). The aggregate time savings is estimated at 175,200 hours per year. The time savings will be accomplished through a combination of factors. First, *Swift* BRT will use fewer, more widely spaced stations (15 locations served, approximately one per mile, compared to approximately 60 stops for existing local service). Second, *Swift* BRT will use Intelligent Transportation Systems (ITS) technology, such as automatic

announcements of upcoming stops, real-time information, and automatic vehicle locators. Other factors in reducing travel time are the reduction of dwell times at station, off-board fare collection, and multiple-door boarding.

- Improved transit performance. Transit performance with *Swift* BRT will be enhanced by use of BAT lanes throughout much of the corridor. BAT lanes enable buses to bypass general-purpose-lane traffic congestion. Use of TSP for buses will also enhance performance by "holding" green lights as a *Swift* BRT bus approaches an intersection, allowing the bus to access the station, generally located on the far side of the intersection.

- Increased transit ridership. Based on planning level estimates, *Swift* BRT will increase transit ridership in the corridor from about 1.5 million riders today to about 2.4 million riders by 2015 (an approximate 57 percent increase). Predicted increases are made possible by a combination of factors, including high-frequency service, reduced travel times, attractive and comfortable buses and stations and enhanced passenger information systems. Extended service hours will also allow *Swift* BRT to attract a wider market of passengers.

- Reductions in vehicle trips and vehicle miles traveled. *Swift* BRT is predicted to increase transit ridership in the corridor from about 4,200 riders per day today to approximately 6,600 riders per day by 2015. Vehicle trip reductions are estimated at over 800,000 per year. Reduction in vehicle miles traveled (VMT) is estimated at 8,036,800 miles annually.

Planning History and Background

The BRT approach, first conceived in South America and Australia, is now being developed through demonstration projects in the United States, in such cities as Boston, Los Angeles, and Las Vegas. With total construction costs much lower than light-rail options, the BRT approach envisions a "rubber tired" transit system that incorporates as many light-rail characteristics as feasible so that the performance of rail is achieved using a bus. With the exception of dedicated running ways, Community Transit's *Swift* BRT service will include all of the characteristics the Federal Transit Administration (FTA) lists for optimum system implementation.

Community Transit completed the SR-99 Corridor Bus Rapid Transit Planning Study in December 2004 (Mirai, 2004). The study developed transit ridership forecasts and evaluated service and route options and BRT operational components. The study also developed deployment schedules, cost estimates, and

prototype station design concepts. The study found that implementing BRT on the SR-99 corridor has the potential to attract a substantial number of new transit riders. The ridership potential is directly linked to three factors along the corridor: land use, frequency of service, and competitive travel times (compared with automobile travel times).

Site selection and station design began in September 2006. The locations for individual stations and/or intersections served along the corridor are based on a series of operational siting criteria. These criteria conform to industry "best practices" and are consistent with standards used in other BRT systems nationwide. These criteria are also in accordance with the agency's desired attributes for the ideal *Swift* BRT system between Everett Station and Aurora Village Transit Center. Those attributes include:

- Dedicated bus lanes;
- Off-board fare collection;
- Short dwell time (i.e., the time a bus is stopped to load/unload passengers);
- Train-like system design; and
- Real-time arrival information.

Considering the attributes listed above, and after reviewing the system goals and corridor constraints, *Swift* BRT stations were sited based on the following criteria:

- Stations should be located between one and two miles apart;
- Stations should be located to serve existing and future concentrations of population and employment;
- Stations should be located to serve existing and future transit connections;
- Stations should possess good line of sight characteristics to assist drivers;
- Stations should provide pedestrians safe street crossing opportunities via close proximity to signalized intersections;
- Stations should be located on the far side of signalized intersections, whenever possible;
- Stations should not detract from the operation of an intersection;

- Stations should minimize any safety risk to passengers;
- Stations should allow for platform boarding higher than current sidewalk heights;
- Stations should augment local economic development; and
- The agency should take into consideration the overall development cost per station.

While these criteria are considered the ideal criteria for station location, mitigating factors that influenced the final station locations include:

- The lack of dedicated bus lanes in the corridor;
- The large number of business access points at optimal station locations; and
- The future economic development plans of partner jurisdictions.

The proposed *Swift* BRT service is also identified as a project "strategic to the region" in *Destination 2030 Update, the Metropolitan Transportation Plan for the Central Puget Sound Region* (PSRC, 2007b). The project is included in the *Central Puget Sound Regional 2007-2010 Transportation Improvement Program* (PSRC, 2007a) as well.

12. Location of the proposal, including street address, if any, and section, township, and range; legal description; site plan; vicinity map; and topographical map, if reasonably available:

The *Swift* BRT system will operate along a 16.7-mile route, traversing the cities of Everett, Lynnwood, Edmonds, Shoreline, and unincorporated Snohomish County. The service route will run from the Everett Station northern terminus (3201 Smith Avenue) in the City of Everett, travel west via Pacific Avenue to Rucker Avenue, and then travel south along Rucker Avenue/Evergreen Way/Pacific Highway/SR-99 to the southern terminus at the Aurora Village Transit Center (1524 N 200th Street) in the City of Shoreline, King County. The project corridor is within Sections 29, 30, 31, Township 30 North, Range 5 East; Sections 6, 7, Township 29 North, Range 5 East; Sections 13, 23, 24, 26, 34, 35, Township 28 North, Range 4 East; Sections 3, 4, 9, 16, 17, 20, 29, 30, 31, Township 27 North, Range 4 East, Willamette Meridian. See Figure 1 for the project vicinity map.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (underline):

Flat, rolling, hilly, steep slopes, mountainous,

b. What is the steepest slope on the site (approximate percent slope)?

Swift BRT station platforms will be constructed parallel with the adjacent road gradient, which is generally flat. The steepest road gradient at any one station location is approximately 3.5 percent slope.

c. What general types of soils are found on the site (for example clay, sand, gravel, peat, muck)? Specify the classification of agricultural soils and note any prime farmland.

The majority of the *Swift* BRT stations are located on soil units classified as Alderwood-Urban land complex by the Soil Survey for Snohomish County (NRCS, 2006). Other mapped soil types at the *Swift* BRT stations include Alderwood gravelly sandy loam, Urban land, McKenna gravelly silt loam, Mukilteo muck, and Everett gravelly sandy loam. No portion of the project is considered prime farmland.

d. Are there any surface indications or a history of unstable soils in the immediate vicinity? If so, describe.

There are no indications or history of unstable soils within the proposed construction boundaries for any *Swift* BRT station. The nearest documented erosion or landslide hazard areas include: (1) a Medium Erosion and Landslide Hazard Area located east of the Pecks Drive southbound station (Station 2810) across Evergreen Way, behind a strip mall retail development (City of Everett, 2006a; 2006b); and (2) a Landslide Hazard Area located south of the 204th Street southbound station (Station 2760) (City of Lynnwood, 1991).

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate the source of the fill.

Limited earthwork will be required for construction of the *Swift* BRT stations. Typically there will be only 10 feet of soil disturbance beyond the existing sidewalk. A typical station will require approximately 10 to 20 cubic yards (CY) of cut or fill. Stations with relatively large retaining walls (up to 5 feet in height), such as Pecks Drive (Station 2810) and 174th

Street (Station 2770), may require up to 50 CY of cut or fill. Suitable fill material will be imported from an approved source.

f. Could erosion occur as a result of clearing, construction, or use?

During construction, minor erosion and sedimentation are likely to occur as a result of grading and removal of asphalt on the project site. Erosion is not expected to occur during operation of *Swift* BRT. There are currently no exposed soils at the proposed station sites, and no exposed soils will remain following construction. Measures that will be used to control erosion during construction are outlined in Section 1.h.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example buildings or asphalt)?

With the exception of surrounding landscaping, each *Swift* BRT station will be 100 percent impervious. The stations will each have a maximum of 1,040 square feet of new and/or replaced impervious area. The total amount of new and/or replaced impervious area in the project corridor will be 30,160 square feet (Otak, 2008).

h. Describe the proposed measures to reduce or control erosion, or other impacts to the earth, if any.

Prior to construction, a Temporary Erosion and Sediment Control (TESC) Plan will be developed. Stormwater management during construction will consist of Best Management Practices (BMPs) such as sedimentation traps, inlet protection, and/or other measures as provided by the 2005 Washington State Department of Ecology Stormwater Management Manual for Western Washington (SMMWW) and the code requirements of Snohomish County and the Cities of Everett, Edmonds, Lynnwood, and Shoreline.

2. Air

a. What types of emissions to the air would result from the proposal (e.g. dust, automobile, odors, industrial, wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities, if known.

During construction, dust, odors, and emissions from heavy machinery, trucks, and other vehicles traveling to and from the *Swift* BRT stations will occur. The construction period is estimated at eight months total, with the first six months focused on completing the site and concrete work, and the

last two months focused on erecting the shelters and amenities. For a pair of intersections (four stations), all site construction will be completed in approximately two weeks.

During operation of the *Swift* BRT service, bus exhaust emissions could be a source of air pollution. The project is located in the Central Puget Sound "maintenance area" for air quality related to carbon monoxide (CO) emissions. Carbon monoxide is typically the pollutant of greatest concern for transportation sources because it is the pollutant emitted in the greatest quantity for which short-term health standards exist (the National Ambient Air Quality Standards [NAAQS]). Depending on the nature of a proposal, transportation projects located in a CO maintenance area may be required to be evaluated for regional and project level conformity with air quality standards. State and federal laws (WAC 173-420; 40 CFR 93) provide conformity requirements for transportation projects.

The proposed *Swift* BRT service is included in the *Destination 2030 Update, the Metropolitan Transportation Plan for the Central Puget Sound Region* (PSRC, 2007a) and the *Central Puget Sound Regional 2007-2010 Transportation Improvement Program* (PSRC, 2007b). Both plans and the projects within them have been found to be in compliance with federal and state conformity regulations and, as such, they meet the requirements for regional air quality conformity.

Project level conformity review for CO maintenance is typically triggered when a transportation project will affect the operation of intersections that are currently operating below optimal levels-of-service. One measure of intersection congestion is the average delay experienced by vehicles approaching an intersection. Intersection delay is rated and expressed as level-of-service (LOS) from A to F, where A represents best conditions and minimal delay and F represents worst conditions (long delays and heavy congestion). Project level conformity review is typically needed where a project will affect intersections with LOS D or worse, or where a project cause LOS degradation to LOS D or worse.

The traffic analysis (Mirai, 2008) shows that several intersections along the project corridor are currently congested, operating at LOS D or worse during peak periods of traffic (i.e., the morning and evening commute). Conditions are expected to worsen by 2030, the planning horizon year. However, the proposed *Swift* BRT service will not impact traffic operation in the corridor (Mirai, 2008). *Swift* BRT will not cause additional delay or congestion at any of the 33 intersections studied along the project corridor. Because *Swift* BRT will not introduce new traffic generating facilities (such as a park-and-ride) and will not degrade traffic operations at already congested intersections in the corridor, the project is exempt from project level conformity review (WAC 173-420-110(2)(g)).

Swift BRT will result in an increase in the number of transit vehicles operating in the corridor on a daily basis. The *Swift* BRT route will replace the Community Transit Route 100. Route 100 currently operates three buses per hour during the AM peak hour and PM peak hour. The *Swift* BRT route will operate 12 BRT buses (six in each direction) during the AM and PM peak hour. Route 100 currently runs 19 bus trips per day while the *Swift* BRT route will run 174 bus trips per day. Although the daily transit trips will increase, there will only be a slight increase in number of busses along the project corridor during the peak hour periods (Mirai, 2008).

While the project will result in an increase in the number of transit vehicles on a daily basis, serving new transit customers will result in a decrease in automobiles in the corridor. In the long term, the projected increase of approximately 2,300 daily transit riders by the year 2015 will likely reduce the use of single-occupant vehicles. In addition, *Swift* BRT will operate with new diesel-hybrid buses. Due to current fuel and emission standards for model-year 2007 and later buses established by the EPA, new diesel engine emission levels will be reduced by up to 90 percent compared to older engines.

Recently, some jurisdictions in Washington State have begun to analyze the potential contribution of greenhouse gas emissions (GHG) from proposed projects subject to SEPA review. The City of Seattle has developed a SEPA GHG Emissions worksheet (Seattle, 2007). For transportation sources of emissions, the worksheet contains metrics for vehicle-miles traveled (VMT), fuel efficiency, and "carbon equivalent" emissions (CO_2e) per gallon of gasoline or diesel. Since greenhouse gases are comprised of a variety of different gases a carbon equivalent is used to compare the emissions from those various greenhouse gases based on their global warming potential using a metric measure. The CO_2 emissions estimates for gasoline and diesel include the extraction, transport, and refinement of petroleum.

The *Swift* BRT project was evaluated to determine the potential contribution of GHG emissions from new bus service in the corridor on an annual basis, considering potential reductions from decreased use of single-occupant vehicles. *Swift* BRT emissions would contribute approximately 2,600 metric tons of carbon equivalents per year ($MTCO_2e$). Assuming new *Swift* customers represent a reduction of single-occupant vehicles operating in the corridor; approximately 10,200 $MTCO_2e$ in annual emissions would be eliminated. On balance, operation of *Swift* BRT could result in an annual net reduction of approximately 7,600 $MTCO_2e$. As a means of putting these numbers in context, the Environmental Protection Agency (EPA) has estimated average annual

emissions for a household of two to be approximately 19 MTCO2e (41,500 lbs.).

b. Are there any off-site sources of emissions or odors that may affect your proposal? If so, generally describe.

No off-site sources of emissions or odor will affect this proposal.

c. Describe proposed measures to reduce or control emissions or other impacts to air, if any.

Construction

The construction contractor will be required to comply with all relevant federal, state, and local air quality laws, including Puget Sound Clean Air Agency (PSCAA) requirements.

Appropriate best management practices will be used to reduce dust during pavement/sidewalk/curb and gutter removal, minor vegetation clearing, and other construction activities. Construction-related measures may include:

- Compliance with the PSCAA's Regulation I, Section 9.15 requiring reasonable precautions to avoid dust emissions and Section 9.11 requiring the best available measures to control emissions of odor-bearing contaminants, as appropriate.

- Compliance with recommendations in the Washington Associated General Contractor brochure "Guide to Handling Fugitive Dust from Construction Projects."

Operation

Since the proposed project will not result in impacts to air quality, operational mitigation is not proposed. As noted above, *Swift* BRT buses will use new diesel-hybrid engines with significantly lower exhaust emissions than older buses. The project is anticipated to attract new transit customers in an already congested corridor, thereby reducing the overall number of automobiles using the corridor. For these reasons, operation of *Swift* BRT will likely have a net benefit to air quality, specifically related to vehicle emissions.

3. Water

a. Surface:

1. Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, and wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.

There are no surface water bodies or wetlands on any of the *Swift* BRT station locations. A constructed stormwater wetpond is located approximately 20 feet east of the proposed 112th Street (northbound) station (Station 2783); this pond exhibits wetland characteristics. Construction of the station will not disturb or alter this pond. In addition, the City of Everett Critical Areas Map 1 (March 2006) does not indicate a wetland in this location. The Everett Critical Areas regulations (Municipal Code 19.37.050(A)(6)) state that entirely artificial structures or wetlands intentionally constructed by humans from upland areas for purposes of stormwater drainage or water quality control and that are not part of a mitigation plan are exempt from the City's critical area regulations. The City of Everett has confirmed this facility is an intentionally constructed stormwater facility and is not part of a mitigation site (Koenig, 2008). Accordingly, this feature is not considered a wetland, and wetland buffers do not apply.

2. Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.

No. Construction of the 112th Street northbound station (Station 2783) will not disturb or alter the adjacent stormwater pond.

3. Estimate the amount of fill and dredge material that could be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill materials.

No fill or dredging in surface waters will be required.

4. Will the proposal require surface water withdrawals or diversion? Give general description, purpose, and approximate quantities, if known.

No. *Swift* BRT will not require surface water withdrawals or diversions.

5. Does the proposal lie within a 100-year flood plain? If so, note location on the site plan.

No. The project corridor does not lie within a 100-year floodplain.

6. Does the proposal involve discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

Construction and operation of *Swift* BRT will not involve the discharge of waste materials to any surface waters. All waste materials from the project, including demolition debris, will be transported off-site to an appropriate disposal facility.

b. Ground

1. Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose, and approximate quantities if known.

No ground water will be withdrawn and no water will be discharged to ground water.

2. Describe waste material that will be discharged into the ground from septic tanks or other sources, if any. Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) is expected to serve.

No waste material will be discharged into the ground.

c. Water Runoff (including storm water)

1. Describe the source of runoff (including storm water) and method of collection and disposal, if any (including quantities if known). Where will this water flow? Will this water flow into other waters? If so, describe.

The source of stormwater at the *Swift* BRT stations will be the sidewalks, station platforms, and shelter roofs. Stormwater will be conveyed for discharge to the stormwater drainage system operated by the jurisdiction in which the stations are located.

A memorandum was prepared by Otak in February 2008 to determine flow control and water quality treatment requirements for the Community Transit *Swift* Bus Rapid Transit Project (Otak,

2008; Appendix A to this checklist). Otak reviewed the 2005 Ecology Stormwater Management Manual for Western Washington (SMMWW) and the Snohomish County, Everett, Edmonds, and Lynnwood code regulations.

Community Transit proposes that the stormwater design will meet the 2005 Ecology SMMWW because the stormwater requirements of Ecology are applicable in all jurisdictions statewide (Otak, 2008).

According to the SMMWW, water treatment is not required for this project since it will not add pollution-generating impervious surface. Flow control is not required since the project will not add 10,000 square feet or more of impervious surface within a Threshold Discharge Area (TDA). TDAs are defined as an "onsite area draining to a single natural discharge location or multiple natural discharge locations that combine within one-quarter mile downstream." No more than two *Swift* BRT stations overlap within one TDA, bringing the total amount of impervious surface to 2,080 square feet (each station is 1,040 square feet). All new impervious areas will thus be below the SMMWW flow control threshold (Otak, 2008).

2. Could waste materials enter ground or surface waters? If so, generally describe.

Waste materials will not enter ground or surface waters during construction or operation of *Swift* BRT.

d. Describe proposed measures to reduce or control surface, ground, and runoff water impacts, if any.

During construction, BMPs will be implemented to ensure that sediment originating from disturbed soils is retained within the limits of disturbance. BMPs may include catch basin filters, sediment traps, and other appropriate measures. BMPs specific to the site and project will be specified by Community Transit in the Temporary Erosion and Sediment Control (TESC) plan and construction contract documents, which the construction contractor will be required to implement.

4. Plants

a. Types of vegetation found on-site:

The majority of the station locations have existing narrow planter strips that include lawn, ornamental landscaping, and street trees. The strips are adjacent to existing sidewalks, parking lots, and buildings.

Deciduous trees: various ornamental deciduous trees

Evergreen trees: various ornamental evergreen trees

Shrubs: various ornamental shrubs and invasive non-native species (e.g., Himalayan blackberry)

Grass: various turf grasses

Pasture: none

Wet Soil Plants: none

Water Plants: none

b. What kind and amount of vegetation will be removed or altered?

A total of approximately 24 trees and 76 shrubs will be removed at *Swift* BRT stations that will be located partially within existing planter strips. This vegetation consists of ornamental landscaping. Vegetation to be removed at individual station locations is described in Table 2.

Table 2. Vegetation Removal

Station Name	*Direction*	*Vegetation Removal*
Pacific/Colby	Eastbound	2 trees and 8 medium/large shrubs
41st Street	Southbound	2 small-diameter trees and 40 small perennials
40th Street	Northbound	Shrubs
50th Street	Southbound	2 small-diameter trees
50th Street	Northbound	Two 4- to 6-inch-diameter trees and 11 medium/large shrubs
Madison Street	Northbound	Two 8-inch-diameter trees and 16 medium shrubs
Casino Road	Northbound	1 large and 7 medium shrubs
112th Street	Southbound	1 medium shrub
112th Street	Northbound	Four 10-inch-diameter trees
148th Street	Northbound	12 medium/large shrubs
174th Street	Southbound	3 small-diameter trees and 6 medium shrubs
176th Street	Northbound	Relocation of 8 small and 6 medium shrubs
196th Street	Southbound	5 medium shrubs
200th Street	Northbound	3 small-diameter trees and relocate 2 small/medium shrubs
204th Street	Southbound	Blackberry removal within Temporary Construction Easement

216th Street	Southbound	One 8- to 10-inch-diameter tree, 1 small-diameter tree, and portion of hedge
216th Street	Northbound	2 small-diameter trees and 2 small shrubs
238th Street	Southbound	2 small/medium shrubs
238th Street	Northbound	5 large shrubs

c. List threatened or endangered species or critical habitat known to be on or near the site.

The Washington Department of Natural Resources (WDNR) Natural Heritage Program has not identified any rare plants or vegetation communities anywhere along the project corridor.

d. Describe proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on-site.

No landscaping is proposed as part of the *Swift* BRT stations. Landscaping that is disturbed during construction immediately adjacent to the stations (i.e., within the temporary construction easement) will be replaced in kind.

5. Animals

a. Underline any birds and animals which have been observed on or near the site or are known to be on or near the site:

Fish: no streams are located in the project corridor

Amphibians: habitat for native amphibians is lacking

Reptiles: habitat for native reptiles is lacking

Birds: Typical resident species found in urban settings (e.g., house sparrow, American robin, American crow, house finch, black-capped chickadee, etc.) are likely found in the project corridor.

Mammals: Typical resident species found in urban settings (e.g., raccoon, Virginia opossum, domestic cat, eastern gray squirrel, house mouse, Norway rat, etc.) are likely found in the project corridor.

b. List any threatened or endangered species or critical habitat near the site.

The Washington Department of Fish and Wildlife Priority Habitats and Species maps (WDFW, 2007) do not show any state or federally listed species or protected habitats at or adjacent to any *Swift* BRT station location. The Fish and Wildlife Conservation Area maps for each

jurisdiction within the project corridor do not indicate any known threatened or endangered species at or adjacent to any station. No critical habitat for threatened or endangered wildlife species is found on or near the site.

c. Is the site part of a migratory route? If so, explain.

The project corridor is located within the Pacific Flyway, which is a flight corridor for migrating waterfowl and other avian fauna. The Pacific Flyway extends from Alaska south to Mexico and South America. However, the project corridor does not provide suitable native habitat for migratory bird species.

d. Proposed measures to preserve or enhance wildlife, if any.

No specific measures are proposed to preserve or enhance wildlife.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

The *Swift* BRT stations will require electricity to provide lighting and power for electronic signage and ticket vending machines.

b. Would the project affect the potential use of solar energy by adjacent properties? If so, explain.

The project will not affect the potential for use of solar energy by adjacent properties.

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any.

Lighting design will occur during final design of the shelters. The use of energy-efficient lighting (including LED for signage and shelter lighting) will be explored during that process.

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spills, or hazardous waste that could occur as a result of this proposal? If so, describe.

The potential for exposure to hazardous materials during construction will be limited to accidental spills of petroleum products including diesel fuel used for heavy equipment. Given the limited nature of ground disturbance during construction, exposure of contaminated soils and/or groundwater is possible but not likely.

According to Department of Ecology's Facility Site database, no suspected or known contaminated sites are located on or adjacent to the stations (Ecology, 2007). Three proposed stations are located adjacent to gas stations: Casino Road southbound (Station 2796), 4th Avenue W southbound (Station 2788), and 238th Street northbound (Station 2747). These locations are noted in Ecology's database because underground fuel storage tanks are present on the property. None of the locations have known contamination from leaking underground storage tanks.

Risk of exposure to environmental health hazards is not expected during operation of *Swift* BRT.

1. Describe special emergency services that might be required.

No special emergency services will be required beyond those occasionally needed by other similar public facilities such as police, fire, and emergency medical services.

2. Describe proposed measures to reduce or control environmental health hazards.

Although no known contaminants exist at the project site, a formalized plan will be required for removal and treatment or disposal of any contaminated soil or ground water encountered during construction. In the case that contaminants are encountered, specific measures to minimize exposure could include larger construction zone setbacks, additional barriers to public access, and expeditious removal of contaminated materials in accordance with applicable regulations.

b. Noise

1. What types of noise exist in the area which may affect your project (for example: traffic, equipment operation, other)?

There is no off-site noise that will affect the project. Existing noise on and surrounding the proposed stations is predominantly traffic related. Traffic noise includes existing transit operations, large trucks, and other automobile traffic throughout the corridor.

2. What types and levels of noise would be created by or associated with the project on a short-term or long-term basis (for example: traffic, construction, operation, other)?

Construction

During construction, sound levels will temporarily increase near *Swift* BRT stations. The increase in noise levels will depend on the type of equipment used and the amount of time it is in use. Typical construction equipment would include rubber-tired backhoes, front-end loaders, dump trucks, truck cranes, flatbed trucks, and concrete mixer trucks. Approximate sound levels for these and other types of equipment are shown in Table 3, as well as attenuated levels at distance. The typical attenuation of sound over distance is 6 decibels (dBA) per doubling of distance (FTA, 2006).

Table 3. Typical Construction Equipment Noise (dBA)

Types of Equipment	***Range of Noise Levels***		
	At 50 feet	***At 400 feet***	***At 1600 feet***
Air compressor	81	57	45
Backhoe	80	56	44
Concrete mixer	85	61	49
Concrete pump	82	58	46
Concrete vibrator	76	52	40
Crane, derrick	88	64	52
Crane, mobile	83	59	47
Dozer	85	61	49
Generator	81	57	45
Loader	85	61	49
Paver	89	65	53
Scraper	89	65	53

Truck	88	64	52

Source: EPA, 1974

Construction noise is exempt from most local noise regulations when performed during normal daytime hours on weekdays.

Most of the surrounding land uses are commercial and are not considered noise-sensitive receivers. The most sensitive areas potentially affected by construction activities are several residential properties located near proposed stations and the Aurora Village Transit Center. These residential properties will be exposed to typical construction noise. However, potential short-term impacts are not considered significant for the following reasons:

- Construction impacts are temporary and intermittent in nature;
- Construction activity at individual station locations will occur for short periods (less than one month for all construction activity);
- Construction at stations located near residential properties will occur during normal daytime business hours (ESA Adolfson, 2008).

Operation

Sources of operational noise at the *Swift* BRT stations will be the buses serving the stations. A total of 12 buses per hour will operate in the *Swift* BRT corridor during the AM and PM peak hours, with fewer buses operating during the midday and evening hours. The project corridor is already served by transit. *Swift* BRT would increase the number of buses operating in the corridor very slightly during the peak hour of service (from 6 to 12 buses). The daily number of bus trips would increase from 19 to 174 trips.
The noise from increased buses operating in the corridor is anticipated to have minimal effects on residential properties for a variety of reasons:

- Existing and projected volumes of background traffic represent the predominant noise source in the project corridor. This would be true with or without the *Swift* BRT service.
- Transit does not represent a new noise source in the corridor. The *Swift* BRT route will replace an existing route (Community Transit Route 100).

- Bus idling will be limited to pick-up and drop-off events which are expected to take no longer than 10 seconds.

3. Describe proposed measures to reduce or control noise impacts, if any.

Construction activities will be limited to the times allowed by code regulations in each jurisdiction along the project corridor. If night or weekend work were to occur, additional measures may be required as conditions to a noise variance or other approval by the jurisdictions along the project corridor.

8. Land and Shoreline Use

A technical memorandum by ESA Adolfson (2008) evaluates the project's compliance and compatibility with local land use plans and regulations. The land use analysis summarizes applicable comprehensive plan land use designations, policies related to transit, and zoning designations for Snohomish County and the cities of Everett, Lynnwood, and Edmonds. The report also addresses aesthetics and demographics in the project corridor. The results of the analysis are incorporated in this and other sections throughout this environmental checklist. The full report can be found in Appendix B of this document.

a. What is the current use of the site and adjacent properties?

Land uses that are directly adjacent to the proposed station locations include retail, auto-related commercial uses, medical, vacant, and institutional. There are five car and truck dealerships adjacent to stations located in Everett, unincorporated Snohomish County, and Lynnwood. Institutional uses are located adjacent to stations in downtown Everett, including the Everett Housing Authority and the Snohomish County Campus (e.g., government offices). There are several shopping centers and large retail outlets (e.g., Staples, Home Depot, etc.) along the SR-99 corridor that are adjacent to proposed stations. See Appendix B for specific land uses adjacent to each of the 29 proposed stations.

b. Has the site been used for agriculture? If so, describe.

The project corridor has not been used for agriculture in the recent past.

c. Describe any structures on the site.

There are no buildings within the proposed construction areas. Locations of 11 proposed stations have existing bus stop shelters. Structures adjacent to the proposed *Swift* BRT stations include a variety of commercial buildings.

d. Will any structures be demolished? If so, what?

Minor demolition will involve removal and replacement of pavement/sidewalk/curb and gutter. Existing bus stops at 14 locations will be relocated:

- 40th/41st Street northbound (Station 2819);
- 50th Street southbound (Station 2816);
- 50th Street northbound (Station 2815);
- Pecks Drive (Station 2810);
- Madison Street (Station 2807);
- Casino Road southbound (Station 2796);
- Casino Road northbound (Station 2795)
- Airport Road northbound (Station 2781);
- Lincoln Way southbound (Station 2780);
- 174th Street southbound (Station 2770);
- 176th Street northbound (Station 2767);
- 216th Street southbound (Station 2754);
- 216th Street northbound (Station 2753); and
- 238th Street northbound (Station 2747).

Relocated bus stops will be adjacent to *Swift* BRT stations and will include moved or replaced signage. Where existing shelters are present, they will be removed.

e. What is the current zoning classification of the site?

The 15 stations located in the City of Everett are zoned B-3 Central Business District, B-2 Community Business, or C-1 General Commercial. The five stations located in unincorporated Snohomish County are zoned Neighborhood Business, General Commercial, Community Business, or Planned Community Business. The six stations located in the City of Lynnwood are zoned B-1 Community Business or General Commercial. The remaining three stations located in the City of Edmonds are zoned

General Commercial 2, General Commercial, or Community Business (ESA Adolfson, 2008). See the technical memorandum in Appendix B for zoning designations specific to each station.

Zoning designations for stations located in the City of Everett, unincorporated Snohomish County, and the City of Edmonds provide for a mix of commercial and residential uses. None of the applicable zoning codes prohibit bus shelters or transit stops along the corridor (ESA Adolfson, 2008).

f. What is the current comprehensive plan designation of the site?

Figure 3 shows the regional land use pattern surrounding the project corridor. The land use designations shown on Figure 3 were compiled by Puget Sound Regional Council and represent the comprehensive plan land use designations aggregated from applicable jurisdictions.

Stations in the City of Everett have comprehensive plan designations of Central Business District, Mixed Use Commercial-Multiple Family, or Residential 1.2. All stations located south of 41st Street in Everett are part of a high-intensity Mixed Use Activity Corridor overlay designation. Stations located in unincorporated Snohomish County have comprehensive plan designations of Urban Village, Urban Commercial, or Urban Center. All six stations in the City of Lynnwood are designated as Regional Commercial. The three stations in the City of Edmonds are designated as Highway 99 Corridor. One station also has a Medical/Highway 99 Activity Center Hi-Rise Node overlay (ESA Adolfson, 2008). See the technical memorandum in Appendix B for comprehensive plan designations specific to each station.

All of the jurisdictions in which *Swift* BRT stations are proposed have established policies that encourage transit facilities along the project corridor. Everett encourages transit routes to be located so that they support business in commercial districts. The stations in unincorporated Snohomish County have comprehensive plan designations which encourage mixed-use areas with access to transit corridors. The City of Lynnwood has a transportation policy that encourages working with transit providers to develop transit signal priority during peak travel hours. The City of Edmonds has policies to make transit use more effective by improving pedestrian and vehicular access along the SR-99 corridor (ESA Adolfson, 2008).

g. If applicable, what is the current shoreline master program designation of the site?

Not applicable. None of the *Swift* BRT stations are within jurisdiction of the Shoreline Management Act (RCW 90.58).

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

Maps depicting designated environmentally sensitive and/or critical areas were reviewed for each jurisdiction. Designated sensitive areas generally include geologically hazardous areas, frequently flooded areas, streams and wetlands, aquifer recharge areas, and fish and wildlife habitat conservation areas.

Based on review of existing maps and field reconnaissance, there are no designated environmentally sensitive areas located at the proposed *Swift* BRT stations.

The entire project corridor is designated as having a Very Low Liquefaction Susceptibility. Five stations are located in areas mapped as Very Low to Low Liquefaction Susceptibility: Pacific/Wetmore (Station 2836); Pacific/Colby (Station 2835); Pecks Drive (Station 2810); and 216th Street (southbound and northbound, Stations 2754 and 2753) (Snohomish County, 2007).

The project corridor is located in an area with Low Aquifer Recharge Area Sensitivity (WDNR, 2004).

City of Lynnwood mapping shows two environmentally sensitive areas in proximity to the 204th Street station (Station 2760) (City of Lynnwood, 1991). A Landslide Hazard Area is located on the parcel south of the station, outside of the project construction area. A Fish and Wildlife Conservation Area is located adjacent (north) of the 204th Street station. At the time the City's mapping was prepared, this area may have been associated with a stream or drainage feature. Based on field reconnaissance in 2007 and recent aerial photo interpretation, no stream or drainage feature was identified in this location adjacent to the proposed *Swift* BRT station.

i. Approximately how many people would reside or work in the completed project?

No people will reside in the completed project. The stations will not have any employees.

j. Approximately how many people would the completed project displace?

The project will not displace or relocate any businesses or residences.

k. Describe proposed measures to avoid or reduce displacement impacts, if any.

Not applicable.

l. Describe proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any.

Properties in the vicinity of the project site could be subject to short-term impacts (two to three weeks) over the eight-month total construction period, including alterations to access. Mitigation measures such as construction advisory signage will be used to minimize impacts to surrounding land uses. Significant impacts to land use as a result of the project are not anticipated.

The *Swift* BRT service will not change the existing land use pattern in or along the project corridor. The proposed transit service is consistent with comprehensive plan goals and policies and is compatible with existing and planned uses. The proposed stations will not introduce incompatible land use to the area.

The proposed project will require right-of-way easement acquisitions from several properties adjacent to the roadway. These easement acquisitions will not result in the closure, displacement, or relocation of residences or businesses. All acquisitions will comply with the Uniform Relocation Assistance and Real Property Acquisition Policy Act of 1970 as amended. Acquisitions will not alter the current land uses or allowed land uses on those properties.

For additional information regarding compatibility with land use and consistency with land use plans and policies, please see Appendix B.

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

No housing units will be provided.

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

No housing units will be eliminated.

c. Describe proposed measures to reduce or control housing impacts, if any.

Housing impacts will not occur as a result of this project.

10. Aesthetics

a. What is the tallest height of any of the proposed structure(s), not including antennas? What is the principal exterior building material(s) proposed?

At each *Swift* BRT station, the shelter roof will be 9-feet high and the iconic marker will be 18-feet 8-inches high. The principal building materials proposed include steel, aluminum, glass, concrete, and plastic.

b. What views in the immediate vicinity would be altered or obstructed?

As a whole, *Swift* BRT will be consistent with city and county policies for ensuring that the built environment is aesthetically pleasing. Possible negative effects from the proposed stations could include light and glare, minimal obstruction of views to adjacent land uses, and displacement of existing landscaping at some station locations. However, in the context of the existing visual character of the corridor, the potential changes would probably not be noticed by most viewers.

Each shelter will consist of an all-weather canopy to provide passengers with protection from wind and rain. The shelter walls will be made of glass or other transparent materials, allowing for surveillance and natural lighting. Transparent materials will also minimize the chance that the shelters might block views from the road to adjacent buildings, and to both commercial and directional signage. Station platforms will be raised 10 inches above road grade, and would not be noticeable visual features.

Landscapes immediately surrounding stations that are disturbed during construction (i.e., within the temporary construction easement area) will be replanted with vegetation in-kind (trees, shrubs, grass, or groundcover) except in places where security or lines of sight might be compromised.

Additionally, the station shelters are designed to be attractive and would enhance visual cohesion along the corridor with the repeated pattern of paired stations at one- to two-mile intervals. As a result, proposed stations

are likely to be perceived as beneficial visual elements. The lone exception to the positive aesthetic effects of stations would be removal of mature vegetation, especially street trees.

c. Describe proposed measures to reduce aesthetic impacts, if any.

Design and construction of proposed *Swift* BRT stations have been carefully considered to manage effects from construction, and help facilities integrate with or enhance the existing views. These measures include:

- Following existing city and county policies and guidelines for preserving and enhancing visual resources;
- Minimizing clearing related to construction;
- Designing stations to be open, with low profiles and transparent materials that minimize or eliminate view obstruction;
- Shielding station lights to ensure that light sources are not directly visible from residential areas, medical facilities, and other sensitive viewers;
- Reducing construction effects where possible, by consolidating work on underground utilities, electrical transmission and distribution systems, other overhead utilities, and street lighting.

11. Light and Glare

a. What type of light and glare will the proposal produce? What time of day would it mainly occur?

Lighting at the stations will be provided for safety and to direct users and buses in the evenings. Building materials for the shelters will include glass and steel, but are not expected to produce significant glare.

b. Could light or glare from the finished project be a safety hazard or interfere with views?

Light or glare from the finished project will not represent a safety hazard or interfere with views.

c. What existing off-site sources of light or glare may affect your proposal?

Off-site sources of light in the immediate vicinity of the stations include lighted roadways, parking lots, commercial stores, and medical and

institutional facilities. Off-site sources of light are not likely to affect the safety or use of the *Swift* BRT stations.

d. Describe the proposed measures to reduce or control light and glare impacts, if any.

The design intent is to provide adequate lighting to ensure pedestrian and vehicular safety while avoiding or minimizing light pollution to the greatest extent possible. Specific lighting fixtures will be determined during final design. Evaluation of fixture options during final design will consider the potential for light spill onto neighboring properties.

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

There are no parks, open spaces, or other recreational opportunities immediately adjacent to the *Swift* BRT stations.

b. Would the proposed project displace any existing recreational uses? If so, describe.

The proposed *Swift* BRT project will not displace any existing recreational uses.

c. Describe proposed measures to reduce or control impacts on recreation, including recreational opportunities to be provided by the project or applicant.

No functional impacts to recreation are anticipated. *Swift* BRT buses will have dedicated capacity for bicycles. While this feature is primarily intended to provide transit connectivity for commuters using bicycles, it could provide opportunities for recreational bicyclists using parks and trails in proximity to the project corridor.

13. Historic and Cultural Preservation

Cultural Resources Consultants, Inc., evaluated previously unrecorded pre-contact or historic-period sites that could potentially be present within the immediate vicinity of construction activity for each of the 29 proposed *Swift* BRT stations. The study included field investigations of each of the proposed station sites and examination of archival sources and data. The results of the analysis are presented in this section and incorporated throughout this environmental analysis. The full report can be found in Appendix C of this document.

a. Are there any places or objects listed on or eligible for national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

The Snohomish County Courthouse is located adjacent to the Pacific/Wetmore station (Station 2836) in the City of Everett. This building is on the National Register of Historic Places and the Washington State Heritage Register. This is the only place identified in the immediate vicinity of proposed *Swift* BRT stations that is on or appears eligible for listing on a preservation register. The Snohomish County Courthouse was originally constructed in 1897, was burned in 1909, and was reconstructed in 1910. Architect August Heide, designer of the original courthouse, designed the plans for the new building in Mission Style. The new Snohomish County Courthouse opened in 1910. A modern five-story annex has been added to the north end, and the south end of the building was added to in 1952. The courthouse was listed on the National Register of Historic Places in 1975 for its architectural significance (Cultural Resources Consultants, Inc., 2008).

The cultural resources assessment concluded that the *Swift* BRT station, as presently designed, will not adversely affect the Snohomish County Courthouse. The unobtrusive addition to the streetscape will not affect the integrity of the aesthetic qualities of the courthouse, nor its architectural qualities (Cultural Resources Consultants, Inc., 2008).

b. Generally describe any landmarks or evidence of historic, archeological, scientific, or cultural importance known to be on or next to the site.

The SR-99 corridor is typically five to seven lanes wide with sidewalks. The integrity of any archaeological deposits that may have been present has likely been destroyed by previous development. During field reconnaissance of the proposed *Swift* BRT stations, no places were observed with potential for subsurface archaeological exploration. Many of the stations will be built adjacent to parking lots or modern commercial developments (Cultural Resources Consultants, Inc., 2008).

c. Describe proposed measures to reduce or control impacts, if any.

The archaeological survey did not identify archaeological materials in the immediate vicinity of the proposed *Swift* BRT stations. The assessment concluded that the project will not adversely affect the historic integrity of the Snohomish County Courthouse. Therefore, mitigation measures to address historic and cultural impacts are not proposed.

In the unlikely event that construction activities result in the inadvertent discovery of archaeological deposits, work should be halted in the immediate area and contact made with the State Department of Archaeology and Historic Preservation (DAHP) in Olympia. Work should be halted until such time as further investigation and appropriate consultation are concluded. In the unlikely event of the inadvertent discovery of human remains, work should be immediately halted in the area, the discovery covered and secured against further disturbance, and contact effected with law enforcement personnel, DAHP, and authorized representatives of the concerned Indian tribes.

14. Transportation

Mirai Transportation Planning and Engineering (2008) evaluated the traffic impacts of the proposed *Swift* BRT. The study included an analysis of impacts to the roadway system, intersection operations, on-street parking, traffic and pedestrian safety, adjacent private property site access, and Community Transit operations. The results of the analysis developed by Mirai are presented in this section and incorporated throughout this environmental checklist. The full report can be found in Appendix D of this document.

a. Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on-site plans, if any.

The proposed *Swift* BRT service will operate on Pacific Avenue and the Rucker Avenue/Evergreen Way/Pacific Highway/SR-99 corridor. State highways intersecting this corridor include SR-526, SR-525 and SR-104. *Swift* BRT stations are proposed to be located near intersections along the project corridor as described in the project description and background. The list of intersections is included in Table 1 (Section A.11.) and shown on Figure 1.

There are a number of private driveways located near the *Swift* BRT stations that serve adjacent private properties. Some driveways in proximity to stations will need to be closed, shifted, or reduced in width to accommodate the stations and transit operations. The specific driveway modifications by *Swift* BRT station are described below.

- Casino Road southbound (Station 2796): Close southernmost driveway to gas station permanently. The gas station will retain two driveways on Evergreen Way and two driveways on Casino Road. Up to 25 vehicles use these driveways during peak traffic hours.

- 4th Avenue West southbound (Station 2788): This station would be located between two existing driveways providing access to a gas station, bowling alley, and espresso stand. The two driveways may need to be shifted and/or have their widths decreased. Between 40 and 90 vehicles use these driveways during peak traffic hours.

- 4th Avenue West northbound (Station 2787): Northernmost driveway to retail stores would be closed permanently.

- 112th Street southbound (Station 2784): Close the northernmost driveway to car dealership permanently. The dealership will retain two other driveways, maintaining access from both SR-99 and 112th Street. Less than 10 vehicles use this driveway during peak traffic hours. It is likely used for on-site circulation and vehicle storage.

- Airport Road southbound (Station 2782): The driveway from SR-99 to a truck dealership will be reduced in width. Traffic issues at this station are related to high-volumes and higher turning speeds of eastbound Airport Road to southbound SR-99 traffic.

- Lincoln Way southbound (Station 2780): Existing SR 99 access is open along the full frontage, which appears to not be used for access but for car storage. This will be reduced to a single access point that will be located south of the proposed *Swift* BRT station and the relocated local stop. Other access to the property will be maintained by three existing driveways (one from Lincoln Way and two from Mukilteo Speedway).

- 196th Street southbound (Station 2764): Close northernmost driveway to vacant lot (undergoing redevelopment). Access to property will be maintained by two driveways (one from SR-99 and one from 196th Street).

- 200th Street northbound (Station 2761): Shift driveway to the north. Driveway provides access to an auto supply store and a coffee drive-through. Up to 25 vehicles use this driveway during peak traffic hours.

- 238th Street (both directions; Stations 2748 & 2747): Driveways at both station locations may need to be shifted slightly and reduced in width.

b. Is the site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?

The project corridor is currently served by Community Transit, Sound Transit, and Everett Transit. The northern terminus of the *Swift* BRT route will be the Everett Station. Everett Station is a major transportation hub that serves Community Transit, Everett Transit, Sound Transit, Skagit Transit, Island Transit, Greyhound, Amtrak, and Sounder commuter rail. Currently, over 750 daily transit trips provide service to this facility. The southern terminus of the route will be the Aurora Village Transit Center. The center is a regional transit center and park-and-ride facility that is served by King County Metro and Community Transit. Over 700 daily transit trips currently provide service to this facility.

Community Transit Route 100 currently travels a similar route as the proposed *Swift* BRT route. Community Transit Route 100 only operates in the southbound direction in the AM peak period and northbound in the PM peak period during weekdays. When the *Swift* BRT route becomes operational it will succeed Community Transit Route 100 with two-way service throughout the day. Community Transit Route 101 also provides service within the project corridor. It provides all-day, local service throughout the week between the Aurora Village Transit Center and the Everett city limits at Airport Road. From there, Community Transit Route 101 travels east along 128th Street to the Mariner Park-and-Ride.

Everett Transit routes which serve the City of Everett along the study corridor include Everett Transit Routes 7 and 9. These routes provide all-day, local service throughout the week. Everett Transit Route 9 travels along the *Swift* BRT corridor through the city of Everett from Airport Road to the Everett Station. Within the project corridor, Everett Transit Route 7 travels between 4th Avenue W and 41st Street SW.

Many other transit routes provide service to a portion of the project corridor and many more cross the study corridor while servicing surrounding areas. The traffic study (Appendix D) includes a map of existing transit services along the corridor.

The majority of the *Swift* BRT stations are located near or adjacent to existing bus stops to provide opportunities to transfer between transit routes. As described in Section B.8.d. (Land Use) above, existing bus stops at 11 locations will need to be relocated to accommodate the *Swift* BRT stations. *Swift* BRT will not remove bus stops or otherwise impact opportunities for transit in the corridor.

Based on planning level estimates, *Swift* BRT is forecasted to carry an additional 2,300 riders per weekday in the year 2015. This number does

not include the riders currently using Community Transit Route 100 (which will be succeeded by *Swift* BRT) and other routes where riders will shift to *Swift* BRT. Extended service hours will also allow *Swift* BRT to attract a wider market of passengers. New transit customers in the corridor will translate to overall vehicle trip reductions in the corridor.

c. How many parking spaces would the completed project have? How many would the project eliminate?

The proposed project will not add parking spaces. The *Swift* BRT stations will result in the removal of off- and on-street parking spaces. Up to 14 *Swift* BRT stations could cause an impact to off-street parking lots. The number of off-street parking spaces that must be removed or reconfigured for each commercial property is 10 or less. Off-street parking spaces may be able to be retained by re-striping parking lots. Up to 14 on-street parking spaces total may need to be removed to accommodate two *Swift* BRT stations.

d. Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe.

Swift BRT will not require any new roads or streets for successful operation at year of opening in 2009.

The 40th/41st Street northbound station will be located on the north side (far side) of 40th Street SE and Rucker Avenue and will shift a local bus stop further north within the same block. This location puts the station a full block (approximately 350 feet) from the signalized intersection at 41st Street. To minimize safety risks to pedestrians and discourage jaywalking across Rucker Avenue, a mid-block crosswalk with signal control will be located between the *Swift* BRT station and the local Everett Transit bus stop.

Intersection and traffic control modifications are proposed at Airport Road and SR-99 to accommodate the southbound *Swift* station. Modifications will include reconstructing the southwest corner and sidewalk with a shorter curb radius and installing the following: pavement markings to define two turning pathways, cross-hatched pavement markings in the shoulder area of the *Swift* station, pedestrian countdown signals, and flashing warning signs to highlight pedestrian crossing movements. This combination of traffic markings and signal modifications is intended to keep the turning traffic out of the shoulder area and to alert motorists when pedestrians are in the crosswalk. Cross-hatching in the shoulder area of the northbound station may also be installed. Figure 4 illustrates

proposed modifications to channelization and pavement markings at this location.

A traffic island at Lincoln Way and SR-99 may need to be modified slightly to accommodate southbound *Swift* BRT movement through the intersection.

As described in Section A.7. (Future Actions) the traffic analysis for *Swift* BRT (Mirai, 2008) identified a range of traffic strategies that, while not required for operation of *Swift* BRT, will enhance transit operations if implemented in the future. Potential enhancements include increased use of Traffic Signal Priority (TSP) for transit; intersection queue jump or bypass; and provision of a continuous dedicated Business Access and Transit (BAT) lane throughout the corridor. If implemented in the future, traffic improvements will be subject to separate review under SEPA.

e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The project will not use or occur in the immediate vicinity of water, rail, or air transportation.

f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

Swift BRT will succeed the existing Community Transit Route 100 with increased frequency, increased span of service and two-direction coverage throughout the day. *Swift* BRT will operate six buses per hour per direction, replacing 3 Community Transit Route 100 buses in the peak direction (southbound in the AM and northbound in the PM). This represents a slight increase in the number of transit vehicles operating in the corridor during peak hour periods. Daily bus trips will increase from 19 to 174 with the *Swift* BRT route. However, no net increase in vehicle trips is expected as *Swift* BRT is expected to attract new transit customers and reduce the number of automobiles using the corridor (Mirai, 2008). New ridership on *Swift* BRT is forecast to be approximately 2,300 daily riders in 2015 which will benefit the community through reduced auto use in the corridor.

Swift BRT will operate in a corridor that currently experiences congestion at several intersections. Congestion is expected to worsen in the future due to background growth in traffic volumes. One measure of intersection operational efficiency is the average delay experienced by vehicles approaching an intersection. Intersection delay is rated and expressed as level-of-service (LOS) from A to F, where A represents best

conditions and minimal delay and F represents worst conditions (long delays and heavy congestion). The traffic analysis shows that the following 3 study intersections currently operate at D or worse during the morning peak hour: Pacific Avenue and Rucker Avenue, 41st Street SE and Rucker Avenue, and Airport Road and SR-99. The following 12 intersections operate at a LOS of D or worse during the evening peak hour: Pacific Avenue and Broadway, Pacific Avenue and Rucker Avenue, 40th Street SE and Rucker Avenue, 41st Street SE and Rucker Avenue, 50th Street SE and Evergreen Way, Madison Street and Evergreen Way, Casino Road and Evergreen Way, Airport Road and SR-99, Lincoln Way and SR-99, 148th Street SW and SR-99, 196th Street SW and SR-99, and N 200th Street and SR-99. Background growth in traffic is expected to degrade LOS with or without the project. During the PM peak hour in 2030 (the planning horizon year), the LOS is projected to either stay the same or decrease compared to existing conditions. The study intersections that operate at a LOS D or worse are expected to increase from 12 to 18 (Mirai, 2008). The proposed project would have no effect on traffic at these intersections.

While attracting new transit customers will result in reducing automobiles operating in the corridor, the reduction in and of itself is not anticipated to be significant enough to actually improve levels of service at any particular intersection, since the corridor is highly congested and the peak hour is expected to extend into a broader peak period. That is, any reduction in peak hour vehicles would be filled from the latent vehicle demand in the peak period, which actually occurs over a period longer than one hour.

g. Describe proposed measures to reduce or control transportation impacts, if any.

Construction Impacts

Traffic impacts from construction will not be significant. In most cases where lane closures will occur, adequate width will exist to maintain two lanes of traffic in the same direction passing by the construction site. In most locations along SR-99, the outside or curb lane is wider than a traditional lane to accommodate bicycle traffic, so there will be adequate room to provide cones and barricades during concrete/pavement curing and still maintain a lane of traffic. Some local disruption to bicycle traffic may occur.

While lane widths are not quite as generous on Rucker Avenue, the curing process for the curb and gutter can still be accommodated without lane closures beyond construction work hours.

One set of stations will be constructed on Pacific Avenue in the vicinity of Wetmore. Pacific Avenue is five lanes wide with parking on the south side of Pacific. It is possible that a longer lane closure could exist for these stops, although it is likely that the contractor will request elimination of parking for a two- or three-block length and then use the parking lane as a temporary lane, with occasional shifting of traffic from the north side of the street to the south side of the street (or vice versa), thus maintaining five lanes of traffic.

Operation Impacts

There are no expected impacts to traffic operation along the *Swift* BRT corridor. It will be similar in operation to the current transit service provided in the corridor by Community Transit and Everett Transit. *Swift* BRT is proposed to operate in BAT lanes where available in the corridor and to operate in general traffic lanes the rest of the route. The minor increase in transit vehicles operating in the corridor would not have a measurable effect on traffic operations at nearby intersections. By attracting new transit customers, *Swift* BRT would likely result in a net reduction in vehicle trips in the corridor, having a beneficial effect on daily traffic. However, this reduction may not be significant enough, in and of itself, to improve traffic operations at individual congested intersections (operating at LOS D or worse) at year of opening or in the future.

Site-specific impacts adjacent to *Swift* BRT stations related to traffic include alterations to access and circulation (through driveway closures or reconfigurations) and loss of on-street and on-site parking. These impacts will be minimized by:

- maintaining access to businesses from the primary roadway (i.e., the project corridor);
- reconfiguring on-site parking to maintain adequate parking supply and on-site circulation for businesses.

No businesses would be displaced or relocated as a result of changes to driveway access or parking availability.

15. Public Services

a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally explain.

The proposed *Swift* BRT stations will not provide new housing and will not result in an increased need for schools or healthcare facilities. The potential increase in future transit users is not anticipated to place additional capacity demands on the existing public services such as fire, police, or emergency medical response.

b. Describe proposed measures to reduce or control direct impacts on public services.

Design of the *Swift* BRT stations will incorporate features to provide for the safety and security of *Swift* BRT users (e.g., lighting and signage).

The proposal will have a beneficial impact on public transit services, by increasing transit options and improving travel efficiency in the area. Adverse impacts to public services are not anticipated.

16. Utilities

a. Underline utilities currently available at the site:

Electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic systems, other

b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

Electrical power to each *Swift* BRT station will be provided by Snohomish County Public Utility District (PUD). The project will install electric conduit to allow for advanced ticketing and electronic customer information signs. Another conduit will be installed to allow for the future provision of telecommunication to the stations. No new restroom facilities are to be provided. Several fire hydrants will need to be relocated to make room for the *Swift* BRT stations. There may be storm drain reconstruction at some stations and traffic signal pole modification as a result of work on traffic islands. Signal poles will only be modified if there are no other feasible options. No disruption of utility service during construction is anticipated.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: 

Name (print): Kent Hale, AICP

Title: Senior Planner, ESA Adolfson

Date Submitted: May 27, 2008

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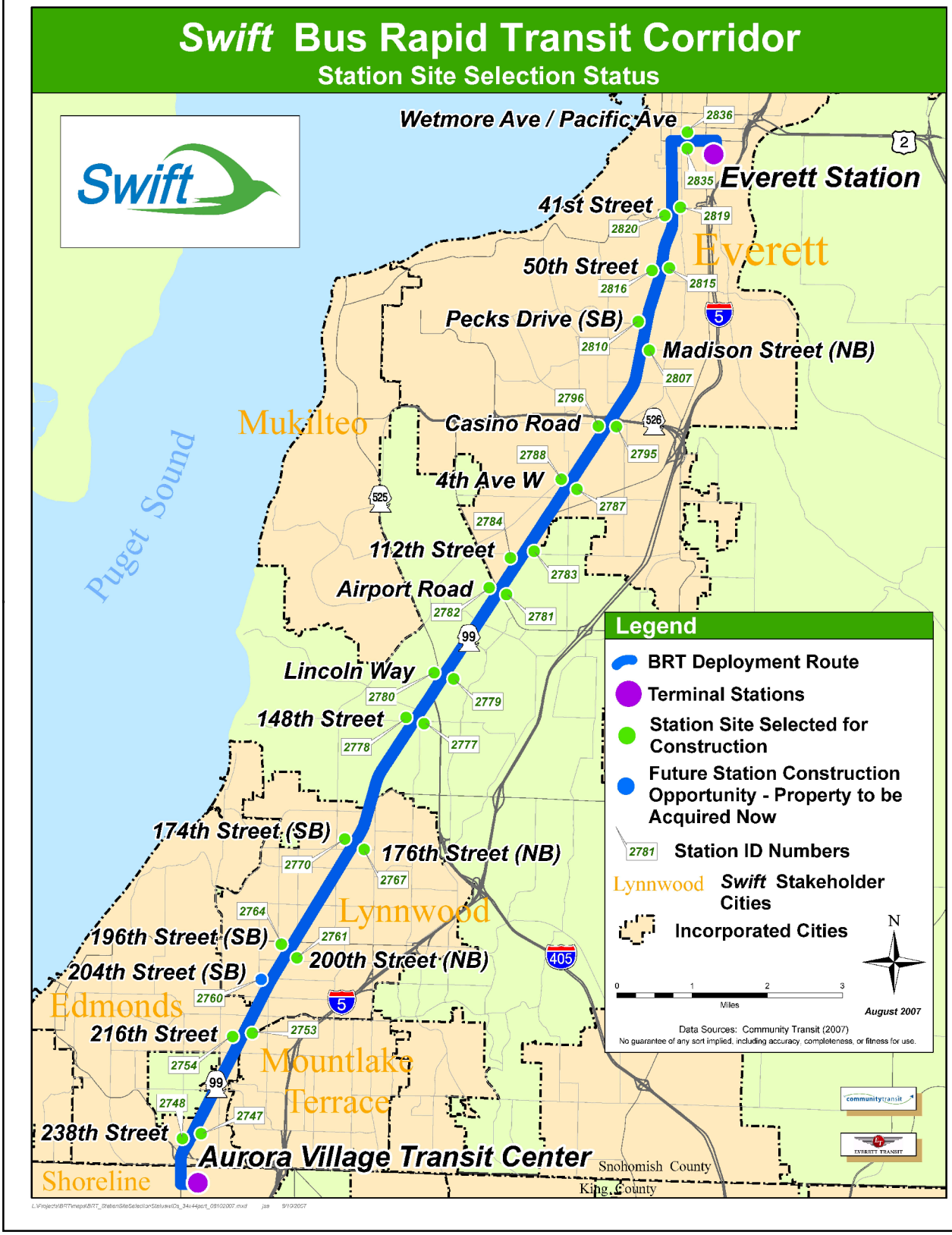
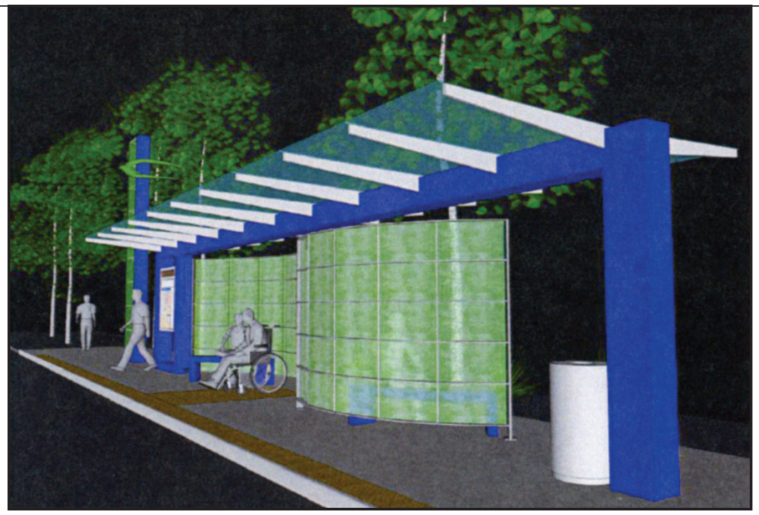
FIGURES



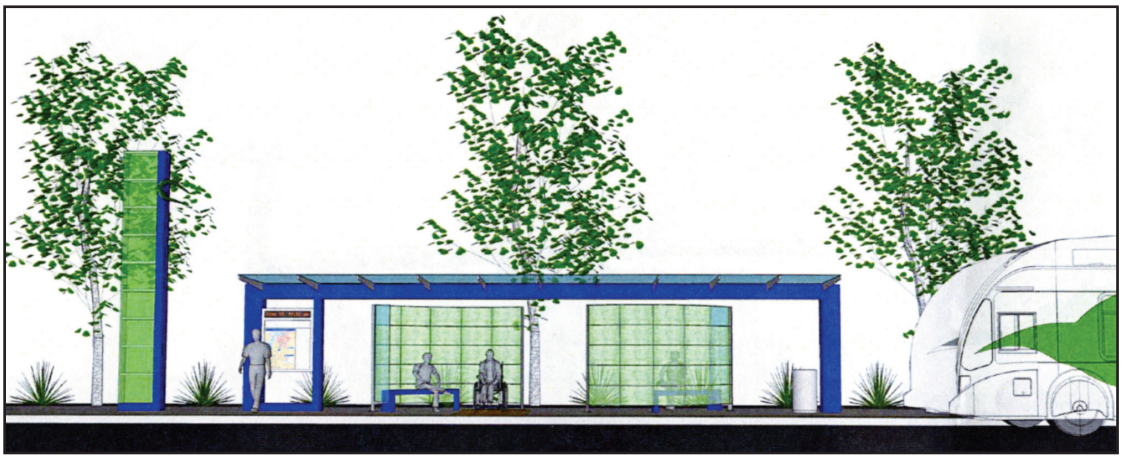
SOURCE: Community Transit, 2007

Swift Bus Rapid Transit

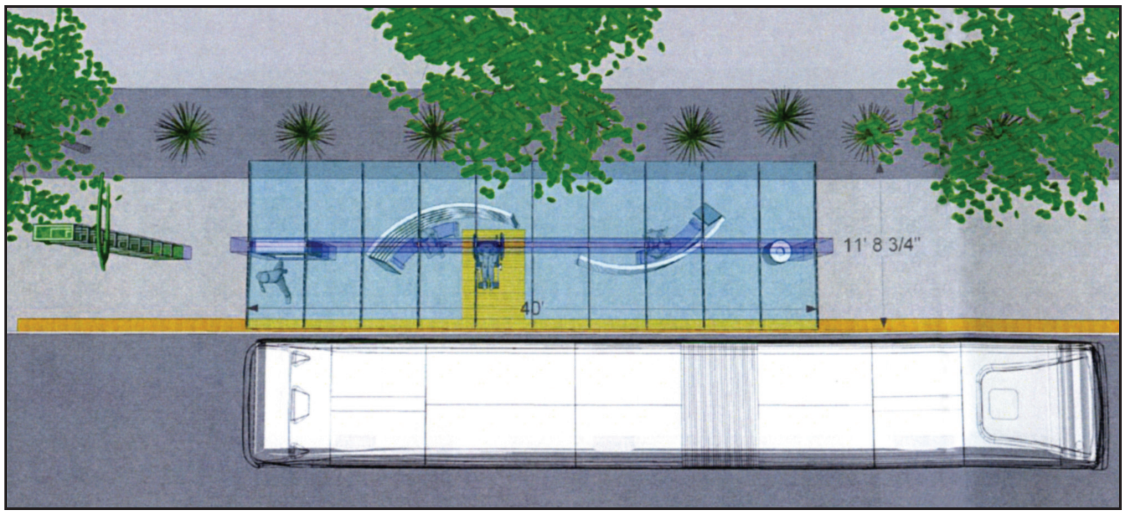
Figure 1.
Swift BRT Project Corridor



TYPICAL STATION



STREET ELEVATION



PLAN VIEW

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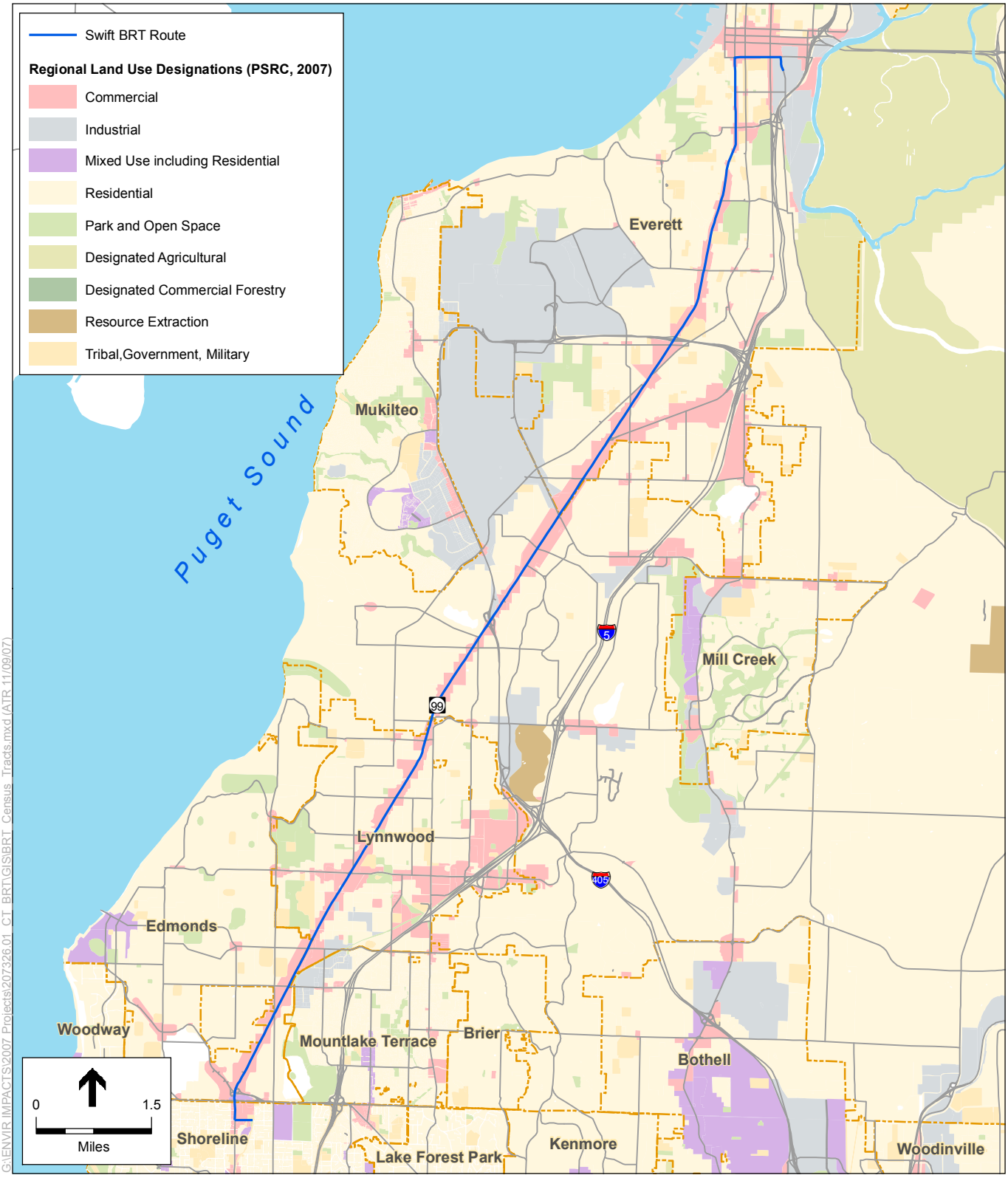
CREATED BY: JAB / DATE LAST UPDATED: 02/27/08

SOURCE: OTAK.

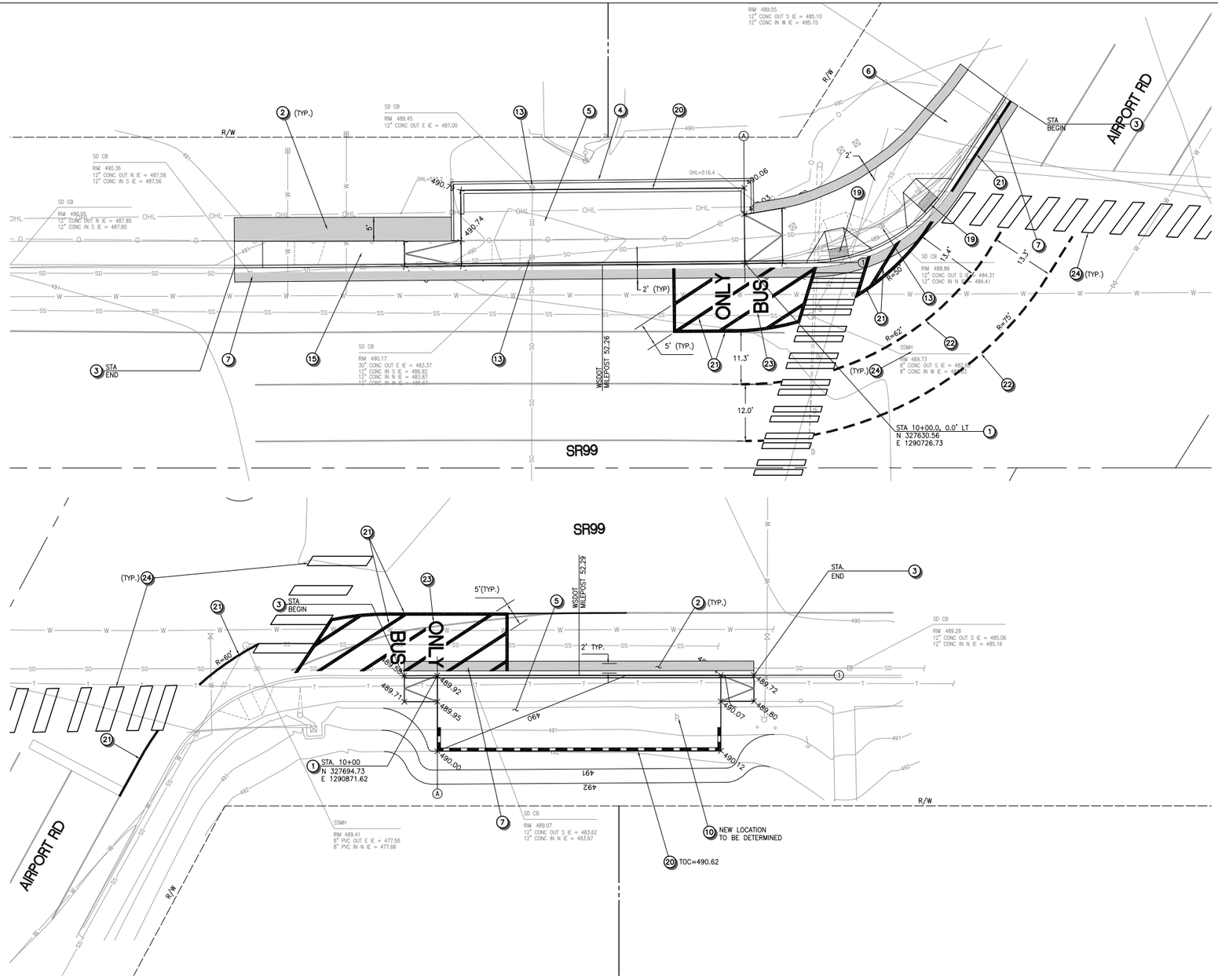
Figure 2
Station Design Schematics



SOURCE: PSRC, 2007; CT, 2007; ESRI, 2005

Swift Bus Rapid Transit

Figure 3.
Land Use Patterns



CONSTRUCTION NOTES

1. CONSTRUCTION GRID LINE
2. CONSTRUCT ASPHALT PAVEMENT PER DETAIL ON SHEET XX.
3. CONSTRUCT CEMENT CONCRETE CURB AND GUTTER PER DETAIL ON SHEET XX.
4. CONSTRUCT CEMENT CONCRETE EXTRUDED TYPE 6 CURB PER WSDOT STD PLAN F-10.42-00.
5. CONSTRUCT TYPICAL BUS PLATFORM AND RAMPS SEE TABLE ON SHEET XX FOR DETAILS.
6. CONSTRUCT CEMENT CONCRETE SIDEWALK PER DETAIL ON SHEET XX.
7. ADJUST EXISTING UTILITY TO FINISH GRADE.
8. CONNECT TO EXISTING STORM DRAINAGE SYSTEM.
9. RELOCATE EXISTING UTILITY, BY OTHERS.
10. RELOCATE EXISTING SIGN AS SHOWN ON PLAN.
11. INSTALL PARKING STRIPING PER PLAN. SEE DETAIL ON SHEET XX.
12. CONSTRUCT CONCRETE RETAINING WALL, SEE WALL TABLE ON SHEET C4.01 FOR DETAILS.
13. RELOCATE EXISTING UTILITY AS SHOWN ON PLAN.
14. CONNECT TO EXISTING WATER MAIN PER DETAIL ON SHEET XX.
15. CONSTRUCT CEMENT CONCRETE DRIVEWAY ENTRANCE TYPE 1 PER WSDOT STD PLAN F-80.10-00.
16. CONSTRUCT CEMENT CONCRETE DRIVEWAY ENTRANCE TYPE 2 PER WSDOT STD PLAN F-80.10-00.
17. WHITE EDGE LINE PER WSDOT STD PLAN M-20.10-01.
18. BUS STOP AND/OR SIGN TO BE RELOCATED.
19. CONSTRUCT SIDEWALK RAMP TYPE 1 PER WSDOT STD PLAN F-40.10-01.
20. CONSTRUCT CEMENT CONCRETE VERTICAL CURB SEE SHEET XX FOR DETAILS.
21. 6" WHITE STRIPE
22. 4" WHITE DOTTED EXTENSION LINE
23. BUS ONLY STRIPING. SEE DETAIL ON SHEET XX.
24. REFRESH CROSSWALK STRIPING
25. 4" WHITE STRIPE

60% NOT FOR CONSTRUCTION

10' 0' 10' 20'
SCALE IN FEET

FILE NAME: Fig04_intersection-improv.ai / SEPA
CREATED BY: JAB / DATE LAST UPDATED: 04/24/08

SOURCE: OTAK, 2008.

Figure 4
Intersection Improvements — Airport Road Southbound