

4.0 Affected Environment and Environmental Consequences

Section 3.0, Transportation Affected Environment and Environmental Consequences, presented information about potential transportation impacts on the I-90 corridor and local traffic intersections from changes in I-90 Operations and the Transit Integration configurations. This section discusses the potential for changes in construction and/or operational impacts on non-transportation environmental resources, along with mitigation measures where applicable. Air quality is the only resource discussed for changes to I-90 Operations. No other elements of the environment would be affected by the changes in I-90 Operations. For the Transit Integration configurations, this section evaluates impacts to Acquisitions, Displacements, and Relocations; Land Use; Air Quality and Greenhouse Gases; Noise; Visual and Aesthetic Resources; Public Services; Parklands and Open Space; and Historic and Archaeological Resources. Section 7.0 provides information on Environmental Justice.

The following elements of the environment would not be affected by the change in I-90 Operations or the Transit Integration configurations and are not evaluated in this Addendum: Economics; Social Impacts, Community Facilities, and Neighborhoods; Vibration; Ecosystems; Water Resources; Energy; Geology and Soils; Hazardous Materials; Electromagnetic Fields; and Utilities.

The Final EIS discussed the common potential construction impacts. The changes in I-90 Operations and Transit Integration configurations would not result in any new non-transportation construction impacts not already addressed in the Final EIS. Impacts include temporary increases in noise and dust, and temporary visual changes due to the presence of equipment and materials. Construction would also require the removal of vegetation, including areas within parks. Improvements or modifications to surface roadways could require utility relocation and access to utilities.

The Final EIS and ROD identified a number of mitigation measures that would be implemented and there are no proposed changes in mitigation for operation or for construction period impacts for elements analyzed in this section. The mitigation measures applicable to address impacts associated with changes to I-90 Operations and Transit Integration configurations include compensating affected property owners according to provisions specified in Sound Transit's adopted Real Estate Property Acquisition and Relocation Policy, Procedures, and Guidelines (Resolution #R98-20-1) and specified in federal and state law. The Final EIS also identified measures to prevent air quality degradation and meet required noise limits, and identified the need to coordinate with emergency service providers. The Final EIS discussed preserving existing vegetation to the extent possible and restoring temporarily disturbed areas within parks and open spaces and providing detours for trails and sidewalks. WSDOT and Sound Transit have agreed on the replacement and enhancements for impacted landscaping along I-90 for the East Link Project. Sound Transit will dedicate staff to work specifically with affected businesses during construction to minimize project impacts. Construction mitigation plans will be developed as necessary to address the needs of businesses.

4.1 Acquisitions, Displacements, and Relocations

The FEIS Configuration for the transit integration plan on Mercer Island would not result in property acquisition outside of the existing public roadway or highway rights-of-way.

4.1.1 77th Avenue SE Configuration

The 77th Avenue SE Configuration would require acquisition of two single-family residences for construction of the roundabout at 77th Avenue SE and N Mercer Way (refer to Appendix B, Potentially Affected Parcels). Displaced residents would receive compensation and relocation benefits consistent with the Uniform Relocation Act, as described in the mitigation in the Final EIS.

4.1.2 80th Avenue SE Configuration

The 80th Avenue SE Configuration would not result in private property acquisitions and all work would be within the existing public roadway on 80th Avenue SE. This configuration would require acquisition of approximately 1.0 acre (0.7 acre of open space and 0.3 acre of public right-of-way) within the WSDOT I-90 right-of-way maintained by the City of Mercer Island under a lease agreement with WSDOT. This lease allows WSDOT to terminate the use of this area as open space for transportation uses. The FEIS Configuration would result in a 0.1-acre impact to this area. However, the Final EIS also evaluated an optional pedestrian access to the station not included in the project that would have resulted in an additional 0.3-acre impact to the Mercer Island I-90 Outdoor Sculpture Gallery. Refer to Section 4.7 for information on parks and open space.

4.1.3 Comparison to the Final EIS

The additional residential displacements for the 77th Avenue SE Configuration and the additional WSDOT right-of-way use for the 80th Avenue SE Configuration are within the range of potential acquisition impacts identified for the East Link Extension in the Final EIS and would not result in new acquisition impacts that are outside the range of impacts evaluated in the Final EIS and subsequent Addenda.

4.2 Land Use

The FEIS Configuration for the transit integration plan on Mercer Island would not change any existing land uses to a transportation-related use because it would be located entirely within public right-of-way areas already used for transportation.

4.2.1 77th Avenue SE Configuration

The 77th Avenue SE Configuration would convert approximately 0.5 acre of residential land use to a transportation-related use as a result of property acquisitions required for the construction of the roundabout.

4.2.2 80th Avenue SE Configuration

The 80th Avenue SE Configuration would be located within the existing WSDOT-owned I-90 right-of-way. Some of the potentially impacted area is public right-of-way owned by WSDOT and currently leased to and maintained by the City of Mercer Island as part of Aubrey Davis Park, and includes a

portion of the Outdoor Sculpture Gallery (refer to Section 4.8.2). This configuration would change the use of approximately 0.7 acre of this public right-of-way from open space to a transportation-related use.

4.2.3 Comparison to the Final EIS

The 77th Avenue SE Configuration would convert existing residential land to a transportation use, and the 80th Avenue SE Configuration would convert existing open space within public right-of-way to a transportation-related use. The converted areas for both configurations are within the range of potential land use impacts identified for the Final EIS and would not result in new land use impacts outside the range of impacts evaluated in the Final EIS. In addition, consistent with the findings in the Final EIS, the amount of land that would be converted is minimal compared to available non-transportation land in the project vicinity, and the conversion does not result in material changes in the regional or local land use or development patterns.

4.3 Air Quality and Greenhouse Gases

Greenhouse gases are assessed at a regional level and are quantified based on the regional VMT. In the Puget Sound region, the VMT is almost 76 million miles daily. The number of vehicles, including buses, operating within the region would not change substantially between the FEIS Configuration, the changed I-90 Operations, and the Transit Integration configurations, and would not have a noticeable effect on regional VMT; therefore, no change in greenhouse gas emissions would occur under the changed I-90 Operations or either Transit Integration configuration.

An air quality hot spot analysis was conducted for locations where congestion could result in carbon monoxide (CO) exceedance under the National Ambient Air Quality Standards. Hot spot analysis is only required for signalized intersections operating at LOS D or worse for the future design year. Note that as of October 2016, transportation conformity requirements for CO no longer apply to the Seattle area. However, the information is provided here for comparison to the FEIS Configuration.

4.3.1 I-90 Operations

A hot spot analysis for CO was completed because the LOS degrades in the future design year and operates at LOS D or worse for the following five signalized intersections:

- 4th Avenue S/Seattle Boulevard S
- 4th Avenue S/S Royal Brougham Way
- Rainier Avenue/S Dearborn Street
- Bellevue Way/112th Avenue SE
- Bellevue Way/112th Avenue SE/S Bellevue Park and Ride

Based on the updated traffic analysis, hot spot modeling showed that none of these intersections would exceed the 1-hour or 8-hour National Ambient Air Quality Standards for CO. Appendix C, Air Quality Results, provides more information on the analysis.

4.3.2 Mercer Island Bus Transit Integration

None of the intersections on Mercer Island studied in the Final EIS triggered the need for a hot spot analysis because either the signalized intersections would maintain a LOS of C or better or the CO concentrations remained unchanged compared to the No Build condition.

The signalized intersections associated with the 77th Avenue SE Configuration and the 80th Avenue SE Configuration would operate at LOS C or better; therefore, a hot spot analysis is not required. No adverse impacts to air quality would occur.

4.3.3 Comparison to the Final EIS

Compared to the Final EIS, there are no changes in either greenhouse gas emissions or air quality impacts with both the changes in I-90 Operations and the Transit Integration configurations.

4.4 Noise

Noise analyses were conducted to evaluate potential impacts from both transit and traffic noise changes near the new Mercer Island Station due to the Transit Integration configurations. The methodology and results are discussed in detail in Appendix D, Noise Analysis Memorandum. The FEIS Configuration for the transit integration plan on Mercer Island would not result in any transit or traffic noise impacts on Mercer Island.

4.4.1 FTA Transit Noise Impacts

Potential noise levels from the Transit Integration configurations were evaluated for 2035 using FTA methods (FTA, 2006) to assure compliance with applicable noise criteria. The FTA noise analysis for the Transit Integration configurations analyzed noise from buses in the layover area, but analysis was not required for on-street operation of buses. FTA criteria use an area's current land use to determine the noise analysis category for the area. Land uses near the configurations include single-family residential to the north of the Mercer Island Park-and-Ride and mixed multifamily and commercial uses south of I-90. There is a large condominium complex to the northeast, and there are paths and green space on the I-90 lids. Only the residential uses are considered noise-sensitive under the FTA criteria. I-90 runs through the middle of the study area and is depressed in a cut approximately 30 to 40 feet below grade, reducing noise from the highway for most residences in the area.

Existing noise measurements were taken at one location, site M1, and modeled at seven receiver locations, R1 through R7 (Exhibit 4-1; monitoring site M1 is the same location as R3), for the Transit Integration configurations. Receiver R1 represents the single family residences located north of the Transit Integration configurations near the intersection of 77th Avenue SE and N Mercer Way. Receivers R2 and R3 represent single family residences behind the existing park-and-ride on SE 24th Street. Receivers R4 through R7 represent the mixed use and multifamily residences located south of I-90.

Traffic noise from N Mercer Way and other nearby arterial roadways dominated the measured existing noise environment. Noise from I-90 was audible but not a major contributor. Noise levels for bus operations were analyzed using the proposed transit routing for the Transit Integration configurations

in 2035. The predicted noise levels give more weight to nighttime buses (between 10 p.m. and 7 a.m.), which includes a 10-decibel penalty to sound levels in this time period to account for the increased sensitivity when most people typically sleep.

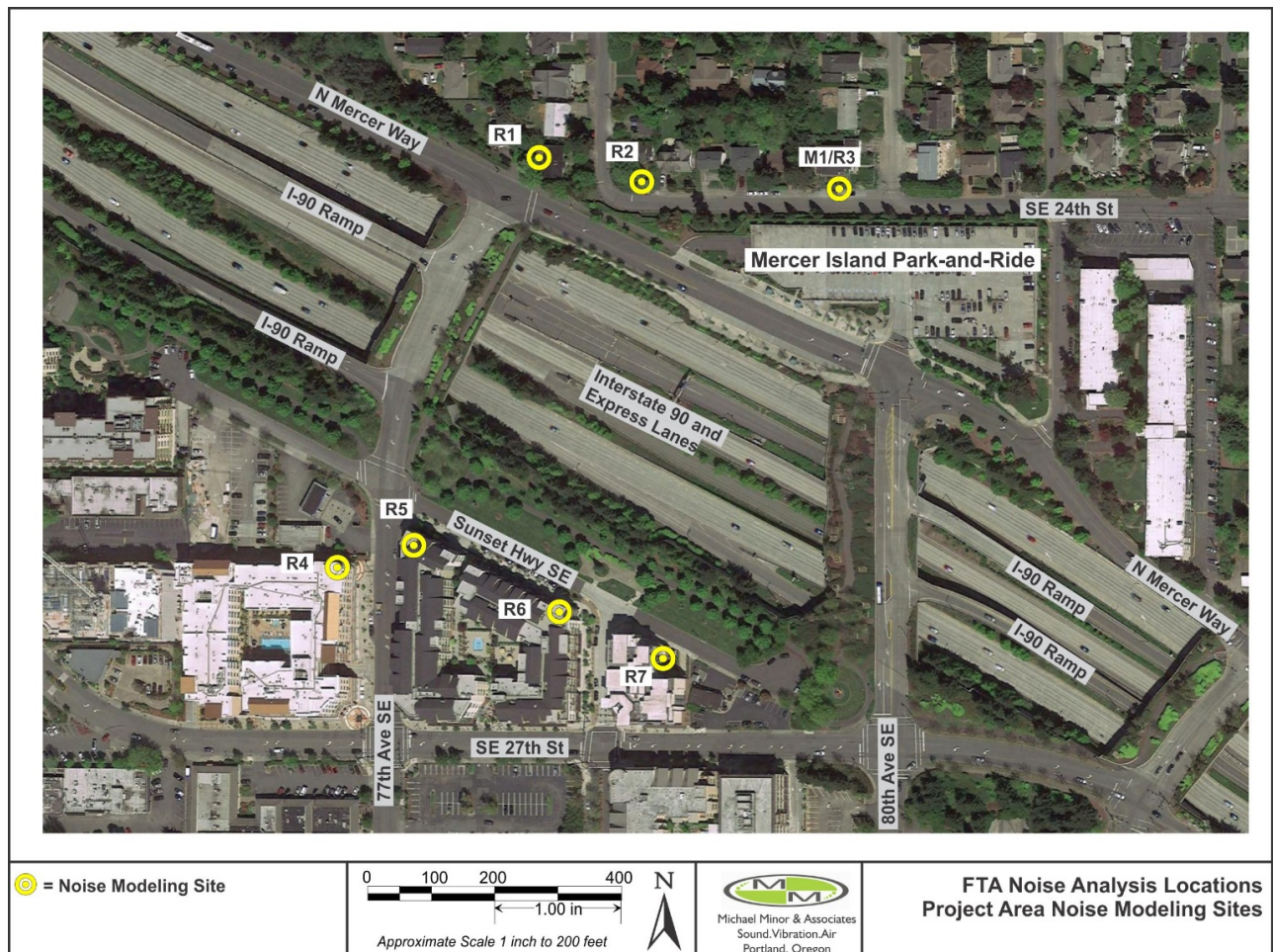


Exhibit 4-1. FTA Noise Analysis Modeling Sites

Table 4-1 provides the results of the FTA noise projections and compares the operational noise projections with the existing day-night (24-hour) average noise level (L_{dn}) values and the FTA noise impact criteria. As shown in Table 4-1, neither the 77th Avenue SE Configuration nor the 80th Avenue SE Configuration would result in noise levels that exceed the FTA impact criteria.

4.4.2 FHWA Traffic Noise Impacts

The 77th Avenue SE Configuration also required an FHWA traffic noise analysis according to the FHWA criteria (FHWA, 2010) because the roundabout would shift travel lanes closer to residences on the north side of N Mercer Way and remove residences that serve as barriers to roadway noise for the residences behind them. Exhibit 4-2 illustrates the locations used for noise modeling for the FHWA traffic noise analysis.

Table 4-1. FTA Operational Noise Level Impact Analysis for Transit Integration Configurations (in 2035 Worst Case)

Receiver ^a	Existing Level (dBA L _{dn}) ^b	77th Avenue SE Configuration (dBA L _{dn}) ^c	80th Avenue SE Configuration (dBA L _{dn}) ^c	FTA Impact Criteria (dBA) ^d		
				Moderate	Severe	Impact ^e
R1	65	51 ^f	49	61	65	No
R2	63	50	50	60	64	No
R3	54	46	50	55	62	No
R4	64	47	46	61	65	No
R5	65	47	47	61	65	No
R6	62	48	48	59	64	No
R7	61	47	49	59	64	No

^a Receiver locations are shown on Exhibit 4-1.

^b Existing 24-hour L_{dn}.

^c Calculated 24-hour L_{dn} from bus transit operations only assuming worst-case nighttime bus activity.

^d FTA impact criteria from Exhibit 3 of the guidance manual (FTA, 2006).

^e An impact would be that L_{dn} exceeds FTA criteria.

^f Because receiver R1 would be displaced by the roundabout, the FTA analysis used receiver T1 from the traffic analysis instead, which has an existing noise level of 60 dBA.

dBA = A-weighted decibels

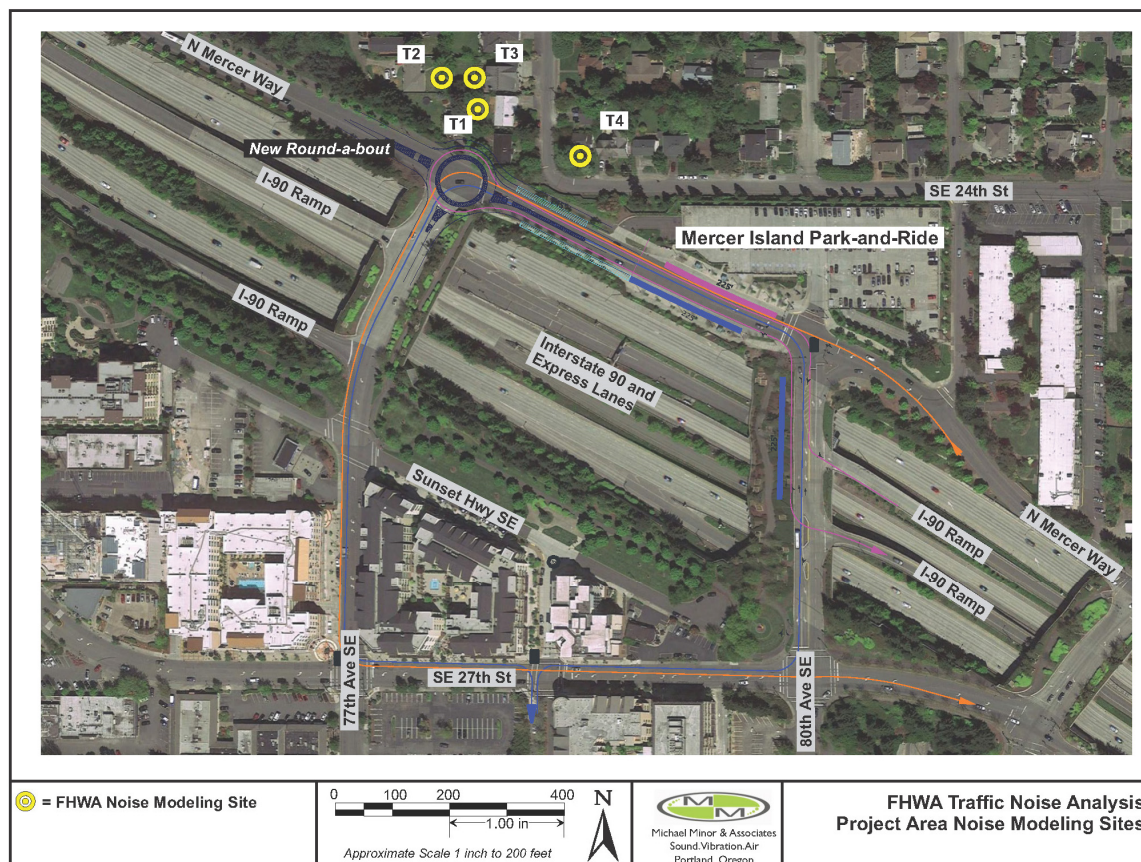


Exhibit 4-2. FHWA Traffic Noise Analysis Noise Modeling Sites

4.4.2.1 77th Avenue SE Configuration

Future traffic noise levels were evaluated for the roundabout at the intersection of 77th Avenue SE and N Mercer Way. The analysis compared the existing noise conditions with the future 2035 volumes and assumed Option 2 for I-90 Operations to be conservative. This traffic noise analysis assumed that the speeds in the roundabout are the same as travel speeds along N Mercer Way, even though speeds through the roundabouts are typically 5 to 10 mph slower than the posted speeds. Using the posted speeds through the roundabout results in a conservative analysis.

Table 4-2 shows existing and projected noise levels at these sites. All four locations would remain below the FHWA impact criteria and would be similar to the existing conditions. There would be no traffic noise impacts associated with the configuration.

Table 4-2. FHWA Traffic Noise Levels for 77th Avenue SE Configuration (existing conditions and 2035 predicted volumes)

Receiver ^a	Existing Conditions Traffic Noise (Leq dBA)	77th Avenue SE Configuration Traffic Noise (Leq dBA)	FHWA Impact Criteria (dBA Leq)	Traffic Noise Impacts
T1	56	57	66	No
T2	55	56	66	No
T3	57	57	66	No
T4	57	58	66	No

^a Receiver locations are shown on Exhibit 4-2.

Leq = equivalent continuous noise level, equivalent to the total sound energy over a given period of time

4.4.2.2 80th Avenue SE Configuration

A FHWA noise analysis was not required for the 80th Avenue SE configuration, because it would not widen or shift any roadways near sensitive receivers.

4.4.3 Comparison to the Final EIS

Predicted noise levels of both Transit Integration configurations are within the range of potential noise impacts identified for the Final EIS and would not result in new transit or traffic noise impacts that are outside the range of noise impacts evaluated in the Final EIS.

4.5 Visual and Aesthetic Resources

The Final EIS visual impacts analysis addressed the light rail station entrances at 77th Avenue SE and 80th Avenue SE. These entrances represent the FEIS Configuration and were found to be consistent with the visual characteristics of the dense commercial and residential area to the south and the park-and-ride lot to the north. King County Metro buses were anticipated to drop off/pick up passengers along N Mercer Way and 80th Avenue SE, in addition to laying over. No visual impacts in this area were identified as part of the Final EIS. For the 77th Avenue SE and 80th Avenue SE configurations, the number of buses moving or laying over during the peak hour would be less compared to the existing conditions and more than the FEIS Configuration. Because a greater number of buses already stop, lay over, and travel on these arterials, the visual character from bus activities under the Transit Integration configurations would be similar in visual character to the existing environment.

For the proposed Transit Integration configurations, Sound Transit developed visual simulations for three key observation points (KOPs): KOP 1 for the 77th Avenue SE Configuration, and KOPs 2 and 3 for the 80th Avenue SE Configuration. Exhibit 4-3 shows the locations of the KOPs. Each KOP shows a photo of existing conditions and a simulation with a configuration. The FEIS Configuration would be the same as shown in the existing conditions photos.

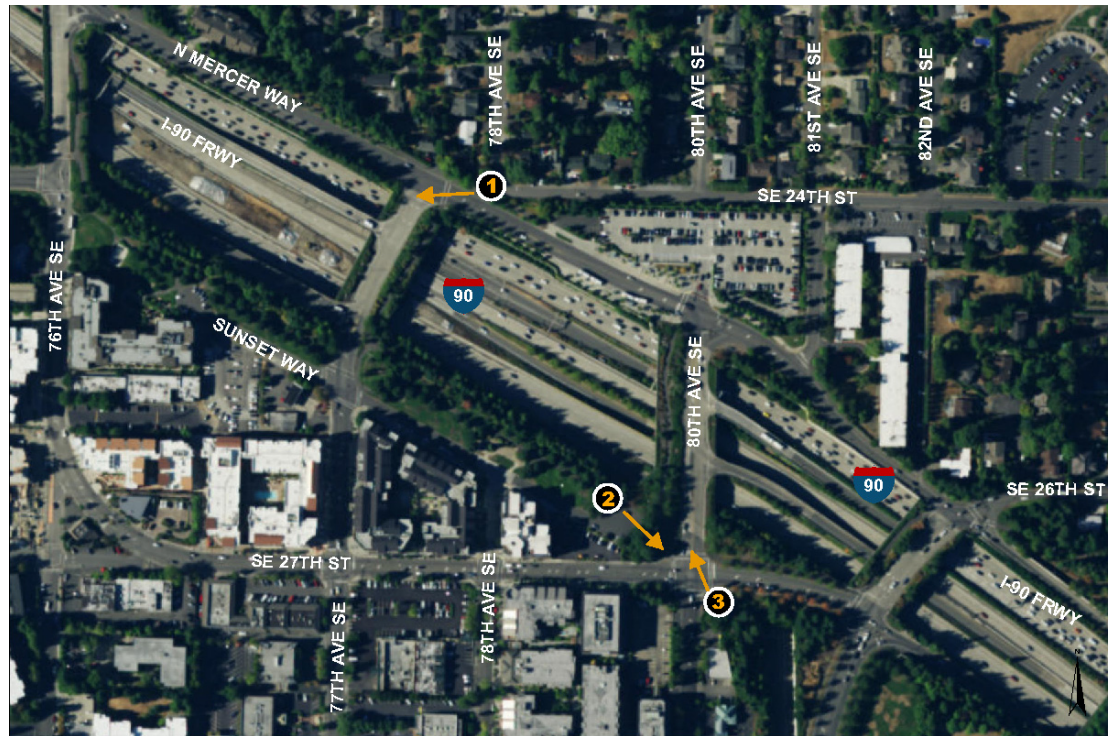


Exhibit 4-3. Key Observation Points

4.5.1 77th Avenue SE Configuration

The 77th Avenue SE Configuration would change the appearance of the area near the intersection of the 77th Avenue SE overpass and N Mercer Way compared to the FEIS Configuration (Exhibits 4-4 and 4-5). The roundabout would be landscaped, providing visual relief from the surrounding I-90 hardscape, and new landscaping to the north would also be added. These visual changes would be noticeable from N Mercer Way, the 77th Avenue SE overpass, and adjacent residential properties, but would not be noticeable to drivers on I-90. The new roundabout and sidewalk improvements would be landscaped to meet the City of Mercer Island landscape design guidelines. These two areas would introduce new landscaped elements along N Mercer Way and would support the park-like character of the landscaping used by Mercer Island along N Mercer Way and the I-90 lid. There may be a need for additional street lights, which would direct light downward, and additional lighting would be consistent with the urban and transportation character of this area.

Buses would lay over along the south and north sides of N Mercer Way (see Exhibit 2-4), which is a change from existing conditions as buses only pick up and drop off on N Mercer Way. Currently, there are about 350 buses that move along N Mercer Way, compared to about 320 buses with the 77th Avenue SE Configuration and 200 buses in the area with the FEIS Configuration (Table 2-2).



Exhibit 4-4. Existing Condition at Intersection of 77th Avenue SE and N Mercer Way – Looking Southwest from I-90 Trail



Exhibit 4-5. Simulation of the 77th Avenue SE Configuration – Looking Southwest from I-90 Trail

Under the FEIS Configuration, buses would use the south side of N Mercer Way for layover. Because a high number of buses already travel on N Mercer Way, the presence of buses would not result in a change in visual impacts from the existing condition or the FEIS Configuration.