SECTION 6

Arterials and Local Streets[1]

6.1 Affected Environment

6.1.1 Existing Roadway Facilities and Travel Patterns

Major arterials or roadways in the study area potentially affected by the project are identified in Table 6-1. The identified roadways generally have two- to four-lane cross-sections with posted speed limits between 25 and 35 mph.

Table 6-1. Existing Roadway Facilities

Roadway	Arterial Classification	Number of Lanes	Speed Limit (mph)
4th Avenue S	Principal arterial	6	30
Airport Way S	Principal arterial	4	30
Rainier Avenue S	Principal arterial	5	30
S Dearborn Street	Principal arterial	4	30
N Mercer Way	Collector arterial	3	30
SE 27th Street	Secondary arterial	3	25
SE 24th Street	Collector arterial	2	25
SE 40th Street	Secondary arterial	2	30
Island Crest Way	Principal arterial	4	35
76th Avenue SE	Collector arterial	3	25
77th Avenue SE	Secondary arterial	3	25
78th Avenue SE	Collector arterial	2	25
80th Avenue SE	Secondary arterial	3	25
E Mercer Way	Collector arterial	2	25
W Mercer Way (north of SE 24th Street)	Collector arterial	2	25
W Mercer Way (south of SE 24th Street)	Secondary arterial	2	30

Island Crest Way is the only principal arterial on Mercer Island. It has this designation between SE 40th Street and I-90, and has two lanes in each direction and a speed limit of 35 mph. South of SE 40th Street and crossing I-90, Island Crest Way is designated as a secondary arterial and has one to two lanes in each direction with turn pockets where needed and a speed limit of 35 mph. In the Town Center, SE 27th Street, 77th Avenue SE, and 80th Avenue SE are listed as secondary arterials and have one lane in each direction with turn pockets. N Mercer Way, SE 24th Street, 76th Avenue SE, and 78th Avenue SE

[1] The City of Mercer Island prepared an analysis of local street impacts on Mercer Island with the westbound Island Crest Way ramp operating as HOV-only. Sound Transit has reviewed the City's report and considered it in this analysis.

are classified as collector arterials and have one lane in each direction with turn pockets where needed. All streets in the Town Center have a speed limit of 25 mph except N Mercer Way, which is 30 mph west of 77th Avenue SE. SE 40th Street and W Mercer Way are classified as secondary collectors with one lane in each direction. SE 40th Street is 30 mph between Island Crest Way and 78th Avenue SE, and is 25 mph west of 78th Avenue SE. W Mercer Way varies between 25 and 30 mph.

I-90 is an eight-lane freeway with three lanes in each direction on the outer roadways and a two-lane reversible center roadway. In 2015, average ADT volumes on the I-90 floating bridges between Seattle and Mercer Island were about 160,000 vehicles and about 174,000 on the East Channel Bridge. The amount of volume on the floating bridge in the westbound and eastbound directions is fairly evenly split with about 80,000 vehicles per day. The I-90 center roadway configuration and congestion on the outer roadways influence the local street travel patterns that access I-90 interchanges. Mercer Island SOVs and HOVs are able to access the I-90 center roadway, which operates westbound in the AM peak and eastbound in the PM peak. In the AM peak hour, more trips from Mercer Island use the center roadway on-ramps at 77th Avenue SE and Island Crest Way (approximately 930 vehicles per hour or vph) to travel westbound to Seattle than all the outer roadway westbound on-ramps combined (approximately 750 vph use the W Mercer Way, 76th Avenue SE, Island Crest Way, and E Mercer Way on-ramps). The same pattern occurs in the PM peak, where approximately 900 vph use the center roadway eastbound off-ramps to access Mercer Island streets, compared to 650 vph that use the outer roadway eastbound off-ramps.

In the opposite direction of the center roadway in the AM peak, about 800 vph use the four eastbound Mercer Island off-ramps (W Mercer Way, 77th Avenue SE, Island Crest Way, and E Mercer Way) evenly, with the volumes ranging between 130 and 230 vph. In the PM peak in the westbound direction, however, the I-90 mainline is congested and more trips from Mercer Island use the W Mercer Way on-ramp (just under 800 vph) than all other westbound on-ramps combined (750 vph use the 76th Avenue SE, Island Crest Way, and E Mercer Way on-ramps).

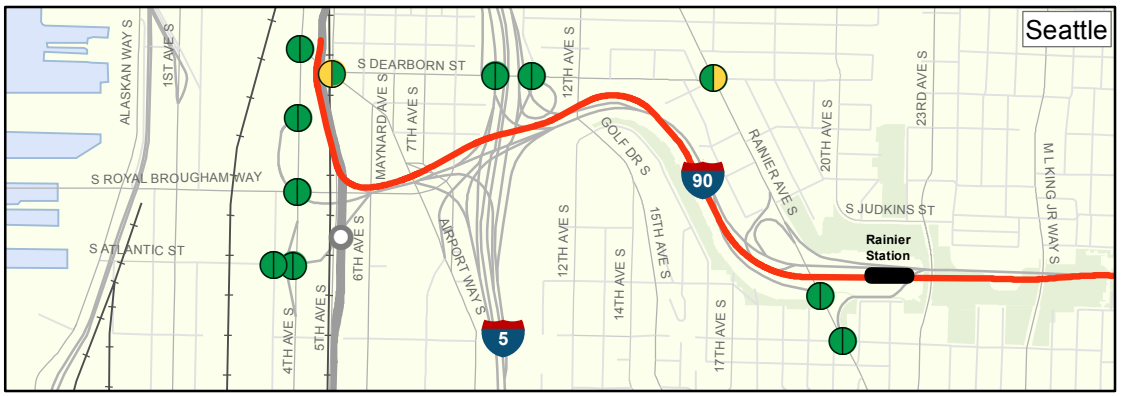
6.1.2 Intersection Level of Service

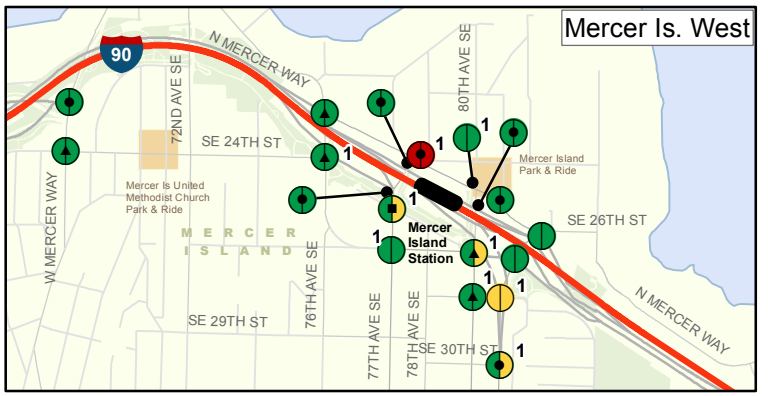
Intersection analysis was conducted for 11 intersections in Seattle, 25 intersections on Mercer Island, and 3 intersections in Bellevue. Existing conditions were analyzed for both the AM and PM peak-hours. Seven of the intersections in Seattle and 11 in Mercer Island are within WSDOT jurisdiction because the intersection is an I-90 or I-5 ramp terminal. The existing intersection analysis was compared with the relevant jurisdiction's adopted LOS standard to gauge whether the intersection operates at an acceptable LOS. The relevant agencies and their LOS standards are:

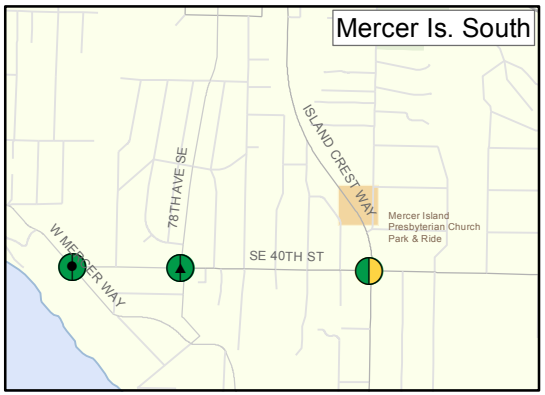
- WSDOT: LOS D
- City of Seattle: LOS D
- City of Mercer Island (Town Center): LOS C
- City of Mercer Island (Outside Town Center): LOS D
- City of Bellevue: LOS D

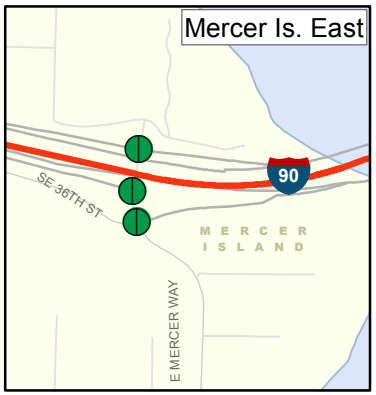
In the existing AM peak hour, the intersection of 77th Avenue SE and N Mercer Way does not meet agency standards. This intersection is located within the Town Center and operates at LOS D, which is worse than the standard for this location of LOS C, due to delays on the northbound stop-controlled approach. In the PM peak hour, two intersections do not meet agency standards. The intersection of 77th Avenue SE and N Mercer Way operates at LOS E due to delays on the northbound stop-controlled approach. The South Bellevue Park-and-Ride intersection with Bellevue Way SE operates at LOS E, which is worse than the standard for this location of LOS D, due to high volumes in the southbound direction.

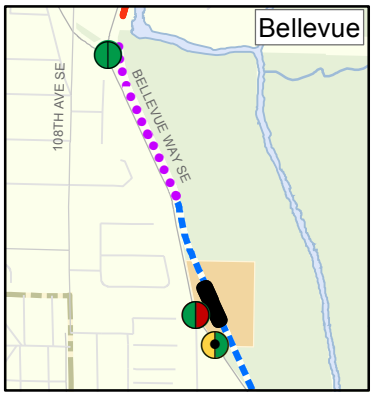
AM and PM peak-hour intersection LOS results are summarized in Exhibit 6-1 and presented in Table F-1 in Attachment F.











Existing Level of Service (LOS)

WSDOT, Seattle, Mercer Island, Bellevue

- A - C
- D
- E - F

Mercer Island Town Center

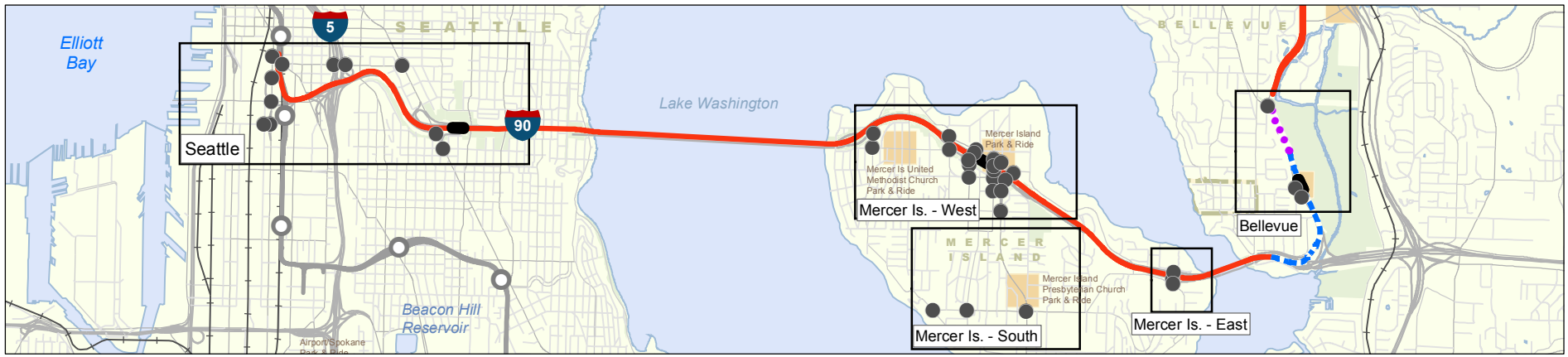
- 1 A - B
- 1 C
- 1 D - F

LOS Key for Options

AM LOS - ◐ - PM LOS

NOTES: The level of service in yellow is the jurisdiction's standard for intersections in this segment.

1 - Intersection within Mercer Island Town Center jurisdiction.



- Signalized
- One-Way Stop Controlled
- Two-Way Stop Controlled
- All-Way Stop Controlled
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Tunnel Route
- Proposed Station
- Central Link Alignment and Station

N

0 0.5 Mile

Source: Data from King County (2006) and modified by CH2M. Updated by CH2M 2017.

Exhibit 6-1 **Existing AM and PM Level of Service at Intersections**
East Link Project

6.1.3 Mercer Island Travel Time To and From I-90

In addition to intersection LOS, vehicle travel times on local Mercer Island streets were calculated within the areas depicted in Exhibit 6-2. The travel times are weighted by person for SOV and HOV modes and are summarized for those SOV and HOV trips using the I-90 ramps to and from the island. While many trips using the ramps come from or go to areas beyond the shaded areas, the bounded area is considered the area of influence associated with any travel patterns shifts between the options.

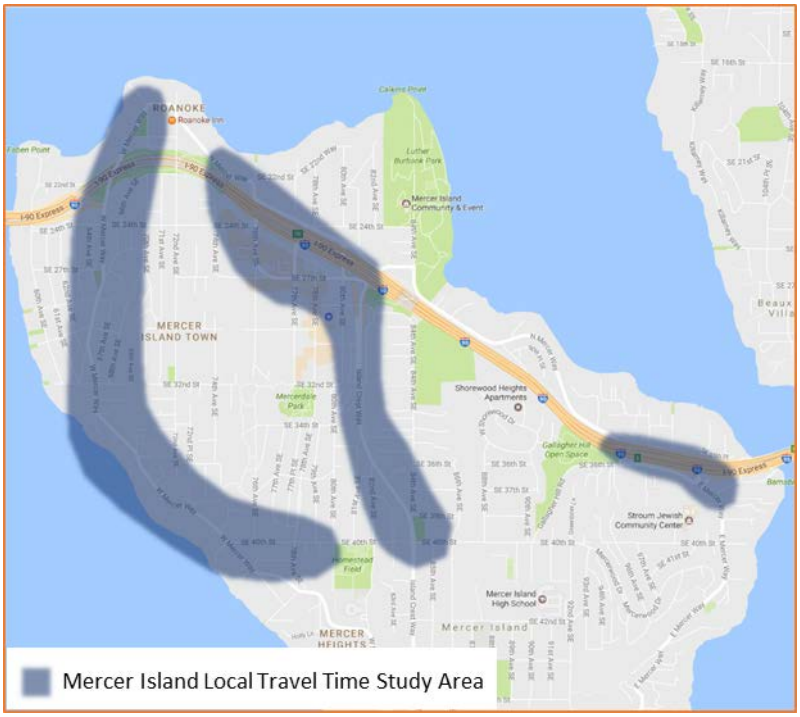


Exhibit 6-2. Mercer Island Local Travel Time Study Area

On average, a trip in the AM and PM peak periods within this local travel time area currently takes between 1.0 and 1.6 minutes to travel from the study area boundary to an I-90 ramp or come from an I-90 ramp and reach the study area boundary. The longest travel time is associated with trips that travel along W Mercer Way between SE 40th Street and I-90, which would take a little over 3 minutes in the AM peak period. Existing travel times for Mercer Island trips to and from I-90 are presented in Table 6-2.

Table 6-2. Existing Mercer Island Local Travel Times To and From I-90 (minutes)

Direction[a]	AM Peak Period, 6:30-10:00 a.m.[b]	PM Peak Period, 3:30-7:00 p.m.[b]
Mercer Island to Seattle (westbound)	1.3 (0.3-3.2)	1.6 (0.2-2.9)
Mercer Island to Bellevue (eastbound)	1.1 (0.5-2.5)	1.5 (0.5-2.6)
Seattle to Mercer Island (eastbound)	1.0 (0.1-2.1)	1.4 (0.4-3.1)
Bellevue to Mercer Island (westbound)	1.4 (0.1-2.1)	1.3 (0.1-2.8)
All Trips to/from Mercer Island	1.2 (0.1-3.2)	1.4 (0.1-3.1)

[a] Travel time paths were measured between the I-90 ramp intersections and boundary of local travel time area defined in Exhibit 6-2. All vehicle trips to and from the I-90 on- and off-ramps within the local travel time area are included.

[b] The value outside of the parentheses indicates the person-weighted average travel time in minutes based on SOV and HOV modes. The values inside the parentheses indicate the travel time range in minutes.

6.1.4 Traffic Safety

Crash data were collected from WSDOT for the study area intersections and were analyzed for key streets within the Mercer Island local study area for the most recent 5 years of data (2011-2015; WSDOT, 2016a). Table 6-3 summarizes the crashes at intersections by severity. These do not include ramp terminal intersections. The ramp terminal intersection crash summary is included in the highway safety section (5.1.4). Crash data include all crash types, including collisions with pedestrians or bicycles.

Table 6-3. 2011-2015 Study Intersection Crash Data Summary

Intersection	2011-2015 Crashes by Severity		
	Fatal and Injury	Property Damage Only	Total
4th Avenue S/Seattle Blvd S/Airport Way S	4	4	8
4th Avenue S/S Royal Brougham Way	12	17	29
Rainier Avenue/S Massachusetts Street	20	30	50
Rainier Avenue/Dearborn Street	23	22	45
W Mercer Way/SE 24th Street	1	3	4
76th Avenue SE/SE 24th Street	0	0	0
77th Avenue SE/N Mercer Way	0	0	0
77th Avenue SE/Sunset Highway SE	2	1	3
77th Avenue SE/SE 27th Street	2	7	9
80th Avenue SE/N Mercer Way	1	1	2
80th Avenue SE/SE 27th Street	4	10	14
81st Avenue/N Mercer Way	4	1	5
80th Avenue/SE 28th Street	1	2	3
Island Crest Way/SE 28th Street	0	0	0
Island Crest Way/SE 30th Street	0	0	0
Island Crest Way/SE 40th Street	6	13	19
78th Avenue/SE 40th Street	0	1	1
Bellevue Way SE/112th Avenue SE	9	10	19
Bellevue Way SE/S Bellevue Park-and-Ride (main)	0	0	0
Bellevue Way SE/S Bellevue Park-and-Ride (south)	0	0	0

Source: WSDOT (2016a).

The intersection of Rainier Avenue S and S Massachusetts Street in Seattle recorded 50 crashes in the most recent 5 years of data, the highest of all study intersections. Sixty percent of these crashes resulted in property damage. Also in Seattle, the intersections of Rainier Avenue at Dearborn Street and 4th Avenue S at S Royal Brougham Way each had the next highest crash frequency within the study area at 45 and 29, respectively.

On Mercer Island, the safety analysis included crashes on the following streets in addition to key intersections along these roads: W Mercer Way, Island Crest Way, N Mercer Way, SE 27th Street, 76th Avenue SE, SE 24th Street, 77th Avenue SE, 78th Avenue SE, 80th Avenue SE, SE 30th Street, SE 36th Street, SE 40th Street, and E Mercer Way. For all of these facilities, there was a total of 152 crashes over the 5 years of data. Along W Mercer Way between SE 40th and I-90, there was a total of 12 crashes. N Mercer Way had 10 crashes and SE 40th Street had 2 crashes. Island Crest Way had 7 crashes.

Intersections on Mercer Island generally experienced an average of fewer than 2 crashes per year. Exceptions include 80th Avenue at SE 27th Street, which recorded 14 total crashes, and Island Crest Way at SE 40th Street, which had 19 total crashes over the 5 years of data. Overall, over 60 percent of the existing crashes that occurred on Mercer Island in the study area were property damage only crashes. Based on the crash data from WSDOT, no fatal crashes occurred on any of the Mercer Island local study streets and intersections over the 5-year study period.

In Bellevue, the intersection of Bellevue Way SE and 112th Avenue SE experienced 19 crashes over the 5 years. No crashes occurred at any of the South Bellevue Park-and-Ride north and south driveways.

6.1.5 Parking

Parking supply and demand were inventoried during the AM peak period for on-street unrestricted parking and Mercer Island Town Center Permit Parking zones; however, few on-street unrestricted areas exist on Mercer Island. Sound Transit owns and maintains the Mercer Island Park-and-Ride on N Mercer Way, east of 77th Avenue SE. The Mercer Island Park-and-Ride has approximately 450 parking spaces, which is typically 100 percent full on weekdays (King County Department of Transportation, 2016).

On Mercer Island, four leased park-and-ride lots provide additional parking spaces for transit users. Bus service is provided between each of these lots and the Mercer Island Park-and-Ride. Parking spaces were up to 50 percent utilized at these leased lots on a weekday morning in January 2017.

The Mercer Island Station parking study area is centered on I-90 and is generally bound by SE 22nd Street to the north, SE 29th Street to the south, 76th Avenue SE to the west, and 84th Avenue SE to the east. Land use is primarily residential north of I-90 and primarily commercial south of I-90.

Within 0.25 mile of the station, unrestricted on-street parking spaces are provided on the north end of 76th Avenue SE between SE 27th Street and the adjacent property driveway. Approximately 50 percent of these spaces (11 of 23) were occupied in the AM peak period. No other areas of unrestricted parking are provided within 0.25 mile of the station.

On-street parking by Town Center Permit only is provided in three separate areas within 0.25 mile of the station. These permit-only areas allow Mercer Island residents to park on the street except during the posted restricted timeframe (Monday through Friday, 7:00 a.m. to 9:00 a.m.). Vehicles without valid Mercer Island resident permits are not allowed to park in these zones during these restricted times. These posted restrictions are intended to discourage commuters from parking in the adjacent Town Center when the Mercer Island Park and Ride lot is at capacity. The areas and their parking utilization rates are:

- West end of Sunset Hwy SE (cul-de-sac): 60 percent utilized (9 of 15 spaces occupied)
- 78th Avenue SE, between SE 28th Street and SE 29th Street: 90 percent utilized (9 of 10 spaces occupied)
- 80th Avenue SE, between SE 28th Street and SE 30th Street: 82 percent utilized (27 of 33 spaces occupied)

Private off-street parking garages are located throughout Mercer Island Town Center, and cost and validation policies vary among property owners. Regulations for private parking are enforced by property owners at their discretion. Parking located in the residential neighborhoods north of I-90, surrounding the Mercer Island Park-and-Ride, is restricted parking designated as residential parking zones. It was implemented to reduce impacts of park-and-ride spillover parking into residential neighborhoods and the Town Center.

6.2 Environmental Impacts

This section analyzes the forecasted transportation impacts of the No Build condition, and the options for the changes in I-90 Operations and the Transit Integration configurations in both the construction (2020) and operating (2035) conditions in terms of changes to the local and arterial street system, safety conditions, and parking. The focus of the analysis in this section is near the proposed Mercer Island Station and along the FEIS Configuration rail route.

Closure of the center roadway for East Link construction and operations would require the closure of some ramps and would change how drivers currently access and exit I-90 on Mercer Island. Table 6-4 shows how Mercer Island access will change with closure of the center roadway and which ramps would be designated for GP or HOV access. As shown in the table, the total number of ramps on Mercer Island would be reduced from 16 in the No Build condition to 15 with all options. This is due to the closure of the 77th Avenue SE and Island Crest Way reversible center roadway ramps with East Link in conjunction with the new eastbound HOV off-ramp to Island Crest Way as part of the R-8A HOV lanes project.

Table 6-4. Future I-90 Ramps on Mercer Island

Mercer Island Ramp	No Build Condition		Options 1 and 3[a]		Option 2	
	AM	PM	AM	PM	AM	PM
Westbound On-ramps	***6 GP***	***4 GP***	***4 GP***	***4 GP***	***3 GP/1 HOV***	***3 GP/1 HOV***
E Mercer Way	X	X	X	X	X	X
N Mercer Way/76th Avenue SE	X	X	X	X	X	X
77th Avenue SE (Center)	X					
Island Crest Way (Center)	X					
Island Crest Way (Outer)	X	X	X	X	x (HOV)	x (HOV)
W Mercer Way	X	X	X	X	X	X
Westbound Off-ramps	***2 GP/1 HOV***	***2 GP/1 HOV***	***2 GP/1 HOV***	***2 GP/1 HOV***	***2 GP/1 HOV***	***2 GP/1 HOV***
Island Crest Way	X	X	X	X	X	X
E Mercer Way	X	X	X	X	X	X
80th Avenue SE	x (HOV)	x (HOV)	x (HOV)	x (HOV)	x (HOV)	x (HOV)
Eastbound On-ramps	***2 GP/1 HOV***	***2 GP/1 HOV***	***2 GP/1 HOV***	***2 GP/1 HOV***	***2 GP/1 HOV***	***2 GP/1 HOV***
Island Crest Way	X	X	X	X	X	X
E Mercer Way	X	X	X	X	X	X
80th Avenue SE	x (HOV)	x (HOV)	x (HOV)	x (HOV)	x (HOV)	x (HOV)
Eastbound Off-ramps	***4 GP***	***6 GP***	***5 GP***	***5 GP***	***4 GP/1 HOV***	***4 GP/1 HOV***
W Mercer Way	X	X	X	X	X	X
77th Avenue SE (Outer)	X	X	X	X	X	X
77th Avenue SE (Center)		X				
Island Crest Way (Outer)	X	X	X	X	X	X
Island Crest Way (Center)		X				
Island Crest Way (HOV)			X	X	X (HOV)	X (HOV)
E Mercer Way	X	X	X	X	X	X
Total GP Ramps	**14**	**14**	**13**	**13**	**11**	**11**
Total HOV Ramps	**2**	**2**	**2**	**2**	**4**	**4**
Total Ramps	**16**	**16**	**15**	**15**	**15**	**15**

[a] Option 3 is during construction only.

With Options 1 and 3, there would be 13 ramps open to GP traffic and 2 ramps for HOV/transit use only. With Option 2, there would be 11 ramps open to GP traffic and 4 ramps for HOV/transit use only because the Island Crest Way westbound on-ramp and eastbound off-ramp would change to only allow HOVs. The difference between the options is the change in vehicle eligibility with the Island Crest Way on- and off-ramps to and from the R-8A HOV lanes. With these ramps designated for HOV and transit use in Option 2, SOVs would not be allowed to use the Island Crest Way ramps to and from the R-8A HOVs lanes and would redistribute to the I-90 GP ramps at W Mercer Way, 76th Avenue SE, 77th Avenue SE, Island Crest Way, and E Mercer Way. Among the options, the changes to the travel patterns are associated with what vehicles are able to use the Island Crest Way ramps.

In addition to these changes, WSDOT is modifying the HOV bypass lane on the W Mercer Way westbound on-ramp to I-90 to operate as an HOV metered lane, and when necessary, allowing the ramp to operate as two GP metered lanes. WSDOT is modifying the ramp control to uniformly regulate entrance traffic onto I-90, including non-HOV that are using the bypass to avoid stopping at the meter, The change will also provide operational flexibility to ensure that metered traffic does not affect the operation of the adjacent local streets.

6.2.1 Construction Impacts

6.2.1.1 Traffic Forecasts and Trip Distribution

Future year traffic forecasts were generated for the year 2020 using the PSRC transportation demand model, which is based on current and future population and land use forecasts. By 2020, numerous highway and arterial improvements were assumed to have been implemented. Attachment B provides a more detailed discussion of the forecasting methods and summarizes a list of programs and/or projects assumed to be completed by the mid-year of construction.

By the year 2020, arterial and local street volumes with the No Build condition would increase by an average annual rate of just under 1 percent compared to existing conditions during both the AM and PM peak hours within the study area. Forecasts with light rail construction show changes in the local travel patterns for trips accessing I-90 compared to the No Build condition. Options 1 and 3 would be expected to have similar travel patterns on the island because Mercer Island SOVs would be allowed to access the Island Crest Way westbound on-ramp and eastbound off-ramp. In Option 2, Mercer Island SOVs would not be allowed to use these HOV ramps and would likely shift from the Island Crest Way westbound on-ramp to the 76th Avenue SE and W Mercer Way ramps.

AM Peak Travel Patterns

Exhibit 6-3 illustrates the changes in travel patterns for the year 2020 AM peak hour for the options compared to the No Build condition. In the 2020 AM No Build condition, approximately 950 vehicles would access the I-90 westbound center roadway in the AM peak hour from either 77th Avenue SE or Island Crest Way.

In the AM peak hour with Options 1 and 3, vehicles that would use the center roadway westbound on-ramps at Island Crest Way and 77th Avenue SE in the No Build condition would redistribute to other ramps. Key travel patterns shifts associated with Option 1 and 3 include:

- Most trips in the No Build condition that use Island Crest Way center roadway westbound on-ramp would remain on the Island Crest Way ramp and use the outer roadway on-ramp. A small portion of Island Crest Way traffic could shift to the W Mercer Way westbound on-ramp to bypass congestion on I-90, similar to the travel patterns that occur today in the afternoon on the island when the center roadway operates in the eastbound direction.

- Most trips in the No Build condition that use 77th Avenue SE would likely use the 76th Avenue SE westbound on-ramp; although a small portion of them could use the W Mercer Way westbound on-ramp to bypass congestion on I-90.

Exhibit 6-3 provides the traffic volumes at the I-90 ramps with these shifts described for Options 1 and 3.

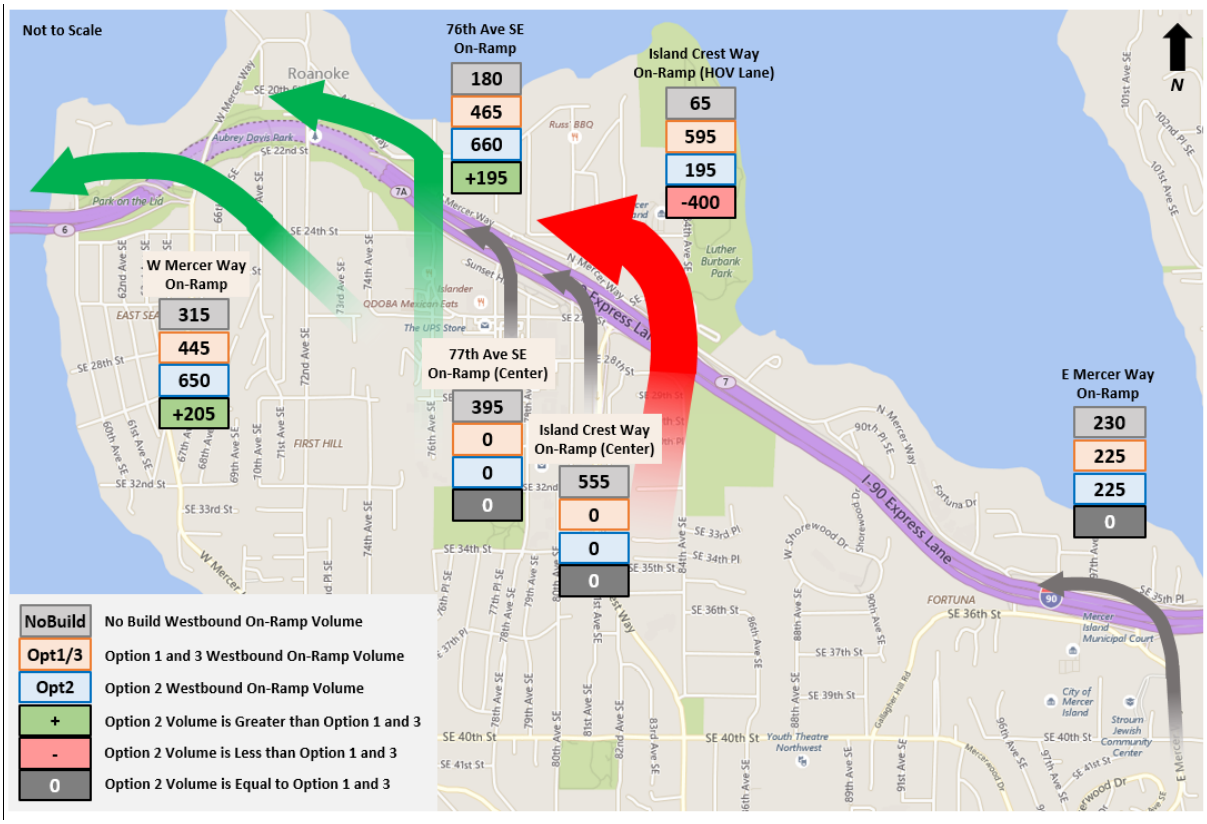


Exhibit 6-3. 2020 AM Peak-Hour Westbound Travel Patterns from Mercer Island

In the AM peak hour with Option 2, SOVs would no longer be allowed to use the Island Crest Way westbound on-ramp and would redistribute to other I-90 on-ramps. Key westbound travel pattern shifts with Option 2 compared to Options 1 and 3 include:

- The majority of SOVs in Options 1 and 3 that use the Island Crest Way westbound on-ramp would shift to the 76th Avenue SE and W Mercer Way on-ramps. To access these on-ramps, drivers would likely travel on W Mercer Way, SE 40th Street, N Mercer Way, SE 27th Street, 76th Avenue SE, and SE 24th Street, among other streets, depending on where they are coming from.
- Some SOVs in Options 1 and 3 that use the 76th Avenue SE westbound on-ramp could shift to W Mercer Way as drivers try to minimize their delays on individual ramps and bypass congestion on I-90.
- Some HOVs in Option 1 and 3 that would use GP ramps, such as 76th Avenue SE or W Mercer Way westbound on-ramps, could have a travel time savings on I-90 with the HOV lane only accommodating HOV and transit in Option 2, and therefore some would shift to use the Island Crest Way westbound HOV on-ramp.

Exhibit 6-3 also provides the traffic volumes at the I-90 ramps with these shifts described for Option 2. With Option 2, there would be a shift of about 3,700 daily SOV trips (about 5 percent of total daily trips using I-90 ramps to and from Mercer Island) on the Island Crest Way westbound on-ramp, although the traffic volume on this ramp would only decrease by about 2,700 because about 1,000 daily HOV trips (about 1.5 percent of daily trips using I-90 ramps to and from Mercer Island) would shift their travel

pattern on the island and use Island Crest Way westbound to take advantage of the I-90 HOV lanes when designated for HOV and transit only. Overall, with Option 2 there would be a net decrease of about 2,700 vehicles per day at the Island Crest Way westbound ramp compared to Options 1 and 3, with a corresponding combined net increase of 2,700 vehicles per day at the W Mercer Way and 76th Avenue SE on-ramps. Over 70,000 total vehicles per day would travel to and from Mercer Island in the future. Therefore this net change in volume accounts for about 4 percent of all trips using I-90 ramps on Mercer Island during a day.

Travel patterns in the eastbound direction (reverse-direction of the center roadway) between the I-90 outer roadway and Mercer Island off-ramps in the AM peak are expected to be similar between the No Build condition and options because both SOVs and HOVs would continue to be able to access off-ramps to Island Crest Way with all options.

PM Peak Travel Patterns

Exhibit 6-4 show how eastbound travel patterns to Mercer Island in the PM peak hour would change during East Link construction on I-90. In the 2020 PM No Build condition, a little over 900 vehicles would use the I-90 eastbound center roadway in the PM peak hour to access Mercer Island from either 77th Avenue SE or Island Crest Way.

In the PM peak with Options 1 and 3, vehicles that would use the center roadway eastbound off-ramps at Island Crest Way and 77th Avenue SE in the No Build condition would redistribute to other ramps. Key eastbound travel patterns shifts associated with Option 1 and 3 include:

- All trips that access Island Crest Way from I-90 would continue to use Island Crest Way ramps, either the left-side HOV off-ramp or right-side GP off-ramp.
- Most of the trips that used the 77th Avenue SE off-ramp would likely shift to either the Island Crest Way HOV off-ramp or the outer roadway off-ramp at 77th Avenue SE. A small portion of 77th Avenue SE trips could shift to the W Mercer Way off-ramp to bypass congestion on I-90.

Exhibit 6-4 provides the traffic volumes at the I-90 ramps with these shifts described for Options 1 and 3.

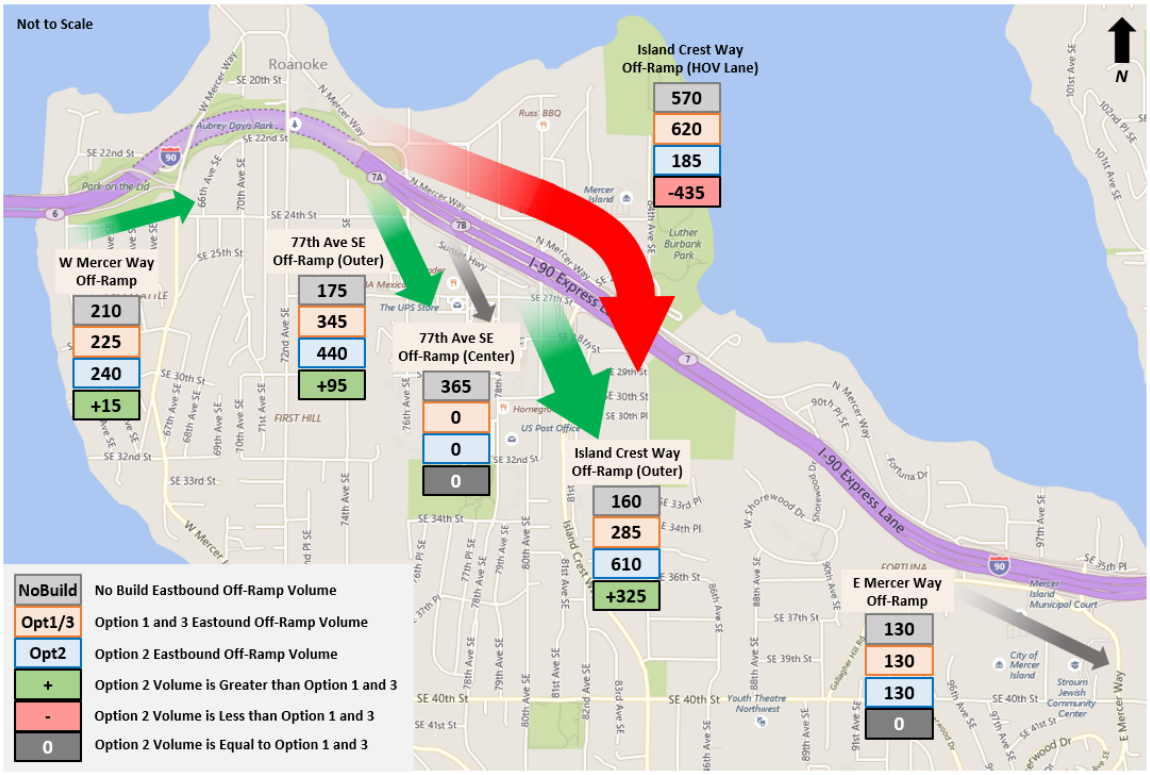


Exhibit 6-4. 2020 PM Peak-Hour Eastbound Travel Patterns to Mercer Island

In the PM peak with Option 2, SOVs would not be allowed to use the Island Crest Way eastbound HOV off-ramp and would shift to other outer roadway on-ramps. Key eastbound travel shifts that would occur with Option 2 compared to Options 1 and 3 include:

- Most SOVs in Options 1 and 3 that use Island Crest Way ramps would remain on Island Crest Way and use the I-90 right-side GP off-ramp, while a small portion of these trips would shift from Island Crest Way to the 77th Avenue SE eastbound off-ramp.
- A small portion of SOVs in Options 1 and 3 that use the Island Crest Way or 77th Avenue SE eastbound off-ramps would shift to W Mercer Way off-ramp.
- A small portion of HOVs in Options 1 and 3 that use the 77th Avenue SE outer roadway eastbound off-ramp would shift to the Island Crest Way HOV off-ramp to take advantage of the R-8A HOV lane.
- Traffic volumes at the E Mercer Way interchange would not change among options.

Exhibit 6-4 provides the traffic volumes at the I-90 ramps with these shifts described for Option 2.

PM peak travel patterns for Mercer Island trips accessing I-90 westbound would be similar between the No Build condition and Options 1 and 3, since the center roadway is not available in the westbound direction during the PM peak period. The majority of Mercer Island trips accessing I-90 westbound in the PM peak in the No Build condition and Options 1 and 3 would have similar travel patterns as today and would use the W Mercer Way on-ramp to bypass congestion on I-90 mainline. With Option 2, SOVs would not be able to use the westbound on-ramp from Island Crest Way and would shift to another ramp similar to the travel pattern shift described in the AM peak period. The SOV volume during the PM peak using Island Crest Way is substantially less, about half of the AM peak period.

Temporary Road Closures

The 77th Ave SE and 80th Ave SE Transit Integration configurations could require temporary closures; the 77th Avenue SE Configuration would affect the N Mercer Way/77th Avenue SE intersection while the 80th Avenue SE Configuration would affect the N Mercer Way/80th Avenue SE intersection. For the 77th Avenue SE Configuration, detours at 76th and 80th Avenues SE would be provided if closure of 77th Avenue SE were necessary. Construction of the roundabout could be phased to minimize or avoid closure of this intersection. For the 80th Avenue SE Configuration, closure of the intersection with N Mercer Way is unlikely, but partial lane closures of 80th Avenue SE may be needed, which would likely shift some traffic onto 77th Avenue SE and Island Crest Way.

6.2.1.2 Arterial and Local Street Operations

Table 6-5 shows that with the No Build condition there are two intersections that would not meet agency LOS standards. Option 2 would have three locations that would not meet agency LOS standards or have queuing that extends into the adjacent intersections and operate worse than the No Build condition in the AM and/or PM peak hour. All impacted intersections would be mitigated as discussed in Section 6.2.3. All other study area intersections in Seattle, Mercer Island, and Bellevue would meet LOS standards. Options 1 and 3 would not have impacts to intersections in 2020.

Table 6-5. 2020 Intersection Summary - AM and/or PM Peak Hours

Intersection	Jurisdiction	No Build Condition	Options		
			1	2	3
76th Avenue SE/N Mercer Way/I-90 Westbound On-ramp	WSDOT			X	
77th Avenue SE/N Mercer Way	Mercer Island	X		X	
Island Crest Way: between I-90 Westbound Off-ramp and I-90 Eastbound On-ramp	WSDOT			X	
Bellevue Way SE/S Bellevue Park-and-Ride	Bellevue	X			

Note: Intersection impacts are defined as LOS or queuing worse than the No Build condition.

Intersection operations under the No Build condition would remain similar to existing conditions at the majority of study intersections. A few intersections would degrade as traffic volumes increase, because of traffic growth in the study area.

In the AM peak hour, all but one study intersection would operate at an acceptable LOS under the No Build condition. The intersection of 77th Avenue SE and N Mercer Way, which operates at LOS D under existing conditions, would continue to do so in 2020 and would exceed the LOS C threshold during the AM peak. During the PM peak, the two intersections that fail in existing conditions would continue to exceed their LOS thresholds under 2020 No Build conditions. The intersection of 77th Avenue SE and N Mercer would operate at LOS E, and the intersection of Bellevue Way SE and the South Bellevue Park-and-Ride would operate at LOS F (from LOS E under existing conditions).

With the options, the I-90 reversible center roadway would close to vehicle traffic. Local access changes on Mercer Island related to the reversible center roadway closure would consist of eliminating the 77th Avenue SE and Island Crest Way reversible center roadway accesses. Removing these two ramps would cause vehicles to reroute to other I-90 outer roadway ramps on Mercer Island, as described in Section 6.2.1.1.

With Option 1 and Option 3, all study intersections would operate similar to or better than the No Build condition in the AM peak hour. The 77th Avenue SE and N Mercer Way intersection would improve from LOS D in the No Build condition to LOS C in Options 1 and 3 because the closure of the 77th Avenue SE center roadway westbound on-ramp would reduce traffic volumes at this intersection. All intersections in the PM peak hour with Options 1 and 3 would be expected to operate at or better than their respective LOS thresholds.

In Option 2, three locations would either not meet the agency LOS standards or have queuing that extends to adjacent intersections and is worse than the No Build condition. The 77th Avenue SE and N Mercer Way intersection would operate at LOS E in Option 2 in both AM and PM peaks due to the increase in traffic through the Town Center. The 76th Avenue SE/N Mercer Way/I-90 westbound on-ramp would meet the agency LOS standards in the AM peak, but vehicle queues on the westbound approach would occur on N Mercer Way, causing delays at adjacent intersections. The two I-90 ramp terminals at Island Crest Way would have vehicle queues that extend through each intersection in the PM peak related to the northbound and southbound left-turn pockets.

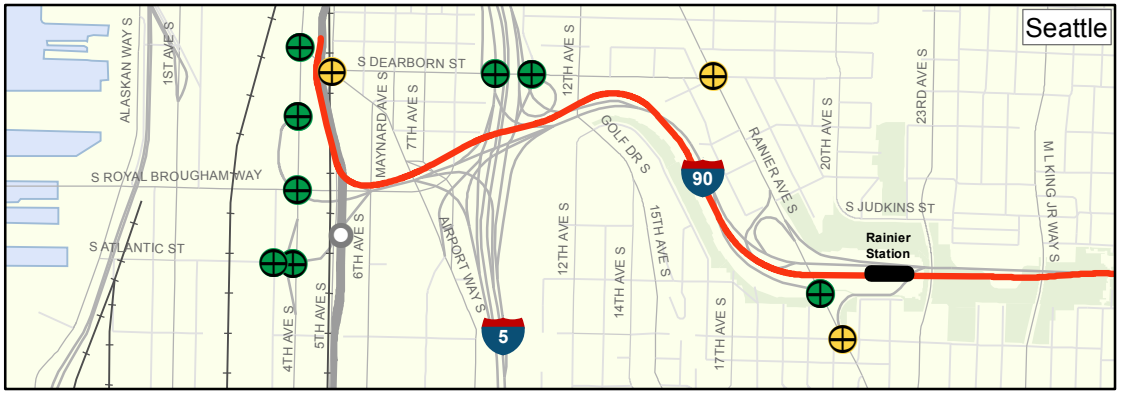
The intersection of Bellevue Way SE and the South Bellevue Park-and-Ride would operate better with all options during construction compared to the No Build condition because the park-and-ride is closed to commuters.

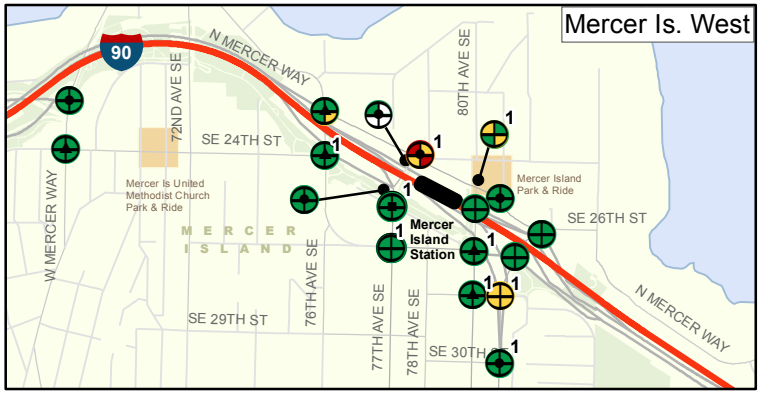
Peak-hour intersection LOS results are summarized in Exhibits 6-5 and 6-6. In Attachment F, Table F-2 shows the intersection AM peak-hour LOS and Table F-3 shows the PM peak-hour LOS for the 2020 No Build condition and the options.

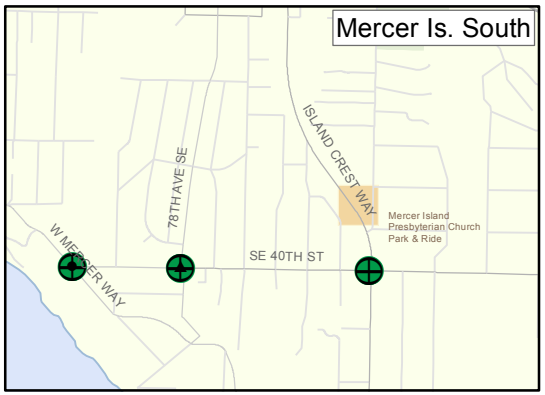
6.2.1.3 Mercer Island Travel Time To and From I-90

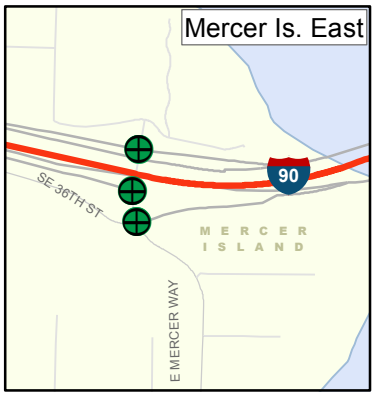
In the 2020 AM and PM peak conditions, all of the options would see a slight increase in travel times on local streets in the AM peak period for the westbound direction heading to Seattle compared to the No Build condition due to the closure of the center roadway ramps. Between the options, average person travel times on local Mercer Island streets to and from I-90 do not exhibit any noticeable change except in the AM peak period for the westbound direction either heading to Seattle or coming from Bellevue with Option 2. As described in Section 5.1.1, the westbound direction in the AM peak period is about 30 percent of all the trips coming to or from Mercer Island. Table 6-6 provides the local Mercer Island travel times to and from I-90 ramps.

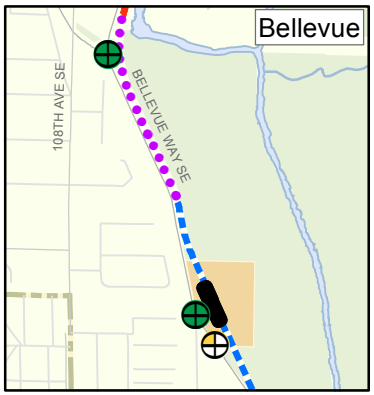
With Option 2 travel time would be expected to increase in the AM peak period for trips from Mercer Island to I-90 westbound by, on average, less than 0.5 minute. The largest travel time increase is up to 3











2020 AM Level of Service (LOS)

WSDOT, Seattle, Mercer Island, Bellevue

- A - C
- D
- E - F

Mercer Island Town Center

- 1 A - B
- 1 C
- 1 D - F

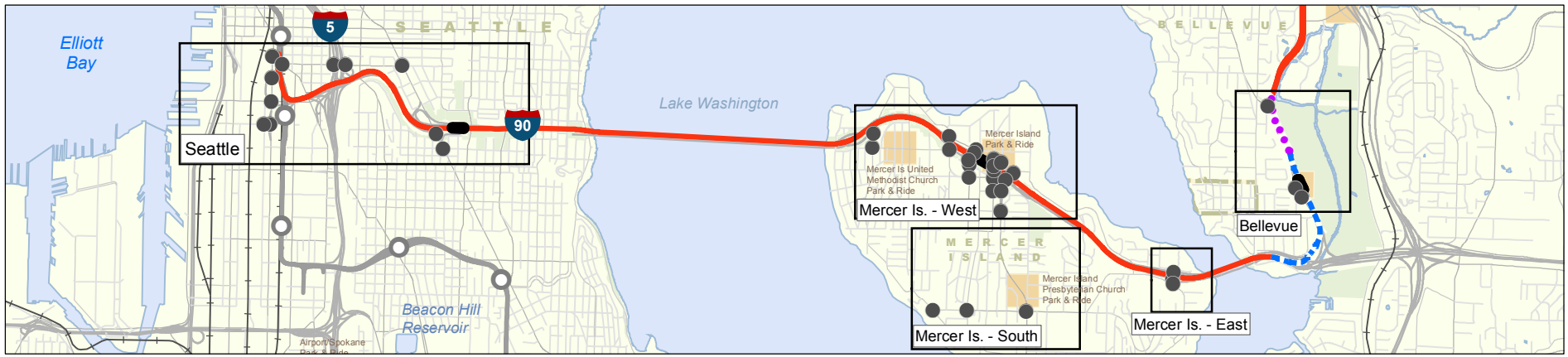
LOS Key for Options

No Build - - Option 1

Option 3 - - Option 2

NOTES: The level of service in yellow is the jurisdiction's standard for intersections in this segment.

1 - Intersection within Mercer Island Town Center jurisdiction. Intersection LOS are for conditions prior to any proposed mitigation



- Signalized
- One-Way Stop Controlled
- Two-Way Stop Controlled
- All-Way Stop Controlled
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Tunnel Route
- Proposed Station
- Central Link Alignment and Station

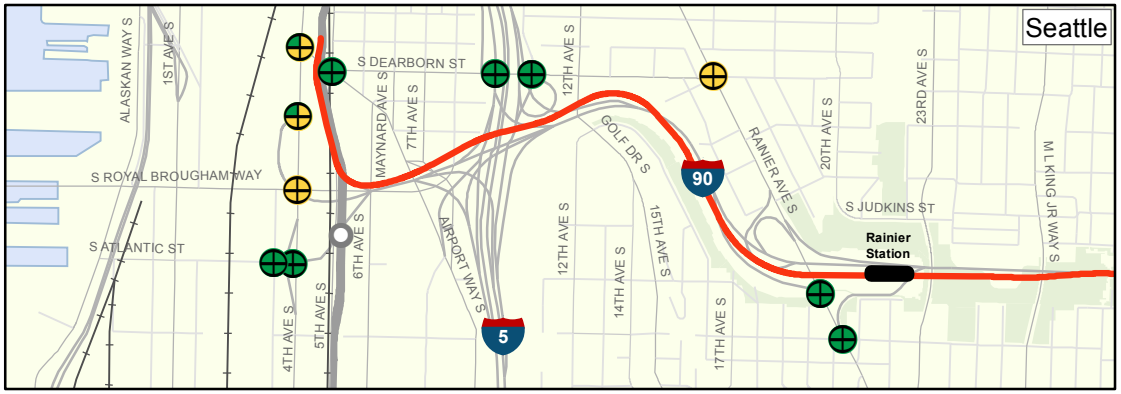
N

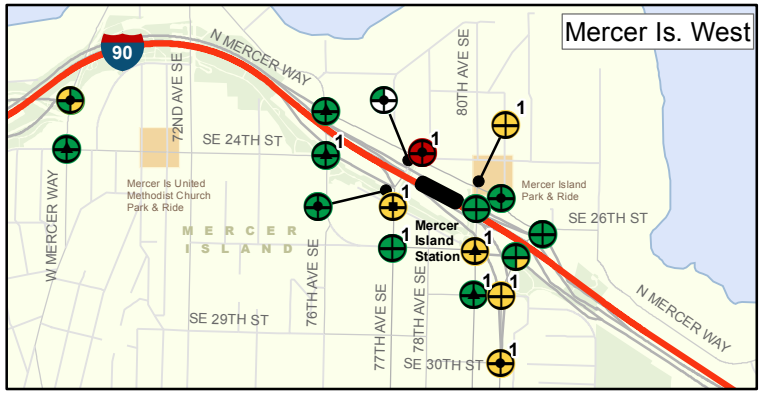
0 0.5 Mile

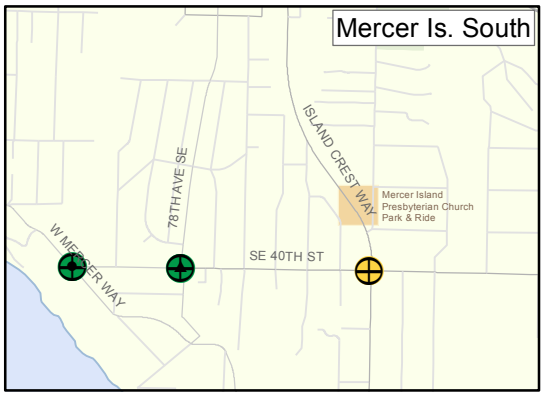
Source: Data from King County (2006) and modified by CH2M. Updated by CH2M 2017.

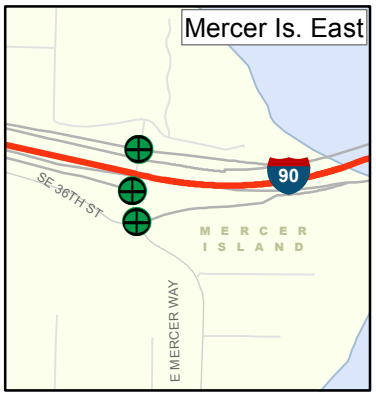
Exhibit 6-5 **Future 2020 AM Level of Service at Intersections**

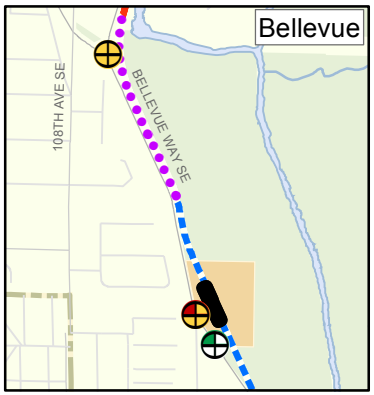
East Link Project











2020 PM Level of Service (LOS)

WSDOT, Seattle, Mercer Island, Bellevue

- A - C
- D
- E - F

Mercer Island Town Center

- 1 A - B
- 1 C
- 1 D - F

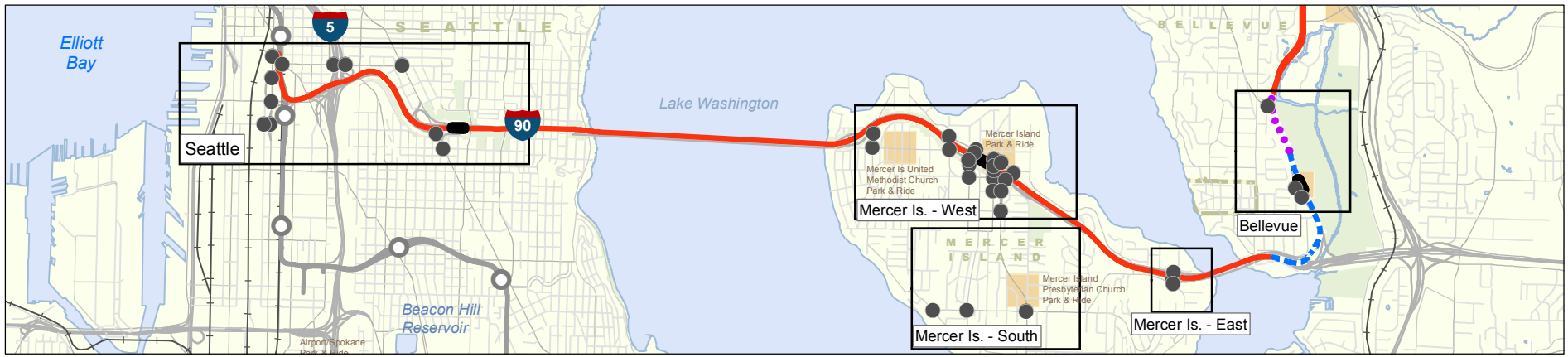
LOS Key for Options

No Build - - Option 1

Option 3 - - Option 2

NOTES: The level of service in yellow is the jurisdiction's standard for intersections in this segment.

1 - Intersection within Mercer Island Town Center jurisdiction. Intersection LOS are for conditions prior to any proposed mitigation



- Signalized
- One-Way Stop Controlled
- Two-Way Stop Controlled
- All-Way Stop Controlled
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Tunnel Route
- Proposed Station
- Central Link Alignment and Station

N

0 0.5 Mile

Source: Data from King County (2006) and modified by CH2M. Updated by CH2M 2017.

Exhibit 6-6 **Future 2020 PM Level of Service at Intersections**

East Link Project

to 4 minutes longer for an SOV that would be able to access I-90 via the westbound Island Crest Way on-ramp in the No Build condition and Options 1 and 3, but would use either 76th Avenue SE or W Mercer Way in Option 2.

Besides this one change, travel times on the local streets to and from I-90 would not change for the majority of people as their access to or from I-90 would not change between options. Only SOVs using the westbound Island Crest Way on-ramp to the outer roadway would have to use another I-90 access with Option 2, while some HOVs would divert to the Island Crest Way on-ramp to access the R-8A HOV lane. Overall, the net change in traffic volumes using the Island Crest Way ramp would be about 3 to 4 percent of all the daily trips on Mercer Island to and from I-90. Considering all trips to and from Mercer Island, the average travel time on local streets, with proposed mitigation, on local streets is similar among the three construction options in the AM and PM peak periods.

Table 6-6. 2020 Mercer Island Local Travel Times To and From I-90 (minutes)

Travel Time Path[a]	2020 No Build	2020 Construction		
		Option 1	Option 2[b]	Option 3
AM Peak Period (6:30 – 10:00 a.m.)				
Mercer Island to Seattle (westbound)	1.4 (0.3-3.2)	2.0 (0.3-4.9)	2.3 (0.4-5.0)	2.0 (0.3-4.9)
Mercer Island to Bellevue (eastbound)	1.2 (0.4-2.7)	1.2 (0.4-2.6)	1.2 (0.4-3)	1.2 (0.4-2.6)
Seattle to Mercer Island (eastbound)	1.1 (0.4-3.1)	1.1 (0.4-3.1)	1.1 (0.4-3.1)	1.1 (0.4-3.1)
Bellevue to Mercer Island (westbound)	1.4 (0.2-2.0)	1.4 (0.2-2.4)	1.4 (0.2-2.6)	1.4 (0.2-2.4)
All Trips to/from Mercer Island	1.3 (0.2-3.2)	1.4 (0.2-4.9)	1.5 (0.2-5.0)	1.4 (0.2-4.9)
PM Peak Period (3:30 – 7:00 p.m.)				
Mercer Island to Seattle (westbound)	1.7 (0.3-2.9)	1.5 (0.3-2.9)	1.7 (0.3-5.4)	1.4 (0.3-2.9)
Mercer Island to Bellevue (eastbound)	1.7 (0.5-3.3)	1.6 (0.4-3.1)	1.7 (0.5-3.3)	1.6 (0.4-3.0)
Seattle to Mercer Island (eastbound)	1.4 (0.5-3.0)	1.5 (0.4-3.1)	1.5 (0.6-3.1)	1.5 (0.4-3.1)
Bellevue to Mercer Island (westbound)	1.3 (0.2-2.6)	1.3 (0.2-2.6)	1.3 (0.2-2.6)	1.3 (0.2-2.6)
All Trips to/from Mercer Island	1.5 (0.2-3.3)	1.5 (0.2-3.1)	1.5 (0.2-3.3)	1.4 (0.2-3.1)

Note: The value outside of the parentheses indicates the person-weighted average travel time in minutes. The values inside the parentheses indicate the travel time range in minutes.

[a] Travel time paths were measured between the I-90 ramp intersections and boundary of local travel time area defined in Exhibit 6-2. All vehicle trips to and from the I-90 on- and off-ramps within the local travel time area are included.

[b] These travel times include all mitigation on Mercer Island described in Section 6.2.3.

6.2.1.4 Safety

Table 6-7 summarizes the changes in predicted average crash frequency (crashes per year) from the No Build condition to Options 1, 2, and 3 for intersections in Seattle and Bellevue. With all of the options a shift in traffic volumes occurs with the closure of the I-90 center roadway, its ramps and the D2 Roadway. With this shift in volumes, the location of where crashes are expected to occur changes. No

change in the predicted number of crashes per year would be expected among the No Build condition, Option 1, Option 2, and Option 3 at the majority of study intersections. In Seattle, at the 4th Avenue S at S Royal Brougham Way intersection, Options 1, 2, and 3 are predicted to have up to one more crash annually compared to the No Build condition due to an increase in traffic volume that results from the closure of the D2 Roadway ramp at 5th Avenue/Seattle Boulevard/Airport Way, which would have a decrease in crashes with the options compared to the No Build condition.

Table 6-7. Future (2020) Predicted Crash Frequency for Seattle and Bellevue Intersections

Intersection	Change in Average Predicted Crash Frequency from the No Build Condition (crashes/year)[a]		
	Option 1	Option 2	Option 3
4th Avenue S/Seattle Blvd. S/Airport Way S	0	0	+1
4th Avenue S/S Royal Brougham Way	+1	+1	+1
Rainier Avenue/S Massachusetts Street	0	0	0
Rainier Avenue/Dearborn Street	0	0	0
Bellevue Way SE/112th Avenue SE	0	0	0
Bellevue Way SE/S Bellevue Park-and-Ride (main)[b]	N/A	N/A	N/A
Bellevue Way SE/S Bellevue Park-and-Ride (south)[b]	N/A	N/A	N/A

[a] A positive number indicates an increase in predicted crashes per year; a negative number indicates a decrease in predicted crashes per year.
[b] Intersection is closed during construction.

The safety performance of the Mercer Island local streets within the study area for the options is summarized in Table 6-8. On Mercer Island streets within the study area, about 30 crashes per year would be expected in the No Build condition. With the shift in volumes on Mercer Island associated with the closure of the center roadway, the location of crashes would change in the future. Options 1 and 3 are predicted to experience about 1 additional crash per year on local streets compared to the No Build condition due to volume shifts.

Table 6-8. Summary of Mercer Island 2020 Construction Conditions Predicted Crashes

Option	Predicted Average Crash Frequency
	Total (crashes/yr)
No Build	30
Option 1	31
Option 2	32
Option 3	31

With Option 2, SOVs would not be allowed to use the Island Crest Way HOV ramps and would likely get on I-90 at W Mercer Way or 76th Avenue SE on-ramps. To access these locations, drivers would travel longer distances on local streets rather than traveling on I-90 from Island Crest Way. Likely streets include W Mercer Way, N Mercer Way, SE 24th Street, and 76th Avenue SE, among other local streets. This would increase volumes on these streets by up to 9 percent and decrease volumes on Island Crest Way by up to 6 percent compared to Option 1. This volume shift with Option 2 would result in one more crash per year occurring on the local streets compared to Options 1 and 3. This is offset by one less crash that would occur on I-90 between Island Crest Way and W Mercer Way, as described in Section 5.2.1.6.

For individual streets, Island Crest Way is predicted to experience the largest reduction in crashes between options because Option 2 would have one less crash per year on average than Options 1 and 3 as volumes decrease on this road. The intersection of 77th Avenue SE and SE 27th Street is predicted to have up to one less crash per year for all three options compared to the No Build condition. All other local streets and intersections show slight or no change in predicted crashes from the No Build condition for all options. Over 60 percent of the existing crashes on Mercer Island are property damage only crashes. The streets that drivers would likely use to access I-90 with Option 2 are posted at lower speeds than Island Crest Way and I-90, which typically correlate with lower-severity crashes.

The overall total number of crashes in the entire study area, including I-90 and Mercer Island local streets, is expected to be similar between Options 1 and 2 during construction. The total number of crashes with Option 3 would increase over Options 1 and 2 because Option 3 would have higher traffic volumes on I-90.

6.2.1.5 Parking

During construction, changes in parking supply are not expected on Mercer Island within the Town Center or in the area north of the park-and-ride with any of the options. The number of on-street parking stalls in the Town Center would remain the same as existing while the project is being constructed. Resident-only on-street permit parking areas and areas restricted by time of day or duration would not be affected. The neighborhoods in north Mercer Island would continue to be zoned as restricted residential parking only. With either the 77th Avenue SE Configuration or the 80th Avenue SE Configuration for Transit Integration, no parking stalls would be impacted. The 80th Avenue SE Configuration would extend south to Sunset Way but would not affect the existing parking area at the east end of Sunset Way.

East Link construction at the South Bellevue Park-and-Ride could increase the demand for parking at the Mercer Island Park-and-Ride when the existing 520-stall South Bellevue Park-and-Ride is closed in 2017. Consistent with the requirements of the East Link project Record of Decision, Sound Transit will mitigate the temporary loss of the South Bellevue Park-and-Ride spaces during East Link construction with over 1,200 spaces within the South Bellevue Park-and-Ride travelshed, with existing unused capacity at 14 existing park-and-ride lots, expansion of two of these lots, and five new leased park-and-ride lots. Transit routes at these lots have been and will continue to be modified to improve service to Seattle, the destination of most users of the South Bellevue Park-and-Ride. With this mitigation, the high utilization of parking on Mercer Island, and lack of unrestricted parking near the station, no impacts are expected despite the fact that, in some instances, commuters will need to transfer to travel to Seattle. There is low probability of hide-and-ride parking around the Mercer Island Station, because it has limited on-street parking north of the station and on-street parking in the Town Center is by permit only.

6.2.2 Operational Impacts

6.2.2.1 Traffic Forecasts and Station Trips

Future year traffic forecasts were generated for the year 2035 using the PSRC transportation demand model. Intersection volumes within the local and arterial street study area for the No Build condition would increase by an annual average growth rate of almost 1 percent per year compared to existing conditions, which is slightly higher than the regional growth rate on I-90. During the AM peak hour, this is an overall growth rate of approximately 15 percent compared to existing conditions. Volumes would grow by slightly less than 20 percent in the PM peak hour within the study area. The growth rate on local and arterial streets represents the growth on the local streets as well as the growth to and from I-90 during the AM or PM peak periods.

Vehicle trips at each of the East Link stations within the study area were calculated based on the PM peak-period (3-hour) ridership forecasts for each station and include the PM peak bus service levels

described in the transit integration plan prepared for East Link. The net increases in vehicle and bus volumes compared to No Build conditions were added to the transportation network for each East Link station.

Forecasts for the options with the I-90 center roadway closed to vehicle traffic shift travel patterns on Mercer Island for trips accessing I-90 compared to the No Build condition. Similar to travel pattern shifts during construction, with either of the options, the closure of the I-90 center roadway and associated ramps would result in drivers using the I-90 outer roadway ramps at the Island Crest Way, 76th Avenue SE, 77th Avenue SE and W Mercer Way interchanges. Mercer Island SOVs would be allowed to use the Island Crest Way westbound on-ramp and eastbound left-side HOV off-ramp in Option 1, while in Option 2, Mercer Island SOVs would not be allowed to use these ramps and would shift to other interchanges.

AM Peak Travel Patterns

Exhibit 6-7 illustrates the changes in travel patterns for the year 2035 AM peak hour for both Options 1 and 2 compared to the No Build condition. In the 2035 AM No Build condition, slightly less than 1,000 vehicles would access the I-90 westbound center roadway in the AM peak hour from either 77th Avenue SE or Island Crest Way.

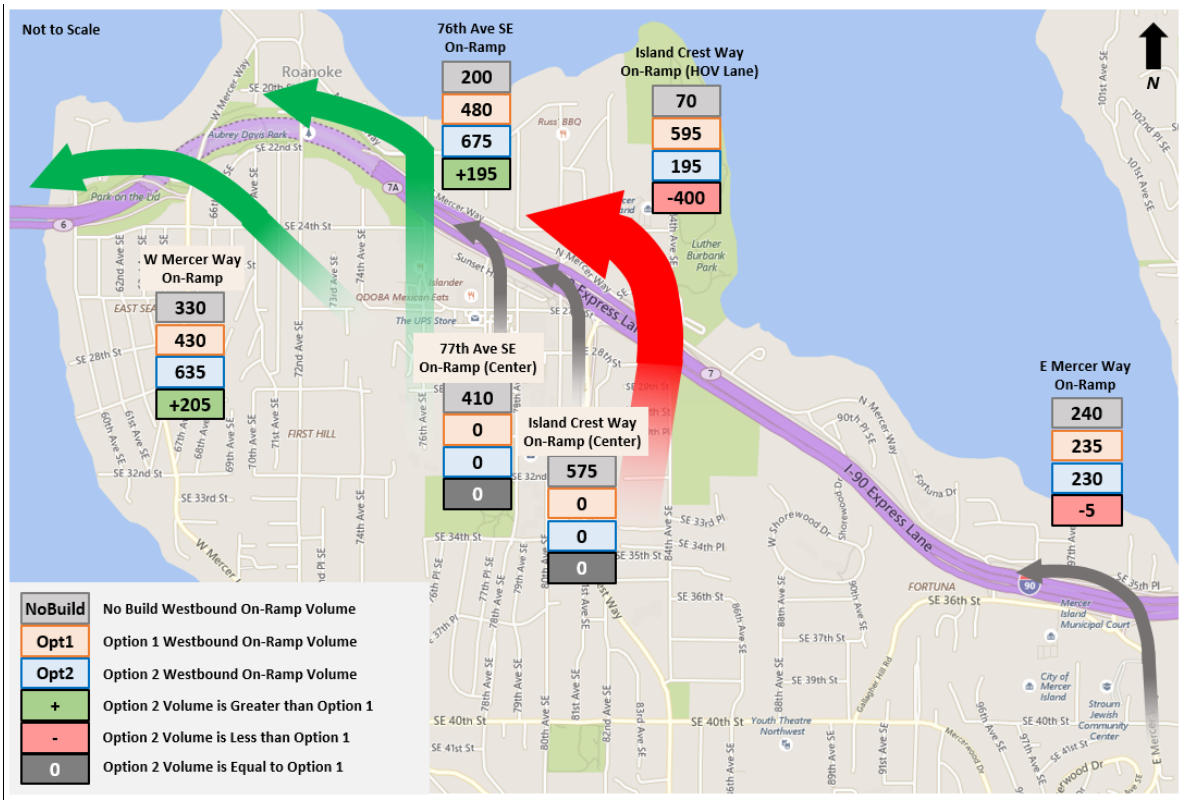


Exhibit 6-7. 2035 AM Peak-Hour Westbound Travel Patterns from Mercer Island

In the AM peak hour with Option 1, vehicles that would use the center roadway westbound on-ramps at Island Crest Way and 77th Avenue SE in the No Build condition would redistribute to other ramps similar to the construction condition. With Option 2, SOVs would no longer be allowed to use the Island Crest Way westbound on-ramp and would redistribute to other I-90 on-ramps. Key westbound travel pattern shifts with Option 2 compared to Option 1 include:

- The majority of SOVs in Option 1 that use the Island Crest Way westbound on-ramp would shift to the 76th Avenue SE and W Mercer Way on-ramps. To access these on-ramps, drivers would likely travel on W Mercer Way, SE 40th Street, N Mercer Way, SE 27th Street, 76th Avenue SE, and SE 24th Street, among other streets, depending on where they are coming from.

- Some SOVs in Option 1 that use the 76th Avenue SE westbound on-ramp could shift to W Mercer Way as drivers try to minimize their delays on individual ramps and bypass congestion on I-90 mainline.
- Some HOVs in Option 1 that would use GP ramps, such as 76th Avenue SE or W Mercer Way westbound on-ramps, could have a travel time savings on I-90 with the HOV lane only accommodating HOV and transit in Option 2, and therefore some would shift to use the Island Crest Way westbound HOV on-ramp.

As described in Section 6.2.1.1, there would be a net shift of about 3 to 4 percent of all the trips over a day that would use W Mercer Way and 76th Avenue SE I-90 instead of Island Crest Way ramps to and from Mercer Island.

Travel patterns in the eastbound direction (reverse-direction of the center roadway) between the I-90 outer roadway and Mercer Island off-ramps in the AM peak would be similar between the No Build and the options because both SOVs and HOVs would be able to access off-ramps to Island Crest Way with all options.

PM Peak Travel Patterns

Exhibit 6-8 shows how eastbound travel patterns to Mercer Island in the year 2035 during the PM peak hour would change during East Link operations. In the 2035 PM No Build condition, slightly less than 1,000 vehicles would use the I-90 eastbound center roadway in the PM peak hour to access Mercer Island from either 77th Avenue SE or Island Crest Way.

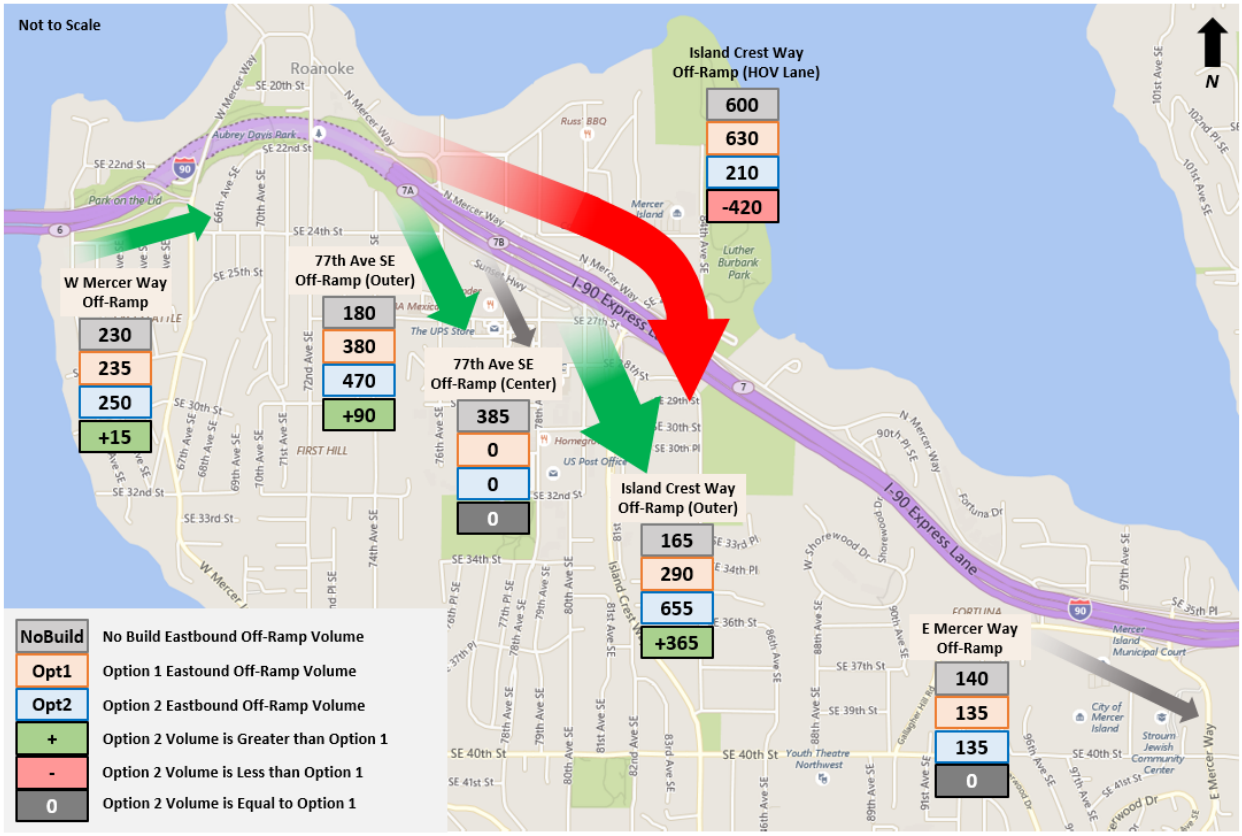


Exhibit 6-8. 2035 PM Peak-Hour Eastbound Travel Patterns to Mercer Island

In the PM peak hour with Option 1, vehicles that would use the center roadway eastbound off-ramps at Island Crest Way and 77th Avenue SE in the No Build condition would redistribute to other ramps similar to the construction condition. With Option 2, SOVs would not be allowed to use the Island Crest Way eastbound HOV off-ramp and would shift to other outer roadway on-ramps.

Key eastbound travel pattern shifts associated with Option 2 compared to Option 1 include:

- The majority of SOVs in Option 1 that use the Island Crest Way off-ramps would remain on Island Crest Way and use the I-90 right-side GP off-ramp, while a small portion of these trips would shift to the 77th Avenue SE eastbound off-ramp.
- A small portion of SOVs in Option 1 that use the 77th Avenue SE eastbound off-ramp could shift to the W Mercer Way off-ramp.
- A small portion of HOVs in Option 1 that use the 77th Avenue SE outer roadway eastbound off-ramp would shift to the Island Crest Way HOV off-ramp because the R-8A HOV lane would have less vehicle demand with Option 2.

The majority of Mercer Island trips accessing I-90 westbound in the PM peak in the No Build condition would use the W Mercer Way on-ramp to bypass congestion on I-90 mainline (similar to existing conditions). This pattern would likely continue with the options because congestion would still occur on I-90 westbound through Mercer Island. With Option 2, SOVs would not be able to use the westbound on-ramp from Island Crest Way and would shift to another ramp similar to the travel pattern shift described in the AM peak period. The SOV volume during the PM peak using Island Crest Way is substantially less, about half of the AM peak period.

Vehicle trips generated by the Mercer Island Station would not be affected by changes related to the East Link project Transit Integration refinements. With either the 80th Avenue SE or the 77th Avenue SE Configuration, approximately 130 vehicle trips would be generated by the East Link project in the peak hour. These trips either drop off or pick up light rail passengers. Compared to the No Build condition, no change in the amount of vehicles parking at the Mercer Island Park-and-Ride would be expected with either option because the park-and-ride is expected to be at capacity as it is in existing conditions.

6.2.2.2 Arterial and Local Street Operations

Table 6-9 shows that six intersections would not meet the agency LOS standards in the No Build condition. Two locations with Option 1 and five locations with Option 2 would not meet agency LOS standards and/or have queuing that extends into the adjacent intersections and operate worse than No Build in the AM and/or PM peak hour. Three of the impacted locations with Option 2 would also be impacted when East Link is under construction. All impacted intersections would be mitigated as discussed in Section 6.2.3.

With the No Build condition, intersection operations in the AM peak hour would remain similar to existing conditions at the majority of study intersections. In Seattle, the 5-leg intersection at Airport Way/Seattle Boulevard and the D2 Roadway would worsen to LOS F, exceeding its LOS threshold of LOS E due to growth in traffic. In Mercer Island, the intersection of 77th Avenue SE and N Mercer Way would degrade to LOS E due to increased volume on the northbound stop-controlled approach.

During the PM peak hour, the No Build condition would result in multiple intersections exceeding their LOS thresholds. Traffic growth by the year 2035 would degrade operations at two intersections in Seattle, one intersection in Mercer Island, and one intersection in Bellevue. Peak-hour intersection LOS results are summarized in Exhibits 6-9 and 6-10. Attachment F, Table F-4 shows the intersection AM peak-hour LOS and Table E-5 shows the PM peak-hour LOS for the 2035 No Build condition.

Table 6-9. 2035 Intersection Summary - AM and/or PM Peak Hours

Intersection	Jurisdiction	No Build Condition	Options	
			1	2
4th Avenue S/Seattle Blvd. S/Airport Way S	Seattle	X		
4th Avenue S/Seattle Blvd. S/S Dearborn St/5th Avenue S	Seattle	X		
4th Avenue S/Royal Brougham Way	Seattle		X	X
Rainier Avenue/S Dearborn Street	Seattle	X		
76th Avenue SE/N Mercer Way/I-90 Westbound On-ramp	WSDOT			X[a]
77th Avenue SE/N Mercer Way	Mercer Island	X	X	X[a]
80th Avenue SE/SE 27th St	Mercer Island			X
80th Avenue SE/N Mercer Way	Mercer Island	X		
Island Crest Way: between I-90 Westbound Off-ramp and I-90 Eastbound On-ramp	WSDOT			X[a]
Bellevue Way SE/S Bellevue Park-and-Ride	Bellevue	X		

Note: Intersection impacts are defined as LOS or queuing worse than the No Build condition.

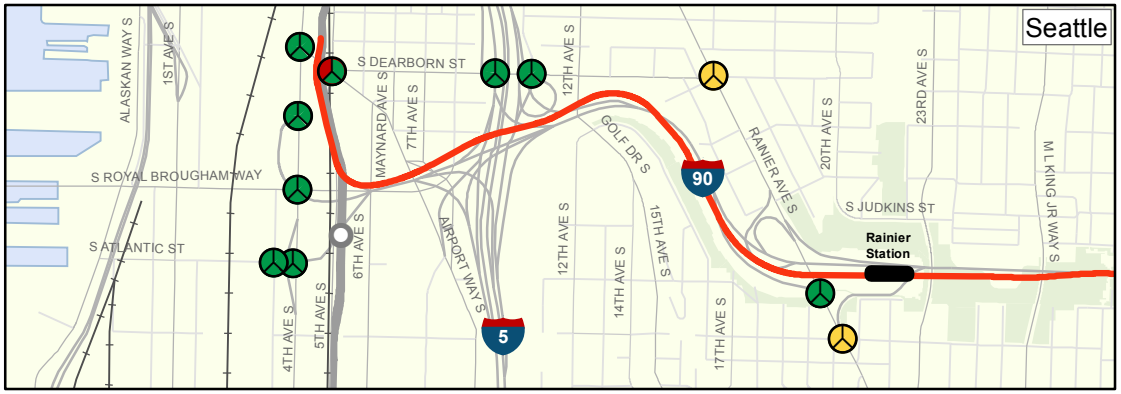
[a] Would also be impacted during construction.

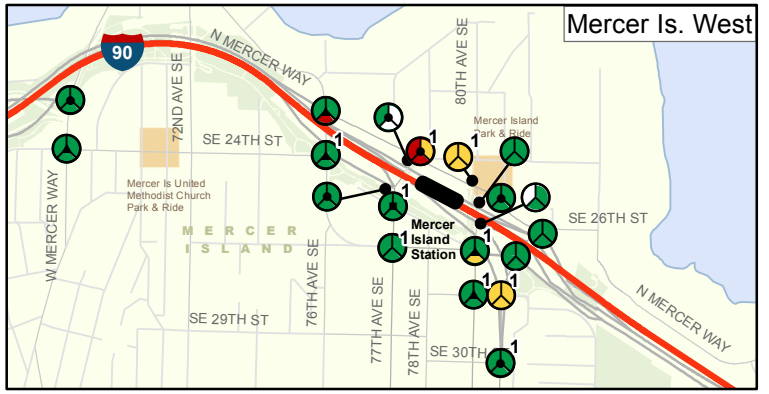
With the options, local access changes on Mercer Island related to the closure of the 77th Avenue SE and Island Crest Way reversible ramps would result in vehicles rerouting to other I-90 ramps to and from the west. With Option 1, SOVs from Mercer Island would still be allowed to use the HOV-only ramp facilities. Study intersections are expected to operate similar to or better than No Build conditions in the AM peak hour. The intersection of 77th Avenue SE and N Mercer Way, which is expected to operate at LOS E in the No Build, would operate at LOS C. With the closure of the center roadway on-ramp at 77th Avenue SE, fewer vehicles would be making the left turn from N Mercer Way to southbound 77th Avenue SE in the morning, reducing the number of conflicting movements at this intersection and improving operations.

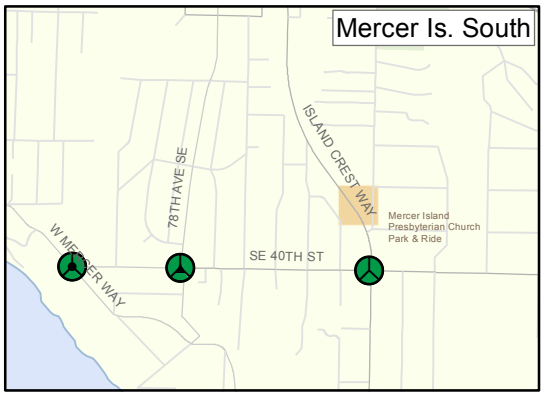
During the PM peak hour, Option 1 would result in fewer affected intersections as compared to the No Build condition. The addition of light rail capacity across Lake Washington and closure of the ramps to and from the center roadway would result in slightly fewer regional trips within the Mercer Island Town Center. In Seattle, the closure of the D2 Roadway ramp at the intersection of Airport Way/Seattle Boulevard would reduce the number of vehicles entering the intersection and improve overall traffic operations there.

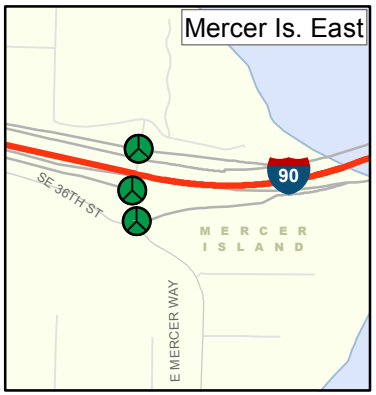
With Option 2, westbound AM SOV traffic that would use the Island Crest Way HOV-only ramp in Option 1 would most likely shift to either W Mercer Way or 76th Avenue SE. This shift would increase the number of vehicles entering the Town Center to access I-90, and would result in both the 76th Avenue SE westbound on-ramp intersection and the 77th Avenue SE and N Mercer Way intersection operating at LOS F. The increase in demand at the 76th Avenue SE westbound on-ramp intersection would result in vehicle queues on N Mercer Way that would extend through multiple intersections along N Mercer Way.

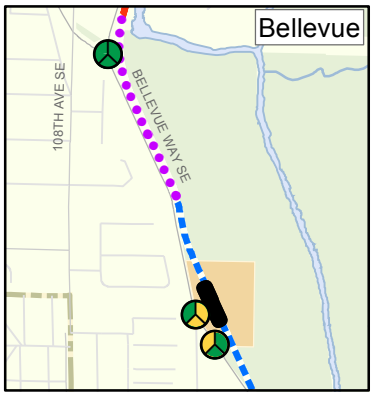
In the PM peak hour with Option 2, eastbound SOV traffic to Mercer Island would not be allowed to use the left-side HOV off-ramp to Island Crest Way, but there is an existing GP off-ramp to Island Crest Way. Compared to Option 1, some SOVs from Island Crest Way would shift to the 77th Avenue SE off-ramp, resulting in increased vehicle trips in the Town Center. Under Option 2, the intersection of 80th Avenue SE and SE 27th Street would operate at LOS D, which is below the jurisdictional threshold of LOS C, during the PM peak hour.











2035 AM Level of Service (LOS)

WSDOT, Seattle, Mercer Island, Bellevue

- A - C
- D
- E - F

Mercer Island Town Center

- 1 A - B
- 1 C
- 1 D - F

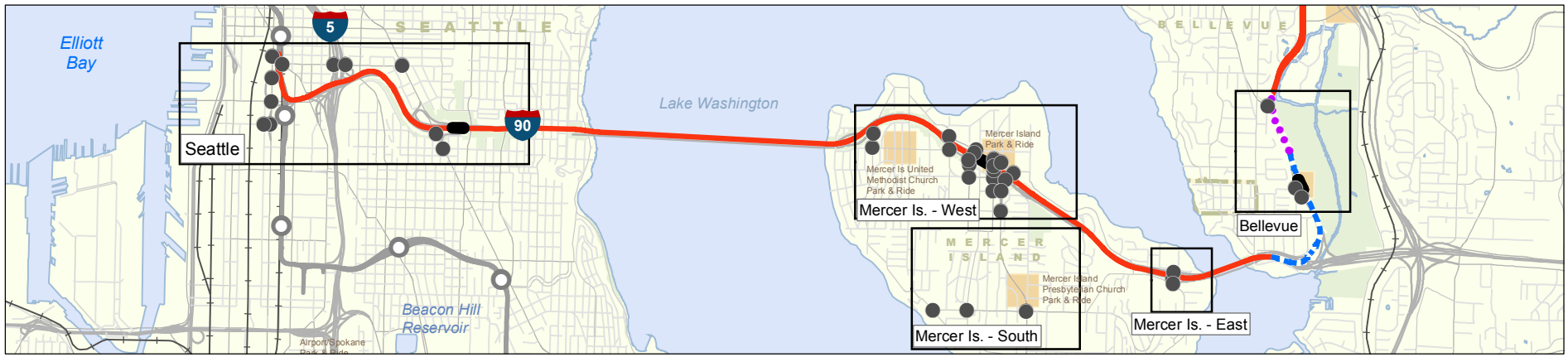
LOS Key for Options

No Build - - Option 1

Option 2

NOTES: The level of service in yellow is the jurisdiction's standard for intersections in this segment.

1 - Intersection within Mercer Island Town Center jurisdiction. Intersection LOS are for conditions prior to any proposed mitigation



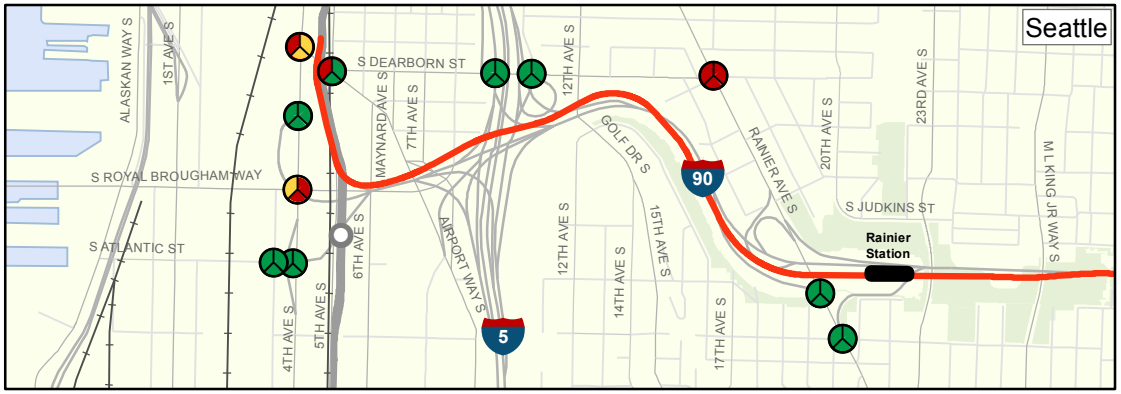
- Signalized
- One-Way Stop Controlled
- Two-Way Stop Controlled
- All-Way Stop Controlled
- At-Grade Route
- Elevated Route
- Retained-Cut Route
- Tunnel Route
- Proposed Station
- Central Link Alignment and Station

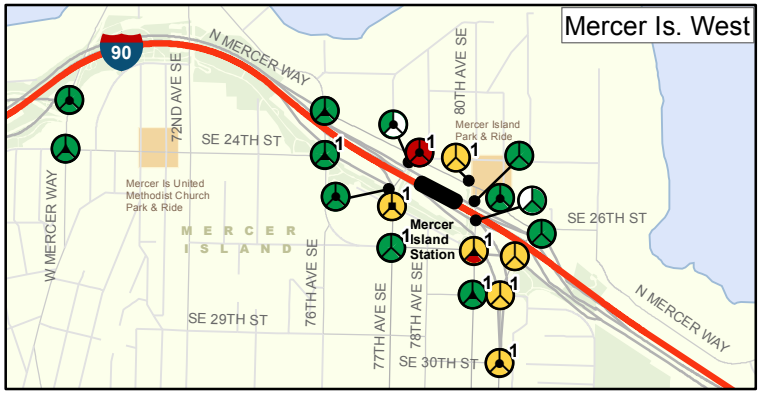
N

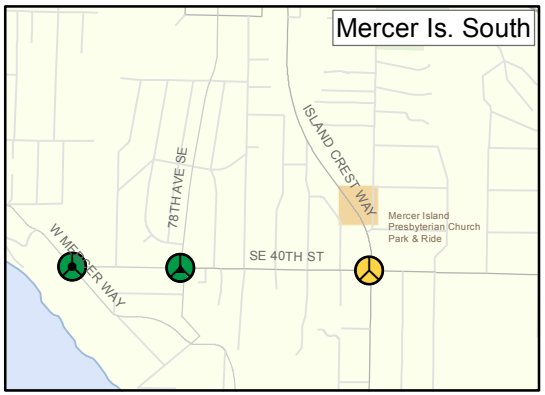
0 0.5 Mile

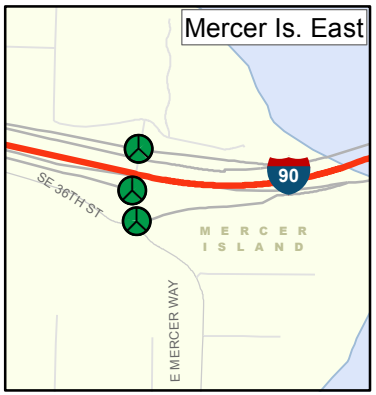
Source: Data from King County (2006) and modified by CH2M. Updated by CH2M 2017.

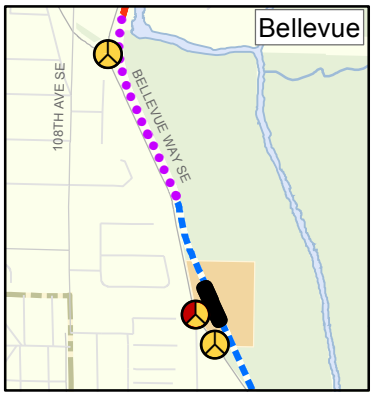
Exhibit 6-9 **Future 2035 AM Level of Service at Intersections**
East Link Project











2035 PM Level of Service (LOS)

WSDOT, Seattle, Mercer Island, Bellevue

- A - C
- D
- E - F

Mercer Island Town Center

- 1 A - B
- 1 C
- 1 D - F

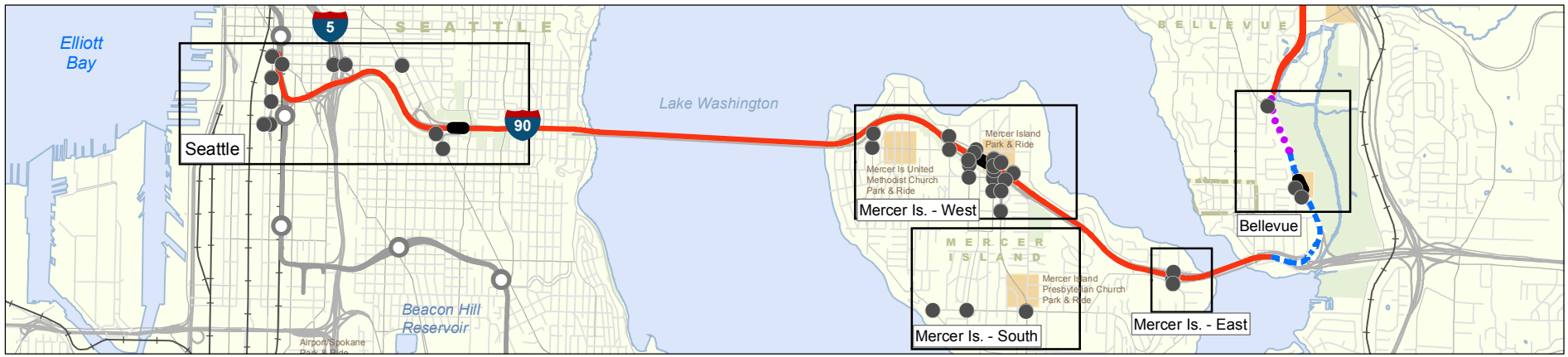
LOS Key for Options

No Build - - Option 1

Option 2

NOTES: The level of service in yellow is the jurisdiction's standard for intersections in this segment.

1 - Intersection within Mercer Island Town Center jurisdiction. Intersection LOS are for conditions prior to any proposed mitigation



Signalized

One-Way Stop Controlled

Two-Way Stop Controlled

All-Way Stop Controlled

At-Grade Route

Elevated Route

Retained-Cut Route

Tunnel Route

Proposed Station

Central Link Alignment and Station

N

0 0.5 Mile

Source: Data from King County (2006) and modified by CH2M. Updated by CH2M 2017.

Exhibit 6-10 **Future 2035 PM Level of Service at Intersections**

East Link Project

Intersection operations are expected to be similar between the 77th Avenue SE Configuration and the 80th Avenue SE Configuration. Vehicle circulation options between the Town Center and the Mercer Island Park-and-Ride would be the same for both Transit Integration configurations, and vehicles are expected to experience similar delays with either configuration.

Tables F-4 and F-5 in Attachment F show the peak-hour intersection LOS for the 2035 options with each of the three Transit Integration configurations.

6.2.2.3 Mercer Island Travel Time To and From I-90

In the 2035 AM and PM peak conditions, average travel times on local Mercer Island streets to and from I-90 would not exhibit any noticeable change between the No Build and two options except in the westbound direction heading to Seattle in the AM peak period. Both options would see a slight increase in travel times on local streets in the AM peak period for the westbound direction heading to Seattle compared to the No Build condition due to the closure of the center roadway ramps. Local Mercer Island travel times to and from I-90 ramps are presented in Table 6-10.

Table 6-10. 2035 Mercer Island Local Travel Times To and From I-90 (minutes)

Travel Time Path[a]	2035 No Build	2035 Options[b]	
		Option 1	Option 2
AM Peak Period (6:30 – 10:00 am)			
Mercer Island to Seattle (westbound)	1.4 (0.3-3.2)[b]	1.8 (0.3-4.9)	2.1 (0.4-4.9)
Mercer Island to Bellevue (eastbound)	1.2 (0.4-2.4)	1.2 (0.5-2.7)	1.3 (0.2-2.9)
Seattle to Mercer Island (eastbound)	1.1 (0.4-3.1)	1.1 (0.4-3.1)	1.1 (0.4-3.1)
Bellevue to Mercer Island (westbound)	1.3 (0.2-2.1)	1.5 (0.2-2.7)	1.4 (0.2-2.1)
All Trips to/from Mercer Island	1.3 (0.2-3.2)	1.4 (0.2-4.9)	1.5 (0.2-4.9)
PM Peak Period (3:30 – 7:00 pm)			
Mercer Island to Seattle (westbound)	1.6 (0.3-2.9)	1.6 (0.3-2.9)	1.7 (0.3-5.9)
Mercer Island to Bellevue (eastbound)	1.7 (0.5-3.2)	1.8 (0.6-3.5)	1.5 (0.6-3.4)
Seattle to Mercer Island (eastbound)	1.4 (0.4-3.1)	1.5 (0.4-3.1)	1.5 (0.4-3.1)
Bellevue to Mercer Island (westbound)	1.3 (0.2-2.5)	1.4 (0.2-2.5)	1.3 (0.2-2.5)
All Trips to/from Mercer Island	1.5 (0.2-3.2)	1.6 (0.2-3.5)	1.5 (0.2-5.9)

Note: The value outside of the parentheses indicates the person-weighted average travel time in minutes. The values inside the parentheses indicate the travel time range in minutes.

[a] Travel time paths are measured between the I-90 ramp intersections and boundary of local travel time area defined in Exhibit 6-2. All vehicle trips to and from the I-90 on- and off-ramps within the local travel time area are included.

[b] This information includes all mitigation on Mercer Island described in Section 6.2.3.

On average, a 0.3-minute travel time increase would be expected in the AM peak period for trips from Mercer Island to I-90 westbound in Option 2 compared to Option 1. The largest travel time increase would be for SOVs accessing I-90 via the westbound Island Crest Way on-ramp in the No Build condition and Option 1, but using either the 76th Avenue SE or W Mercer Way on-ramps in Option 2. Their travel time on local streets with Option 2 would increase by 3 to 4 minutes.

Besides this one change, travel times on the local streets to and from I-90 would not change for the majority of people because their access to or from I-90 would not change between options. Only SOVs using the westbound Island Crest Way on-ramp to the outer roadway would have to use another I-90 access with Option 2, while some HOVs would shift to the Island Crest Way on-ramp to access the R-8A HOV lane. Overall, the net change in traffic volumes using the Island Crest Way ramp would be about 3 to 4 percent of all the daily trips on Mercer Island to and from I-90. Considering all trips to and from Mercer Island, the average travel time on local streets is similar among the options in the AM and PM peak periods.

6.2.2.4 Safety

Table 6-11 summarizes the change in predicted average crash frequency from 2035 No Build to Options 1 and 2 for Seattle and Bellevue intersections. Crash changes with the options are based on traffic volume or intersection control changes that occur between conditions. An increase in crashes corresponds with an increase in traffic volume.

Table 6-11. Future (2035) Predicted Crash Frequency for Seattle and Bellevue Intersections

Intersection	Change in Average Predicted Crash Frequency from No Build (crashes/year)[a,b]	
	Option 1	Option 2
4th Avenue S/Seattle Blvd. S/Airport Way S	0	0
4th Avenue S/S Royal Brougham Way	0	0
Rainier Avenue/S Massachusetts Street	0	0
Rainier Avenue/Dearborn Street	0	0
Bellevue Way SE/112th Avenue SE	0	0
Bellevue Way SE/S Bellevue Park-and-Ride (main)	+1	0
Bellevue Way SE/S Bellevue Park-and-Ride (south)	+6	+6

[a] No Build for the corresponding year was used for each condition.

[b] A positive number indicates an increase in predicted crashes per year; a negative number indicates a decrease in predicted crashes per year.

At the south intersection of the South Bellevue Park-and-Ride, both options would be predicted to have up to six more crashes per year compared to the No Build condition. This increase is due to the expanded park-and-ride built with the project that increases amount of vehicles at this intersection, but there would be no difference between the options. Intersections in Seattle would not be expected to change in terms of crash performance.

The safety performance of the Mercer Island local streets within the study area is summarized in Table 6-12. On Mercer Island streets within the study area, about 33 crashes per year would be expected in the No Build condition. With all of the options a shift in traffic volumes occurs with the closure of the I-90 center roadway, its ramps and the D2 Roadway.

Table 6-12. Summary of Mercer Island 2035 Build Conditions Predicted Crashes

Option	Predicted Average Crash Frequency
	Total (crashes/yr)
No Build	33
Option 1	35
Option 2	37

As in the construction period, these shifts in traffic patterns on Mercer Island, would change the locations of crashes in the future. Option 1 is predicted to experience about 2 more crashes per year on the local streets compared to No Build due to volume shifts associated with the closure of the center roadway.

With Option 2, SOVs would not be allowed to use the Island Crest Way HOV ramps and would likely get on I-90 at W Mercer Way and 76th Avenue SE. To access these locations, drivers would travel longer distances on local streets and have a shorter trip on I-90 from when they used Island Crest Way. Likely streets include W Mercer Way, N Mercer Way, SE 24th Street, and 76th Avenue SE, among others. This would overall increase volumes on these streets by up to 9 percent, and decrease volume by up to 6 percent on Island Crest Way compared to Option 1. This volume shift with Option 2 results in a change in the location of where crashes occur in the study area. As described in Section 5.2.2.6, two less crashes would occur on I-90 between Island Crest Way and West Mercer Way with Option 2, which is offset by two more crashes per year occurring on the local streets compared to Option 1. Over 60 percent of the existing crashes on Mercer Island are property damage only crashes. The streets that drivers would likely use to access I-90 with Option 2 are posted at lower speeds than I-90, which typically correlate with lower-severity crashes.

For individual streets, Island Crest Way is predicted to have the greatest increase in crashes in Option 1. This increase would be less than one crash per year compared to No Build and Option 2. All other roads are predicted to perform about the same as No Build and show slight or no difference between the options. The intersection of Island Crest Way and SE 40th Street would experience an increase of less than one crash per year for both options compared to No Build. The SE 27th Street and 77th Avenue SE intersection is predicted to experience one less crash per year for both options compared to the No Build condition.

There would be no change in the number of crashes between options at the study area intersections in Bellevue or Seattle. Therefore, there are expected to be about 5 fewer crashes per year overall in the entire study area, including I-90 and local Mercer Island streets, with Option 2 than with Option 1.

6.2.2.5 Parking

During operation of the project, no changes to the number of on-street, unrestricted parking stalls would occur near the Mercer Island Station. The on-street parking in the Town Center within 0.25 mile of the station would continue to have posted restrictions based on residency, time of day, or duration. The residential area north of the Mercer Island Park-and-Ride would continue to be zoned as restricted parking designated for residents only.

There would be no parking spaces lost with the Mercer Island Station and there would be low potential for parking impacts because the South Bellevue Station would provide approximately 1,500 stalls, providing westbound riders with a higher parking capacity option near I-90. There is low probability of hide-and-ride parking around the Mercer Island Station because it has limited on-street parking north of the station and on-street parking in the Town Center is by permit only.

6.2.3 Mitigation

All mitigation measures associated with constructing the East Link Extension, including the I-90 Operations options and Transit Integration configurations, would comply with state and local regulations governing construction traffic control and construction truck routing. Sound Transit would finalize detailed construction mitigation plans in coordination with local jurisdictions and WSDOT during final design and permitting. Mitigation for traffic impacts due to construction would be addressed by the measures provided in the East Link Final EIS, including the following:

- Follow standard construction safety measures, such as installing advance warning signs, installing highly visible construction barriers, and using flaggers.
- Use lighted or reflective signage to direct drivers to truck haul routes and enhance visibility during nighttime work hours.
- In areas with high levels of traffic congestion, schedule traffic lane closures and high volumes of construction traffic during off-peak hours to minimize delays where practical.
- Communicate public information through tools such as print, radio, posted signs, websites and e-mail to provide information regarding street closures, hours of construction, business access, and parking impacts.

Temporary detours, lane closures, or road closures may be needed for construction of mitigation measures. Construction mitigation measures would be similar for the Transit Integration configurations.

Table 6-13 shows locations where mitigation would be needed for the Options 1 and 2 impacts identified in Sections 6.2.1.2 and 6.2.2.2 and the period when it would be needed. Option 3 would not require any mitigation. These impacts can be mitigated with modifications to the intersection controls or on-ramp operations, with minor widening and/or restriping, and/or with signing, which will be implemented as part of the East Link project. Final mitigation would be as agreed to with the agency with jurisdiction for each location.

Table 6-13. Mitigation for Options 1 and 2

Number	Mitigation Location	Period of Impact	Option Required
1	4th Ave. S/Royal Brougham Way intersection	Operations	Options 1 and 2
2	76th Ave. SE/N Mercer Way/ I-90 Westbound On-ramp intersection	Construction	Option 2
3	77th Ave. SE/N Mercer Way intersection	Construction	Option 2
		Operation	Option 1
4	80th Ave. SE and SE 27th St. intersection	Operation	Option 2
5	Island Crest Way: between I-90 Westbound Off-ramp and I-90 Eastbound On-ramp	Construction	Option 2

These mitigation measures would improve the AM and PM peak-hour intersection delay and/or reduce vehicle queues that extend into adjacent intersections to the same or better than the No Build conditions. Attachment F provides the intersection results with these intersection treatments for the AM and PM peak hours.

For construction mitigation measures that cannot be completed in their permanent form prior to the start of East Link construction on I-90 in June 2017, WSDOT and Sound Transit would implement temporary mitigation measures prior to closure of the center roadway, or soon thereafter, once approvals are obtained. Temporary measures could include installation of temporary traffic signals,

hiring a traffic control officer, or other measures agreed to with the agency of jurisdiction. Permanent mitigation measures would be implemented prior to East Link beginning operation in 2023. City of Mercer Island permits and/or approvals are required for temporary and permanent mitigation on City streets.

Safety performance within the overall study area, including the I-90 freeway and local Mercer Island streets, would be expected to be similar or improved with Option 2 compared to Options 1 and 3. The severity of crashes is expected to decrease as some traffic shifts to streets with lower speed limits. No mitigation would be needed to address safety.

Although there is low potential for hide-and-ride parking at the Mercer Island Station, Sound Transit will inventory existing on-street parking around the Mercer Island Station up to one year prior to starting service, and will evaluate hide-and-ride impacts at the Mercer Island Station within one year of starting operations, consistent with the 2011 Record of Decision. If impacts are determined, Sound Transit and the City of Mercer Island will work with the affected stakeholders to identify and implement appropriate mitigation measures. Parking control measures, when deemed needed and effective to address adverse impacts, would consist of parking meters, restricted parking signage, passenger and truck load zones, and residential parking zone signage. Other parking mitigation strategies could include promotion of alternative transportation services (e.g., encourage the use of bus transit, vanpool or carpool services, walking, or bicycle riding).

For parking controls agreed to with the local jurisdiction and community, Sound Transit will be responsible for the cost of installing the signage or other parking controls and any expansion of the parking controls for one year after opening East Link. The local jurisdiction will be responsible for monitoring the parking controls and providing all enforcement and maintenance of the parking controls. The local residents will be responsible for any residential parking zone related costs imposed by the local jurisdiction.

SECTION 7

Non-Motorized

A discussion of impacts on non-motorized transportation resources resulting from the I-90 changes in operations conditions is presented below.

7.1 Affected Environment

Sidewalks are available along most arterial streets on Mercer Island within the study area, providing sufficient pedestrian connections. Recent mixed-use developments at the Mercer Island Town Center, completion of the Mercer Island Park-and-Ride, and improvements in pedestrian connectivity have resulted in multiple walkable paths between the Town Center and North Mercer Island. Nearly all of the commercial activity in Mercer Island is centralized at the Mercer Island Town Center, making it a common destination for residents and pedestrians.

Crosswalks and wider sidewalks are present throughout most of the commercial area in Mercer Island, in addition to some pedestrian-friendly roadway elements such as bulb-outs and street trees. A few areas in the study area are missing pedestrian facilities on one or both sides of the street. Streets that lack sidewalks are typically in residential neighborhoods, on local access streets, or on streets with low pedestrian volumes. Sidewalks exist for the length of SE 24th Street on both sides, except for a gap on the north side of the street between 72nd Avenue SE and 76th Avenue SE. Pedestrian access is provided for the length of N Mercer Way via the I-90 Trail on the north side of the street, but sidewalks only exist on the south side of the street between 77th Avenue SE and 80th Avenue SE. High pedestrian activity occurs at the intersection of N Mercer Way and 80th Avenue SE due to the Mercer Island Park-and-Ride. Currently, approximately 250 pedestrians cross N Mercer Way to and from the Mercer Island Park-and-Ride to bus stops on the south side of the street during the peak hour.

There are no school walk routes in Mercer Island within 0.5 mile of the Mercer Island Station. School zone crossings of SE 40th Street have signed and painted crosswalks at 80th, 81st, and 82nd Avenues SE. School zones have 20-mph vehicle speed limits with flashing beacons that turn on when most students are present, which is about one hour as school starts and another hour as school ends (school starts at 9:10 a.m. and ends at 3:45 p.m.). During this time, there are safety patrols who guide students across the street. A school zone is also present on W Mercer Way at the back entrance to W Mercer Elementary, south of SE 40th Street. At Northwood Elementary, the school zone is also along SE 40th Street from 85th Avenue SE to Mary Wayte Pool. Speed humps are present along 86th Avenue SE from SE 40th Street south to SE 45th Street.

The Mercer Island I-90 Lid Park provides multiple connections across I-90 between north Mercer Island and the Town Center and provides the largest area of non-motorized recreational use on Mercer Island. Multiuse trails provide regional mobility for non-motorized users. The I-90 Trail originates at Sturgus Park in Seattle and crosses Lake Washington along the north side of I-90, continues through Mercer Island, and terminates at Mercer Slough Nature Park in south Bellevue. It also connects with a bike route that circles the island using W Mercer Way and E Mercer Way. In 2009, approximately 60 bicycle users were counted during the AM peak and 100 bicycle users were counted during the PM peak at the intersection of the I-90 Trail entrance at Enatai Park in Bellevue. At the I-90 Trail/12th Avenue S in Seattle, approximately 110 bicyclists were counted in the AM peak and 130 in the PM peak (WSDOT, 2009b). Sidewalks located along 76th Avenue SE, 77th Avenue SE, and 80th Avenue SE provide pedestrian and bicycle connectivity across I-90.

There are bicycle facilities on both sides of most arterial streets on Mercer Island, including North Mercer Way, Island Crest Way, and 78th Avenue SE. W Mercer Way and SE 40th are designated bike corridors identified in the Mercer Island Pedestrian and Bicycle Facilities Plan (City of Mercer Island, 2010). W Mercer Way currently has a paved shoulder on the east side of the road. These roads all currently have paved shoulders, sidewalks, or separated pathways on at least one side of the road. There are sidewalks or separated pathways on both sides of SE 40th Street between Island Crest Way and 78th Avenue SE. A sidewalk is present on the south side of this road from 78th Avenue SE to W Mercer Way. A bicycle lane is present on the south side of SE 40th Street and sharrows are present in the westbound (northern) lane from Island Crest Way to 78th Avenue SE. An unsignalized pedestrian crossing is also present near SE 32nd Street on Island Crest Way.

There were 7 vehicle-pedestrian crashes and 12 vehicle-bicycle crashes between 2011 and 2015 on the Mercer Island streets where traffic volume shifts could occur with the I-90 options. Refer to Section 3.4.2.2 for information on the differences in local traffic volume patterns among the options. Most of these streets have sidewalks, paved shoulders, or pathways that are recognized by the City as bicycle facilities.

7.2 Environmental Impacts

7.2.1 Construction Impacts

7.2.1.1 Non-Motorized Facilities

The changes in I-90 Operations would not have any impacts on non-motorized facilities and therefore only the Transit Integration configurations are discussed in this subsection. Construction of the FEIS Configuration would require temporary closure of the path over I-90 on the west side of 80th Avenue SE. Pedestrians and bicycles traveling across I-90 in this area would need to cross the freeway at 77th Avenue SE to the west or Island Crest Way to the east.

For the 77th Avenue SE Configuration, construction of the roundabout could affect pedestrian and bicycle movement through the 77th Avenue/N Mercer Way intersection. Pathways are present on both sides of N Mercer Way east of 77th Avenue SE, and Sound Transit would try to keep at least one path open at all times to maintain connectivity. If temporary closures of the intersection are needed, detours would be provided on 76th Avenue and 80th Avenue to cross I-90, or the relocated pathway on the north side of the roundabout could be constructed prior to any closures.

Similar to the FEIS Configuration, for the 80th Avenue SE Configuration, construction of the bus transfer area would require temporary closure of the path over I-90 on the west side of 80th Avenue SE. Pedestrians and bicyclists traveling across I-90 in this area would need to cross the freeway at 77th Avenue SE to the west or Island Crest Way to the east.

7.2.1.2 Safety

Non-motorized safety conditions on the local streets for Option 1 and Option 3 during construction would be similar to the No Build condition, but there would be a slight change with Option 2 on Mercer Island. Per the *Highway Safety Manual* methodology, Option 2 would have slightly more than 1 additional pedestrian/bicycle crash every 20 years on the streets within the local study area compared to Options 1 and 3. This correlates to about a 1 percent increase based on the existing number of non-motorized crashes over a similar time period. Most of the streets where traffic would shift with the options have sidewalks and/or paved shoulders or pathways that are recognized by the City as bicycle facilities. Along SE 40th Street, there are clearly designated school zones with slower speeds and safety patrols before and after school. The streets that drivers would use to access I-90 in Option 2 likely have greater pedestrian and bicycle activity than Island Crest Way, but also have lower speeds, which typically correlates with lower-severity crashes.

7.2.2 Operational Impacts

7.2.2.1 Non-motorized Facilities

The changes in I-90 Operations would not have any impacts on non-motorized facilities and therefore only the Transit Integration configurations are discussed in this subsection. Under the No Build condition, the number of pedestrians crossing N Mercer Way would remain around 250 during the PM peak hour based on expected bus routes and because parking on the north side of the road would be limited to the existing parking garage. The FEIS Configuration would have the same amount of pedestrians crossing during the peak hour.

With the 77th Avenue SE Configuration, approximately 1,300 pedestrians in the peak hour would cross N Mercer Way between the I-90 bus route stops located on the north side of N Mercer Way and the light rail station. With the 80th Avenue SE Configuration, riders would transfer between buses and light rail without crossing any public roadways. The only pedestrians crossing N Mercer Way to access the stations and buses would be those parked at the parking garage, which would be similar to the No Build condition at around 250 during the peak hour.

7.2.2.2 Safety

Non-motorized crashes are included as part of the total number of overall crashes estimated in Section 6.2. As described in Sections 6.2.1.4 and 6.2.2.4, closure of the I-90 center roadway and its ramps would shift the location of a few crashes from I-90 and Island Crest Way to other local streets on Mercer Island. Non-motorized safety conditions on the local streets for Option 1 would be similar to the No Build condition, but there would be slight changes with Option 2 on Mercer Island. Per the *Highway Safety Manual* methodology, Option 2 would have slightly more than 1 additional pedestrian/bicycle crash every 10 years on the streets within the local study area compared to Option 1. This correlates to less than a 3 percent increase based on the existing number of non-motorized crashes over a similar time period. Along SE 40th Street, there are clearly designated school zones with slower speeds and safety patrols before and after school. During this time, there are safety patrols who guide students across the street. Additionally, the streets that drivers would likely use to access I-90 in Option 2 likely have greater pedestrian and bicycle activity but have lower speeds than Island Crest Way, which typically correlates with lower-severity crashes, and have paved shoulders, sidewalks, or separated pathways that are recognized by the City as bicycle facilities.

7.3 Mitigation

To address potential construction impacts for either the 77th Avenue SE or 80th Avenue SE Transit Integration configuration, mitigation would be similar to that described in the Final EIS. Sound Transit would minimize potential impacts on pedestrian and bicycle facilities from East Link construction by providing detours within construction areas or clearly delineating pedestrian and bicycle facilities within construction areas, and would notify the public as appropriate. Multi-use trails, such as the I-90 Trail, that might be affected by construction would generally be kept open for use, but detours would be provided when trails are closed unless they are closed for short durations or are in areas where a detour is not feasible. Public notifications would be issued for temporary trail closures during construction.

No operational impacts to non-motorized users were identified with the 80th Avenue SE Configuration and no mitigation is needed for this configuration.

For the 77th Avenue SE Configuration, potential improvements that could be considered to increase the pedestrian capacity at the N Mercer Way/80th Avenue SE include creating a pedestrian all-way crossing phase intersection or providing wider crosswalks and larger waiting areas at the intersection corners to accommodate pedestrians bunching and waiting for a walk signal.

Non-motorized crashes are expected to be similar among all of the options during construction and operations on Mercer Island local streets. Therefore, no mitigation is proposed to address non-motorized safety.

SECTION 8

Freight

A discussion about impacts to freight resulting from the I-90 changes in operations conditions is presented below.

8.1 Affected Environment

Truck mobility within the Puget Sound region is largely supported by a system of designated truck routes consisting of freeways and arterial streets that connect major freight destinations. In the East Link study area, there are key freight corridors that serve not only the Puget Sound region but also national and international markets. These corridors include I-90 and I-405, as well as many local truck routes with a primary purpose of facilitating the flow of deliveries to local businesses. To prioritize these truck routes, WSDOT adopted the Freight Goods Transportation System (FGTS), which classifies roadways according to the amount of annual tonnage transported along these roads. The classifications range from roadways that carry more than 20,000 tons in 60 days to those with more than 10,000,000 tons annually (Table 8-1). Jurisdictions determine their designated truck route system on arterial streets according to the FGTS classifications.

Table 8-1. Freight and Goods Transportation System Classification

FGTS Classification	Gross Tonnage
T-1	Over 10,000,000 annually
T-2	4,000,000 to 10,000,000 annually
T-3	300,000 to 4,000,000 annually
T-4	100,000 to 300,000 annually
T-5	Over 20,000 in 60 days

Source: Washington State Legislative Transportation Committee, Resolution 516, March 16, 1995.

I-90 is an east-west key truck route connecting local, interstate, and regional freight activity with the Ports of Seattle and Tacoma and surrounding industrial areas across Lake Washington. I-90 is the second most heavily used highway, following I-5, for truck movement in Washington (WSDOT, 2016b).

Over the course of a year, more than 44 million tons of freight are hauled across I-90, which has a T-1 FGTS classification. Of the approximately 130,000 daily vehicles that cross Lake Washington and use I-90, about 5,100 (or 3.9 percent) of them are truck trips (based on WSDOT permanent traffic recorder data from January 2016 through May 2016, west of the Rainier Avenue interchange). Many of these trips likely travel over the I-90 floating bridges en route to or from the Port of Seattle or other major transportation hubs, and to other business and consumer destinations.

Table 8-2 shows truck volumes during the AM and PM peak periods, along with off-peak and daily totals. About half of the trucks that cross Lake Washington on I-90 are considered smaller-sized single-unit trucks, which include vehicles such as delivery vans and recreational vehicles. About 170 trucks (about 3 percent of the total daily trucks) are large-sized triple-unit tractor-trailer trucks. Because much of the truck travel avoids the more heavily congested times of the day, nearly 70 percent of the trucks travel during nonpeak hours.

Table 8-2. Current Peak-Period and Daily Truck Volumes on I-90 West of Rainier Avenue

Time Period	Total Trucks[a]	Total Vehicles	Single-Unit Trucks			Double-Unit Trucks			Triple-Unit Trucks		
			Count	Percent of Total Trucks	Percent of Total Vehicles	Count	Percent of Total Trucks	Percent of Total Vehicles	Count	Percent of Total Trucks	Percent of Total Vehicles
Eastbound											
AM Peak[b]	499 (4.2%)	11,850	279	56.0	2.4	203	40.7	1.7	17	3.4	0.1
PM Peak[b]	328 (2.1%)	15,600	204	62.0	1.3	119	36.3	0.8	6	1.8	0.0
Off Peak	1,823 (4.6%)	40,000	966	53.0	2.4	801	43.9	2.0	57	3.1	0.1
Daily	2,650 (3.9%)	67,450	1,449	54.7	2.1	1,122	42.3	1.7	79	3.0	0.1
Westbound											
AM Peak[b]	486 (3.3%)	14,850	278	57.2	1.9	191	39.3	1.3	17	3.5	0.1
PM Peak[b]	259 (2.3%)	11,350	172	66.4	1.5	80	31.1	0.7	7	2.5	0.1
Off Peak	1,717 (4.7%)	36,550	932	54.3	2.6	719	41.9	2.0	65	3.8	0.2
Daily	2,462 (3.9%)	62,750	1,382	56.1	2.2	991	40.2	1.6	89	3.6	0.1

Note: Data compiled from mid-week (Tuesday through Thursday) vehicle classification counts on I-90 west of Rainier Avenue (January 2016 through May 2016).

[a] Values in parentheses are percentage of total vehicles that are trucks.

[b] The AM peak period is 6:00 to 9:00 a.m., and the PM peak period is 3:00 to 6:00 p.m.

Truck volumes are highest on I-90 west of Rainier Avenue from the end of the AM peak period through the midday period (from 9:00 a.m. to 2:00 p.m.). During the early afternoon, truck volumes dramatically decrease to avoid the congestion during the PM peak period because only about 2 percent of total traffic is considered to be trucks during this period. This differs from general volume peaking patterns on I-90, where just over 40 percent of the total daily volume occurs during the AM and PM peak periods. Exhibit 8-1 provides a chart of the truck volumes throughout the day.

Exhibit 8-2 shows the percentage of trucks compared with the total volumes on I-90 west of Rainier Avenue throughout the day, as well as the truck volume for each hour as a percentage of the total daily trucks crossing I-90 at this location. This exhibit indicates that the percentage of trucks, compared with the total number of vehicles on I-90, is lowest during the AM peak period and the PM peak period through the evening. Truck volumes are less than 5 percent of the total traffic from 6 a.m. through 9:00 a.m. and from 2:00 p.m. through the rest of the day. Truck volumes are more than 6 percent of the total traffic from 1:00 a.m. to 4:00 a.m. and from 10:00 a.m. to 1:00 p.m.

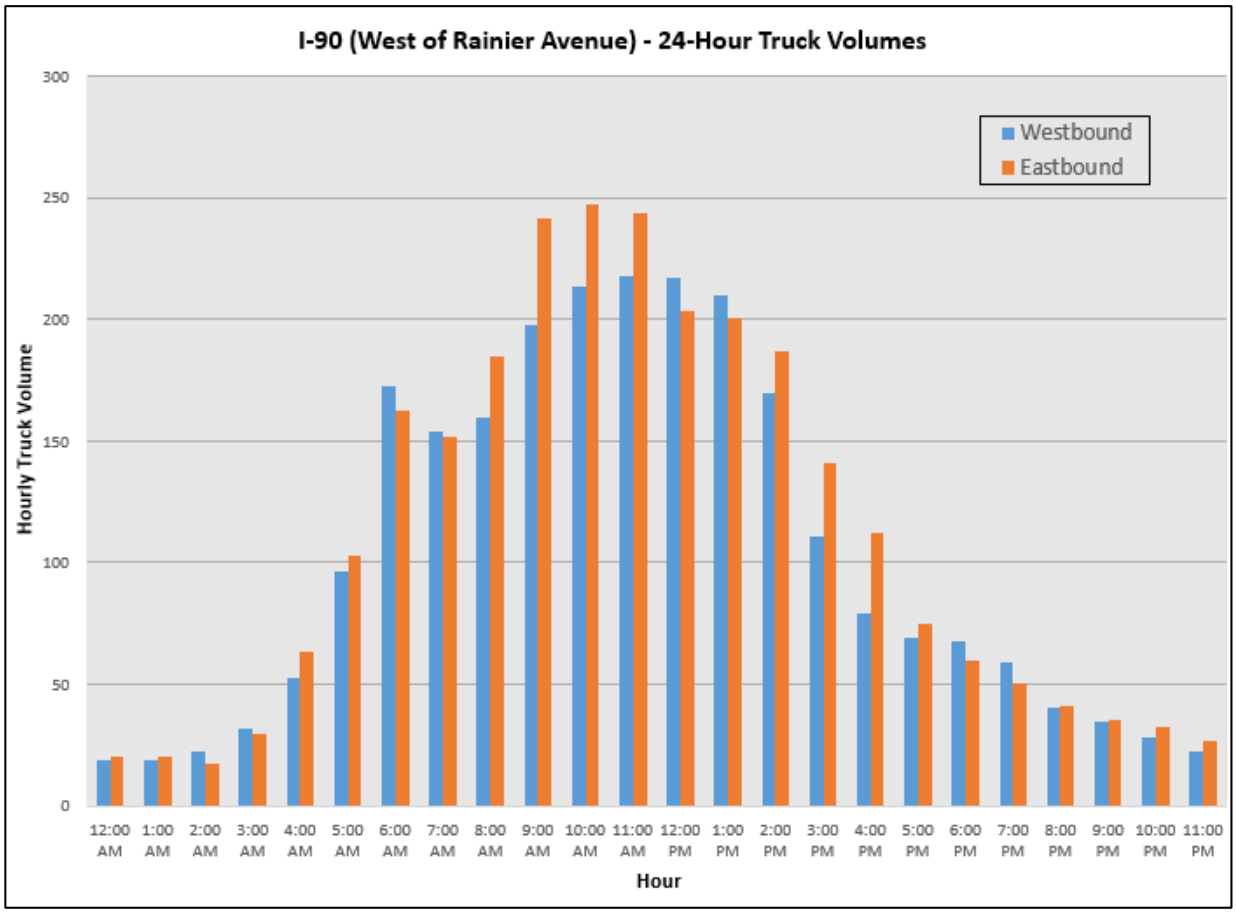


Exhibit 8-1. I-90 Existing 24-Hour Truck Volumes

Note: I-90 total daily volume is approximately 130,000 at this location.

Source: WSDOT Permanent Traffic Recorder R117

Vehicle weight restrictions established for I-90 require vehicles over 10,000 pounds (for example, tractor-trailers) to only travel on the outer I-90 mainline roadways—vehicles over 10,000 pounds are prohibited from using the reversible center lanes. In addition, trucks less than 10,000 pounds (for example, delivery and recreational vehicles) are allowed to use the center roadway only if they either are an HOV or are heading to or from Mercer Island. Therefore, only a small percentage of trucks travel in the reversible center roadway compared with the I-90 outer mainline roadways.

There are no roadways designated as truck routes on Mercer Island. In the AM peak hour, truck traffic is 5 percent or less on 77th Avenue SE and 80th Avenue SE within the Town Center. On SE 27th Street and N Mercer Way, eastbound and westbound morning peak hour truck percentages are between 2 and 6 percent. Truck percentages southbound on Island Crest Way between the Town Center and SE 40th Street are higher at approximately 6 to 7 percent.

During the PM peak hour, truck percentages are lower than in the AM peak. In the Town Center, truck percentages generally range between 1 and 2 percent on most roadways. On Island Crest Way, truck percentages south of SE 28th Street are 2 percent or less during the PM peak hour in both directions.

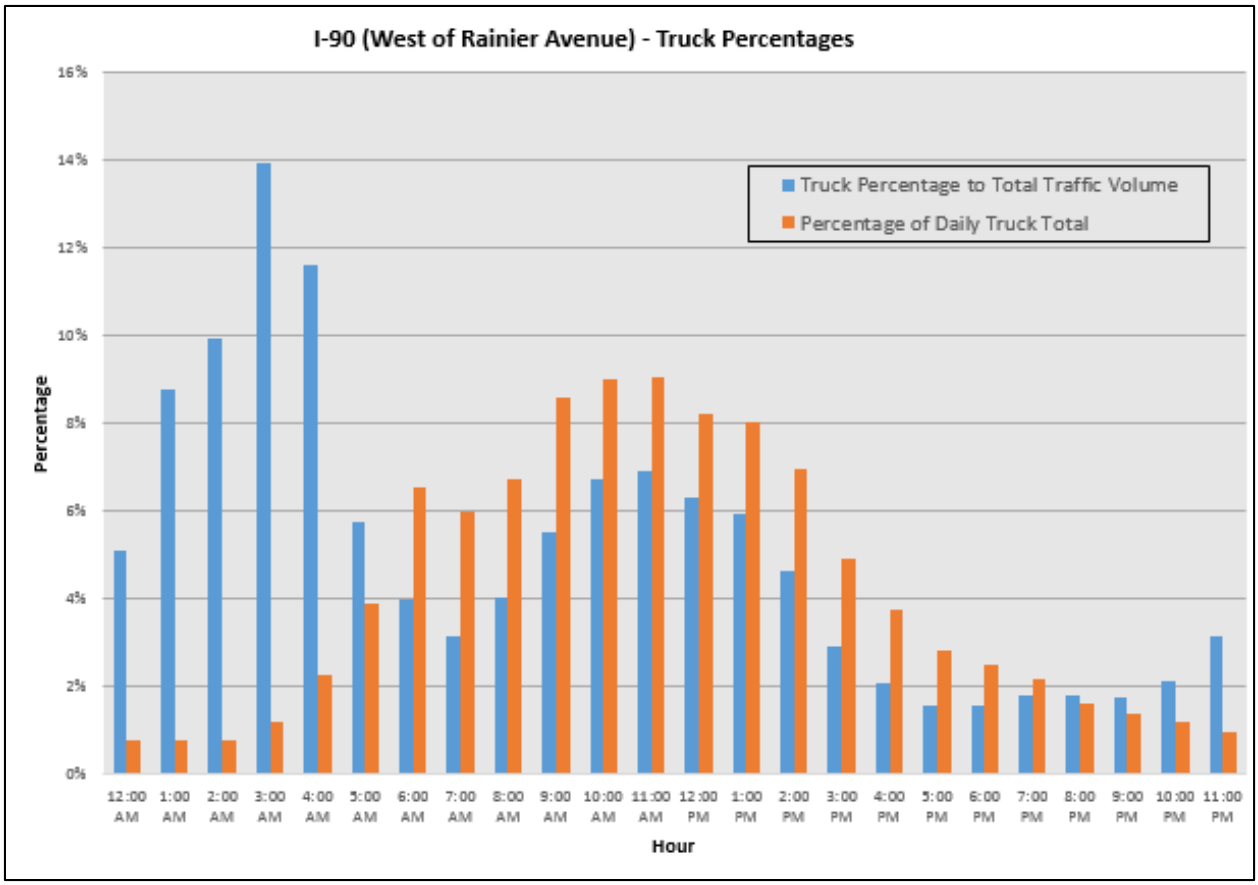


Exhibit 8-2. I-90 Existing 24-Hour Truck Percentages of Daily Traffic Total and Truck Volumes
Source: WSDOT Permanent Traffic Recorder R117

For most of these truck trips, it is expected that these are single-unit trucks rather than large commercial vehicles because Mercer Island does not have large commercial and industrial activity areas compared to other areas of the region. Truck traffic that is more commercially oriented would be focused in the Town Center to the north and, to some extent, to the south, which has a small commercial plaza, for deliveries to businesses.

8.2 Environmental Impacts

With the East Link Extension, trucks would continue to use the eastbound and westbound outer roadways, similar to the No Build condition. Most truck traffic would continue to occur off-peak and would be less affected by the change in lane operations because there would be less congestion during off-peak. Truck access to and from these roadways would be unchanged during both construction and operations, with the exception of the left-side Island Crest Way ramps to and from Mercer Island. Under the No Build condition, Option 1, and Option 3, trucks that are SOVs would be allowed to use these ramps. SOV trucks in Option 2 would not be allowed to use the ramps and would need to use other GP ramps on Mercer Island. About 2 percent of the traffic in the future years using the Island Crest Way westbound on-ramp in Option 1 would be trucks.

8.2.1 Construction Impacts

During construction, freight travel times with all options are expected to be similar to or better than the No Build condition. With the options, freight vehicles would continue to travel in the GP lanes on the outer roadway of I-90 across Lake Washington. With additional capacity for HOVs provided at the

completion of the R-8A HOV lanes, travel times in the GP lanes are expected to stay similar or improve between Seattle and I-405 for all options compared to No Build travel times. Among the options, travel times between Seattle and I-405 are similar to within a few minutes of each other. In the westbound direction, all options have similar travel time performance in the AM peak, but in the PM peak period, Options 1 and 3 would have up to 2 minutes of faster travel than in Option 2. In the eastbound direction, travel times in the AM and PM peaks would be similar or improved in the options compared to the No Build condition.

Truck access to and from Mercer Island would be similar among Option 1, Option 3, and the No Build condition. For Option 2, GP vehicles (including trucks) would not be allowed to use the Island Crest Way westbound on-ramp to I-90 and would need to adjust their route to use either W Mercer Way or 76th Avenue SE on-ramps. This would create up to a 3- to 4-minute-longer travel time on the local streets if trucks are coming from the southern part of Mercer Island on Island Crest Way. Since most commercial truck activity is within the Town Center area, which does not have convenient access to the westbound Island Crest Way ramp, the travel times are expected to be similar between options because trucks would likely use similar ramps to travel to and from the Town Center.

8.2.2 Operations Impacts

During operations, freight travel times in both options would generally be similar to or better than the No Build condition due to the additional capacity in both directions of I-90 with completion of the R-8A HOV lanes and as people shift from driving to riding light rail. One exception is the eastbound direction in the AM peak period, which would see travel times for GP vehicles (including freight) increase by up to 1.5 minutes with the options compared to the No Build condition. In the eastbound direction for both AM and PM peak periods, Option 2 travel times could be faster than in Option 1, depending on how WSDOT manages the HOV transition near Mount Baker Tunnel. Refer to Section 5, Highway Operations and Safety, for further discussion on that topic. In the westbound direction, both options have similar travel time performance in the AM peak, but in the PM peak period, Option 1 would have about 3 minutes of faster travel than Option 2. Compared to the No Build condition, westbound travel times for GP vehicles in the PM peak period would improve between 5 and 9 minutes with the options.

Truck access to and from Mercer Island would be similar between the No Build condition and Option 1. With Option 2, GP vehicles (including trucks) would not be allowed to use the Island Crest Way westbound on-ramp to I-90 and would need to adjust the route to use either W Mercer Way or 76th Avenue SE on-ramps. This would create up to a 3- to 4-minute-longer travel time on the local streets if trucks are coming from the south on Island Crest Way on Mercer Island. As most commercial truck activity would be within the Town Center, which does not have convenient access to the westbound Island Crest Way ramp, the travel times are expected to be similar between options because trucks would likely use similar ramps to travel to and from the Town Center.

8.3 Mitigation

As described in the Final EIS, Sound Transit would coordinate with I-90 freight stakeholder groups by providing construction information to WSDOT for use in the state's freight notification system during construction. Sound Transit would provide information in a format required by WSDOT and compensate WSDOT for any direct costs associated with use of the freight notification system for project construction. No additional mitigation would be needed with the project refinements.

The I-90 Operations options would not require additional mitigation for freight mobility and access because truck routes would be maintained and freight mobility on I-90 would be improved as SOV travel times are generally faster with the project. As described in Section 6, Arterials and Local Streets, intersection improvements would be implemented for local street operations impacts and those would also provide benefits to trucks.

SECTION 9

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Attachment A
FHWA Letter

U.S. Department
of Transportation

**Federal Highway
Administration**

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August 5, 2016

HDA-WA/WA342

Roger Millar
Acting Secretary of Transportation
Washington State Department of Transportation
Olympia, Washington

Steve Lancaster
Interim City Manager
City of Mercer Island
Mercer Island, Washington

Interstate 90 High Occupancy Vehicle Operations on Mercer Island

Dear Mr. Millar and Mr. Lancaster:

I am writing in response to your May 16, 2016 and May 31, 2016 letters, respectively, regarding Interstate 90 (I-90) High Occupancy Vehicle (HOV) operations on Mercer Island and the access of Mercer Island to those lanes. Mr. Millar's letter notes:

> "In order to ensure mobility of its residents when the center roadway closes next year and the new HOV lanes open, Mercer Island would like a commitment that all traffic to and from Mercer Island, including SOVs, can continue to access the new HOV lanes."

The letter further asks whether it is within the authority of USDOT to grant either permanent or temporary single occupant vehicle (SOV) access to the new HOV lanes for Mercer Island traffic. Currently, the only exceptions for SOVs in designated HOV lanes are for motorcycles, public transportation vehicles, high occupancy toll (HOT) vehicles, and low emission and energy-efficient vehicles.

We have consulted with our Headquarters Offices of Chief Counsel, Operations, and Innovative Program Delivery. Based on a review of the relevant statutory provisions in 23 USC Sections 129 and 166, FHWA has determined that USDOT does not possess legal authority to grant either a temporary or permanent waiver to permit SOV access to HOV lanes.

The remainder of this letter discusses Federal law on HOV occupancy requirements, our observations on the history of this issue, and finally some possible solutions moving forward.

Federal Law on HOV Occupancy Requirements
There were no Federal HOV regulations or policy in the 1970s and 80s when the I-90 roadway across Mercer Island was being planned, designed, and constructed. The Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and Transportation Equity Act for the 21st Century (TEA-21) of 1998 both contained sections that allowed states to set HOV occupancy requirements at two or more occupants, with the exception of motorcycles (and bicycles, unless it creates a safety hazard).

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), enacted in 2005, required states to establish an HOV occupancy requirement at no fewer than two persons per vehicle with mandatory exceptions for motorcycles (and bicycles, unless it creates a safety hazard) and optional exemptions for public transportation vehicles, low-emission and energy-efficient vehicles, and HOT vehicles (ineligible vehicles willing to pay a toll to use the facility). See 23 USC 129(a)(10)(A), 166(a)(2), and 166(b).

It is important to note that these provisions do not allow an exception to the occupancy requirements in HOV facilities for a narrowly defined group of drivers or residents (e.g., within a specific geographic location) or for a specific access point (e.g., a direct access ramp to HOV lanes). Federal law also does not differentiate between vehicles initially accessing an HOV facility or being allowed to continue in the HOV facility. Even if a vehicle accesses the HOV lane via a direct access ramp and immediately merges into a general purpose lane, that vehicle is using the HOV facility and is subject to 23 USC 129 and 166.

Observations on History
Mr. Lancaster's letter provides an insightful summary of the history of this issue, dating back to the 1976 Memorandum of Agreement (MOA). The FHWA has reviewed this information, along with our own files. The 1976 MOA was between the City of Mercer Island, City of Seattle, City of Bellevue, King County, Metro, and Washington State Highway Commission. The 2004 amendment to the MOA was between the City of Mercer Island, City of Seattle, City of Bellevue, King County, Central Puget Sound Regional Transit Authority, and Washington State Transportation Commission. The FHWA was not a party to either the original or amended MOA. Further, FHWA has no record that it was consulted during the development of the 2006 and 2007 letters mentioned on Page 3 of Mr. Lancaster's letter.

The 2004 FHWA Record of Decision (ROD) for the I-90 Two-Way Transit and HOV Operations Project, in which Alternative R-8A was selected to add HOV lanes on the outer roadway, does not in any way grant approval or imply future approval of allowing Mercer Island SOV traffic to use the HOV lanes on the outer roadway. Rather, the ROD states:

> "Alternative R-8A will provide HOV lanes on the outer roadways. It will retain the existing reversible operations on the center roadway, with both lanes operating in the same direction, westbound in the AM and eastbound in the PM. SOVs will only be allowed to use the center roadway between Rainier Avenue in Seattle and Island Crest Way on Mercer Island. The center and outer roadway HOV lanes will likely operate with a 2+ occupants per vehicle restriction."

The 2011 FHWA Record of Decision (ROD) for the East Link Light Rail Transit Project also does not give approval or imply future approval of allowing Mercer Island SOV traffic to use the HOV lanes on the outer roadway. Furthermore, the ROD makes no mention of Mercer Island SOV traffic using the HOV lanes. The FHWA submitted the following comments to the Draft Environmental Impact Statement (DEIS) in 2009 with respect to Mercer Island SOV traffic in the HOV lanes, specifically DEIS comment #18 and FHWA Approval Action #5:

"18. Page 3-43, second column and Page 3-92, second column
The text states vehicles to and from Mercer Island would be allowed to use the outer roadway HOV lanes as long as the lanes meet performance standards or until such a time as they are managed differently based on the WSDOT and the Mercer Island Access Plan. The paragraph below then states that the HOV lanes already operate unacceptably near Rainier Ave S and would also fail near Island Crest Way. If the HOV lanes already do not meet performance standards, why is there a proposal to allow the SOVs to Mercer Island to use the HOV lanes? In addition, it is likely their movements from the HOV lanes to the ramps on Mercer Island would introduce additional weave, resulting in impacts to safety and operations. Lastly, how would the HOV lanes be enforced through this stretch? FHWA currently does not have enough information to be able to support allowing Mercer Island SOV traffic to use the HOV lanes.

5. Page 3-43, second column and Page 3-92, second column
The text states vehicles to and from Mercer Island would be allowed to use the outer roadway HOV lanes as long as the lanes meet performance standards or until such a time as they are managed differently based on the WSDOT and the Mercer Island Access Plan. (See NEPA comment 18 above)

Since this plan would modify the eligibility of who qualifies to use the HOV lanes, FHWA believes we would have to concur in allowing this usage. With parts of the HOV lanes already not meeting performance standards, the potential safety and operations issues from weaving, and the enforcement issue, we are not sure we can support allowing Mercer Island SOVs using the HOV lanes."

Also in 2011, FHWA approved the East Link Transit Project Interchange Justification Report (IJR). However, based on meetings and discussions, it is clear that FHWA consideration of Mercer Island SOV traffic in the outer roadway HOV lanes was not part of the IJR. Page ES-5 of the IJR states:

"With the access modifications from the I-90 Two-Way Transit and HOV Operations Project and the East Link Project, the traffic analysis assumed Mercer Island single-occupant vehicles (SOVs) would be able to use the HOV lanes in both directions of I-90 between Seattle and Island Crest Way. This was assumed to demonstrate that it does not affect the results of the analysis and represents a worst-case condition. This assumption does not represent approving SOVs using the outer roadway HOV lanes or the eastbound left-side off-ramp to Island Crest Way. Any changes to the HOV lane eligibility— such as tolling, managed lanes, or Mercer Island SOV use—would need to be addressed in a future analysis, approval, and agreement."

During project development of the I-90 Two Way Transit and HOV Operations and East Link Light Rail Transit projects, our assumption was that with a major change to the typical section of I-90, the revised typical section and operations would meet current law, hence our concerns noted above in the ROD and IJR.

Between the two RODs, the IJR, and various meetings and informal discussions over the past decade, it should have been abundantly clear to all parties that our formal actions did not constitute official approval of Mercer Island SOV usage of the new outer roadway HOV lanes, nor should they be implied as such. It has always been our understanding that this matter would be addressed at a future date.

In late 2015, I was contacted by Lorena Eng (WSDOT Northwest Region Administrator) informing me that WSDOT, Sound Transit, and the City of Mercer Island would begin developing a Concept of Operations for the HOV lanes that at a minimum considers performance standards, enforcement, and cost

of operations. It was further explained that this effort would serve as a decision-making framework to consider whether or not to pursue Mercer Island SOV access to the new outer roadway HOV lanes. During these discussions, WSDOT formally asked for FHWA input, and in January 2016 I informed Lorena that allowing Mercer Island SOV access to the new outer roadway HOV lanes would violate Federal law.

Possible Solutions

We understand the unique importance of I-90 to Mercer Island as its sole access on and off the island. Keeping this in perspective, it is our understanding that there are 15 access points (entrance and exit ramps) to and from I-90 and Mercer Island surface streets today, and that after the center roadway is closed and the outer roadway HOV lanes are complete, there will continue to be 15 total access points.

While FHWA is restricted by Federal law in allowing SOV access to HOV lanes, we are eager to find a solution that works for all users of the I-90 roadway and upcoming East Link Light Rail line. We are particularly interested in solutions that do not adversely impact the safety or operation of I-90. A few possible solutions that would warrant further investigation and discussion include:

- Designating the new outer roadway mainline lanes for part-time HOV usage, such as during daytime hours or peak periods, and otherwise allowing non-HOV usage during off peak times.
- Designating the new outer roadway lanes as HOT lanes, thereby allowing Mercer Island SOV traffic to use the lanes for the prevailing price.
- Pursuing other project mitigations, such as new or modified access points, traffic operations improvements, and/or demand management strategies.

We regret any confusion that may have arisen regarding FHWA's authority and position on the issues raised in your letters. I look forward to continuing our discussions so that we can reach a fair and legal solution. Please let me know if you have any questions or need additional information.

Sincerely,

Daniel M. Mathis

DANIEL M. MATHIS, P.E.
Division Administrator

cc via email: Gregory Nadeau, David Kim, Butch Waidelich, Jan Brown, David Howard, Tom Echikson, Jeff Lindley

Attachment B
Transportation Methodology and Assumptions Report

I-90 Transportation Technical Report – Methods and Assumptions Memorandum

1. Introduction

This memorandum summarizes the analysis methodologies and data and performance assumptions used in the I-90 Transportation Technical Report. This report assesses changes in transportation operations as a result of Sound Transit's plans to construct the East Link Extension light rail project. These changes are related to new assumptions regarding use of the high-occupancy vehicle (HOV) lanes on Interstate 90 (I-90) between Seattle and Bellevue.

The analysis of local transportation will identify and evaluate the changes related to light rail alternatives on the following:

- Year of construction and design year traffic service levels at key intersections affected by light rail alternatives
- Year of construction and design year traffic analysis along I-90 between Seattle and Bellevue
- Safety
- Non-motorized facilities
- Transit operations

2. Study Area

The transportation study area is located in the northwest region of King County in Washington State and involves the cities of Seattle, Mercer Island, and Bellevue. The study area includes the I-90 corridor between the western terminus in Seattle at 4th Avenue and Edgar Martinez Way, and the eastern project extent at the I-90/I-405 interchange. **Figure 1** shows the general extent of the transportation study area.

Figure 1. I-90 Transportation Study Area

Within the project study area, the I-90 mainline and interchanges will be analyzed using the VISSIM microsimulation analysis tool. **Figure A.1** in Attachment A to this Attachment B shows the general

outline of the VISSIM model boundary. The following I-90 interchanges will be analyzed as part of the I-90 Transportation Technical Report:

- Edgar Martinez Drive South/4th Avenue South/SR 519 Interchange
- 5th Avenue South/Seattle Boulevard/S Dearborn Street Interchange
- Interstate 5 (I-5) Interchange
- Rainier Avenue South Interchange
- Reversible Center Roadway at Rainier Avenue South
- West Mercer Way Interchange
- 76th Avenue SE Interchange
- 77th Avenue SE Interchange
- 80th Avenue SE Interchange
- Island Crest Way Interchange
- East Mercer Way Interchange
- Reversible Center Roadway at East Channel Bridge
- Bellevue Way Interchange
- Interstate 405 (I-405) Interchange
- Richards Road/Factoria Boulevard Interchange

In addition to the I-90 freeway, up to 39 study intersections have been identified for analysis and are listed in **Table 1.** These intersections include interchange ramp terminals and other locations that could experience a change in operations with the project. The study intersections are depicted in **Figures A.2** through **A.4** in Attachment A.

Table 1. East Link Transportation Methods and Assumptions Study Intersections

ID	Intersection	Jurisdiction
101	4th Avenue S/Seattle Blvd S/Airport Way S	Seattle
102	Airport Way S/Seattle Blvd/S Dearborn Street/5th Avenue S	WSDOT
103	4th Avenue S/I-90 Westbound Off-Ramp	WSDOT
104	4th Avenue S/S Royal Brougham Way	Seattle
105	I-90 Westbound Off-ramp/Edgar Martinez Drive S	WSDOT
106	I-90 Eastbound On-ramp/4th Avenue S/Edgar Martinez Drive S	WSDOT
107	I-5 Southbound Ramp/S Dearborn Street	WSDOT
108	I-5 Northbound Ramp/S Dearborn Street	WSDOT
109	Rainier Avenue/I-90 Eastbound Off-Ramp	WSDOT
110	Rainier Avenue/S Massachusetts Street	Seattle
111	Rainier Avenue/S Dearborn Street	Seattle
201	W Mercer Way/I-90 Ramps	WSDOT
202	W Mercer Way/SE 24th Street	Mercer Island
203	76th Avenue SE/N Mercer Way/I-90 Westbound On-Ramp	WSDOT
204	76th Avenue SE/SE 24th Street	Mercer Island
205	77th Avenue SE/N Mercer Way	Mercer Island

Table 1. East Link Transportation Methods and Assumptions Study Intersections

ID	Intersection	Jurisdiction
206	77th Avenue SE/I-90 Westbound Express Lanes Ramp	WSDOT
207	77th Avenue SE/I-90 Eastbound Off-Ramp	WSDOT
208	77th Avenue SE/Sunset Highway SE	Mercer Island
209	77th Avenue SE/SE 27th Street	Mercer Island
210	80th Avenue SE/N Mercer Way	Mercer Island
211	80th Avenue SE/I-90 Westbound HOV Off-Ramp	WSDOT
212	80th Avenue SE/ I-90 Eastbound HOV On-Ramp	WSDOT
213	80th Avenue SE/SE 27th Street	Mercer Island
214	81st Avenue/N Mercer Way	Mercer Island
215	Island Crest Way/N Mercer Way/I-90 Westbound off-ramp	WSDOT
216	Island Crest Way/I-90 Eastbound On-Ramp	WSDOT
217	80th Avenue/SE 28th Street	Mercer Island
218	Island Crest Way/SE 28th Street	Mercer Island
219	Island Crest Way/SE 30th Street	Mercer Island
220	Island Crest Way/SE 40th Street	Mercer Island
221	78th Avenue/SE 40th Street	Mercer Island
222	W Mercer Way /SE 40th Street	Mercer Island
223	East Mercer Way/I-90 Westbound Ramps	WSDOT
224	East Mercer Way/I-90 Eastbound Off-Ramp	WSDOT
225	East Mercer Way/I-90 Eastbound On-Ramp	WSDOT
301	Bellevue Way SE/112th Avenue SE	Bellevue
302	Bellevue Way SE/S Bellevue Park-and-Ride (Main)	Bellevue
303	Bellevue Way SE/S Bellevue Park-and-Ride (South)	Bellevue

WSDOT = Washington State Department of Transportation

3. Analysis Conditions

Analysis Years

The I-90 Transportation Technical Report will evaluate traffic operations for three distinct analysis years:

- 2016 Existing
- 2020 Construction (mid-point of construction)
- 2035 Horizon

The existing year, serving as a basis of analysis, is 2016. All of the traffic data collected to support the existing year analysis were collected during 2016. The future horizon year is assumed to be 2035 as this

is consistent with the adopted regional forecasts by Puget Sound Regional Council (PSRC). East Link is expected to open by 2023, and therefore 2020 will be assumed as the construction year as that is approximately the mid-point in the construction schedule.

Time Periods and Duration

For each of the analysis years, freeway operations will be analyzed for both a morning and afternoon peak period. The multi-hour peak periods will be analyzed to capture congestion on the freeway as it occurs during the typical morning and afternoon commute times. Based on field data collection, freeway analysis peak periods will be:

- Peak period a.m.: 6:30 a.m. to 10:00 a.m.
- Peak period p.m.: 3:30 p.m. to 7:00 p.m.

Intersection operations will be analyzed for the worst peak hour within the morning and afternoon peak periods. Based on the intersection volume data collected, the intersection analysis peak hours will be:

- Peak hour a.m.: 8:00 a.m. to 9:00 a.m.
- Peak hour p.m.: 5:00 p.m. to 6:00 p.m.

I-90 Network Configurations and Operating Scenarios

Up to four conditions will be analyzed for one or more of the three analysis years. **Table 2** illustrates these conditions and the corresponding design years for which they will be analyzed as follows:

- The *Existing Condition*, which includes Stage 1 and 2 of the I-90 Two-Way Transit and HOV project, will be analyzed for the current year of 2016.

- The *No Build Condition*, assumes the existing channelization along I-90 outer and center roadways between Seattle and Bellevue (i.e., Stages 1 and 2 of the I-90 Two-Way Transit and HOV project). The *No Build Condition* also includes the effect of future planned projects and land use growth, but does not assume East Link light rail would be completed. This condition will be analyzed for both the 2020 construction year and the 2035 horizon year as a basis of comparison only since the East Link project has already been approved.

- The *Construction Condition* will capture the effect of closing the center roadway to vehicles during the East Link construction period, which is scheduled to commence in 2017 with light rail operations beginning in 2023. The year 2020 will be used as the construction analysis year as that is approximately the mid-point in the construction schedule. In this condition, all three stages of the I-90 Two-Way Transit and HOV project are built. For all construction conditions, the D2 Roadway is assumed to be closed to all vehicles.

- The *Build Condition* assumes both the full build-out of I-90 Two-Way Transit and HOV project and East Link Extension are fully constructed and operational. This condition will be assessed for the 2035 horizon year. For all build conditions, the D2 Roadway is assumed to be closed to all vehicles.

Table 2. Analysis Years and Conditions

Year	Conditions			
	Existing[a]	No Build[a]	Construction[b, c]	Build[b, c]
2016	X			
2020		X	X	
2035		X		X

[a] Assumes Stages 1 and 2 of the I-90 Two-Way Transit and HOV project are built.
[b] Assumes that Stages 1 through 3 of the I-90 Two-Way Transit and HOV project are built and the center roadway is closed to vehicle access,
[c] Assumes three operational scenarios.

In addition to the conditions described above, three scenarios will be analyzed for the Construction and Build conditions.

Construction scenarios (for construction impacts analysis):

- The first construction scenario (Option 1) would allow single occupant vehicles (SOVs) to and from Mercer Island to use the HOV lanes and associated ramps (e.g., Island Crest Way) between Seattle and Mercer Island. Buses from the east that stop on Mercer Island would continue into Seattle without using the D2 Roadway.
- A second construction scenario (Option 2) would not allow Mercer Island SOV access to the I-90 HOV system between Seattle and Mercer Island. Buses from the east that stop on Mercer Island would continue into Seattle without using the D2 Roadway.
- A third construction scenario (Option 3) would allow SOVs to and from Mercer Island to use the HOV lanes and associated ramps, and buses from the east that stop on Mercer Island would continue into Seattle without using the D2 Roadway. This scenario would also involve converting the planned HOV lane between Seattle and Mercer Island to a general-purpose lane. The transition between HOV lane and general-purpose lane, for both the westbound and eastbound directions of travel, would occur between Island Crest Way and the 80th Avenue HOV ramps on Mercer Island. This scenario applies to the East Link construction condition only.

Build scenarios (for operational impacts analysis):

- The first build scenario (Option 1) would allow SOVs to and from Mercer Island to use the HOV lanes and associated ramps (e.g., Island Crest Way) between Seattle and Mercer Island.
- A second build scenario (Option 2) would allow SOVs to and from Mercer Island to use the HOV lanes and associated ramps (e.g., Island Crest Way) between Seattle and Mercer Island.

For each of the two build scenarios, there are three transit integration options:

- FEIS Configuration: Buses from the east would continue travelling into and out of Seattle on I-90 using the 4th Avenue and/or Rainier Avenue ramps. This condition is consistent with the analysis supporting the East Link Final EIS Record of Decision's Selected Alternative.
- 77th Avenue SE Configuration: Buses from the east would be truncated on Mercer Island under the 77th Avenue SE Configuration. The roundabout in the 77th Avenue SE Configuration would route

buses in a counter-clockwise direction to allow them to get from the westbound 80th Avenue HOV off-ramp to the 80th Avenue HOV on-ramp.

- 80th Avenue SE Configuration: Buses would be truncated on Mercer Island under the 80th Avenue SE Configuration. Bus pick up and drop off would be along the west side of the 80th Avenue SE between N Mercer Way and 27th Avenue SE and station operations would be restricted to this area.

4. Calibration Targets and Data Collection

VISSIM Calibration and Validation

The 2016 Existing VISSIM model will be calibrated and validated based on guidelines presented in the *Federal Highway Administration: Traffic Analysis Toolbox Volume III, July 2004* and *WSDOT VISSIM Protocol, September 2014*.

Two primary measures of effectiveness will be used to validate the VISSIM model: throughput volume (traffic counts vs. model throughput volumes) and travel time (field measured vs. model). Throughput volume validation will be conducted along I-90 for all entry and exit locations and all entrance and exit ramp locations within the study area.

In addition, speed temporal maps will be compared between VISSIM speed results and field data obtained from WSDOT loop detector data to provide a visual comparison of speeds and queue lengths.

Freeway Data Collection

Data required for the I-90 freeway traffic analysis were collected between January and August of 2016. The following key data were collected:

- Travel times were collected along the I-90 corridor, between Seattle and Bellevue, for both the outside and center roadways. Travel times were collected during the morning and afternoon peak periods, and will be used for the freeway peak period VISSIM model calibration. Travel times were collected in January, April, and May of 2016.
- Vehicle volumes on the I-90 mainline and ramps were collected from WSDOT at available loop detector locations. Loop detector data for freeway ramp and mainline locations were collected for the months of January, April, and May 2016 to coincide with the days and times when field travel times were collected. Vehicle volumes will be used as a basis for operational analysis and for calibration of the VISSIM model.
- Vehicle occupancy data were provided by WSDOT at the I-90 westbound on-ramps from Island Crest Way and 77th Avenue SE. Occupancy data were collected in September 2016.

Intersection Data Collection

Intersection data required for local arterial analysis were collected between January and September 2016. Data included intersection turning movement volumes, intersection control, and non-motorized usage information. Collected traffic volumes will be rounded to the nearest five for each intersection movement value for analysis.

The following key data were collected:

- Peak-period intersection turning movement counts were collected midweek (Tuesday, Wednesday, or Thursday) during the months of January, August, and September 2016. Two-hour counts were

generally collected during the morning peak between 7:00 a.m. and 9:00 a.m. and during the afternoon peak between 4:00 p.m. and 6:00 p.m.

- Intersection counts included truck volumes, bicycle volumes, and pedestrian volumes.
- Intersection lane channelization was verified during field visits. Morning and afternoon traffic signal timing and phasing at study intersections was collected and verified between April and September 2016.

5. Performance Measures

Various performance measures will be analyzed to identify changes in travel conditions occurring with the project. These measures will be developed from the travel demand and operational models and will be analyzed at the regional, corridor, and operational (segment/intersection) level. **Table 3** describes the performance measures that will be reported.

Table 3. I-90 Transportation Technical Report Performance Measures

Performance Measures	Units
Travel Demand Forecasting Metrics	
Transit Ridership	Passengers
Vehicle and Person Demand by model	# vehicles, # of people
Regional Metrics (VMT and VHT)	Vehicle miles traveled, Vehicle hours traveled
Traffic Operational Analysis Metrics: Freeway	
Speed-Temporal Charts (separate charts for outer roadway general-purpose lanes and center roadway/HOV lane)	Speed vs. time graphics
Vehicle and Person Throughput	# of vehicles, # of people
Travel Times by mode and location (between I-5, Mercer Island, Bellevue Way, and I-405)	Minutes, by mode (SOV, HOV, transit)
Safety	I-90 mainline and interchange crashes
HOV Lane Performance (per Revised Code of Washington 47.52.025, minimum standard is 45 mph for 90% of the peak period)	Miles/hour, % of peak
Traffic Operational Analysis Metrics: Intersections	
Intersection Delay and Level of Service	Seconds/vehicle
95th Percentile Queue Lengths (at ramp terminals only)	Feet
Transit Analysis Metrics	
Service Frequency	Minutes
Hours of Service	Hours of scheduled service
Passenger Load	Persons per seat
Reliability	On-time Performance
Travel Time	Minutes

Intersection performance will be measured by average seconds of vehicle delay and will be reported in terms of level of service (LOS). This LOS measurement generally describes operating conditions based on a letter-grade system from LOS 'A' to LOS 'F'. The LOS classifications are defined in the Transportation Research Board's *Highway Capacity Manual*. LOS 'A' generally represents ideal operating conditions with little to no delay and where movements are not influenced by other vehicles on the roadway. LOS F represents poor operating conditions, including high delays and extreme congestion.

Freeway segment and intersection performance thresholds are set by jurisdiction and vary by location. **Table 4** describes the acceptable LOS thresholds that will govern freeway and intersection performance.

Table 4. Level of Service Standards

Facility	**Level of Service Threshold**
Intersections – City of Seattle	LOS D
Intersections – City of Mercer Island (Town Center)	LOS C
Intersections – City of Mercer Island (Outside Town Center)	LOS D
Intersections – City of Bellevue (Signalized)	LOS D
Intersections – WSDOT (includes ramp terminals)	LOS D

6. Travel Demand Forecasting and Post Processing

Forecast Development

The PSRC and Sound Transit travel demand models will be used with this study. The most recent published Local Targets land use version from PSRC will be used for the land use assumptions. This land use is assumed to be consistent with the 2035 forecast year. PSRC has also developed land use conditions for various years between the existing year and year 2035.

The Sound Transit ridership model will be used for year 2035. The Sound Transit ridership model includes all transit modes (bus, light rail, and commuter rail) for all transit agencies (King County Metro, Pierce Transit, Community Transit, and Sound Transit) in the region. This model provides system, corridor, and station ridership information.

Travel demand for autos will be forecasted (Existing, 2020 and 2035 No Build, and 2020 Construction) assuming the center roadway does not include light rail (East Link is not built) and will be developed exclusively from the PSRC model based on the forecasted vehicle demand and estimated regional land use.

To generate a forecasting result assuming that East Link is operational (2035 build conditions), the Sound Transit ridership model will forecast the change in transit demand (trip table output from the Sound Transit ridership model) compared to the build conditions. This change in transit ridership will be applied to the baseline PSRC travel demand auto forecasts to adjust the trip tables and develop a revised auto forecast that accounts for people shifting to using light rail under the build conditions.

Post-Processing

Traffic forecasting for an operational study is achieved by taking the predicted travel demand volumes and post-processing them by using the National Cooperative Highway Research Program 765 –

Analytical Travel Forecasting Approaches for Project-Level Planning and Design methodology. This allows the translation of raw traffic volumes and model volumes to be converted into future forecast volumes that are more suitable for planning, operational studies, and design of new facilities. Post-processed forecast volumes will be used for the analysis of the 2020 all conditions, 2035 No Build, and the 2035 build conditions. Volume imbalances between intersections will be addressed through manual adjustments of individual turning movements, or through balancing at mid-block access points. Volumes will be rounded to the nearest five for each intersection movement value.

7. Projects included in the Scenarios

All environmentally approved and funded projects in the study area that are included in relevant local, regional and state plans are assumed for the 2020 Construction Year and the 2035 Forecast Year. These projects are identified in Table 5.

For these future analysis years, projects within the state's Connecting Washington Transportation Package are assumed depending on their published project schedule. In addition, a variety of local projects will be assumed, if relevant and within our study area, from City, County and State Transportation Improvement Plans (TIPs). Beyond roadway projects, tolling is assumed for analysis years 2020 and 2035 based on the current authorization from the Washington Transportation Commission. This approval includes tolling on SR 520, SR 99 and I-405 (Bellevue to Lynnwood only) and SR 167.

Table 5. Projects Included in Future Conditions

Projects	2020 Construction	2035 Build
No Build Condition		
I-405 Renton to Bellevue – Corridor Widening		X
I-405 I-405/SR 167 Interchange Direct HOV Connector	X	X
I-405/NE 132nd Street Interchange – New Interchange		X
SR 520/ 124th St Interchange - Improvements		X
SR 520 - Floating Bridge and Landings Project	X	X
I-90/Eastgate to SR 900 – Peak Use Shoulder Lanes	X	X
SR 509 Extension to I-5		X
SR 167 - Tacoma to Edgewood New Freeway		X
SR 167 - 8th to 277th Southbound HOT Lane	X	X
SR 99 - Alaskan Way Viaduct Replacement		X
Sound Transit 2 Program (except East Link)		X
77th Avenue SE/ N Mercer Way – Intersection Improvements	X	X
Construction Condition (all projects in No Build condition assumed)		
I-90 - Two-Way Transit and HOV Operations Stage 3	X	X
Build Condition (all projects in No Build and construction condition assumed)		
East Link Light Rail Operation		X

The I-90 Two-Way Transit and HOV project is assumed to be fully built and operating just prior to when East Link construction closes the center roadway, which is modeled as year 2020. Therefore, it is also

assumed to be fully built and operating in the 2035 build condition that also assumes East Link is operating. In addition to these two projects, the completion of the rest of the Sound Transit 2 projects is assumed by 2023 and included in 2035. This assumes light rail is extended to Kent/Des Moines and Lynnwood. Projects being considered as part of Sound Transit 3 are not included in this study.

Transit bus services along I-90 for the future conditions will be based on the recent long-range planning efforts by Sound Transit and King County Metro. For the year 2035 conditions with the 77th Avenue SE and 80th Avenue SE Transit Integration configurations, it is assumed that a transit intercept hub could be operating on Mercer Island that will be one of two western termini locations for King County Metro and Sound Transit bus services (Routes 201, 204, 214, 218, and 219) on I-90 where commuters will transfer from bus to light rail. The transit hub assumes buses use the 80th Avenue HOV ramps to and from the east and turn around on 80th Avenue, and buses use the 80th Avenue HOV ramps to and from the east and turn around at 77th Avenue. Other I-90 bus routes will be intercepted at the South Bellevue Park-and-Ride (Routes 111, 114, and 554).

8. Traffic Analysis Software

The traffic microsimulation analysis tool, VISSIM (version 7.00-13), will be used for assessing the freeway mainline/ramp/ramp terminal and adjacent intersection operations. Key inputs to the VISSIM model include existing and future origin-destination patterns, existing traffic volumes, signal timing at ramp terminals, AM and PM peak period profiles, transit routing, and vehicle mode share (HOV, general-purpose, Mercer Island traffic) distributions.

All of the freeway mainline, ramps, and selected ramp intersections between the eastern and western study limits will be included in the VISSIM model. The selected study intersections that are included within the VISSIM model were added to capture queuing and systemwide operational impacts related to the I-90 mainline and ramp access points. However, all intersection results will be reported from the Synchro software tool output.

Operational parameters and assumptions for VISSIM are listed in **Table 6.**

Table 6. VISSIM Parameters/Assumptions

VISSIM Parameters	Analysis Year		
	2016 Existing	**2020 Construction**	**2035 Horizon**
Time Steps/Second	5 time steps/second		
Seeding Time	30 minutes (0-1800 sec)		
Recording Time	3.5 hours (1800-14400 sec) in the AM Period (6:30-10:00 AM) and PM Period (3:30-7:00 PM) for travel time and speed results; AM and PM Single Peak Hours results reported for throughput and density (8:00-9:00 AM and 5:00-6:00 PM).		
# Random Seeds	11		
Vehicle Types and Classes	Vehicle Types: Car; Truck; Bus (40-ft and 60-ft buses based on route) Vehicle Classes: Regional SOVs, Mercer Island SOVs, HOVs (2+ occupants), Trucks, Buses		
Vehicle Acceleration and Deceleration	VISSIM default parameters		
Traffic Composition	Traffic composition will be determined from existing traffic data.	2020 and 2035 No Build and Build: based on forecast results and post-processed.	

Table 6. VISSIM Parameters/Assumptions

VISSIM Parameters	Analysis Year		
	2016 Existing	2020 Construction	2035 Horizon
Routing Decisions	Static routes based on Origin Destination trip tables.		
Driving Behavior and Car Following	Freeway: Wiedemann 99 Arterial: Wiedemann 74 Note: Parameters that change from default values during calibration will be documented.	2020 and 2035 No Build: If future background projects are implemented that change freeway conditions, calibration changes may be rolled back to default values based on engineering judgement, otherwise same as existing. 2020 and 2035 Build: If proposed changes modify geometry, calibration changes may be rolled back to default based on engineering judgment, otherwise same as No Build.	
Free-Flow Speed	Based on previously calibrated VISSIM model for FEIS	2020 and 2035 No Build: Same as existing. 2020 and 2035 Build: New ramps will be based on design speed, otherwise same as No Build.	
Reduced-Speed Areas	Ramps: From speed advisory signs and field data Intersection turning speeds: right turns 9-11 mph; left turns 13-17 mph	2020 and 2035 No Build: Same as existing. 2020 and 2035 Build: New ramps or intersections based on new design speed, otherwise same as No Build.	
Lane Change Distance	Varies by location of exit-signs and upstream ramps and intersections. Typically, 0.5 to 1.0 miles for freeway off ramps	2020 and 2035 No Build: Same as existing. 2020 and 2035 Build: New off-ramps or weaving area, based on engineering judgment, otherwise same as No Build.	
Freeway Grades	Assume 0% for entire freeway facility.		
Ramp Meter Rates	Based on existing meter timings	2020 and 2035 No Build and Build: If new ramp meters are proposed, use rates below, otherwise same as existing: 1-lane meter rates: 200-800 vphpl 2-lane meter rates: 200-720 vphpl	
Signal Control	Ring Barrier Controller type, signal timing from city network	2020 and 2035 No Build and Build: If improvements are proposed, use agency standards/plans, otherwise same as existing.	
Intersection Signal Phasing and Coordination	From agency signal phasing sheets/City Synchro files, otherwise from field observation.	No Build: Same as existing. Build: If proposed design necessitates phasing change, use engineering judgment; will assume coordination where practical. Otherwise same as existing.	

vphpl = vehicles per hour per lane

The traffic analysis software program Synchro (version 8) will be used to analyze traffic congestion at the study area intersections. Synchro utilizes industry standard methodologies outlined in the *Highway Capacity Manual* for isolated intersection analysis. Due to limitations of the HCM 2010 methodology and to be consistent with Eastlink FEIS methodologies, traffic volumes were analyzed using the HCM 2000 methodology to calculate peak-hour LOS at signalized and unsignalized intersections. Key inputs for the

SYNCHRO model include existing and forecasted future turning movement volumes, signal timings, and peak-hour profiles. Operational parameters and assumptions for Synchro are listed in **Table 7**.

Table 7. Synchro Intersection Operations Parameters/Assumptions

Synchro Parameters	Analysis Year		
	2016 Existing	**2020 Construction**	**2035 Horizon**
Peak Hour Factor (PHF)	From count and by each approach, default provided 0.90.	2020 No Build and Build: same as existing. 2035 No Build and Build: If existing PHF is greater than 0.95, than use existing, otherwise 0.95 for all locations.	
Conflicting Bikes/Peds	From traffic count, otherwise assume 10 pedestrians/cyclists.		
Area Type	Bellevue: Non-CBD; Mercer Island: Non-CBD Seattle: 4th Avenue S check CBD; all other intersections Non-CBD		
Ideal Saturation Flow	1,900 vehicles/hour/lane		
Lane Utilization	Based on field observations, otherwise use default software assumptions	No Build: same as existing. Build: for design changes based on engineering judgment; otherwise same as No Build.	
Lane Width	From as-built plans, otherwise assume 12’	No Build: Based on improvement plans from background projects, otherwise same as existing. Build: Based on project plans, otherwise same as No Build.	
Percent Heavy Vehicles	From count, otherwise 3%		
Percent Grade	From as-built plans otherwise 0%		
Parking Maneuvers	Where parking is permitted, based on existing data, otherwise assume 8 maneuvers/hour		
Bus Blockages	Headway data from transit agencies, otherwise assume zero	No Build: same as existing. Build: Based on East Link modifications to bus service.	
Intersection Signal Phasing and Coordination	From agency signal phasing sheets/City Synchro files, otherwise from field observation.	No Build: If future background project necessitates phasing change, use engineering judgement; otherwise same as existing. Assume cycle lengths and splits will be optimized to account for future traffic growth. Build: If proposed design necessitates phasing change, use engineering judgment; otherwise same as No Build.	
Intersection Signal Timing Optimization Limits	From agency information, otherwise from field observation.	No Build and Build: Optimize cycle lengths, splits, and offsets to account for changing demand volumes and intersection alternative (between 60 and 150 seconds).	
Minimum Green time	From agency information, otherwise based on MUTCD minimum pedestrian times (minimum of 7 seconds walk time and 3.5 feet per second for Flash-Don’t-Walk clearance).	No Build and Build: same as existing.	

Table 7. Synchro Intersection Operations Parameters/Assumptions

Synchro Parameters	Analysis Year		
	2016 Existing	2020 Construction	2035 Horizon
Yellow and All-Red Time	From agency information, otherwise (Y) = 4 sec. and (R) = 1 sec.		
Right Turn on Red	Allow unless prohibited.		
Detection Settings	From agency info.		

9. Safety Analysis

A safety analysis along the I-90 corridor between Bellevue and Seattle will be conducted using the methodologies of the American Association of State Highway and Transportation Officials' *Highway Safety Manual* (HSM) to identify the safety impacts for Options 1, 2, and 3. In addition, the analysis will include an assessment of safety performance for Mercer Island local streets and intersections.

Safety Analysis Study Area

The safety analysis will include the following facilities:

- I-90 mainline between just east of the Bellevue Way interchange (west of the I-405 interchange) and west of Rainier Avenue S (depending on the availability of data)
- All mainline ramps within the study limits
- Ramp terminal intersections
- Mercer Island study intersections (Table 1) and applicable local streets

Data and Methodology

The most recent 5 years of crash data (2011-2015) will be collected from WSDOT and other local agencies, as necessary. The options in the construction and operation conditions will be compared against one another using the Interactive Highway Safety Design Model, a predictive safety analysis software based on the HSM methodologies.

The HSM predictive method uses the geometric and operational data to estimate the predicted average crash frequency for each component of the planned improvement or change. All mainline and ramp segment data required for application of the HSM predictive method will be collected from WSDOT and Sound Transit as-builts, design drawings, or field observations. To analyze the safety impacts of the ramp terminal intersections, calculations based on volume differences will be used since no geometric changes are assumed to occur between the operational scenarios.

There is a limitation with the HSM methodologies that affects this analysis and will require methodology adjustments: the HSM models do not distinguish an HOV or managed lane. Even so, the HOV lanes and ramps will be included in the analysis but treated in a similar fashion to the other lanes and ramps. Therefore, the volume forecasts predicted for both the general-purpose and HOV facilities will be included in the analysis. The volume forecast differences between the operational scenarios will account for the HOV lanes because the operational scenarios assume that SOV trips to and from Mercer Island are allowed/restricted in the HOV lanes.

The results will be quantified for the entire corridor as well as for individual segments of interest, where applicable. This quantitative safety analysis will analyze the mainline segments, ramp segments, and ramp terminal intersections. Specific data required for the analysis include area type, ramp length, shoulder widths, average daily traffic volumes, and other design/geometric elements. Ramp terminals will require data on traffic control type, intersection configuration, and volume.

Calibration factors are not available from WSDOT and will not be used for this project. Any locations that cannot be analyzed using the HSM predictive method due to model or methodology limitations will be assessed using a qualitative comparative analysis.

10. Transit

Existing transit routing information will be collected from local transit agencies and compiled. This will include information on selected routes that provide service within the study area. Bus route information collected will include service areas, routing and scheduling. Existing passenger load data will be based on the existing year Sound Transit ridership model.

Transit operations will be evaluated using the level of service analysis documented in Transit Cooperative Research Program, Report 100, 3rd Edition *The Transit Capacity and Quality of Service Manual* (TCQSM). This document will be used as a guideline for measuring and comparing transit in the Existing, No Build, and Build conditions. The transit service integration plan will provide the necessary information to analyze the future No Build and Build conditions. The measures to be considered include:

- Service Frequency – Transit schedules and headways will be reviewed at the regional transit centers and park-and-ride locations to determine the number of times an hour a user has access to the transit mode.
- Hours of Service – Also known as “service span,” is simply the number of hours during the day when transit service is provided along a route, a segment of a route, or between two locations.
- Passenger Loads – Reflect the passenger’s comfort level of the on-board vehicle portion of a transit trip, both in terms of being able to find a seat and overall crowding levels within the vehicle. This will be a quantitative comparison at the screenline locations between the No Build and Build conditions.
- Reliability (On-Time Performance and Headway Adherence) – Future No Build and Build would be assessed in a qualitative fashion.
- Travel Time– Will be compared for No Build and Build conditions. Average door-to-door travel times determined based on Sound Transit’s forecasting model will be compared for the transit integration alternatives being considered.

The primary source of information for the future Build alternative will be the light rail alternatives’ ridership forecasting effort which is expected to provide the network design, service level inputs, and ridership and travel time outputs.

11. Parking

The analysis of the project’s impact to the number of on- and off-street parking spaces will be documented. Parking surveys will be conducted to inventory the availability of on-street parking within 0.25 mile of the Mercer Island Station. The survey will include a space occupancy count of both unrestricted parking and Mercer Island Town Center permit parking zones within 0.25 mile of station entrances during the AM peak hour to calculate the percent parking utilization. Areas will not be

surveyed which either do not allow parking, are within a residential permit parking zone, or are more than a 0.25-mile walk due to limited neighborhood access from N Mercer Way. Off-street parking was not inventoried because it is regulated by property owners and not considered available for light rail user parking.

The assessment of public parking impacts will be based on review of the inventory of parking supply and demand. Private off-street parking will only be analyzed qualitatively since quantitative private parking data will not be collected.

12. Non-Motorized Facilities

A qualitative assessment of the projects impact on existing and future proposed pedestrian and bicycle facilities will be performed. Specific issues to be discussed include the following:

- Identification of direct (physical) effects on pedestrian facilities within the study area.
- Intersection crossing issues associated with station layout and connections to major pedestrian routes and destinations.

13. Freight

A qualitative assessment will be made of the projects impact on freight movements. This assessment will focus on truck movement and truck routing impacts. The freight assessment will focus on potential impacts to major truck routes (including I-90), truck service areas, access to major industrial areas, and modifications of truck access to local businesses. Along I-90 a quantitative assessment of truck operations will be documented. This will include the number of trucks able to cross Lake Washington in the 2020 and 2035 AM and PM peak periods for the No Build, Construction and Build conditions.

There are no roadways designated as truck routes on Mercer Island. Most truck trips consist of single-unit trucks (e.g., delivery trucks) rather than large commercial vehicles (e.g., tractor trailer trucks) because Mercer Island does not have large commercial and industrial activity areas like some other cities in the region. Existing truck volumes will be included in the study intersection counts and will be included in the existing and future traffic operational analysis.

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Attachment A:

I-90 Freeway Study Area and Study Area Intersections

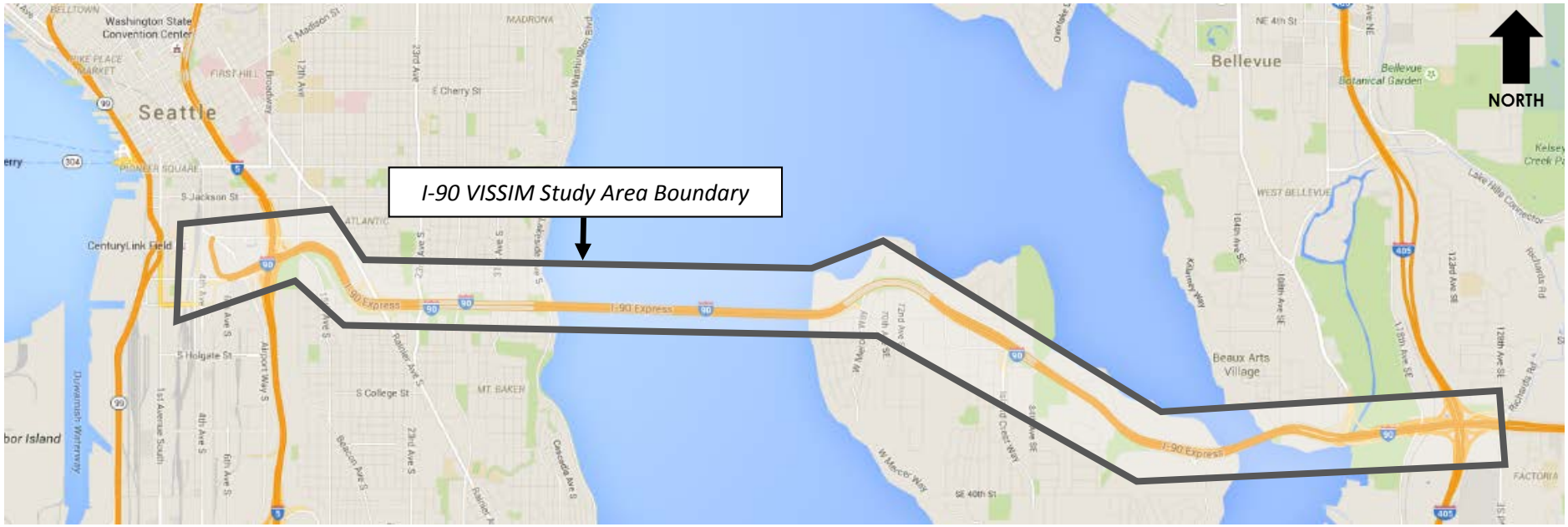

Figure A.1. I-90 Freeway Analysis Area

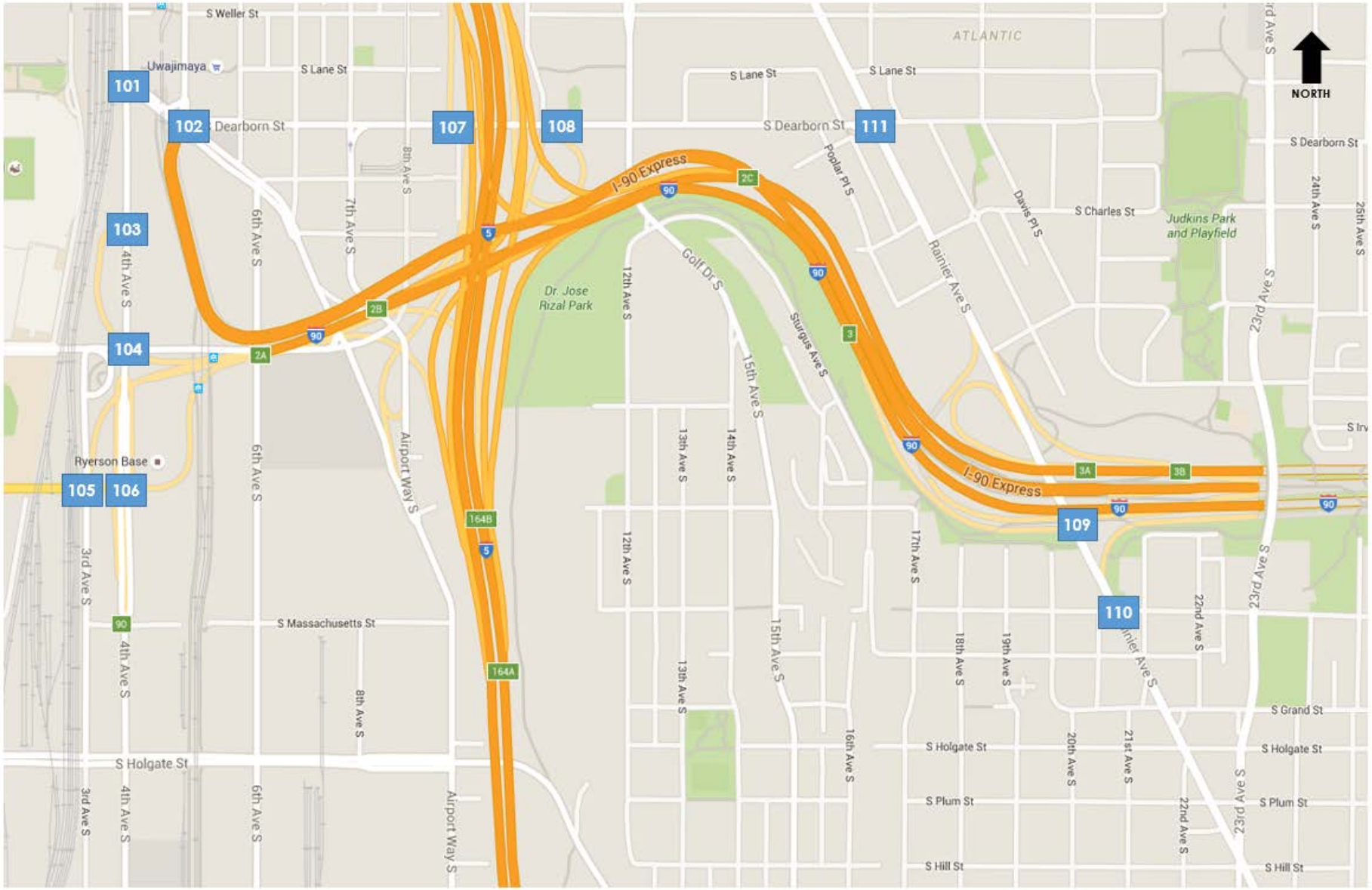

Figure A.2. City of Seattle Study Intersections

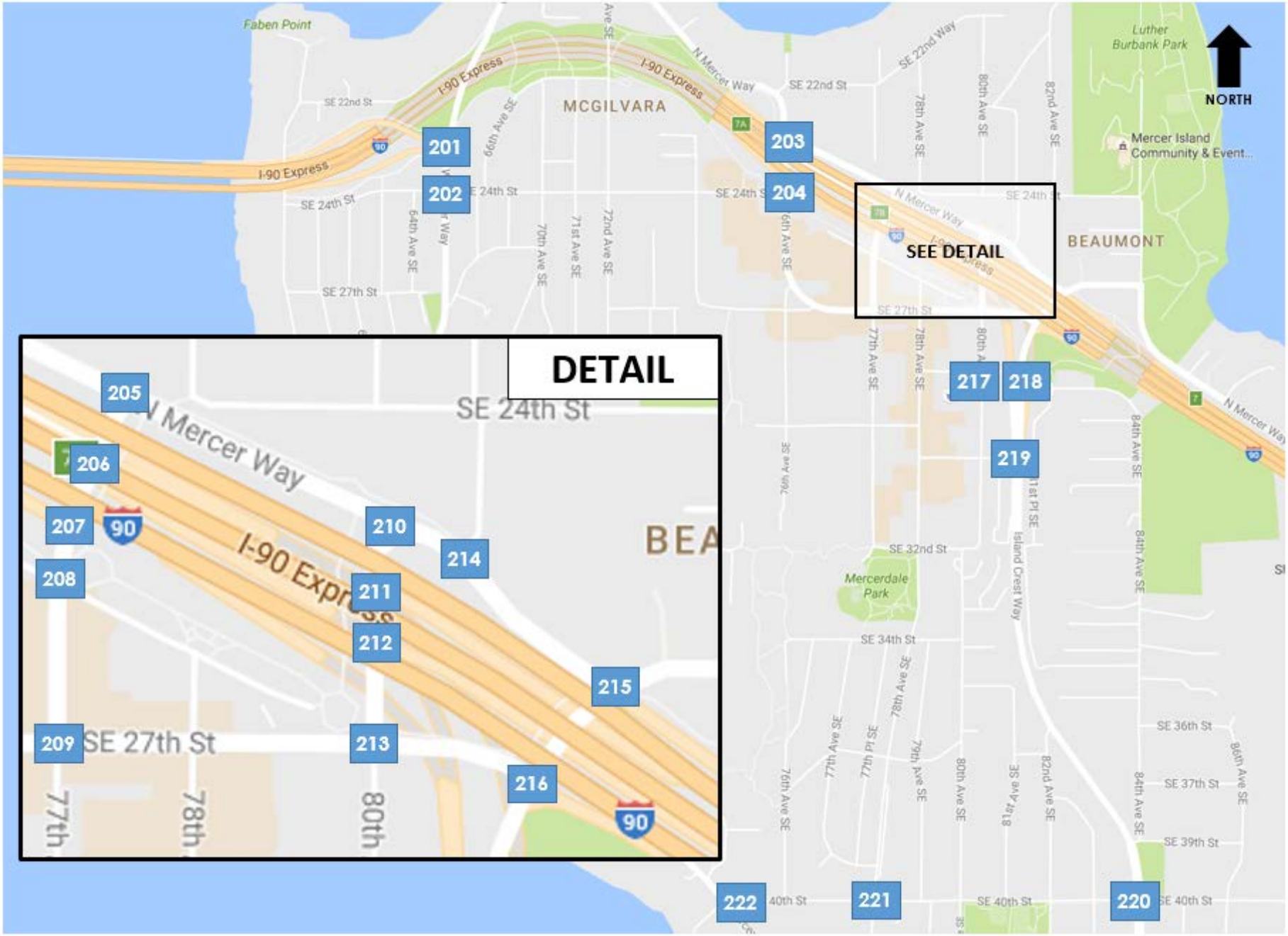

Figure A.3. City of Mercer Island Study Intersections

Figure A.4. East Mercer Way and City of Bellevue Study Intersections

Attachment C
Level of Service Definitions Used for East Link Analysis

Attachment C
Level of Service Definitions Used for East Link Analysis

The quality of traffic operations on roadway facilities is described in terms of level of service (LOS), a measure of operational conditions and their perception by motorists. As described in **Table C-1**, intersection LOS ratings range from "A" to "F" based on the amount of control delay seconds per vehicle. LOS A represents the best operation and LOS F the poorest operation.

Table C-1. LOS Definitions for Intersections

Level of Service	Average Delay (seconds per vehicle)	Traffic Flow Characteristics
Signalized Intersections		
A	≤ 10	Most vehicles arrive during the green phase and do not stop.
B	> 10 and ≤ 20	More vehicles stop, causing higher delay.
C	> 20 and ≤ 35	Vehicle stopping is significant, but many still pass through the intersection without stopping.
D	> 35 and ≤ 55	Many vehicles stop, and the influence of congestion becomes more noticeable.
E	> 55 and ≤ 80	Very few vehicles pass through without stopping.
F	> 80	Considered unacceptable to most drivers. Intersection may not necessarily be overcapacity, even though arrivals exceed capacity of lane groups.
Unsignalized Intersections		
A	≤ 10	Little to no traffic delays.
B	> 10 and ≤ 15	Short traffic delays.
C	> 15 and ≤ 25	Average traffic delays.
D	> 25 and ≤ 35	Long traffic delays.
E	> 35 and ≤ 50	Very long traffic delays.
F	> 50	Queuing on minor approaches and not enough gaps of suitable size to allow safe crossing of major streets. Signalization should be investigated at this point, but warrants must be satisfied before implementation.

Source: *Highway Capacity Manual*, Transportation Research Board, 2010.

Table C-2 identifies the freeway LOS ratings. These ratings are defined by density, which is expressed in passenger cars per mile per lane (pcpmpl). Freeway densities are created for each segment of freeway analyzed. Three segment types are used in freeway analyses: mainline, merge/diverge, and weaving areas.

Table C-2. LOS Definitions for Freeways

Level of Service	Density (passenger cars/mile/lane)	Traffic Flow Characteristics
Basic Freeway Segment		
A	< 11	Free flow operations, vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.
B	> 11 - < 18	Reasonably free flow, vehicle maneuvers within the traffic stream are only slightly restricted.
C	> 18 - < 26	Freedom to maneuver within the traffic stream is noticeably restricted.
D	> 26 - < 35	Freedom to maneuver within the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort level.
E	> 35 - < 45	Vehicles are closely spaced, leaving little room to maneuver within the traffic stream at speeds that exceed 49 mph.
F	> 45	Breakdowns in vehicular flow.
Merging and Diverging Area		
A	< 10	Unrestricted operation, smooth merging and diverging.
B	> 10 - < 20	Merging and diverging maneuvers become noticeable to through drivers.
C	> 20 - < 28	Both ramp and freeway vehicles begin to adjust their speeds to accomplish smooth transitions.
D	> 28 - < 35	Virtually all vehicles slow to accommodate merging and diverging.
E	> 35	Flow levels approach capacity, and small changes in demand or disruptions within the traffic stream can cause both ramp and freeway queues to form.
F	Demand exceeds capacity	
Weaving Area		
A	< 10	Unrestricted operation, smooth weaving movements.
B	> 10 - < 20	Weaving maneuvers become noticeable to through drivers.
C	> 20 - < 28	Both ramp and freeway vehicles begin to adjust their speeds to accomplish smooth transitions.
D	> 28 - < 35	Virtually all vehicles slow to accommodate weaving movements.
E	> 35 - < 43	Flow levels approach capacity, and small changes in demand or disruptions within the traffic stream can cause both ramp and freeway queues to form.
F	> 43	

Source: *Highway Capacity Manual*, Transportation Research Board, 2010.

Attachment D
Existing and Future
Transit Routes and Level of Service

TABLE D-1
Existing, No Build, and Build Transit Routes in I-90 Study Area

Route No.	Stop Locations in Project Area (Existing)	Service Area (Existing)	Stop Locations in Study Area (No Build)	Service Area (No Build)	Stop Location in Study Area (FEIS Configuration)	Service Area (FEIS Configuration)	Stop Location in Study Area (77th and 80th Ave. SE Configurations)	Service Area (77th and 80th Ave. SE Configura-tions)
KCM 111	I-90	Downtown Seattle, I-90 & Rainier, Newport Hills P&R, Kennydale, Renton Highlands P&R, Renton Highlands, Maplewood Heights, Lake Kathleen	Same as Existing	Same as Existing	South Bellevue	- Downtown Seattle, I-90 and Rainier + South Bellevue, Bellevue	South Bellevue	- Downtown Seattle, I-90 and Rainier + South Bellevue, Bellevue
KCM 114	I-90	Downtown Seattle, I-90 & Rainier, Newport Hills P&R, Kennydale, Renton Highlands P&R, Renton Highlands, Maplewood Heights, Lake Kathleen	Same as Existing	Same as Existing	South Bellevue	- Downtown Seattle, I-90 and Rainier + South Bellevue, Bellevue, Lake Kathleen	South Bellevue	- Downtown Seattle, I-90 and Rainier + South Bellevue, Bellevue, Lake Kathleen
KCM 201	North Mercer Island	North Mercer Island, South Mercer Island	Same as Existing	Same as Existing	Same as No Build	Same as No Build	Deleted	Deleted
KCM 204	North Mercer Island	North Mercer Island, South Mercer Island	Same as Existing	Same as Existing	Same as No Build	Same as No Build	Mercer Island	Same as No Build
KCM 212	I-90	Downtown Seattle, I-90 & Rainier, Factoria, Eastgate I-90 Freeway Station, Eastgate P&R	Same as Existing	Same as Existing	Same as No Build	Same as No Build	None	- Downtown Seattle, I-90 and Rainier
KCM 214	I-90	Downtown Seattle, I-90 & Rainier, Issaquah Transfer Point, Issaquah, Preston, Fall City, Snoqualmie Falls, Snoqualmie, North Bend, Factory Stores of North Bend	Same as Existing	- Snoqualmie Falls, Snoqualmie, North Bend, Factory Stores of North Bend	Same as No Build	Same as No Build	Mercer Island	- Downtown Seattle, I-90 and Rainier + North Mercer Island
KCM 216	I-90, North Mercer Island	Downtown Seattle, I-90 & Rainier, North Mercer Island, Pine Lake, South Sammamish P&R, Redmond, Bear Creek P&R	Same as Existing	Same as Existing	Same as No Build	Same as No Build	Replaced with 219	Replaced with 219
KCM 217	I-90	Downtown Seattle, I-90 & Rainier, Factoria, Eastgate P&R, Eastgate, North Issaquah	Deleted	Deleted	Deleted	Deleted	Deleted	Deleted

TABLE D-1
Existing, No Build, and Build Transit Routes in I-90 Study Area

Route No.	Stop Locations in Project Area (Existing)	Service Area (Existing)	Stop Locations in Study Area (No Build)	Service Area (No Build)	Stop Location in Study Area (FEIS Configuration)	Service Area (FEIS Configuration)	Stop Location in Study Area (77th and 80th Ave. SE Configurations)	Service Area (77th and 80th Ave. SE Configura-tions)
KCM 218	I-90	Issaquah Highlands P&R, Eastgate I-90 Freeway Station, I-90 & Rainier, Downtown Seattle	Same as Existing	Same as Existing	Same as No Build	Same as No Build	Mercer Island	- Downtown Seattle, I-90 and Rainier + North Mercer Island
KCM 219	I-90	Redmond, Issaquah Highlands Park-and-Ride, Eastgate I-90 Freeway Station, I-90 and Rainier, Downtown Seattle	Deleted	Deleted	Deleted	Deleted	Mercer Island	- Downtown Seattle, I-90 and Rainier + North Mercer Island
KCM 630	Mercer Island	Mercer Island, Downtown Seattle	Same as Existing	Same as Existing	Same as No Build	Same as No Build	Mercer Island	Same as No Build
ST 550	North Mercer Island, I-90	Bellevue Square, Bellevue Transit Center, South Bellevue P&R, North Mercer Island, I-90 & Rainier, Downtown Seattle	Same as Existing	Same as Existing	Deleted	Deleted	Deleted	Deleted
ST 554	North Mercer Island, I-90	South Sammamish P&R, Issaquah Highlands P&R, Downtown Issaquah, Issaquah Transfer Point, Bellevue Community College, Eastgate P&R, Eastgate I-90 Freeway Station, North Mercer Island, I-90 & Rainier, Downtown Seattle	Same as Existing	Same as Existing	North Mercer Island	- I-90 & Rainier, Downtown Seattle	South Bellevue	- Downtown Seattle, I-90 and Rainier + South Bellevue, Bellevue, Lake Kathleen

Note: Transit routes are from spring 2016.

P&R = Park-and-Ride

TABLE D-2
Direct Transit Routes Evaluated For Existing, 2020 and 2035 No Build and Build

		To		
From	**Condition**	**Downtown Seattle**	**Mercer Island**	**South Bellevue**
Downtown Seattle	Existing: No Build: Build:		10 Routes 12 Routes East Link	1 Route Same As Existing East Link
Mercer Island	Existing: No Build: Build:	4 Routes Same as Existing East Link		1 Route Same As Existing East Link
South Bellevue	Existing: No Build: Build:	1 Route Same As Existing East Link	1 Route Same As Existing East Link	

Notes:
Existing and No Build include only bus. Build includes only light rail.
No Build applies to year 2035.
Build applies to year 2035.
▨ = not evaluated or not applicable

TABLE D-3
PM Peak Period Transit Frequency LOS for Existing and 2035 No Build and Build

		To								
From	**Condition**	**Northgate**	**U District**	**Downtown Seattle**	**Mercer Island**	**South Bellevue**	**Downtown Bellevue**	**Bel-Red**	**Overlake**	**Downtown Redmond**
Northgate	Existing: No Build: Build 2035:				No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A
U District	Existing: No Build: Build 2035:				No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A
Down-town Seattle	Existing: No Build: Build 2035:				5/A Same as Existing 8/A	5/A 8/A 8/A	5/A 8/A 8/A	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	15/C 8/A 8/A
Mercer Island	Existing: No Build: Build 2035:	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	5/A Same as Existing 8/A		5/A 8/A 8/A	5/A 8/A 8/A	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	15/C 8/A 8/A
South Bellevue	Existing: No Build: Build 2035:	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	5/A 8/A 8/A	5/A 8/A 8/A		5/A 8/A 8/A	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A
Down-town Bellevue	Existing: No Build: Build 2035:	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	5/A 8/A 8/A	5/A 8/A 8/A	5/A 8/A 8/A				
Bel-Red	Existing: No Build: Build 2035:	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A				
Overlake	Existing: No Build: Build 2035:	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A				
Down-town Redmond	Existing: No Build: Build 2035:	No Direct Service Same as Existing 8/A	No Direct Service Same as Existing 8/A	15/C 8/A 8/A	15/C 8/A 8/A	No Direct Service Same as Existing 8/A				

Note: Existing and No Build include only bus. Build includes only light rail.

▨ = not evaluated or not applicable
9/A = frequency (in minutes)/level of service

TABLE D-4
Transit Hours of Service and LOS for Existing, 2020 and 2035 No Build and Build

		To								
From	**Condition**	**Northgate**	**U District**	**Downtown Seattle**	**Mercer Island**	**South Bellevue**	**Downtown Bellevue**	**Bel-Red**	**Overlake**	**Downtown Redmond**
Northgate	Existing: No Build: Build:				No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A
U District	Existing: No Build: Build:				No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A
Downtown Seattle	Existing: No Build: Build:				19:00/A Same as Existing 20:00/A	19:00/A Same as Existing 20:00/A	19:00/A Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A
Mercer Island	Existing: No Build: Build:	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	19:00/A Same as Existing 20:00/A		19:00/A Same as Existing 20:00/A	19:00/A Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A
South Bellevue	Existing: No Build: Build:	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	19:00/A Same as Existing 20:00/A	19:00/A Same as Existing 20:00/A		19:00/A Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A
Downtown Bellevue	Existing: No Build: Build:	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	19:00/A Same as Existing 20:00/A	19:00/A Same as Existing 20:00/A	19:00/A Same as Existing 20:00/A				
Bel-Red	Existing: No Build: Build:	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A				
Overlake	Existing: No Build: Build:	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A				
Downtown Redmond	Existing: No Build: Build:	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A	No Direct Service Same as Existing 20:00/A				

Notes:
Existing and No Build include only bus. Build includes only light rail.
No Build applies to both 2020 and 2035 years.
Build applies to both 2020 and 2035 years.
▨ = not evaluated or not applicable
12:00/A = hours of service/level of service

TABLE D-5
Existing, No Build, and Build PM Peak-Hour Passenger Load

		Existing		2020 No Build		2020 Construction		2035 No Build		2035 Build (77th and 80th Ave. SE Configurations)				2035 Build (FEIS Configuration)			
		Bus		Bus		Bus		Bus		Bus		Light Rail		Bus		Light Rail	
Screen-line	Direction	Average seated passenger/ seat	LOS	Average seated passenger/ seat	LOS	Average seated passenger/ seat	LOS	Average seated passenger/ seat	LOS	Average seated passenger/ seat	LOS	ft^2/ standing passenger	LOS	Average Seated Passenger/ Seat	LOS	ft^2/ Standing Passenger	LOS
A	SB	1.03	D	1.26	D	1.26	D	1.32	E	N/A	N/A	0.95	C	1.67	F	0.39	A
	NB	0.38	A	0.47	A	0.47	A	0.55	B	N/A	N/A	0.74	B	0.50	A	0.36	A
B	EB	0.90	C	1.13	D	1.13	D	1.19	D	1.03	D	0.95	C	0.99	C	0.33	A
	WB	0.48	A	0.61	B	0.61	B	0.76	C	0.20	A	0.74	B	0.59	B	0.31	A

SB = southbound
NB = northbound
EB = eastbound
WB = westbound
N/A = buses do not cross this screenline

Attachment E
I-90 Person-Weighted Travel Times to/from Mercer Island

Table E-1. I-90 East Link Corridor SOV Mode (Auto and Truck) Person Travel Times Weighted by Mercer Island Ramp: 2020 AM Peak Period (6:30-10:00 AM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2020 No Build		2020 Construction Option 1[a]		2020 Construction Option 2[b]		2020 Construction Option 2 Modified[c]		2020 Construction Option 3	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
Westbound I-90	I-90 at I-405 Overcrossing	E Mercer Way Off-Ramp	1.6	46%	3.7	45%	5.7	45%	5.4	45%	4.9			45%	5.8
		Island Crest Way Off-Ramp	2.8	54%	7.2	55%	9.6	55%	9.4	55%	9.3			55%	10.2
		80th Avenue SE HOV Off-Ramp	2.9	0%		0%		0%		0%				0%	
	S Bellevue Station	Mercer Island Station	2.8	0%		0%		0%		0%				0%	
	Westbound SOV Trips from I-405 to All Mercer Island Ramps (Weighted Average) =			5.6		7.8		7.6		7.4				8.2	
	E Mercer Way On-Ramp	4th Avenue S (Seattle)	6.1	12%	15.9	12%	16.5	11%	15.1	11%	17.0			11%	17.2
	Island Crest Way On-Ramp (via Outer Roadway)		5.1	4%	12.3	4%	12.1	38%	9.6	0%				37%	9.5
	Island Crest Way On-Ramp (via Center Roadway)		4.7	31%	6.8	31%	6.8	0%		0%				0%	
	77th Avenue SE On-Ramp (via Center Roadway)		4.6	26%	6.7	26%	6.7	0%		0%				0%	
	76th Avenue SE On-Ramp		4.4	11%	11.6	12%	11.8	28%	9.1	47%	11.6			28%	11.8
	W Mercer Way On-Ramp		3.9	16%	9.8	15%	10.1	23%	7.7	42%	9.1			24%	9.8
	Mercer Island Station	International District Station	5.1	0%		0%		0%		0%				0%	
	Westbound SOV trips from All Mercer Island Ramps to 4th Avenue S (Weighted Average) =			9.1		9.2		9.6		11.2				11.1	
All Westbound SOV Trips to/from Mercer Island Ramps (Weighted Average) =				***7.2***		***8.5***		***8.5***		***9.1***				***9.6***	
Eastbound I-90	4th Avenue S (Seattle)	W Mercer Way Off-Ramp	4.1	19%	7.7	19%	9.3	18%	5.2	19%	9.3	19%	5.5	23%	5.8
		77th Avenue SE Off-Ramp (via Outer Roadway)	4.8	27%	8.4	25%	9.9	20%	6.4	24%	9.9	24%	6.0	25%	7.8
		77th Avenue SE Off-Ramp (via Center Roadway)	4.8	0%		0%		0%		0%		0%		0%	
		Island Crest Way Left-Side Off-Ramp	4.9	0%		0%		16%	5.4	0%		0%		17%	6.7
		Island Crest Way Right-Side Off-Ramp	5.2	30%	8.8	30%	10.2	19%	7.0	30%	10.4	30%	6.4	20%	8.3
		E Mercer Way Off-Ramp	6.3	24%	9.9	26%	11.5	27%	8.6	27%	11.5	27%	8.2	15%	11.4
	International District Station	Mercer Island Station	5.1	0%		0%		0%		0%		0%		0%	
	Eastbound SOV Trips from 4th Avenue S to All Mercer Island Ramps (Weighted Average) =			8.7		10.3		6.7		10.3		6.6		8.3	
	Island Crest Way On-Ramp	I-90 at I-405 Overcrossing	2.8	55%	3.4	58%	3.5	58%	4.5	58%	3.5	58%	4.1	58%	4.5
	80th Avenue SE HOV On-Ramp		2.8	0%		0%		0%		0%		0%		0%	

Table E-1. I-90 East Link Corridor SOV Mode (Auto and Truck) Person Travel Times Weighted by Mercer Island Ramp: 2020 AM Peak Period (6:30-10:00 AM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2020 No Build		2020 Construction Option 1[a]		2020 Construction Option 2[b]		2020 Construction Option 2 Modified[c]		2020 Construction Option 3	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
	E Mercer Way On-Ramp		1.6	45%	1.9	42%	1.9	42%	2.0	42%	1.8	42%	2.0	42%	2.0
	Mercer Island Station	S Bellevue Station	2.8	0%		0%		0%		0%		0%		0%	
	Eastbound SOV Trips from All Mercer Island Ramps to I-90 at I-405 (Weighted Average) =			2.8		2.8		3.4		2.8		3.2		3.4	
All Eastbound SOV Trips to/from Mercer Island (Weighted Average) =				***4.9***		***5.7***		***4.6***		***5.6***		***4.4***		***5.2***	
All SOV Trips to/from Mercer Island Ramps (Weighted Average) =				**6.2**		**7.3**		**6.9**		**7.6**		**7.4**		**7.7**	

Note: Corridor travel times were weighted based on the percent of total Mercer Island SOV (auto and truck) trips using each ramp by direction.

[a] Mercer Island SOVs allowed in HOV lanes and Island Crest Way (ICW) ramp.

[b] Mercer Island SOVs not allowed in HOV lanes and ICW ramp.

[c] Modified scenario shifts the transition of the eastbound HOV lane to east of the Mount Baker Tunnel.

Table E-2. I-90 East Link Corridor HOV Mode Person Travel Times Weighted by Mercer Island Ramp: 2020 AM Peak Period (6:30-10:00 AM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2020 No Build		2020 Construction Option 1[a]		2020 Construction Option 2[b]		2020 Construction Option 2 Modified[c]		2020 Construction Option 3	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
Westbound I-90	I-90 at I-405 Overcrossing	E Mercer Way Off-Ramp	1.6	25%	2.7	33%	3.2	36%	3.1	35%	3.0			36%	3.3
		Island Crest Way Off-Ramp	2.8	19%	4.4	14%	4.5	15%	5.0	15%	5.0			15%	5.3
		80th Avenue SE HOV Off-Ramp	2.9	56%	3.4	53%	3.4	49%	4.6	50%	3.5			49%	4.4
	S Bellevue Station	Mercer Island Station	2.8	0%		0%		0%		0%				0%	
	Westbound HOV Trips from I-405 to All Mercer Island Ramps (Weighted Average) =			3.4		3.5		4.1		3.5				4.1	
	E Mercer Way On-Ramp	4th Avenue S (Seattle)	6.1	10%	15.4	12%	16.5	11%	13.9	11%	8.4			11%	13.2
	Island Crest Way On-Ramp (via Outer Roadway)		5.1	3%	14.1	4%	15.3	39%	9.7	74%	7.0			40%	9.5
	Island Crest Way On-Ramp (via Center Roadway)		4.7	31%	6.8	31%	6.9	0%		0%				0%	
	77th Avenue SE On-Ramp (via Center Roadway)		4.6	23%	6.8	22%	6.7	0%		0%				0%	
	76th Avenue SE On-Ramp		4.4	10%	11.9	6%	12.9	24%	9.1	7%	7.2			24%	11.8
	W Mercer Way On-Ramp		3.9	23%	9.5	25%	9.9	26%	7.4	8%	6.1			25%	9.7
	Mercer Island Station	International District Station	5.1	0%		0%		0%		0%				0%	
	Westbound HOV trips from All Mercer Island Ramps to 4th Avenue S (Weighted Average) =			9.0		9.4		9.4		7.1				10.5	
All Westbound HOV Trips to/from Mercer Island Ramps (Weighted Average) =				***7.6***		***7.7***		***7.6***		***6.1***				***8.5***	
Eastbound I-90	4th Avenue S (Seattle)	W Mercer Way Off-Ramp	4.1	19%	7.8	18%	9.3	15%	5.2	9%	6.5	9%	5.8	15%	5.7
		77th Avenue SE Off-Ramp (via Outer Roadway)	4.8	27%	8.2	29%	9.9	21%	6.3	18%	7.0	18%	6.2	21%	7.3
		77th Avenue SE Off-Ramp (via Center Roadway)	4.8	0%		0%		0%		0%		0%		0%	
		Island Crest Way Left-Side Off-Ramp	4.9	0%		0%		41%	5.4	53%	6.9	53%	6.2	41%	6.6
		Island Crest Way Right-Side Off-Ramp	5.2	30%	8.6	30%	10.2	0%		0%		0%		0%	
		E Mercer Way Off-Ramp	6.3	24%	9.9	23%	11.4	23%	7.7	20%	8.7	20%	8.2	23%	10.2
	International District Station	Mercer Island Station	5.1	0%		0%		0%		0%		0%		0%	
	Eastbound HOV Trips from 4th Avenue S to All Mercer Island Ramps (Weighted Average) =			8.6		10.2		6.1		7.2		6.5		7.5	
	Island Crest Way On-Ramp	I-90 at I-405 Overcrossing	2.8	7%	3.4	7%	3.5	9%	4.1	7%	3.3	7%	3.8	9%	4.1
	80th Avenue SE HOV On-Ramp		2.8	62%	2.6	44%	2.6	42%	2.5	44%	2.3	44%	2.5	42%	2.5

Table E-2. I-90 East Link Corridor HOV Mode Person Travel Times Weighted by Mercer Island Ramp: 2020 AM Peak Period (6:30-10:00 AM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2020 No Build		2020 Construction Option 1[a]		2020 Construction Option 2[b]		2020 Construction Option 2 Modified[c]		2020 Construction Option 3	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
	E Mercer Way On-Ramp		1.6	31%	1.7	49%	1.7	49%	1.7	49%	1.6	49%	1.7	49%	1.7
	Mercer Island Station	S Bellevue Station	2.8	0%		0%		0%		0%		0%		0%	
	Eastbound HOV Trips from All Mercer Island Ramps to I-90 at I-405 (Weighted Average) =			2.4		2.2		2.3		2.0		2.2		2.3	
All Eastbound HOV Trips to/from Mercer Island (Weighted Average) =				***5.0***		***4.8***		***3.6***		***4.1***		***3.9***		***4.1***	
All HOV Trips to/from Mercer Island Ramps (Weighted Average) =				**6.6**		**6.3**		**5.7**		**5.1**		**5.2**		**6.4**	

Note: Corridor travel times were weighted based on the percent of total Mercer Island HOV trips using each ramp by direction.

[a] Mercer Island SOVs allowed in HOV lanes and ICW ramp.

[b] Mercer Island SOVs not allowed in HOV lanes and ICW ramp.

[c] Modified scenario shifts the transition of the eastbound HOV lane to east of the Mount Baker Tunnel.

Table E-3. I-90 East Link Corridor Transit Mode (Bus and Light Rail) Person Travel Times Weighted by Mercer Island Ramp: 2020 AM Peak Period (6:30-10:00 AM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2020 No Build		2020 Construction Option 1[a]		2020 Construction Option 2[b]		2020 Construction Option 2 Modified[c]		2020 Construction Option 3	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
Westbound I-90	I-90 at I-405 Overcrossing	E Mercer Way Off-Ramp	1.6	0%		0%		0%		0%				0%	
		Island Crest Way Off-ramp	2.5	0%		0%		0%		0%				0%	
		80th Avenue SE HOV Off-Ramp	2.9	5%	5.2	7%	5.3	7%	6.1	7%	5.0			7%	5.9
	S Bellevue Station[d]	Mercer Island Station	2.8	95%	5.0	93%	5.0	93%	5.8	93%	4.8			93%	5.6
	Westbound Transit Trips from I-405 to All Mercer Island Ramps (Weighted Average) =			5.0		5.0		5.8		4.8				5.6	
	E Mercer Way On-Ramp	5th Avenue S via D2 Roadway (Seattle)[e]	6.1	0%		0%		0%		0%				0%	
	Island Crest Way On-Ramp (via Outer Roadway)		5.1	0%		0%		0%		0%				0%	
	Island Crest Way On-Ramp (via Center Roadway)		4.7	0%		0%		0%		0%				0%	
	77th Avenue SE On-Ramp (via Center Roadway)		4.6	100%	12.1	100%	13.5	0%		0%				0%	
	76th Avenue SE On-Ramp		4.4	0%		0%		100%	15.2	100%	12.9			100%	15.5
	W Mercer Way On-Ramp		3.9	0%		0%		0%		0%				0%	
	Mercer Island Station	International District Station	5.1	0%		0%		0%		0%				0%	
	Westbound Transit trips from All Mercer Island Ramps to 4th Avenue S (Weighted Average) =			12.1		13.5		15.2		12.9				15.5	
All Westbound Transit Trips to/from Mercer Island Ramps (Weighted Average) =				***11.5***		***13.1***		***14.7***		***12.5***				***15.0***	
Eastbound I-90	5th Avenue S via D2 Roadway (Seattle)[e]	W Mercer Way Off-Ramp	4.1	0%		0%		0%		0%		0%		0%	
		77th Avenue SE Off-Ramp (via Outer Roadway)	4.8	100%	11.4	100%	11.5	100%	13.0	100%	13.7	100%	13.2	100%	14.0
		77th Avenue SE Off-Ramp (via Center Roadway)	4.8	0%		0%		0%		0%		0%		0%	
		Island Crest Way Left-Side Off-Ramp	4.9	0%		0%		0%		0%		0%		0%	
		Island Crest Way Right-Side Off-Ramp	5.2	0%		0%		0%		0%		0%		0%	
		E Mercer Way Off-Ramp	6.3	0%		0%		0%		0%		0%		0%	
	International District Station	Mercer Island Station	5.1	0%		0%		0%		0%		0%		0%	
	Eastbound Transit Trips from 4th Avenue S to All Mercer Island Ramps (Weighted Average) =			11.4		11.5		13.0		13.7		13.2		14.0	
	Island Crest Way On-Ramp	I-90 at I-405 Overcrossing	2.8	0%		0%		0%		0%		0%		0%	
	80th Avenue SE HOV On-Ramp		2.5	5%	4.1	2%	4.1	2%	4.0	2%	3.8	2%	4.0	2%	4.0

Table E-3. I-90 East Link Corridor Transit Mode (Bus and Light Rail) Person Travel Times Weighted by Mercer Island Ramp: 2020 AM Peak Period (6:30-10:00 AM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2020 No Build		2020 Construction Option 1[a]		2020 Construction Option 2[b]		2020 Construction Option 2 Modified[c]		2020 Construction Option 3	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
	E Mercer Way On-Ramp		2.5	0%		0%		0%		0%		0%		0%	
	Mercer Island Station	S Bellevue Station[d]	2.8	95%	4.5	98%	4.5	98%	4.6	98%	4.4	98%	4.6	98%	4.6
	Eastbound Transit Trips from All Mercer Island Ramps to I-90 at I-405 (Weighted Average) =			4.5		4.5		4.6		4.3		4.6		4.6	
All Eastbound Transit Trips to/from Mercer Island (Weighted Average) =				***9.8***		***10.1***		***11.3***		***11.8***		***11.4***		***12.0***	
All Transit Trips to/from Mercer Island Ramps (Weighted Average) =				**11.1**		**12.4**		**13.9**		**12.4**		**12.6**		**14.3**	

Note: Corridor travel times were weighted based on the percent of total Mercer Island bus and light rail trips using each ramp by direction.

[a] Mercer Island SOVs allowed in HOV lanes and ICW ramp.

[b] Mercer Island SOVs not allowed in HOV lanes and ICW ramp.

[c] Modified scenario shifts the transition of the eastbound HOV lane to east of the Mount Baker Tunnel.

[d] For Existing and No Build conditions, transit between the S Bellevue Park-and-Ride and Mercer Island Transit Center is the Route 550 bus. For the Build condition, transit is light rail between the S Bellevue Station and Mercer Island Station.

[e] For Existing and No Build conditions, transit to/from Seattle is via the D2 Roadway and 5th Avenue S.

Table E4. I-90 East Link Corridor (All Modes Combined) Person Travel Times Weighted by Mercer Island Ramp: 2020 AM Peak Period (6:30-10:00 AM) - Updated DRAFT

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2020 No Build		2020 Construction Option 1[a]		2020 Construction Option 2[b]		2020 Construction Option 2 Modified[c]		2020 Construction Option 3	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
Westbound I-90	I-90 at I-405 Overcrossing	E Mercer Way Off-Ramp	1.6	40%	3.6	42%	5.2	43%	4.9	42%	4.5			43%	5.2
		Island Crest Way Off-Ramp	2.8	45%	6.9	44%	9.2	44%	9.0	44%	8.9			44%	9.8
		80th Avenue SE HOV Off-Ramp	2.9	14%	3.4	13%	3.4	12%	4.6	13%	3.5			12%	4.4
	South Bellevue Station[d]	Mercer Island Transit Center	2.8	1%	5.0	1%	5.0	1%	5.8	1%	4.8			1%	5.6
	Westbound Trips from I-405 to All Mercer Island Ramps (Weighted Average) =			5.0		6.7		6.6		6.3				7.1	
	E Mercer Way On-Ramp	4th Avenue S (Seattle)[e]	6.1	11%	15.7	10%	16.5	10%	14.7	10%	14.2			10%	15.9
	Island Crest Way On-Ramp (via Outer Roadway)		5.1	3%	12.7	4%	13.0	34%	9.6	23%	7.0			35%	9.5
	Island Crest Way On-Ramp (via Center Roadway)		4.7	29%	6.8	28%	6.8	0%		0%				0%	
	77th Avenue SE On-Ramp (via Center Roadway)		4.6	31%	8.1	32%	8.7	0%		0%				0%	
	76th Avenue SE On-Ramp		4.4	10%	11.7	9%	12.0	34%	10.8	40%	11.7			33%	12.8
	W Mercer Way On-Ramp		3.9	16%	9.7	17%	10.0	22%	7.6	27%	8.8			22%	9.8
	Mercer Island Transit Center	International District Station	5.1	0%	0	0%	0	0%	0.0	0%	0.0			0%	0.0
	Westbound trips from All Mercer Island Ramps to 4th Avenue S (Weighted Average) =			9.3		9.7		10.1		10.1				11.3	
All Westbound Trips to/from Mercer Island Ramps (Weighted Average) =				***7.2***		***8.2***		***8.4***		***8.2***				***9.3***	
Eastbound I-90	4th Avenue S (Seattle)[e]	W Mercer Way Off-Ramp	4.1	18%	7.7	18%	9.3	17%	5.2	16%	8.8	16%	5.5	17%	5.8
		77th Avenue SE Off-Ramp (via Outer Roadway)	4.8	30%	8.7	30%	10.1	24%	7.6	26%	10.0	26%	7.3	25%	8.9
		77th Avenue SE Off-Ramp (via Center Roadway)	4.8	0%		0%		0%		0%		0%		0%	

Table E4. I-90 East Link Corridor (All Modes Combined) Person Travel Times Weighted by Mercer Island Ramp: 2020 AM Peak Period (6:30-10:00 AM) - Updated DRAFT

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2020 No Build		2020 Construction Option 1[a]		2020 Construction Option 2[b]		2020 Construction Option 2 Modified[c]		2020 Construction Option 3	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
		Island Crest Way Left-Side Off-Ramp	4.9	0%		0%		22%	5.4	15%	6.9	15%	6.2	21%	6.6
		Island Crest Way Right-Side Off-Ramp	5.2	29%	8.7	29%	10.2	13%	7.0	20%	10.4	20%	6.4	12%	8.3
		E Mercer Way Off-Ramp	6.3	23%	9.9	23%	11.5	24%	8.4	23%	10.8	23%	8.2	25%	11.1
	International District Station	Mercer Island Transit Center	5.1	0%		0%		0%	0.0	0%	0.0	0%	0.0	0%	0.0
	Eastbound Trips from 4th Avenue S to All Mercer Island Ramps (Weighted Average) =			8.8		10.3		6.8		9.6		6.9		8.4	
	Island Crest Way On-Ramp	I-90 at I-405 Overcrossing	2.8	46%	3.4	43%	3.5	43%	4.4	43%	3.5	43%	4.0	43%	4.5
	80th Avenue SE HOV On-Ramp		2.8	11%	2.6	12%	2.6	12%	2.5	12%	2.3	12%	2.5	12%	2.5
	E Mercer Way On-Ramp		1.6	42%	1.9	44%	1.9	44%	1.9	44%	1.8	44%	1.9	44%	1.9
	Mercer Island Transit Center	South Bellevue Station[d]	2.8	1%	4.5	1%	4.5	1%	4.6	1%	4.4	1%	4.6	1%	4.6
	Eastbound Trips from All Mercer Island Ramps to I-90 at I-405 (Weighted Average) =			2.7		2.7		3.1		2.6		2.9		3.1	
All Eastbound Trips to/from Mercer Island (Weighted Average) =				***5.0***		***5.6***		***4.5***		***5.3***		***4.4***		***5.0***	
All Trips to/from Mercer Island Ramps (Weighted Average) =				**6.3**		**7.1**		**6.8**		**7.0**		**7.0**		**7.5**	

Note: Corridor travel times were weighted based on the percent of total Mercer Island trips using each ramp by direction. All modes include SOV, HOV, trucks, and buses.

[a] Mercer Island SOVs allowed in HOV lanes and ICW ramp.

[b] Mercer Island SOVs not allowed in HOV lanes and ICW ramp.

[c] Modified scenario shifts the transition of the eastbound HOV lane to east of the Mount Baker Tunnel.

[d] For Existing and No Build conditions, transit between the S Bellevue Park-and-Ride and Mercer Island Transit Center is the Route 550 bus. For the Build condition, transit is light rail between the S Bellevue Station and Mercer Island Station.

[e] For Existing and No Build conditions, transit to/from Seattle is via the D2 Roadway and 5th Avenue S.

Table E-5. I-90 East Link Corridor SOV Mode (Auto and Truck) Person Travel Times Weighted by Mercer Island Ramp: 2020 PM Peak Period (3:30-7:00 PM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2020 No Build		2020 Construction Option 1[a]		2020 Construction Option 2[b]		2020 Construction Option 2 Modified[c]		2020 Construction Option 3[a]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
Westbound I-90	I-90 at I-405 Overcrossing	E Mercer Way Off-Ramp	1.6	67%	3.4	66%	7.2	67%	4.3	67%	4.3			67%	4.3
		Island Crest Way Off-Ramp	2.8	33%	7.5	34%	12.1	33%	6.3	33%	7.0			33%	6.0
		80th Avenue SE HOV Off-Ramp	2.9	0%		0%		0%		0%				0%	
	S Bellevue Station	Mercer Island Station	2.8	0%		0%		0%		0%				0%	
	Westbound SOV Trips from I-405 to All Mercer Island Ramps (Weighted Average) =			4.7		8.9		5.0		5.2				4.9	
	E Mercer Way On-Ramp	4th Avenue S (Seattle)	6.1	10%	13.6	11%	13.9	10%	8.7	11%	13.6			10%	9.0
	Island Crest Way On-Ramp (via Outer Roadway)		5.1	18%	8.5	16%	7.9	25%	6.4	0%				24%	6.8
	Island Crest Way On-Ramp (via Center Roadway)		0.0	0%		0%		0%		0%				0%	
	77th Avenue SE On-Ramp (via Center Roadway)		0.0	0%		0%		0%		0%				0%	
	76th Avenue SE On-Ramp		4.4	34%	6.9	30%	7.1	29%	5.9	37%	9.0			30%	7.0
	W Mercer Way On-Ramp		3.9	38%	5.0	43%	5.0	36%	4.9	52%	7.1			36%	5.9
	Mercer Island Station	International District Station	5.1	0%		0%		0%		0%				0%	
	Westbound SOV trips from All Mercer Island Ramps to 4th Avenue S (Weighted Average) =			7.1		7.1		5.9		8.5				6.8	
All Westbound SOV Trips to/from Mercer Island Ramps (Weighted Average) =				***5.6***		***8.1***		***5.4***		***6.5***				***5.7***	
Eastbound I-90	4th Avenue S (Seattle)	W Mercer Way Off-Ramp	4.1	13%	6.0	14%	8.2	16%	6.9	16%	9.9	16%	7.6	16%	7.3
		77th Avenue SE Off-Ramp (via Outer Roadway)	4.8	12%	7.1	12%	9.6	26%	8.0	31%	10.4	31%	8.3	26%	8.6
		77th Avenue SE Off-Ramp (via Center Roadway)	4.8	22%	5.6	21%	6.3	0%		0%		0%		0%	
		Island Crest Way Left-Side Off-Ramp	4.9	32%	5.6	32%	6.4	26%	7.2	0%		0%		26%	8.1
		Island Crest Way Right-Side Off-Ramp	5.2	11%	7.7	11%	10.5	23%	8.6	45%	10.8	45%	8.8	23%	9.6
		E Mercer Way Off-Ramp	6.3	10%	10.2	10%	14.2	9%	10.7	8%	12.2	8%	11.6	9%	13.1
	International District Station	Mercer Island Station	5.1	0%		0%		0%		0%		0%		0%	
	Eastbound SOV Trips from 4th Avenue S to All Mercer Island Ramps (Weighted Average) =			6.5		8.2		8.0		10.6		8.7		8.9	
	Island Crest Way On-Ramp	I-90 at I-405 Overcrossing	2.8	67%	4.4	63%	5.2	64%	4.5	64%	3.7	64%	4.7	64%	4.9
	80th Avenue SE HOV On-Ramp		2.8	0%		0%		0%		0%		0%		0%	
	E Mercer Way On-Ramp		1.6	33%	2.4	37%	2.5	36%	2.1	36%	2.2	36%	2.4	36%	2.3

Table E-5. I-90 East Link Corridor SOV Mode (Auto and Truck) Person Travel Times Weighted by Mercer Island Ramp: 2020 PM Peak Period (3:30-7:00 PM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2020 No Build		2020 Construction Option 1[a]		2020 Construction Option 2[b]		2020 Construction Option 2 Modified[c]		2020 Construction Option 3[a]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
	Mercer Island Station	S Bellevue Station	2.8	0%		0%		0%		0%		0%		0%	
	Eastbound SOV Trips from All Mercer Island Ramps to I-90 at I-405 (Weighted Average) =			3.7		4.2		3.6		3.2		3.9		3.9	
All Eastbound SOV Trips to/from Mercer Island (Weighted Average) =				***5.0***		***6.0***		***5.5***		***6.6***		***6.1***		***6.1***	
All SOV Trips to/from Mercer Island Ramps (Weighted Average) =				**5.3**		**7.1**		**5.4**		**6.6**		**6.4**		**5.9**	

Note: Corridor travel times were weighted based on the percent of total Mercer Island SOV (auto and truck) trips using each ramp by direction.

[b] Mercer Island SOVs allowed in HOV lanes and ICW ramp.

[c] Mercer Island SOVs not allowed in HOV lanes and ICW ramp.

[d] Modified scenario shifts the transition of the eastbound HOV lane to east of the Mount Baker Tunnel.

Table E-6. I-90 East Link Corridor HOV Mode Person Travel Times Weighted by Mercer Island Ramp: 2020 PM Peak Period (3:30-7:00 PM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2020 No Build		2020 Construction Option 1[a]		2020 Construction Option 2[b]		2020 Construction Option 2 Modified[c]		2020 Construction Option 3[a]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
Westbound I-90	I-90 at I-405 Overcrossing	E Mercer Way Off-Ramp	1.6	16%	2.9	14%	3.7	14%	2.7	14%	2.7			14%	2.6
		Island Crest Way Off-Ramp	2.8	7%	5.0	2%	5.3	4%	3.9	4%	4.2			4%	3.6
		80th Avenue SE HOV Off-Ramp	2.9	77%	3.7	84%	3.5	82%	3.3	82%	3.3			82%	3.2
	S Bellevue Station	Mercer Island Station	2.8	0%		0%		0%		0%				0%	
	Westbound HOV Trips from I-405 to All Mercer Island Ramps (Weighted Average) =			3.7		3.5		3.2		3.2				3.1	
	E Mercer Way On-Ramp	4th Avenue S (Seattle)	6.1	10%	12.9	5%	14.0	8%	7.5	7%	7.4			8%	7.8
	Island Crest Way On-Ramp (via Outer Roadway)		5.1	7%	8.5	14%	7.8	48%	6.4	84%	6.1			48%	6.8
	Island Crest Way On-Ramp (via Center Roadway)		0.0	0%		0%		0%		0%				0%	
	77th Avenue SE On-Ramp (via Center Roadway)		0.0	0%		0%		0%		0%				0%	
	76th Avenue SE On-Ramp		4.4	14%	6.9	22%	7.1	10%	5.9	3%	5.8			10%	7.0
	W Mercer Way On-Ramp		3.9	69%	4.8	59%	4.8	34%	4.7	6%	5.3			34%	5.7
	Mercer Island Station	International District Station	5.1	0%		0%		0%		0%				0%	
	Westbound HOV trips from All Mercer Island Ramps to 4th Avenue S (Weighted Average) =			6.1		6.1		5.9		6.2				6.5	
All Westbound HOV Trips to/from Mercer Island Ramps (Weighted Average) =				***4.9***		***4.6***		***4.4***		***4.6***				***4.6***	
Eastbound I-90	4th Avenue S (Seattle)	W Mercer Way Off-Ramp	4.1	18%	6.1	12%	8.0	9%	6.9	4%	7.4	4%	6.8	9%	7.4
		77th Avenue SE Off-Ramp (via Outer Roadway)	4.8	8%	7.0	8%	9.0	7%	7.9	4%	8.1	4%	7.6	9%	8.4
		77th Avenue SE Off-Ramp (via Center Roadway)	4.8	17%	5.6	19%	6.3	0%		0%		0%		0%	
		Island Crest Way Left-Side Off-Ramp	4.9	35%	5.6	35%	6.4	68%	7.2	77%	8.0	77%	7.1	67%	8.1
		Island Crest Way Right-Side Off-Ramp	5.2	9%	7.9	11%	10.2	7%	0.0	5%	8.6	5%	8.0	6%	9.6
		E Mercer Way Off-Ramp	6.3	13%	9.2	15%	12.5	9%	9.6	10%	10.2	10%	9.2	9%	11.8
	International District Station	Mercer Island Station	5.1	0%		0%		0%		0%		0%		0%	
	Eastbound HOV Trips from 4th Avenue S to All Mercer Island Ramps (Weighted Average) =			6.5		8.1		7.0		8.3		7.3		8.5	
	Island Crest Way On-Ramp	I-90 at I-405 Overcrossing	2.8	3%	3.7	5%	4.2	5%	4.0	5%	3.4	5%	3.9	5%	4.1
	80th Avenue SE HOV On-Ramp		2.8	51%	2.7	60%	2.7	62%	2.6	62%	2.6	62%	2.7	62%	2.6

Table E-6. I-90 East Link Corridor HOV Mode Person Travel Times Weighted by Mercer Island Ramp: 2020 PM Peak Period (3:30-7:00 PM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2020 No Build		2020 Construction Option 1[a]		2020 Construction Option 2[b]		2020 Construction Option 2 Modified[c]		2020 Construction Option 3[a]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
	E Mercer Way On-Ramp		1.6	46%	2.0	35%	2.1	33%	1.8	33%	1.9	33%	2.0	33%	2.0
	Mercer Island Station	S Bellevue Station	2.8	0%		0%		0%		0%		0%		0%	
	Eastbound HOV Trips from All Mercer Island Ramps to I-90 at I-405 (Weighted Average) =			2.4		2.6		2.4		2.4		2.5		2.5	
All Eastbound HOV Trips to/from Mercer Island (Weighted Average) =				***3.9***		***4.8***		***4.7***		***5.1***		***4.7***		***5.5***	
All HOV Trips to/from Mercer Island Ramps (Weighted Average) =				**4.5**		**4.7**		**4.5**		**4.8**		**4.7**		**5.1**	

Note: Corridor travel times were weighted based on the percent of total Mercer Island HOV trips using each ramp by direction.

[b] Mercer Island SOVs allowed in HOV lanes and ICW ramp.

[c] Mercer Island SOVs not allowed in HOV lanes and ICW ramp.

[d] Modified scenario shifts the transition of the eastbound HOV lane to east of the Mount Baker Tunnel.

Table E-7. I-90 East Link Corridor Transit Mode (Bus and Light Rail) Person Travel Times Weighted by Mercer Island Ramp: 2020 PM Peak Period (3:30-7:00 PM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2020 No Build		2020 Construction Option 1[a]		2020 Construction Option 2[b]		2020 Construction Option 2 Modified[c]		2020 Construction Option 3[a]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
Westbound I-90	I-90 at I-405 Overcrossing	E Mercer Way Off-Ramp	1.6	0%		0%		0%		0%				0%	
		Island Crest Way Off-ramp	2.5	0%		0%		0%		0%				0%	
		80th Avenue SE HOV Off-Ramp	2.9	5%	5.9	2%	5.7	2%	5.4	2%	5.2			2%	5.3
	S Bellevue Station[d]	Mercer Island Station	2.8	95%	7.0	98%	6.7	98%	5.6	98%	5.5			98%	5.4
	Westbound Transit Trips from I-405 to All Mercer Island Ramps (Weighted Average) =			7.0		6.7		5.6		5.5				5.4	
	E Mercer Way On-Ramp	5th Avenue S via D2 Roadway (Seattle)[e]	6.1	0%		0%		0%		0%				0%	
	Island Crest Way On-Ramp (via Outer Roadway)		5.1	0%		0%		0%		0%				0%	
	Island Crest Way On-Ramp (via Center Roadway)		0.0	0%		0%		0%		0%				0%	
	77th Avenue SE On-Ramp (via Center Roadway)		0.0	0%		0%		0%		0%				0%	
	76th Avenue SE On-Ramp		4.4	100%	13.5	100%	13.5	100%	11.1	100%	11.1			100%	12.3
	W Mercer Way On-Ramp		3.9	0%		0%		0%		0%				0%	
	Mercer Island Station	International District Station	5.1	0%		0%		0%		0%				0%	
	Westbound Transit trips from All Mercer Island Ramps to 4th Avenue S (Weighted Average) =			13.5		13.5		11.1		11.1				12.3	
All Westbound Transit Trips to/from Mercer Island Ramps (Weighted Average) =				***12.0***		***12.1***		***10.0***		***10.0***				***10.9***	
Eastbound I-90	5th Avenue S via D2 Roadway (Seattle)[e]	W Mercer Way Off-Ramp	4.1	0%		0%		0%		0%		0%		0%	
		77th Avenue SE Off-Ramp (via Outer Roadway)	4.8	0%		0%		100%	14.6	100%	14.6	100%	14.0	100%	16.0
		77th Avenue SE Off-Ramp (via Center Roadway)	4.8	100%	10.0	100%	10.0	0%		0%		0%		0%	
		Island Crest Way Left-Side Off-Ramp	4.9	0%		0%		0%		0%		0%		0%	
		Island Crest Way Right-Side Off-Ramp	5.2	0%		0%		0%		0%		0%		0%	
		E Mercer Way Off-Ramp	6.3	0%		0%		0%		0%		0%		0%	
	International District Station	Mercer Island Station	5.1	0%		0%		0%		0%		0%		0%	
	Eastbound Transit Trips from 4th Avenue S to All Mercer Island Ramps (Weighted Average) =			10.0		10.0		14.6		14.6		14.0		16.0	
	Island Crest Way On-Ramp	I-90 at I-405 Overcrossing	2.8	0%		0%		0%		0%		0%		0%	
	80th Avenue SE HOV On-Ramp		2.8	5%	3.9	5%	3.9	5%	4.6	5%	4.6	5%	4.7	5%	4.7

Table E-7. I-90 East Link Corridor Transit Mode (Bus and Light Rail) Person Travel Times Weighted by Mercer Island Ramp: 2020 PM Peak Period (3:30-7:00 PM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2020 No Build		2020 Construction Option 1[a]		2020 Construction Option 2[b]		2020 Construction Option 2 Modified[c]		2020 Construction Option 3[a]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
	E Mercer Way On-Ramp		1.6	0%		0%		0%		0%		0%		0%	
	Mercer Island Station	S Bellevue Station[d]	2.8	95%	4.5	95%	4.6	95%	4.6	95%	4.5	95%	4.6	95%	4.7
	Eastbound Transit Trips from All Mercer Island Ramps to I-90 at I-405 (Weighted Average) =			4.5		4.5		4.6		4.5		4.6		4.7	
All Eastbound Transit Trips to/from Mercer Island (Weighted Average) =				***9.5***		***9.8***		***14.2***		***14.1***		***13.6***		***15.5***	
All Transit Trips to/from Mercer Island Ramps (Weighted Average) =				**10.1**		**10.3**		**13.2**		**13.1**		**12.8**		**14.4**	

Note: Corridor travel times were weighted based on the percent of total Mercer Island bus and light rail trips using each ramp by direction.

[a] Mercer Island SOVs allowed in HOV lanes and ICW ramp.

[b] Mercer Island SOVs not allowed in HOV lanes and ICW ramp.

[c] Modified scenario shifts the transition of the eastbound HOV lane to east of the Mount Baker Tunnel.

[d] For Existing and No Build conditions, transit between the S Bellevue Park-and-Ride and Mercer Island Transit Center is the Route 550 bus. For the Build condition, transit is light rail between the S Bellevue Station and Mercer Island Station.

[e] For Existing and No Build conditions, transit to/from Seattle is via the D2 Roadway and 5th Avenue S.

Table E-8. I-90 East Link Corridor (All Modes Combined) Person Travel Times Weighted by Mercer Island Ramp: 2020 PM Peak Period (3:30-7:00 PM) - Updated DRAFT

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2020 No Build		2020 Construction Option 1[a]		2020 Construction Option 2[b]		2020 Construction Option 2 Modified[c]		2020 Construction Option 3[a]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
Westbound I-90	I-90 at I-405 Overcrossing	E Mercer Way Off-Ramp	1.6	49%	3.3	48%	6.9	48%	4.1	48%	4.1			48%	4.2
		Island Crest Way Off-Ramp	2.8	23%	7.2	23%	11.9	23%	6.2	23%	6.8			23%	5.8
		80th Avenue SE HOV Off-Ramp	2.9	27%	3.7	28%	3.5	28%	3.3	28%	3.3			28%	3.2
	South Bellevue Station[d]	Mercer Island Transit Center	2.8	1%	7.0	1%	6.7	1%	5.6	1%	5.5			1%	5.4
	Westbound Trips from I-405 to All Mercer Island Ramps (Person Weighted Average) =			4.4		7.1		4.4		4.5				4.3	
	E Mercer Way On-Ramp	4th Avenue S (Seattle)[6]	6.1	10%	13.3	9%	13.9	9%	8.3	9%	11.7			9%	8.6
	Island Crest Way On-Ramp (via Outer Roadway)		5.1	13%	8.5	15%	7.9	32%	6.4	33%	6.1			32%	6.8
	Island Crest Way On-Ramp (via Center Roadway)		0.0	0%		0%		0%		0%				0%	
	77th Avenue SE On-Ramp (via Center Roadway)		0.0	0%		0%		0%		0%				0%	
	76th Avenue SE On-Ramp		4.4	26%	7.4	29%	7.7	24%	6.4	25%	9.1			25%	7.5
	W Mercer Way On-Ramp		3.9	51%	4.8	47%	4.9	35%	4.8	33%	7.0			34%	5.8
	Mercer Island Transit Center	International District Station	5.1	0%		0%		0%	0.0	0%	0.0			0%	0.0
	Westbound trips from All Mercer Island Ramps to 4th Avenue S (Person Weighted Average) =			6.8		6.9		6.0		7.6				6.8	
All Westbound Trips to/from Mercer Island Ramps (Weighted Average) =				***5.4***		***7.0***		***5.1***		***5.9***				***5.4***	
Eastbound I-90	4th Avenue S (Seattle)[e]	W Mercer Way Off-Ramp	4.1	13%	6.0	12%	8.1	12%	6.9	11%	9.6	11%	7.5	12%	7.3
		77th Avenue SE Off-Ramp (via Outer Roadway)	4.8	10%	7.0	10%	9.4	27%	10.3	29%	11.6	29%	10.0	27%	11.1
		77th Avenue SE Off-Ramp (via Center Roadway)	4.8	27%	6.9	29%	7.6	0%		0%		0%		0%	
		Island Crest Way Left-Side Off-Ramp	4.9	30%	5.6	30%	6.4	39%	7.2	22%	8.0	22%	7.1	38%	8.1
		Island Crest Way Right-Side Off-Ramp	5.2	10%	7.7	10%	10.4	13%	8.6	29%	10.7	29%	8.8	15%	9.6
		E Mercer Way Off-Ramp	6.3	10%	9.8	9%	13.5	9%	10.3	9%	11.4	9%	10.7	8%	12.6
	International District Station	Mercer Island Transit Center	5.1	0%		0%		0%	0.0	0%	0.0	0%	0.0	0%	0.0
	Eastbound Trips from 4th Avenue S to All Mercer Island Ramps (Person Weighted Average) =			6.8		8.3		8.4		10.3		8.8		9.4	
	Island Crest Way On-Ramp	I-90 at I-405 Overcrossing	2.8	42%	4.4	43%	5.2	45%	4.5	45%	3.7	45%	4.6	45%	4.8

Table E-8. I-90 East Link Corridor (All Modes Combined) Person Travel Times Weighted by Mercer Island Ramp: 2020 PM Peak Period (3:30-7:00 PM) - Updated DRAFT

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2020 No Build		2020 Construction Option 1[a]		2020 Construction Option 2[b]		2020 Construction Option 2 Modified[c]		2020 Construction Option 3[a]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
	80th Avenue SE HOV On-Ramp		2.8	19%	2.7	20%	2.7	20%	2.6	20%	2.6	20%	2.7	20%	2.6
	E Mercer Way On-Ramp		1.6	38%	2.2	36%	2.4	34%	2.0	34%	2.1	34%	2.3	34%	2.2
	Mercer Island Transit Center	South Bellevue Station[d]	2.8	1%	4.5	1%	4.6	1%	4.6	1%	4.5	1%	4.6	1%	4.7
	Eastbound Trips from All Mercer Island Ramps to I-90 at I-405 (Person Weighted Average) =			3.2		3.7		3.2		2.9		3.4		3.5	
All Eastbound Trips to/from Mercer Island (Weighted Average) =				***4.8***		***5.8***		***5.7***		***6.5***		***6.0***		***6.3***	
All Trips to/from Mercer Island Ramps (Weighted Average) =				**5.1**		**6.4**		**5.4**		**6.2**		**6.0**		**5.9**	

Note: Corridor travel times were weighted based on the percent of total Mercer Island person trips using each ramp by direction. All modes include SOV, HOV, and transit (bus or light rail depending on the scenario).

[a] Mercer Island SOVs allowed in HOV lanes and ICW ramp.

[b] Mercer Island SOVs not allowed in HOV lanes and ICW ramp.

[c] Modified scenario shifts the transition of the eastbound HOV lane to east of the Mount Baker Tunnel.

[d] For Existing and No Build conditions, transit between the S Bellevue Park-and-Ride and Mercer Island Transit Center is the Route 550 bus. For the Build condition, transit is light rail between the S Bellevue Station and Mercer Island Station.

[e] For Existing and No Build conditions, transit to/from Seattle is via the D2 Roadway and 5th Avenue S.

Table E-9. I-90 East Link Corridor SOV Mode (Auto and Truck) Person Travel Times Weighted by Mercer Island Ramp: 2035 AM Peak Period (6:30-10:00 AM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2035 No Build		2035 Build Option 1[a]		2035 Build Option 2[b]		2035 Build Option 2 Modified[c]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
Westbound I-90	I-90 at I-405 Overcrossing	E Mercer Way Off-Ramp	1.6	46%	3.7	44%	6.4	44%	5.3	44%	5.9		
		Island Crest Way Off-Ramp	2.8	54%	7.2	56%	10.4	56%	9.5	56%	11.1		
		80th Avenue SE HOV Off-Ramp	2.9	0%		0%		0%		0%			
	S Bellevue Station	Mercer Island Station	2.8	0%		0%		0%		0%			
	Westbound SOV Trips from I-405 to All Mercer Island Ramps (Weighted Average) =			5.6		8.6		7.6		8.8			
	E Mercer Way On-Ramp	4th Avenue S (Seattle)	6.1	12%	15.9	11%	17.0	11%	14.6	11%	18.0		
	Island Crest Way On-Ramp (via Outer Roadway)		5.1	4%	12.3	5%	12.7	37%	9.5	0%			
	Island Crest Way On-Ramp (via Center Roadway)		4.7	31%	6.8	30%	7.0	0%		0%			
	77th Avenue SE On-Ramp (via Center Roadway)		4.6	26%	6.7	25%	6.9	0%		0%			
	76th Avenue SE On-Ramp		4.4	11%	11.6	12%	12.5	29%	9.1	48%	12.5		
	W Mercer Way On-Ramp		3.9	16%	9.8	17%	10.6	23%	7.7	41%	9.7		
	Mercer Island Station	International District Station	5.1	0%		0%		0%		0%			
	Westbound SOV trips from All Mercer Island Ramps to 4th Avenue S (Weighted Average) =			9.1		9.6		9.5		12.0			
All SOV Westbound Trips to/from Mercer Island Ramps (Weighted Average) =				***7.2***		***9.1***		***8.5***		***10.3***			
Eastbound I-90	4th Avenue S (Seattle)	W Mercer Way Off-Ramp	4.1	19%	7.7	20%	10.5	18%	5.9	19%	12.5	19%	6.2
		77th Avenue SE Off-Ramp (via Outer Roadway)	4.8	27%	8.4	25%	11.2	23%	7.2	26%	13.1	26%	7.0
		77th Avenue SE Off-Ramp (via Center Roadway)	4.8	0%		0%		0%		0%		0%	
		Island Crest Way Left-Side Off-Ramp	4.9	0%		0%		16%	5.9	0%		0%	
		Island Crest Way Right-Side Off-Ramp	5.2	30%	8.8	30%	11.5	19%	7.9	30%	13.5	30%	7.6
		E Mercer Way Off-Ramp	6.3	24%	9.9	25%	12.6	24%	9.3	25%	14.7	25%	9.8
	International District Station	Mercer Island Station	5.1	0%		0%		0%		0%		0%	
	Eastbound SOV Trips from 4th Avenue S to All Mercer Island Ramps (Weighted Average) =			8.7		11.5		7.4		13.5		7.7	
	Island Crest Way On-Ramp	I-90 at I-405 Overcrossing	2.8	55%	3.4	57%	3.3	59%	4.3	59%	3.4	59%	3.9
	80th Avenue SE HOV On-Ramp		2.8	0%		0%		0%		0%		0%	
	E Mercer Way On-Ramp		1.6	45%	1.9	43%	2.0	41%	2.0	41%	1.9	41%	1.9
	Mercer Island Station	S Bellevue Station	2.8	0%		0%		0%		0%		0%	
	Eastbound SOV Trips from All Mercer Island Ramps to I-90 at I-405 (Weighted Average) =			2.8		2.7		3.4		2.8		3.1	

Table E-9. I-90 East Link Corridor SOV Mode (Auto and Truck) Person Travel Times Weighted by Mercer Island Ramp: 2035 AM Peak Period (6:30-10:00 AM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2035 No Build		2035 Build Option 1[a]		2035 Build Option 2[b]		2035 Build Option 2 Modified[c]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
All SOV Eastbound Trips to/from Mercer Island (Weighted Average) =				***4.9***		***5.9***		***4.8***		***6.6***		***4.7***	
All SOV Trips to/from Mercer Island Ramps (Weighted Average) =				**6.2**		**7.7**		**6.8**		**8.6**		**7.7**	

Note: Corridor travel times were weighted based on the percent of total Mercer Island SOV (auto and truck) trips using each ramp by direction.

[a] Mercer Island SOVs allowed in HOV lanes and ICW ramp.

[b] Mercer Island SOVs not allowed in HOV lanes and ICW ramp.

[c] Modified scenario shifts the transition of the eastbound HOV lane to east of the Mount Baker Tunnel.

Table E-10. I-90 East Link Corridor HOV Mode Person Travel Times Weighted by Mercer Island Ramp: 2035 AM Peak Period (6:30-10:00 AM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2035 No Build		2035 Build Option 1[a]		2035 Build Option 2[b]		2035 Build Option 2 Modified[c]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
Westbound I-90	I-90 at I-405 Overcrossing	E Mercer Way Off-Ramp	1.6	25%	2.7	33%	3.4	36%	2.9	35%	3.1		
		Island Crest Way Off-Ramp	2.8	19%	4.4	15%	4.8	15%	4.9	14%	5.1		
		80th Avenue SE HOV Off-Ramp	2.9	56%	3.4	52%	3.6	49%	4.8	51%	4.0		
	S Bellevue Station	Mercer Island Station	2.8	0%		0%		0%		0%			
	Westbound HOV Trips from I-405 to All Mercer Island Ramps (Weighted Average) =			3.4		3.7		4.2		3.8			
	E Mercer Way On-Ramp	4th Avenue S (Seattle)	6.1	10%	15.4	14%	17.7	14%	12.9	14%	8.9		
	Island Crest Way On-Ramp (via Outer Roadway)		5.1	3%	14.1	3%	15.0	38%	9.4	72%	7.3		
	Island Crest Way On-Ramp (via Center Roadway)		4.7	31%	6.8	32%	6.8	0%		0%			
	77th Avenue SE On-Ramp (via Center Roadway)		4.6	23%	6.8	21%	7.1	0%		0%			
	76th Avenue SE On-Ramp		4.4	10%	11.9	7%	13.3	23%	9.1	7%	7.7		
	W Mercer Way On-Ramp		3.9	23%	9.5	23%	10.4	25%	7.3	7%	6.5		
	Mercer Island Station	International District Station	5.1	0%		0%		0%		0%			
	Westbound HOV trips from All Mercer Island Ramps to 4th Avenue S (Weighted Average) =			9.0		9.9		9.3		7.5			
All Westbound HOV Trips to/from Mercer Island Ramps (Weighted Average) =				***7.6***		***8.2***		***7.5***		***6.4***			
Eastbound I-90	4th Avenue S (Seattle)	W Mercer Way Off-Ramp	4.1	19%	7.8	15%	10.5	14%	5.9	8%	8.5	8%	6.0
		77th Avenue SE Off-Ramp (via Outer Roadway)	4.8	27%	8.2	30%	11.1	19%	7.2	16%	9.2	16%	7.6
		77th Avenue SE Off-Ramp (via Center Roadway)	4.8	0%		0%		0%		0%		0%	
		Island Crest Way Left-Side Off-Ramp	4.9	0%		0%		42%	5.9	58%	9.0	58%	6.9
		Island Crest Way Right-Side Off-Ramp	5.2	30%	8.6	31%	11.6	0%		0%		0%	
		E Mercer Way Off-Ramp	6.3	24%	9.9	24%	12.3	25%	8.4	18%	10.6	18%	8.4
	International District Station	Mercer Island Station	5.1	0%		0%		0%		0%		0%	
	Eastbound HOV Trips from 4th Avenue S to All Mercer Island Ramps (Weighted Average) =			8.6		11.4		6.7		9.2		7.2	
	Island Crest Way On-Ramp	I-90 at I-405 Overcrossing	2.8	7%	3.4	7%	3.3	10%	4.0	7%	3.3	7%	3.7
	80th Avenue SE HOV On-Ramp		2.8	62%	2.6	46%	2.6	45%	2.6	45%	2.6	45%	2.6
	E Mercer Way On-Ramp		1.6	31%	1.7	47%	1.7	45%	1.7	48%	1.7	48%	1.7
	Mercer Island Station	S Bellevue Station	2.8	0%		0%		0%		0%		0%	
	Eastbound HOV Trips from All Mercer Island Ramps to I-90 at I-405 (Weighted Average) =			2.4		2.2		2.4		2.2		2.3	

Table E-10. I-90 East Link Corridor HOV Mode Person Travel Times Weighted by Mercer Island Ramp: 2035 AM Peak Period (6:30-10:00 AM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2035 No Build		2035 Build Option 1[a]		2035 Build Option 2[b]		2035 Build Option 2 Modified[c]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
All Eastbound HOV Trips to/from Mercer Island (Weighted Average) =				***5.0***		***5.4***		***3.9***		***5.1***		***4.3***	
All HOV Trips to/from Mercer Island Ramps (Weighted Average) =				**6.6**		**6.9**		**5.8**		**5.7**		**5.3**	

Note: Corridor travel times were weighted based on the percent of total Mercer Island HOV trips using each ramp by direction.

[a] Mercer Island SOVs allowed in HOV lanes and ICW ramp.

[b] Mercer Island SOVs not allowed in HOV lanes and ICW ramp.

[c] Modified scenario shifts the transition of the eastbound HOV lane to east of the Mount Baker Tunnel.

Table E-11. I-90 East Link Corridor Transit Mode (Bus and Light Rail) Person Travel Times Weighted by Mercer Island Ramp: 2035 AM Peak Period (6:30-10:00 AM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2035 No Build		2035 Build Option 1[a]		2035 Build Option 2[b]		2035 Build Option 2 Modified[c]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
Westbound I-90	I-90 at I-405 Overcrossing	E Mercer Way Off-Ramp	1.6	0%		0%		0%		0%			
		Island Crest Way Off-ramp	2.5	0%		0%		0%		0%			
		80th Avenue SE HOV Off-Ramp	2.9	5%	5.2	7%	5.4	27%	6.3	27%	5.5		
	S Bellevue Station[d]	Mercer Island Station	2.8	95%	5.0	93%	5.0	73%	4.0	73%	4.0		
	Westbound Transit Trips from I-405 to All Mercer Island Ramps (Weighted Average) =			5.0		5.0		4.6		4.4			
	E Mercer Way On-Ramp	5th Avenue S via D2 Roadway (Seattle)[6]	6.1	0%		0%		0%		0%			
	Island Crest Way On-Ramp (via Outer Roadway)		5.1	0%		0%		0%		0%			
	Island Crest Way On-Ramp (via Center Roadway)		4.7	0%		0%		0%		0%			
	77th Avenue SE On-Ramp (via Center Roadway)		4.6	100%	12.1	100%	12.5	0%		0%			
	76th Avenue SE On-Ramp		4.4	0%		0%		0%		0%			
	W Mercer Way On-Ramp		3.9	0%		0%		0%		0%			
	Mercer Island Station	International District Station	5.1	0%		0%		100%	10.0	100%	10.0		
	Westbound Transit trips from All Mercer Island Ramps to 4th Avenue S (Weighted Average) =			12.1		12.5		10.0		10.0			
All Westbound Transit Trips to/from Mercer Island Ramps (Weighted Average) =				***11.5***		***12.2***		***9.5***		***9.5***			
Eastbound I-90	5th Avenue S via D2 Roadway (Seattle)[e]	W Mercer Way Off-Ramp	4.1	0%		0%		0%		0%		0%	
		77th Avenue SE Off-Ramp (via Outer Roadway)	4.8	100%	11.4	100%	11.5	0%		0%		0%	
		77th Avenue SE Off-Ramp (via Center Roadway)	4.8	0%		0%		0%		0%		0%	
		Island Crest Way Left-Side Off-Ramp	4.9	0%		0%		0%		0%		0%	
		Island Crest Way Right-Side Off-Ramp	5.2	0%		0%		0%		0%		0%	
		E Mercer Way Off-Ramp	6.3	0%		0%		0%		0%		0%	
	International District Station	Mercer Island Station	5.1	0%		0%		100%	10.0	100%	10.0	100%	10.0
	Eastbound Transit Trips from 4th Avenue S to All Mercer Island Ramps (Weighted Average) =			11.4		11.5		10.0		10.0		10.0	
	Island Crest Way On-Ramp	I-90 at I-405 Overcrossing	2.8	0%		0%		0%		0%		0%	
	80th Avenue SE HOV On-Ramp		2.5	5%	4.1	2%	4.0	9%	4.0	9%	4.0	9%	4.0
	E Mercer Way On-Ramp		2.5	0%		0%		0%		0%		0%	
	Mercer Island Station	S Bellevue Station[d]	2.8	95%	4.5	98%	4.5	91%	4.0	91%	4.0	91%	4.0

Table E-11. I-90 East Link Corridor Transit Mode (Bus and Light Rail) Person Travel Times Weighted by Mercer Island Ramp: 2035 AM Peak Period (6:30-10:00 AM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2035 No Build		2035 Build Option 1[a]		2035 Build Option 2[b]		2035 Build Option 2 Modified[c]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
	Eastbound Transit Trips from All Mercer Island Ramps to I-90 at I-405 (Weighted Average) =			4.5		4.5		4.0		4.0		4.0	
All Eastbound Transit Trips to/from Mercer Island (Weighted Average) =				***9.8***		***10.1***		***8.8***		***8.8***		***8.8***	
All Transit Trips to/from Mercer Island Ramps (Weighted Average) =				**11.1**		**11.7**		**9.3**		**9.3**		**9.3**	

Note: Corridor travel times were weighted based on the percent of total Mercer Island bus and light rail trips using each ramp by direction.

[a] Mercer Island SOV allowed in HOV lanes and ICW Ramp

[b] Mercer Island SOV not allowed in HOV lanes and ICW Ramp.

[c] Modified scenario shifts the transition of the eastbound HOV lane to east of the Mount Baker Tunnel.

[d] For Existing and No Build conditions, transit between the S Bellevue Park-and-Ride and Mercer Island Transit Center is the Route 550 bus. For the Build condition, transit is light rail between the S Bellevue Station and Mercer Island Station.

[e] For Existing and No Build conditions, transit to/from Seattle is via the D2 Roadway and 5th Avenue S.

Table E-12. I-90 East Link Corridor (All Modes Combined) Person Travel Times Weighted by Mercer Island Ramp: 2035 AM Peak Period (6:30-10:00 AM) - Updated DRAFT

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2035 No Build		2035 Build Option 1[a]		2035 Build Option 2[b]		2035 Build Option 2 Modified[c]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
Westbound I-90	I-90 at I-405 Overcrossing	E Mercer Way Off-Ramp	1.6	40%	3.6	41%	5.7	41%	4.8	41%	5.3		
		Island Crest Way Off-Ramp	2.8	45%	6.9	45%	9.9	44%	9.1	44%	10.6		
		80th Avenue SE HOV Off-Ramp	2.9	14%	3.4	13%	3.6	14%	4.9	14%	4.0		
	South Bellevue Station[d]	Mercer Island Transit Center	2.8	1%	5.0	1%	5.0	1%	4.0	1%	4.0		
	Westbound Trips from I-405 to All Mercer Island Ramps (Weighted Average) =			5.0		7.3		6.7		7.5			
	E Mercer Way On-Ramp	4th Avenue S (Seattle)[e]	6.1	11%	15.7	11%	17.2	11%	13.9	11%	14.5		
	Island Crest Way On-Ramp (via Outer Roadway)		5.1	3%	12.7	4%	13.3	34%	9.4	22%	7.3		
	Island Crest Way On-Ramp (via Center Roadway)		4.7	29%	6.8	28%	6.9	0%		0%			
	77th Avenue SE On-Ramp (via Center Roadway)		4.6	31%	8.1	31%	8.6	0%		0%			
	76th Avenue SE On-Ramp		4.4	10%	11.7	10%	12.7	24%	9.1	30%	12.1		
	W Mercer Way On-Ramp		3.9	16%	9.7	16%	10.5	21%	7.5	26%	9.4		
	Mercer Island Transit Center	International District Station	5.1	0%		0%		10%	10.0	11%	10.0		
	Westbound trips from All Mercer Island Ramps to 4th Avenue S (Weighted Average) =			9.3		10.0		9.5		10.4			
All Westbound Trips to/from Mercer Island Ramps (Weighted Average) =				***7.2***		***8.7***		***8.1***		***8.9***			
Eastbound I-90	4th Avenue S (Seattle)[e]	W Mercer Way Off-Ramp	4.1	18%	7.7	18%	10.5	16%	5.9	15%	11.8	15%	6.2
		77th Avenue SE Off-Ramp (via Outer Roadway)	4.8	30%	8.7	29%	11.2	21%	7.2	22%	12.3	22%	7.1
		77th Avenue SE Off-Ramp (via Center Roadway)	4.8	0%		0%		0%		0%		0%	
		Island Crest Way Left-Side Off-Ramp	4.9	0%		0%		21%	5.9	17%	9.0	17%	6.9
		Island Crest Way Right-Side Off-Ramp	5.2	29%	8.7	29%	11.6	13%	7.9	20%	13.5	20%	7.6
		E Mercer Way Off-Ramp	6.3	23%	9.9	24%	12.5	23%	9.0	20%	13.7	20%	9.5
	International District Station	Mercer Island Transit Center	5.1	0%		0%		6%	10.0	6%	10.0	6%	10.0
	Eastbound Trips from 4th Avenue S to All Mercer Island Ramps (Weighted Average) =			8.8		11.5		7.4		12.1		7.7	
	Island Crest Way On-Ramp	I-90 at I-405 Overcrossing	2.8	46%	3.4	44%	3.3	45%	4.3	45%	3.4	45%	3.9
	80th Avenue SE HOV On-Ramp		2.8	11%	2.6	12%	2.6	12%	2.6	12%	2.6	12%	2.6

Table E-12. I-90 East Link Corridor (All Modes Combined) Person Travel Times Weighted by Mercer Island Ramp: 2035 AM Peak Period (6:30-10:00 AM) - Updated DRAFT

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2035 No Build		2035 Build Option 1[a]		2035 Build Option 2[b]		2035 Build Option 2 Modified[c]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
	E Mercer Way On-Ramp		1.6	42%	1.9	43%	1.9	42%	1.9	42%	1.9	42%	1.9
	Mercer Island Transit Center	South Bellevue Station[d]	2.8	1%	4.5	1%	4.5	1%	4.0	1%	4.0	1%	4.0
	Eastbound Trips from All Mercer Island Ramps to I-90 at I-405 (Weighted Average) =			2.7		2.6		3.1		2.7		2.9	
All Eastbound Trips to/from Mercer Island (Weighted Average) =				***5.0***		***5.9***		***4.7***		***6.2***		***4.7***	
All Trips to/from Mercer Island Ramps (Weighted Average) =				**6.3**		**7.5**		**6.6**		**7.8**		**7.1**	

Note: Corridor travel times were weighted based on the percent of total Mercer Island trips using each ramp by direction. All modes include SOV, HOV, trucks, and buses.

[a] Mercer Island SOVs allowed in HOV lanes and ICW ramp.

[b] Mercer Island SOVs not allowed in HOV lanes and ICW ramp.

[c] Modified scenario shifts the transition of the eastbound HOV lane to east of the Mount Baker Tunnel.

[d] For Existing and No Build conditions, transit between the S Bellevue Park-and-Ride and Mercer Island Transit Center is the Route 550 bus. For the Build condition, transit is light rail between the S Bellevue Station and Mercer Island Station.

[e] For Existing and No Build conditions, transit to/from Seattle is via the D2 Roadway and 5th Avenue S.

Table E-13. I-90 East Link Corridor SOV Mode (Auto and Truck) Person Travel Times Weighted by Mercer Island Ramp: 2035 PM Peak Period (3:30-7:00 PM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2035 No Build		2035 Build Option 1[a]		2035 Build Option 2[b]		2035 Build Option 2 Modified[c]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
Westbound I-90	I-90 at I-405 Overcrossing	E Mercer Way Off-Ramp	1.6	67%	3.4	67%	8.2	64%	4.9	64%	5.1		
		Island Crest Way Off-Ramp	2.8	33%	7.5	33%	13.0	36%	6.9	36%	7.9		
		80th Avenue SE HOV Off-Ramp	2.9	0%		0%		0%		0%			
	S Bellevue Station	Mercer Island Station	2.8	0%		0%		0%		0%			
	Westbound SOV Trips from I-405 to All Mercer Island Ramps (Weighted Average) =			4.7		9.8		5.6		6.1			
	E Mercer Way On-Ramp	4th Avenue S (Seattle)	6.1	10%	13.6	10%	14.0	10%	8.9	10%	14.3		
	Island Crest Way On-Ramp (via Outer Roadway)		5.1	18%	8.5	14%	8.1	25%	6.4	0%			
	Island Crest Way On-Ramp (via Center Roadway)		0.0	0%		0%		0%		0%			
	77th Avenue SE On-Ramp (via Center Roadway)		0.0	0%		0%		0%		0%			
	76th Avenue SE On-Ramp		4.4	34%	6.9	30%	7.0	30%	6.0	38%	9.4		
	W Mercer Way On-Ramp		3.9	38%	5.0	46%	5.0	35%	5.0	52%	7.5		
	Mercer Island Station	International District Station	5.1	0%		0%		0%		0%			
	Westbound SOV trips from All Mercer Island Ramps to 4th Avenue S (Weighted Average) =			7.1		7.0		6.0		8.9			
All Westbound SOV Trips to/from Mercer Island Ramps (Weighted Average) =				***5.6***		***8.7***		***5.8***		***7.2***			
Eastbound I-90	4th Avenue S (Seattle)	W Mercer Way Off-Ramp	4.1	13%	6.0	14%	9.2	15%	6.4	16%	11.3	16%	9.2
		77th Avenue SE Off-Ramp (via Outer Roadway)	4.8	12%	7.1	12%	10.6	26%	7.4	31%	11.8	31%	9.8
		77th Avenue SE Off-Ramp (via Center Roadway)	4.8	22%	5.6	21%	6.9	0%		0%		0%	
		Island Crest Way Left-Side Off-Ramp	4.9	32%	5.6	33%	6.9	29%	6.5	0%		0%	
		Island Crest Way Right-Side Off-Ramp	5.2	11%	7.7	10%	11.7	21%	8.1	45%	12.2	45%	10.2
		E Mercer Way Off-Ramp	6.3	10%	10.2	10%	15.1	9%	10.0	8%	13.3	8%	11.4
	International District Station	Mercer Island Station	5.1	0%		0%		0%		0%		0%	
	Eastbound SOV Trips from 4th Avenue S to All Mercer Island Ramps (Weighted Average) =			6.5		8.9		7.4		12.0		10.0	
	Island Crest Way On-Ramp	I-90 at I-405 Overcrossing	2.8	67%	4.4	63%	4.5	65%	4.4	65%	3.3	65%	3.4
	80th Avenue SE HOV On-Ramp		2.8	0%		0%		0%		0%		0%	
	E Mercer Way On-Ramp		1.6	33%	2.4	37%	2.0	35%	2.0	35%	2.0	35%	2.0
	Mercer Island Station	S Bellevue Station	2.8	0%		0%		0%		0%		0%	
	Eastbound SOV Trips from All Mercer Island Ramps to I-90 at I-405 (Weighted Average) =			3.7		3.5		3.5		2.8		2.9	

Table E-13. I-90 East Link Corridor SOV Mode (Auto and Truck) Person Travel Times Weighted by Mercer Island Ramp: 2035 PM Peak Period (3:30-7:00 PM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2035 No Build		2035 Build Option 1[a]		2035 Build Option 2[b]		2035 Build Option 2 Modified[c]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
All Eastbound SOV Trips to/from Mercer Island (Weighted Average) =				***5.0***		***5.9***		***5.2***		***7.1***		***6.2***	
All SOV Trips to/from Mercer Island Ramps (Weighted Average) =				**5.3**		**7.3**		**5.5**		**7.1**		**6.8**	

Note: Corridor travel times were weighted based on the percent of total Mercer Island SOV (Auto and truck) trips using each ramp by direction.

[a] Mercer Island SOVs allowed in HOV lanes and ICW ramp.

[b] Mercer Island SOVs not allowed in HOV lanes and ICW ramp.

[c] Modified scenario shifts the transition of the eastbound HOV lane to east of the Mount Baker Tunnel.

Table E-14. I-90 East Link Corridor HOV Mode Person Travel Times Weighted by Mercer Island Ramp: 2035 PM Peak Period (3:30-7:00 PM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2035 No Build		2035 Build Option 1[a]		2035 Build Option 2[b]		2035 Build Option 2 Modified[c]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
Westbound I-90	I-90 at I-405 Overcrossing	E Mercer Way Off-Ramp	1.6	16%	2.9	13%	3.9	13%	2.7	13%	2.8		
		Island Crest Way Off-Ramp	2.8	7%	5.0	3%	5.4	3%	3.9	3%	4.5		
		80th Avenue SE HOV Off-Ramp	2.9	77%	3.7	84%	3.7	84%	3.7	84%	4.0		
	S Bellevue Station	Mercer Island Station	2.8	0%		0%		0%		0%			
	Westbound HOV Trips from I-405 to All Mercer Island Ramps (Weighted Average) =			3.7		3.8		3.6		3.9			
	E Mercer Way On-Ramp	4th Avenue S (Seattle)	6.1	10%	12.9	10%	13.5	10%	7.6	9%	7.6		
	Island Crest Way On-Ramp (via Outer Roadway)		5.1	7%	8.5	18%	8.1	47%	6.5	83%	6.3		
	Island Crest Way On-Ramp (via Center Roadway)		0.0	0%		0%		0%		0%			
	77th Avenue SE On-Ramp (via Center Roadway)		0.0	0%		0%		0%		0%			
	76th Avenue SE On-Ramp		4.4	14%	6.9	20%	7.0	10%	6.0	3%	5.8		
	W Mercer Way On-Ramp		3.9	69%	4.8	52%	4.8	33%	4.8	5%	5.4		
	Mercer Island Station	International District Station	5.1	0%		0%		0%		0%			
	Westbound HOV trips from All Mercer Island Ramps to 4th Avenue S (Weighted Average) =			6.1		6.7		6.0		6.3			
All Westbound HOV Trips to/from Mercer Island Ramps (Weighted Average) =				***4.9***		***5.1***		***4.6***		***5.0***			
Eastbound I-90	4th Avenue S (Seattle)	W Mercer Way Off-Ramp	4.1	18%	6.1	15%	9.3	11%	6.4	4%	9.2	4%	9.6
		77th Avenue SE Off-Ramp (via Outer Roadway)	4.8	8%	7.0	7%	10.8	9%	7.4	4%	9.6	4%	9.9
		77th Avenue SE Off-Ramp (via Center Roadway)	4.8	17%	5.6	20%	6.9	0%		0%		0%	
		Island Crest Way Left-Side Off-Ramp	4.9	35%	5.6	32%	6.9	58%	6.5	73%	9.6	73%	9.8
		Island Crest Way Right-Side Off-Ramp	5.2	9%	7.9	13%	11.7	8%	8.0	5%	10.0	5%	10.3
		E Mercer Way Off-Ramp	6.3	13%	9.2	13%	13.3	14%	8.8	14%	11.4	14%	11.6
	International District Station	Mercer Island Station	5.1	0%		0%		0%		0%		0%	
	Eastbound HOV Trips from 4th Avenue S to All Mercer Island Ramps (Weighted Average) =			6.5		9.0		7.0		9.8		10.1	

Table E-14. I-90 East Link Corridor HOV Mode Person Travel Times Weighted by Mercer Island Ramp: 2035 PM Peak Period (3:30-7:00 PM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2035 No Build		2035 Build Option 1[a]		2035 Build Option 2[b]		2035 Build Option 2 Modified[c]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
	Island Crest Way On-Ramp	I-90 at I-405 Overcrossing	2.8	3%	3.7	5%	4.0	5%	4.0	5%	3.3	5%	3.3
	80th Avenue SE HOV On-Ramp		2.8	51%	2.7	61%	2.6	63%	2.7	63%	2.5	63%	2.6
	E Mercer Way On-Ramp		1.6	46%	2.0	34%	1.8	32%	1.7	32%	1.7	32%	1.7
	Mercer Island Station	S Bellevue Station	2.8	0%		0%		0%		0%		0%	
	Eastbound HOV Trips from All Mercer Island Ramps to I-90 at I-405 (Weighted Average) =			2.4		2.4		2.5		2.3		2.4	
All Eastbound HOV Trips to/from Mercer Island (Weighted Average) =				***3.9***		***5.2***		***4.5***		***5.6***		***5.7***	
All HOV Trips to/from Mercer Island Ramps (Weighted Average) =				**4.5**		**5.1**		**4.6**		**5.2**		**5.3**	

Note: Corridor travel times were weighted based on the percent of total Mercer Island HOV trips using each ramp by direction.

[a] Mercer Island SOVs allowed in HOV lanes and ICW ramp.

[b] Mercer Island SOVs not allowed in HOV lanes and ICW ramp.

[c] Modified scenario shifts the transition of the eastbound HOV lane to east of the Mount Baker Tunnel.

Table E-15. I-90 East Link Corridor Transit Mode (Bus and Light Rail) Person Travel Times Weighted by Mercer Island Ramp: 2035 PM Peak Period (3:30-7:00 PM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2035 No Build		2035 Build Option 1[a]		2035 Build Option 2[b]		2035 Build Option 2 Modified[c]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
Westbound I-90	I-90 at I-405 Overcrossing	E Mercer Way Off-Ramp	1.6	0%		0%		0%		0%			
		Island Crest Way Off-ramp	2.5	0%		0%		0%		0%			
		80th Avenue SE HOV Off-Ramp	2.9	5%	5.9	2%	5.9	9%	5.2	9%	5.5		
	S Bellevue Station[d]	Mercer Island Station	2.8	95%	7.0	98%	6.8	91%	4.0	91%	4.0		
	Westbound Transit Trips from I-405 to All Mercer Island Ramps (Weighted Average) =			7.0		6.8		4.1		4.1			
	E Mercer Way On-Ramp	5th Avenue S via D2 Roadway (Seattle)[e]	6.1	0%		0%		0%		0%			
	Island Crest Way On-Ramp (via Outer Roadway)		5.1	0%		0%		0%		0%			
	Island Crest Way On-Ramp (via Center Roadway)		0.0	0%		0%		0%		0%			
	77th Avenue SE On-Ramp (via Center Roadway)		0.0	0%		0%		0%		0%			
	76th Avenue SE On-Ramp		4.4	100%	13.5	100%	13.6	0%		0%			
	W Mercer Way On-Ramp		3.9	0%		0%		0%		0%			
	Mercer Island Station	International District Station	5.1	0%		0%		100%	10.0	100%	10.0		
	Westbound Transit trips from All Mercer Island Ramps to 4th Avenue S (Weighted Average) =			13.5		13.6		10.0		10.0			
All Westbound Transit Trips to/from Mercer Island Ramps (Weighted Average) =				***12.2***		***12.2***		***8.9***		***8.9***			
Eastbound I-90	5th Avenue S via D2 Roadway (Seattle)[e]	W Mercer Way Off-Ramp	4.1	0%		0%		0%		0%		0%	
		77th Avenue SE Off-Ramp (via Outer Roadway)	4.8	0%		0%		0%		0%		0%	
		77th Avenue SE Off-Ramp (via Center Roadway)	4.8	100%	10.0	100%	10.0	0%		0%		0%	
		Island Crest Way Left-Side Off-Ramp	4.9	0%		0%		0%		0%		0%	
		Island Crest Way Right-Side Off-Ramp	5.2	0%		0%		0%		0%		0%	
		E Mercer Way Off-Ramp	6.3	0%		0%		0%		0%		0%	
	International District Station	Mercer Island Station	5.1	0%		0%		100%	10.0	100%	10.0	100%	10.0
	Eastbound Transit Trips from 4th Avenue S to All Mercer Island Ramps (Weighted Average) =			10.0		10.0		10.0		10.0		10.0	
	Island Crest Way On-Ramp	I-90 at I-405 Overcrossing	2.8	0%		0%		0%		0%		0%	
	80th Avenue SE HOV On-Ramp		2.8	5%	3.9	5%	3.9	31%	3.0	31%	3.0	31%	3.0
	E Mercer Way On-Ramp		1.6	0%		0%		0%		0%		0%	

Table E-15. I-90 East Link Corridor Transit Mode (Bus and Light Rail) Person Travel Times Weighted by Mercer Island Ramp: 2035 PM Peak Period (3:30-7:00 PM)

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2035 No Build		2035 Build Option 1[a]		2035 Build Option 2[b]		2035 Build Option 2 Modified[c]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
	Mercer Island Station	S Bellevue Station[d]	2.8	95%	4.5	95%	4.4	69%	4.0	69%	4.0	69%	4.0
	Eastbound Transit Trips from All Mercer Island Ramps to I-90 at I-405 (Weighted Average) =			4.5		4.4		3.7		3.7		3.7	
All Eastbound Transit Trips to/from Mercer Island (Weighted Average) =				***9.5***		***9.7***		***9.5***		***9.5***		***9.5***	
All Transit Trips to/from Mercer Island Ramps (Weighted Average) =				**10.2**		**10.3**		**9.3**		**9.3**		**9.3**	

Note: Corridor travel times were weighted based on the percent of total Mercer Island bus and light rail trips using each ramp by direction.

[a] Mercer Island SOVs allowed in HOV lanes and ICW ramp.

[b] Mercer Island SOVs not allowed in HOV lanes and ICW ramp.

[c] Modified scenario shifts the transition of the eastbound HOV lane to east of the Mount Baker Tunnel.

[d] For Existing and No Build conditions, transit between the S Bellevue Park-and-Ride and Mercer Island Transit Center is the Route 550 bus. For the Build condition, transit is light rail between the S Bellevue Station and Mercer Island Station.

[e] For Existing and No Build conditions, transit to/from Seattle is via the D2 Roadway and 5th Avenue S.

Table E-16. I-90 East Link Corridor (All Modes Combined) Person Travel Times Weighted by Mercer Island Ramp: 2035 PM Peak Period (3:30-7:00 PM) - Updated DRAFT

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2035 No Build		2035 Build Option 1[a]		2035 Build Option 2[b]		2035 Build Option 2 Modified[c]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
Westbound I-90	I-90 at I-405 Overcrossing	E Mercer Way Off-Ramp	1.6	49%	3.3	49%	7.8	47%	4.7	47%	4.9		
		Island Crest Way Off-Ramp	2.8	23%	7.2	23%	12.6	25%	6.7	25%	7.8		
		80th Avenue SE HOV Off-Ramp	2.9	27%	3.7	27%	3.7	27%	3.7	27%	4.0		
	South Bellevue Station[d]	Mercer Island Transit Center	2.8	1%	7.0	1%	6.8	1%	4.0	1%	4.0		
	Westbound Trips from I-405 to All Mercer Island Ramps (Person Weighted Average) =			4.4		7.8		4.9		5.4			
	E Mercer Way On-Ramp	4th Avenue S (Seattle)[e]	6.1	10%	13.3	10%	13.8	9%	8.4	9%	11.8		
	Island Crest Way On-Ramp (via Outer Roadway)		5.1	13%	8.5	15%	8.1	32%	6.4	33%	6.3		
	Island Crest Way On-Ramp (via Center Roadway)		0.0	0%		0%		0%		0%			
	77th Avenue SE On-Ramp (via Center Roadway)		0.0	0%		0%		0%		0%			
	76th Avenue SE On-Ramp		4.4	26%	7.4	28%	7.6	22%	6.0	23%	9.2		
	W Mercer Way On-Ramp		3.9	51%	4.8	47%	4.9	33%	4.9	31%	7.3		
	Mercer Island Transit Center	International District Station	5.1	0%		0%		4%	10.0	4%	10.0		
	Westbound trips from All Mercer Island Ramps to 4th Avenue S (Person Weighted Average) =			6.8		7.1		6.2		7.9			
All Westbound Trips to/from Mercer Island Ramps (Weighted Average) =				***5.4***		***7.5***		***5.4***		***6.4***			
Eastbound I-90	4th Avenue S (Seattle)[e]	W Mercer Way Off-Ramp	4.1	13%	6.0	13%	9.2	12%	6.4	11%	11.1	11%	9.2
		77th Avenue SE Off-Ramp (via Outer Roadway)	4.8	10%	7.0	9%	10.6	19%	7.4	21%	11.7	21%	9.8
		77th Avenue SE Off-Ramp (via Center Roadway)	4.8	27%	6.9	28%	7.9	0%		0%		0%	
		Island Crest Way Left-Side Off-Ramp	4.9	30%	5.6	29%	6.9	34%	6.5	19%	9.6	19%	9.8
		Island Crest Way Right-Side Off-Ramp	5.2	10%	7.7	10%	11.7	15%	8.1	30%	12.1	30%	10.2
		E Mercer Way Off-Ramp	6.3	10%	9.8	11%	14.4	9%	9.5	9%	12.6	9%	11.5
	International District Station	Mercer Island Transit Center	5.1	0%		0%		11%	10.0	10%	10.0	10%	10.0

Table E-16. I-90 East Link Corridor (All Modes Combined) Person Travel Times Weighted by Mercer Island Ramp: 2035 PM Peak Period (3:30-7:00 PM) - Updated DRAFT

Roadway/ Direction	Travel Time Origin	Travel Time Destination	Distance (miles)	2016 Existing		2035 No Build		2035 Build Option 1[a]		2035 Build Option 2[b]		2035 Build Option 2 Modified[c]	
				Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)	Proportion of Trips by Ramp Volume	Travel Time (min)
	Eastbound Trips from 4th Avenue S to All Mercer Island Ramps (Person Weighted Average) =			6.8		9.0		7.6		11.2		10.0	
	Island Crest Way On-Ramp	I-90 at I-405 Overcrossing	2.8	42%	4.4	44%	4.5	46%	4.4	46%	3.3	46%	3.4
	80th Avenue SE HOV On-Ramp		2.8	19%	2.7	20%	2.6	20%	2.7	20%	2.5	20%	2.6
	E Mercer Way On-Ramp		1.6	38%	2.2	35%	1.9	33%	1.9	33%	1.9	33%	1.9
	Mercer Island Transit Center	South Bellevue Station[d]	2.8	1%	4.5	1%	4.4	1%	4.0	1%	4.0	1%	4.0
	Eastbound Trips from All Mercer Island Ramps to I-90 at I-405 (Person Weighted Average) =			3.2		3.2		3.2		2.7		2.7	
All Eastbound Trips to/from Mercer Island (Weighted Average) =				***4.8***		***5.9***		***5.2***		***6.8***		***6.2***	
All Trips to/from Mercer Island Ramps (Weighted Average) =				**5.1**		**6.7**		**5.3**		**6.6**		**6.4**	

Note: Corridor travel times were weighted based on the percent of total Mercer Island person trips using each ramp by direction. All modes include SOV, HOV, and transit (bus or light rail depending on the scenario).

[a] Mercer Island SOVs allowed in HOV lanes and ICW ramp.

[b] Mercer Island SOVs not allowed in HOV lanes and ICW ramp.

[c] Modified scenario shifts the transition of the eastbound HOV lane to east of the Mount Baker Tunnel.

[d] For Existing and No Build conditions, transit between the S Bellevue Park-and-Ride and Mercer Island Transit Center is the Route 550 bus. For the Build condition, transit is light rail between the S Bellevue Station and Mercer Island Station.

[e] For Existing and No Build conditions, transit to/from Seattle is via the D2 Roadway and 5th Avenue S.

Attachment F
Existing and Future
Intersection Level of Service Results

Existing Conditions

TABLE F-1
Existing 2016 AM and PM Peak-Hour Intersection LOS

Intersection	Jurisdiction	Control Type	Existing			
			AM		PM	
			LOS	Delay	LOS	Delay
City of Seattle						
4th Avenue S/Seattle Blvd S/Airport Way S	Seattle	Signal	C	26	C	29
Airport Way S/Seattle Blvd/S Dearborn Street/5th Avenue S	WSDOT	Signal	D	47	C	30
4th Avenue S/I-90 Westbound Off-Ramp	WSDOT	Signal	C	22	C	27
4th Avenue S/S Royal Brougham Way	Seattle	Signal	C	29	C	29
I-90 Westbound Off-ramp/Edgar Martinez Drive S	WSDOT	Signal	B	11	A	5
I-90 Eastbound On-ramp/4th Avenue S/Edgar Martinez Drive S	WSDOT	Signal	B	13	B	17
I-5 Southbound Ramp/S Dearborn Street	WSDOT	Signal	A	10	A	5
I-5 Northbound Ramp/S Dearborn Street	WSDOT	Signal	B	13	B	12
Rainier Avenue/I-90 Eastbound Off-Ramp	WSDOT	Signal	B	10	B	18
Rainier Avenue/S Massachusetts Street	Seattle	Signal	C	33	B	16
Rainier Avenue/S Dearborn Street	Seattle	Signal	C	35	D	46
City of Mercer Island						
W Mercer Way/I-90 Ramps	WSDOT	OWSC	A	10	C	22
W Mercer Way/SE 24th Street	Mercer Island	AWSC	A	9	B	15
76th Avenue SE/N Mercer Way/I-90 Westbound On-ramp	WSDOT	AWSC	A	9	C	17
76th Avenue SE/SE 24th Street	Mercer Island	AWSC	A	9	B	11
77th Avenue SE/N Mercer Way	Mercer Island	OWSC	**D**	**31**	**E**	**36**
77th Avenue SE/I-90 Westbound Express Lanes Ramp	WSDOT	OWSC	A	8	B	14
77th Avenue SE/I-90 Eastbound Off-Ramp	WSDOT	OWSC	B	10	B	13
77th Avenue SE/Sunset Highway SE	Mercer Island	TWSC	B	13	C	19
77th Avenue SE/SE 27th Street	Mercer Island	Signal	B	12	B	14
80th Avenue SE/N Mercer Way	Mercer Island	Signal	B	20	B	20
80th Avenue SE/I-90 Westbound HOV Off-Ramp	WSDOT	OWSC	A	10	B	11
80th Avenue SE/ I-90 Eastbound HOV On-Ramp	WSDOT	OWSC	N/A	N/A	N/A	N/A
80th Avenue SE/SE 27th Street	Mercer Island	AWSC	B	11	C	15
81st Avenue SE/N Mercer Way	Mercer Island	OWSC	C	16	B	14
Island Crest Way/N Mercer Way/I-90 Westbound off-ramp	WSDOT	Signal	B	19	C	20
Island Crest Way/I-90 Eastbound On-Ramp	WSDOT	Signal	C	25	C	30
80th Avenue/SE 28th Street	Mercer Island	AWSC	A	9	B	12
Island Crest Way/SE 28th Street	Mercer Island	Signal	C	24	C	26
Island Crest Way/SE 30th Street	Mercer Island	OWSC	A	10	C	18
Island Crest Way/SE 40th Street	Mercer Island	Signal	C	29	D	40

TABLE F-1
Existing 2016 AM and PM Peak-Hour Intersection LOS

Intersection	Jurisdiction	Control Type	Existing			
			AM		PM	
			LOS	Delay	LOS	Delay
78th Avenue/SE 40th Street	Mercer Island	AWSC	A	9	C	16
W Mercer Way/SE 40th Street	Mercer Island	OWSC	A	9	A	10
East Mercer Way/I-90 Westbound Ramps	WSDOT	Signal	B	17	C	26
East Mercer Way/I-90 Eastbound Off-Ramp	WSDOT	Signal	B	10	A	6
East Mercer Way/I-90 Eastbound On-Ramp	WSDOT	Signal	B	11	B	11
City of Bellevue						
Bellevue Way SE/112th Avenue SE	Bellevue	Signal	A	10	C	29
Bellevue Way SE/S Bellevue Park-and-Ride (Main)	Bellevue	Signal	B	14	**E**	**74**
Bellevue Way SE/S Bellevue Park-and-Ride (South)	Bellevue	OWSC	D	31	C	21

Notes:
Bold type text indicates where intersections fail to meet agency LOS standards: Seattle - LOS D, Mercer Island - LOS D (LOS C for Town Center intersections), Bellevue - LOS D, WSDOT - LOS D.
Delay is measured by average seconds of delay per vehicle.
AWSC = all-way stop controlled intersection
OWSC = one-way stop controlled intersection

Future 2020 and 2035 Intersection LOS Results

Table F-2. Existing 2016 and 2020 No Build and Build AM Peak-Hour Intersection LOS

Intersection	Existing AM		2020 AM Construction							
			No Build		Option 1[a]		Option 2[b]		Option 3[c]	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Seattle										
4th Avenue S/Seattle Blvd S/Airport Way S	C	26	C	24	C	27	C	26	C	27
Airport Way S/Seattle Blvd/S Dearborn Street/5th Avenue S	D	47	D	53	D	35	D	36	D	36
4th Avenue S/I-90 Westbound Off-Ramp	C	22	C	21	C	30	C	31	C	32
4th Avenue S/S Royal Brougham Way	C	29	C	30	C	28	C	29	C	29
I-90 Westbound Off-ramp/Edgar Martinez Drive S	B	11	A	9	A	8	A	9	A	9
I-90 Eastbound On-ramp/4th Avenue S/Edgar Martinez Drive S	B	13	A	10	A	10	A	9	A	9
I-5 Southbound Ramp/S Dearborn Street	A	10	B	10	B	10	B	10	B	10
I-5 Northbound Ramp/S Dearborn Street	B	13	B	13	B	14	B	14	B	14
Rainier Avenue/I-90 Eastbound Off-Ramp	B	10	B	12	A	9	A	10	A	9
Rainier Avenue/S Massachusetts Street	C	33	D	36	D	40	D	41	D	41
Rainier Avenue/S Dearborn Street	C	35	D	39	D	43	D	43	D	44
Mercer Island										
W Mercer Way/I-90 Ramps	A	10	B	10	B	11	B	15	B	11
W Mercer Way/SE 24th Street	A	9	A	9	A	10	B	12	A	10
76th Avenue SE/N Mercer Way/I-90 Westbound On-ramp	A	9	A	9	B	14	D	34	B	14
76th Avenue SE/SE 24th Street	A	9	A	9	B	11	B	11	B	10
77th Avenue SE/N Mercer Way	**D**	**31**	**D**	**35**	C	20	**E**	**39**	C	20
77th Avenue SE/I-90 Westbound Express Lanes Ramp	A	8	A	8	--	--	--	--	--	--
77th Avenue SE/I-90 Eastbound Off-Ramp	B	10	B	10	A	10	B	10	A	10
77th Avenue SE/Sunset Highway SE	B	13	B	14	B	12	B	12	B	12
77th Avenue SE/SE 27th Street	B	12	B	12	B	12	B	13	B	12
80th Avenue SE/N Mercer Way	B	20	C	21	B	18	C	26	B	18
80th Avenue SE/I-90 Westbound HOV Off-Ramp	A	10	A	10	A	9	A	10	A	10
80th Avenue SE/ I-90 Eastbound HOV On-Ramp	--	--	--	--	--	--	--	--	--	--

Table F-2. Existing 2016 and 2020 No Build and Build AM Peak-Hour Intersection LOS

Intersection	Existing AM		2020 AM Construction							
			No Build		Option 1[a]		Option 2[b]		Option 3[c]	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
80th Avenue SE/SE 27th Street	B	11	B	12	B	12	B	13	B	12
81st Avenue SE/N Mercer Way	C	16	C	18	C	17	C	21	C	17
Island Crest Way/N Mercer Way/I-90 Westbound off-ramp	B	19	C	24	C	23	C	31	C	23
Island Crest Way/I-90 Eastbound On-Ramp	C	25	C	22	C	21	C	23	C	21
80th Avenue/SE 28th Street	A	9	A	10	A	10	B	11	A	10
Island Crest Way/SE 28th Street	C	24	C	23	C	22	C	22	C	22
Island Crest Way/SE 30th Street	A	10	A	10	B	10	B	10	B	10
Island Crest Way/SE 40th Street	C	29	C	29	C	29	C	30	C	29
78th Avenue/SE 40th Street	A	9	A	9	A	10	A	10	A	10
W Mercer Way/SE 40th Street	A	9	A	9	A	10	B	10	A	10
East Mercer Way/I-90 Westbound Ramps	B	17	C	21	C	21	C	21	C	21
East Mercer Way/I-90 Eastbound Off-Ramp	B	10	B	11	B	11	B	11	B	11
East Mercer Way/I-90 Eastbound On-Ramp	B	11	B	11	B	11	B	11	B	11
Bellevue										
Bellevue Way SE/112th Avenue SE	A	10	B	11	B	10	B	10	B	10
Bellevue Way SE/S Bellevue Park-and-Ride (Main)	B	14	B	18	B	12	B	12	A	8
Bellevue Way SE/S Bellevue Park-and-Ride (South)	D	31	D	35	--	--	--	--	--	--

Notes:
-- Intersection is not provided in this condition.
Bold type text indicates where intersections fail to meet agency LOS standards: Seattle - LOS D, Mercer Island - LOS D (LOS C for Town Center intersections), Bellevue - LOS D, WSDOT - LOS D.
Delay is measured by average seconds of delay per vehicle.

[a] Option 1 - results for scenario that allows SOVs use of the Island Crest Way direct-access HOV on-ramp from Mercer Island.

[b] Option 2 - results for scenario that prohibits SOVs use of the Island Crest Way direct-access HOV on-ramp from Mercer Island.

[c] Option 3 - results for scenario that allows SOVs use of the Island Crest Way direct-access HOV on-ramp from Mercer Island, and HOV lane on I-90 converted to general-purpose lane between Mercer Island and Seattle.

Table F-3. Existing 2016 and 2020 No Build and Build PM Peak-Hour Intersection LOS

Intersection	Existing PM		2020 PM Construction							
			No Build		Option 1[a]		Option 2[b]		Option 3[c]	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Seattle										
4th Avenue S/Seattle Blvd S/Airport Way S	C	29	C	32	D	39	D	38	D	40
Airport Way S/Seattle Blvd/S Dearborn Street/5th Avenue S	C	30	C	33	C	33	C	33	C	34
4th Avenue S/I-90 Westbound Off-Ramp	C	27	C	28	D	40	D	41	D	44
4th Avenue S/S Royal Brougham Way	C	29	D	36	D	44	D	55	D	42
I-90 Westbound Off-ramp/Edgar Martinez Drive S	A	5	A	5	A	6	A	7	A	7
I-90 Eastbound On-ramp/4th Avenue S/Edgar Martinez Drive S	B	17	B	17	B	16	B	16	B	17
I-5 Southbound Ramp/S Dearborn Street	A	5	A	6	A	7	A	7	A	6
I-5 Northbound Ramp/S Dearborn Street	B	12	B	13	B	14	B	14	B	13
Rainier Avenue/I-90 Eastbound Off-Ramp	B	18	B	18	C	20	B	19	B	17
Rainier Avenue/S Massachusetts Street	B	16	B	19	C	25	C	26	C	26
Rainier Avenue/S Dearborn Street	D	46	D	54	D	55	D	55	D	54
Mercer Island										
W Mercer Way/I-90 Ramps	C	22	D	28	C	16	D	34	C	16
W Mercer Way/SE 24th Street	B	15	C	16	B	12	B	14	B	12
76th Avenue SE/N Mercer Way/I-90 Westbound On-ramp	C	17	C	19	C	17	C	22	C	19
76th Avenue SE/SE 24th Street	B	11	B	11	B	11	B	11	B	11
77th Avenue SE/N Mercer Way	**E**	**36**	**E**	**44**	**D**	**32**	**E**	**40**	**E**	**35**
77th Avenue SE/I-90 Westbound Express Lanes Ramp	B	14	B	15	--	--	--	--	--	--
77th Avenue SE/I-90 Eastbound Off-Ramp	B	13	B	13	B	11	B	12	B	11
77th Avenue SE/Sunset Highway SE	C	19	C	23	C	17	C	20	C	18
77th Avenue SE/SE 27th Street	B	14	B	14	B	13	B	14	B	13
80th Avenue SE/N Mercer Way	B	20	C	21	C	21	C	21	C	21
80th Avenue SE/I-90 Westbound HOV Off-Ramp	B	11	B	11	B	11	B	11	B	11
80th Avenue SE/ I-90 Eastbound HOV On-Ramp	--	--	--	--	--	--	--	--	--	--

Table F-3. Existing 2016 and 2020 No Build and Build PM Peak-Hour Intersection LOS

Intersection	Existing PM		2020 PM Construction							
			No Build		Option 1[a]		Option 2[b]		Option 3[c]	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
80th Avenue SE/SE 27th Street	C	15	C	17	C	15	C	16	C	16
81st Avenue SE/N Mercer Way	B	14	C	15	C	15	C	15	C	15
Island Crest Way/N Mercer Way/I-90 Westbound off-ramp	C	20	C	34	C	32	C	34	C	34
Island Crest Way/I-90 Eastbound On-Ramp	C	30	C	29	C	29	D	37	C	29
80th Avenue/SE 28th Street	B	12	B	12	B	12	B	12	B	12
Island Crest Way/SE 28th Street	C	26	C	28	C	27	C	27	C	27
Island Crest Way/SE 30th Street	C	18	C	20	C	20	C	20	C	22
Island Crest Way/SE 40th Street	D	40	D	40	D	42	D	41	D	42
78th Avenue/SE 40th Street	B	13	B	14	B	14	B	14	B	15
W Mercer Way/SE 40th Street	A	10	A	10	A	10	A	10	A	10
East Mercer Way/I-90 Westbound Ramps	C	26	C	30	C	31	C	31	C	31
East Mercer Way/I-90 Eastbound Off-Ramp	A	6	A	7	A	7	A	7	A	7
East Mercer Way/I-90 Eastbound On-Ramp	B	11	B	12	B	12	B	12	B	12
Bellevue										
Bellevue Way SE/112th Avenue SE	C	29	D	36	D	41	D	38	D	42
Bellevue Way SE/S Bellevue Park-and-Ride (Main)	**E**	**74**	**F**	**92**	D	52	D	54	D	53
Bellevue Way SE/S Bellevue Park-and-Ride (South)	C	21	C	25	--	--	--	--	--	--

Notes:
-- Intersection is not provided in this condition.
Bold type text indicates where intersections fail to meet agency LOS standards: Seattle - LOS D, Mercer Island - LOS D (LOS C for Town Center intersections), Bellevue - LOS D, WSDOT - LOS D.
Delay is measured by average seconds of delay per vehicle.

[a] Option 1 - results for scenario that allows SOVs use of the Island Crest Way direct-access HOV on-ramp from Mercer Island.

[b] Option 2 - results for scenario that prohibits SOVs use of the Island Crest Way direct-access HOV on-ramp from Mercer Island.

[c] Option 3 - results for scenario that allows SOVs use of the Island Crest Way direct-access HOV on-ramp from Mercer Island, and HOV lane on I-90 converted to general-purpose lane between Mercer Island and Seattle.

Table F-4. Existing 2016 and 2035 No Build and Build AM Peak-Hour Intersection LOS

Intersection	Existing AM		No Build AM		2035 AM Operations Option 1[a]						2035 AM Operations Option 2[b]					
					FEIS Configuration[c]		77th Ave. SE[d]		80th Ave. SE[e]		FEIS Configuration[c]		77th Ave. SE[d]		80th Ave. SE[e]	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Seattle																
4th Avenue S/Seattle Blvd S/Airport Way S	C	26	C	33	C	32	C	32	C	32	C	32	C	32	C	32
Airport Way S/Seattle Blvd/S Dearborn Street/5th Avenue S	D	47	**F**	**89**	C	33	C	33	C	33	C	34	C	34	C	34
4th Avenue S/I-90 Westbound Off-Ramp	C	22	C	24	C	33	C	33	C	33	C	34	C	34	C	34
4th Avenue S/S Royal Brougham Way	C	29	C	31	C	28	C	28	C	28	C	28	C	28	C	28
I-90 Westbound Off-ramp/Edgar Martinez Drive S	B	11	B	11	A	8	A	8	A	8	A	9	A	9	A	9
I-90 Eastbound On-ramp/4th Avenue S/Edgar Martinez Drive S	B	13	B	14	B	10	B	10	B	10	A	10	A	10	A	10
I-5 Southbound Ramp/S Dearborn Street	A	10	B	10	B	10	B	10	B	10	B	10	B	10	B	10
I-5 Northbound Ramp/S Dearborn Street	B	13	B	14	B	14	B	14	B	14	B	14	B	14	B	14
Rainier Avenue/I-90 Eastbound Off-Ramp	B	10	B	11	A	10	A	10	A	10	B	10	B	10	B	10
Rainier Avenue/S Massachusetts Street	C	33	D	38	D	39	D	39	D	39	D	40	D	40	D	40
Rainier Avenue/S Dearborn Street	C	35	D	53	D	55	D	55	D	55	D	55	D	55	D	55
Mercer Island																
W Mercer Way/I-90 Ramps	A	10	B	10	B	11	B	11	B	11	B	13	B	13	B	13
W Mercer Way/SE 24th Street	A	9	A	9	A	10	A	10	A	10	B	12	B	12	B	12
76th Avenue SE/N Mercer Way/I-90 Westbound On-ramp	A	9	A	9	C	15	C	15	C	15	**F**	**51**	**F**	**51**	**F**	**51**
76th Avenue SE/SE 24th Street	A	9	A	9	B	11	B	11	B	11	B	11	B	11	B	11
77th Avenue SE/N Mercer Way	**D**	**31**	**E**	**40**	C	23	B	13	C	23	**F**	**56**	**D**	**33**	**F**	**56**
77th Avenue SE/I-90 Westbound Express Lanes Ramp	A	8	A	8	--	--	--	--	--	--	--	--	--	--	--	--
77th Avenue SE/I-90 Eastbound Off-Ramp	B	10	B	10	B	10	B	10	B	10	B	11	B	10	B	10
77th Avenue SE/Sunset Highway SE	B	13	B	15	B	13	B	13	B	13	B	15	B	14	B	14
77th Avenue SE/SE 27th Street	B	12	B	12	B	13	B	13	B	13	B	14	B	14	B	14
80th Avenue SE/N Mercer Way	B	20	C	21	B	18	B	18	C	25	C	22	C	22	C	28
80th Avenue SE/I-90 Westbound HOV Off-Ramp	A	10	A	10	A	10	A	10	B	13	A	10	A	10	B	12
80th Avenue SE/ I-90 Eastbound HOV On-Ramp	--	--	--	--	--	--	--	--	A	6	--	--	--	--	A	6

Table F-4. Existing 2016 and 2035 No Build and Build AM Peak-Hour Intersection LOS

Intersection	Existing AM		No Build AM		2035 AM Operations Option 1[a]						2035 AM Operations Option 2[b]					
					FEIS Configuration[c]		77th Ave. SE[d]		80th Ave. SE[e]		FEIS Configuration[c]		77th Ave. SE[d]		80th Ave. SE[e]	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
80th Avenue SE/SE 27th Street	B	11	B	12	B	14	B	13	B	13	C	15	C	15	C	15
81st Avenue SE/N Mercer Way	C	16	C	19	C	19	C	19	C	19	C	23	C	23	C	23
Island Crest Way/N Mercer Way/I-90 Westbound off-ramp	B	19	C	25	C	24	C	24	C	25	C	30	C	30	C	31
Island Crest Way/I-90 Eastbound On-Ramp	C	25	C	23	C	29	C	29	C	29	C	29	C	29	C	30
80th Avenue/SE 28th Street	A	9	A	10	B	10	B	10	B	10	B	11	B	11	B	11
Island Crest Way/SE 28th Street	C	24	C	30	C	21	C	21	C	21	C	22	C	22	C	22
Island Crest Way/SE 30th Street	A	10	A	10	B	10	B	10	B	10	B	10	B	10	B	10
Island Crest Way/SE 40th Street	C	29	C	29	C	29	C	29	C	29	C	28	C	28	C	28
78th Avenue/SE 40th Street	A	9	A	9	A	9	A	9	A	9	A	10	A	10	A	10
W Mercer Way/SE 40th Street	A	9	A	9	A	10	A	10	A	10	B	10	B	10	B	10
East Mercer Way/I-90 Westbound Ramps	B	17	B	19	B	18	B	18	B	18	B	18	B	18	B	18
East Mercer Way/I-90 Eastbound Off-Ramp	B	10	B	11	B	11	B	11	B	11	B	11	B	11	B	11
East Mercer Way/I-90 Eastbound On-Ramp	B	11	B	12	B	12	B	12	B	12	B	12	B	12	B	12
Bellevue																
Bellevue Way SE/112th Avenue SE	A	10	B	12	B	12	B	12	B	12	B	12	B	12	B	12
Bellevue Way SE/S Bellevue Park-and-Ride (Main)	B	14	B	19	D	46	D	46	D	46	D	41	D	41	D	41
Bellevue Way SE/S Bellevue Park-and-Ride (South)	D	31	D	35	B	18	B	18	B	18	B	15	B	15	B	15

Notes:
-- Intersection is not provided in this condition.
Bold type text indicates where intersections fail to meet agency LOS standards: Seattle - LOS D, Mercer Island - LOS D (LOS C for Town Center intersections), Bellevue - LOS D, WSDOT - LOS D.
Delay is measured by average seconds of delay per vehicle.

[a] Option 1 - results for scenario that allows SOVs use of the Island Crest Way direct-access HOV off-ramp to Mercer Island.

[b] Option 2 - results for scenario that prohibits SOVs use of the Island Crest Way direct-access HOV off-ramp to Mercer Island.

[c] FEIS Configuration - results for transit option where buses travel into Seattle without using the D2 Roadway.

[d] 77th Avenue SE Configuration - results for transit option where buses are truncated on Mercer Island at 77th Avenue SE.

[e] 80th Avenue SE Configuration - results for transit option where buses are truncated on Mercer Island at 80th Avenue SE.

Table F-5. Existing 2016 and 2035 No Build and Build PM Peak-Hour Intersection LOS

Intersection	Existing PM		No Build PM		2035 PM Operations Option 1[a]						2035 PM Operations Option 2[b]					
					FEIS Configuration[c]		77th Ave. SE[d]		80th Ave. SE[e]		FEIS Configuration[c]		77th Ave. SE[d]		80th Ave. SE[e]	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Seattle																
4th Avenue S/Seattle Blvd S/Airport Way S	C	29	**E**	**55**	D	55	D	55	D	55	D	52	D	52	D	52
Airport Way S/Seattle Blvd/S Dearborn Street/5th Avenue S	C	30	E	68	C	33	C	33	C	33	C	33	C	33	C	33
4th Avenue S/I-90 Westbound Off-Ramp	C	27	C	29	C	34	C	34	C	34	C	33	C	33	C	33
4th Avenue S/S Royal Brougham Way	C	29	D	43	D	55	D	55	D	55	**E**	**64**	**E**	**64**	**E**	**64**
I-90 Westbound Off-ramp/Edgar Martinez Drive S	A	5	A	5	A	7	A	7	A	7	A	7	A	7	A	7
I-90 Eastbound On-ramp/4th Avenue S/Edgar Martinez Drive S	B	17	B	17	B	16	B	16	B	16	B	16	B	16	B	16
I-5 Southbound Ramp/S Dearborn Street	A	5	A	6	A	6	A	6	A	6	A	6	A	6	A	6
I-5 Northbound Ramp/S Dearborn Street	B	12	B	12	B	13	B	13	B	13	B	13	B	13	B	13
Rainier Avenue/I-90 Eastbound Off-Ramp	B	18	B	18	B	17	B	17	B	17	B	17	B	17	B	17
Rainier Avenue/S Massachusetts Street	B	16	C	26	C	29	C	29	C	29	C	29	C	29	C	29
Rainier Avenue/S Dearborn Street	D	46	**F**	**101**	**F**	**99**	**F**	**99**	**F**	**99**	**F**	**100**	**F**	**100**	**F**	**100**
Mercer Island																
W Mercer Way/I-90 Ramps	C	22	C	20	B	14	B	14	B	14	C	18	C	18	C	18
W Mercer Way/SE 24th Street	B	15	B	15	B	11	B	11	B	11	B	13	B	13	B	13
76th Avenue SE/N Mercer Way/I-90 Westbound On-ramp	C	17	C	18	C	18	C	18	C	18	C	23	C	23	C	23
76th Avenue SE/SE 24th Street	B	11	B	11	B	10	B	10	B	10	B	11	B	11	B	11
77th Avenue SE/N Mercer Way	**E**	**36**	**F**	**58**	**F**	**66**	C	23	**F**	**65**	**F**	**62**	C	24	**F**	**61**
77th Avenue SE/I-90 Westbound Express Lanes Ramp	B	14	C	16	--	--	--	--	--	--	--	--	--	--	--	--
77th Avenue SE/I-90 Eastbound Off-Ramp	B	13	B	13	B	12	B	12	B	12	B	13	B	12	B	12
77th Avenue SE/Sunset Highway SE	C	19	C	23	C	19	C	19	C	19	C	23	C	23	C	23
77th Avenue SE/SE 27th Street	B	14	B	15	B	14	B	14	B	14	B	15	B	15	B	15
80th Avenue SE/N Mercer Way	B	20	C	21	C	24	C	25	C	30	C	24	C	26	C	33
80th Avenue SE/I-90 Westbound HOV Off-Ramp	B	11	B	12	B	12	B	12	B	18	B	12	B	12	B	18
80th Avenue SE/ I-90 Eastbound HOV On-Ramp	--	--	--	--	--	--	--	--	A	5	--	--	--	--	A	5

Table F-5. Existing 2016 and 2035 No Build and Build PM Peak-Hour Intersection LOS

Intersection	Existing PM		No Build PM		2035 PM Operations Option 1[a]						2035 PM Operations Option 2[b]					
					FEIS Configuration[c]		77th Ave. SE[d]		80th Ave. SE[e]		FEIS Configuration[c]		77th Ave. SE[d]		80th Ave. SE[e]	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
80th Avenue SE/SE 27th Street	C	15	C	20	C	21	C	20	C	20	**D**	**26**	**D**	**25**	**D**	**25**
81st Avenue SE/N Mercer Way	B	14	C	16	C	19	C	19	C	19	C	19	C	19	C	19
Island Crest Way/N Mercer Way/I-90 Westbound off-ramp	C	20	C	33	D	36	D	36	C	31	D	35	D	35	C	33
Island Crest Way/I-90 Eastbound On-Ramp	C	30	D	39	D	42	D	42	D	42	D	36	D	36	D	36
80th Avenue/SE 28th Street	B	12	B	14	B	14	B	14	B	14	B	14	B	14	B	14
Island Crest Way/SE 28th Street	C	26	C	28	C	27	C	27	C	27	C	27	C	27	C	27
Island Crest Way/SE 30th Street	C	18	C	19	C	20	C	20	C	20	C	21	C	21	C	21
Island Crest Way/SE 40th Street	D	40	D	42	D	43	D	43	D	43	D	43	D	43	D	43
78th Avenue/SE 40th Street	B	13	B	13	B	14	B	14	B	14	B	13	B	13	B	13
W Mercer Way/SE 40th Street	A	10	A	10	A	10	A	10	A	10	A	10	A	10	A	10
East Mercer Way/I-90 Westbound Ramps	C	26	C	21	C	22	C	22	C	22	C	22	C	22	C	22
East Mercer Way/I-90 Eastbound Off-Ramp	A	6	A	6	A	6	A	6	A	6	A	6	A	6	A	6
East Mercer Way/I-90 Eastbound On-Ramp	B	11	B	13	B	12	B	12	B	12	B	12	B	12	B	12
Bellevue																
Bellevue Way SE/112th Avenue SE	C	29	D	54	D	51	D	51	D	51	D	50	D	50	D	50
Bellevue Way SE/S Bellevue Park-and-Ride (Main)	**E**	**74**	**F**	**116**	D	55	D	55	D	55	D	47	D	47	D	55
Bellevue Way SE/S Bellevue Park-and-Ride (South)	C	21	D	28	D	41	D	41	D	41	D	36	D	36	D	41

Notes:
-- Intersection is not provided in this condition.
Bold type text indicates where intersections fail to meet agency LOS standards: Seattle - LOS D, Mercer Island - LOS D (LOS C for Town Center intersections), Bellevue - LOS D, WSDOT - LOS D.
Delay is measured by average seconds of delay per vehicle.

[a] Option 1 - results for scenario that allows SOVs use of the Island Crest Way direct-access HOV off-ramp to Mercer Island.

[b] Option 2 - results for scenario that prohibits SOVs use of the Island Crest Way direct-access HOV off-ramp to Mercer Island.

[c] FEIS Configuration - results for transit option where buses travel into Seattle without using the D2 Roadway.

[d] 77th Avenue SE Configuration - results for transit option where buses are truncated on Mercer Island at 77th Avenue SE.

[e] 80th Avenue SE Configuration - results for transit option where buses are truncated on Mercer Island at 80th Avenue SE.

Table F-6. 2020 and 2035 AM Peak-Hour Mitigated Intersection LOS

Intersection	Jurisdiction	No Build		Option 1[a]		Option 1[a] Mitigated		Option 2[b]		Option 2[b] Mitigated		Option 3[c]		Option 3[c] Mitigated	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
2020															
N Mercer Way and 77th Avenue SE	Mercer Island	**D**	**35**	C	20	N/A	N/A	**E**	**39**	B	11	C	20	N/A	N/A
I-90 WB On Ramp and 76th Avenue SE	WSDOT	A	9	B	14	N/A	N/A	D	34	B	17	B	14	N/A	N/A
2035															
N Mercer Way and 77th Avenue SE	Mercer Island	**E**	**40**	C	23	A	9	**F**	**56**	A	9	N/A	N/A	N/A	N/A
I-90 WB On Ramp and 76th Avenue SE	WSDOT	A	9	C	15	N/A	N/A	**F**	**51**	B	18	N/A	N/A	N/A	N/A
80th Avenue SE and SE 27th Street	Mercer Island	B	12	B	13	N/A	N/A	C	15	B	19	N/A	N/A	N/A	N/A

Notes:
Bold type text indicates where intersections fail to meet agency LOS standards: Seattle - LOS D, Mercer Island - LOS D (LOS C for Town Center intersections), Bellevue - LOS D, WSDOT - LOS D.
Delay is measured by average seconds of delay per vehicle.

[a] Option 1 - results for scenario that allows SOVs use of the Island Crest Way direct-access HOV on-ramp from Mercer Island.

[b] Option 2 - results for scenario that prohibits SOVs use of the Island Crest Way direct-access HOV on-ramp from Mercer Island.

[c] Option 3 - results for scenario that allows SOVs use of the Island Crest Way direct-access HOV on-ramp from Mercer Island, and HOV lane on I-90 converted to general-purpose lane between Mercer Island and Seattle.

N/A = mitigation is not required with this option

Table F-7. 2020 and 2035 PM Peak-Hour Mitigated Intersection LOS

Intersection	Jurisdiction	No Build		Option 1[a]		Option 1[a] Mitigated		Option 2[b]		Option 2[b] Mitigated		Option 3[c]		Option 3[c] Mitigated	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
2020															
N Mercer Way and 77th Avenue SE	Mercer Island	**E**	**44**	**D**	**32**	N/A	N/A	**E**	**40**	B	13	**D**	**35**	N/A	N/A
I-90 WB On Ramp and 76th Avenue SE	WSDOT	C	19	C	17	N/A	N/A	C	22	A	9	C	19	N/A	N/A
2035															
N Mercer Way and 77th Avenue SE	Mercer Island	**F**	**58**	**F**	**65**	B	17	**F**	**61**	B	16	N/A	N/A	N/A	N/A
I-90 WB On Ramp and 76th Avenue SE	WSDOT	C	18	C	18	N/A	N/A	C	23	B	18	N/A	N/A	N/A	N/A
80th Avenue SE and SE 27th Street	Mercer Island	C	20	C	20	N/A	N/A	**D**	**25**	C	20	N/A	N/A	N/A	N/A

Notes:
Bold type text indicates where intersections fail to meet agency LOS standards: Seattle - LOS D, Mercer Island - LOS D (LOS C for Town Center intersections), Bellevue - LOS D, WSDOT - LOS D.
Delay is measured by average seconds of delay per vehicle.

[a] Option 1 - results for scenario that allows SOVs use of the Island Crest Way direct-access HOV on-ramp from Mercer Island.

[b] Option 2 - results for scenario that prohibits SOVs use of the Island Crest Way direct-access HOV on-ramp from Mercer Island.

[c] Option 3 - results for scenario that allows SOVs use of the Island Crest Way direct-access HOV on-ramp from Mercer Island, and HOV lane on I-90 converted to general-purpose lane between Mercer Island and Seattle.

N/A = mitigation is not required with this option