

3.12 TRANSPORTATION

This section describes the existing transportation network serving the site and surrounding areas and analyzes potential impacts to this network from infrastructure development and full buildout identified under the Proposed Actions (Alternatives 1 and 2) and the No Action Alternative. This section is based on the March 2005, Transportation Impact Study prepared by Transportation Engineering Northwest, LLC (TENW) (see Appendix I).

3.12.1 Summary of Transportation Study Methodology and Conclusions

A transportation study area was defined in collaboration with the City. Transportation level of service impacts of the No Action and Alternatives 1 and 2 development scenarios for Tukwila South were analyzed for two horizon years (2015 and 2030). The two horizon years were chosen to reflect transportation impacts of partial build-out and full build-out of the three development alternatives. The transportation impact study also analyzed impacts associated with site access and circulation, the realignment of S 178th Street, rail facilities and truck traffic. Collision history, public transportation and non-motorized transportation facilities were also addressed.

The City of Tukwila has adopted level of service (LOS) standards for intersections and arterial segments within the City. New development must meet the City's LOS requirements. Level of service is measured on a scale from LOS A to LOS F, with LOS F being the worst level of congestion. The LOS standards applicable to intersections and arterial segments within the City vary depending upon the location of the intersections and arterial segments.

The transportation study identified the current levels of service for intersections and arterial segments within the existing road network to establish existing conditions. The road network includes 75 intersections (see Table 3.12-2 on page 9 and Figure 3.12-2 on page 4) and key arterial segments (see Figure 3.12-3 on page 20 and Table 3.12-3 on page 11). Of the 75 intersections 41 are within the City, and all of the arterial segments are within the City.

A 2015 baseline road network and a 2030 baseline road network were also identified in order to evaluate transportation impacts of the three development scenarios in those horizon years, including the mass site grading required for Alternatives 1 and 2 (see Figure 3.12-3 on page 20 and Figure 3.12.4 on page 22). The 2015 and 2030 baseline road networks reflect what the road systems are likely to look like in those years without any future development at Tukwila South. The 2015 network consists of the existing network and certain road improvements that are funded or likely to be funded based upon local and regional transportation plans, and other improvements needed to accommodate development that is likely to occur within the study area during these time periods. The 2030 network consists of the 2015 network plus additional selected improvements.

Based upon standard transportation engineering criteria, future trip generation from development under Alternatives 1 and 2 and the No Action Alternative were estimated. Net external PM peak hour trip generation from development identified in the EIS alternatives in 2015 would range between 1,859 trips under the No Action Alternative to 3,728 trips under Alternative 1. During the PM peak hour in 2030, net external trip generation of the EIS

alternatives would range from approximately 1,935 trips under the No Action Alternative to 13,975 trips under Alternative 1.

The distribution of those trips on the road network was determined for all development alternatives and the impacts were analyzed for compliance with the City's level of service standards in the years 2015 and 2030. Potential mitigation options were evaluated.

In the year 2015, under all future build-out alternatives, all arterial segments and City intersection level of service standards could be met with the construction of identified road infrastructure. With full build-out of Alternative 1 (worst-case scenario) in 2030, land density levels could not be accommodated with conventional at-grade arterial systems internal to the site area based upon intersection operating deficiencies. Land density levels could better be accommodated at site access intersections and City LOS/Concurrency standards could be met under Alternative 2 in 2030 with the construction of new road infrastructure including the addition of a new east-west access arterial.

3.12.2 Affected Environment

Transportation Study Area and Roadway System

Study Area

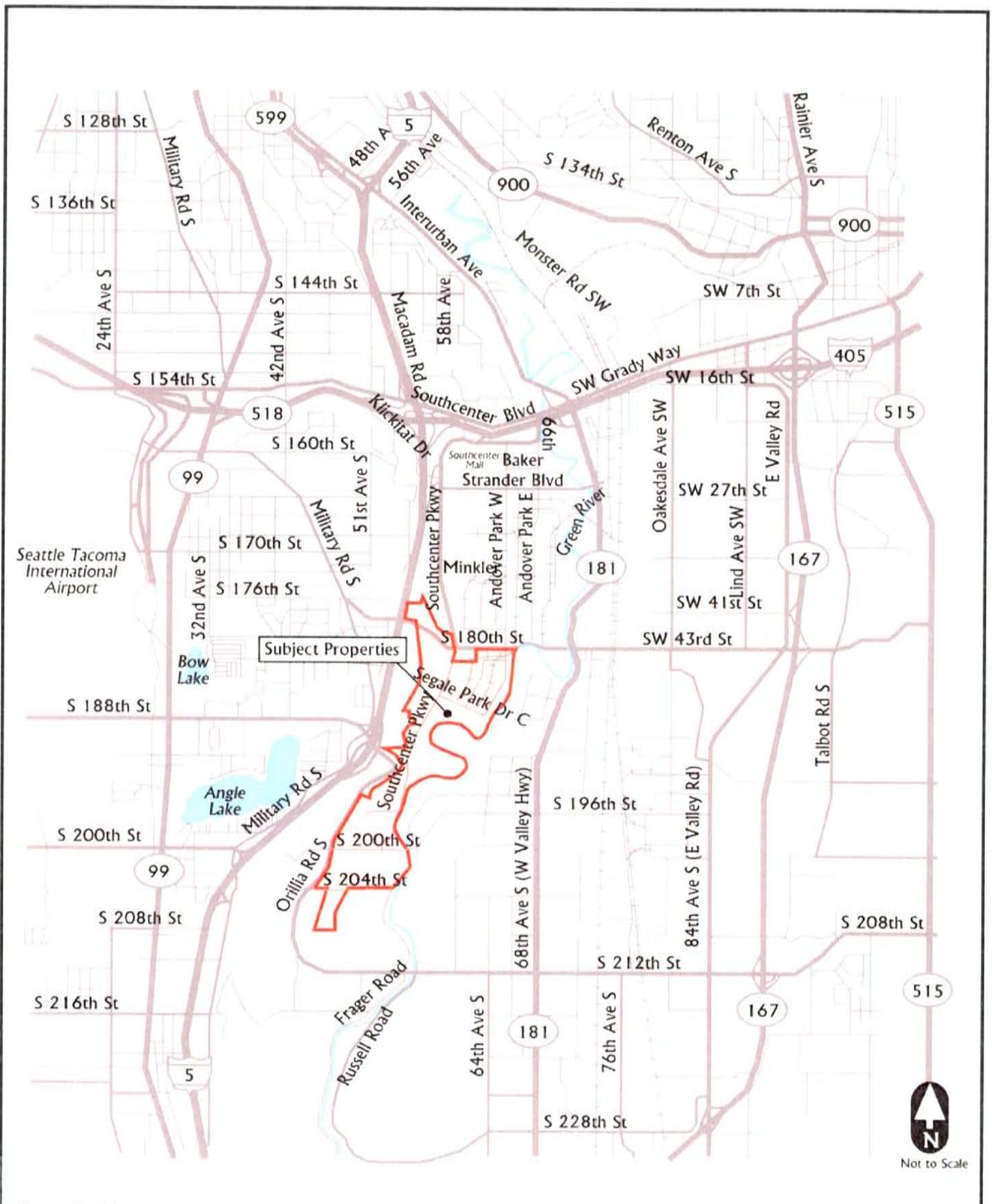
The study area for the analysis of transportation impacts for the Tukwila South project was determined in conjunction with the City of Tukwila based on recent traffic studies in the site vicinity and scoping comments received from neighboring jurisdictions. The study area is generally defined by S 212th Street to the south, I-405 to the north, I-5 to the west and SR 167 to the east. However, key arterials and freeway access points beyond this general study area were also included. The site and vicinity are shown in Figure 3.12-1 (see Figure 3.12-2 for the key intersections that were analyzed).

Existing Roadways

Major roadways within the transportation study area that are used as access routes to the site and site vicinity include I-5, SR 181 (W Valley Highway), SR 167, I-405, Orillia Road, Southcenter Parkway, Southcenter Boulevard, Strander Boulevard, S 178th Street, S 180th Street, S 188th Street, S 196th Street, and S 200th Street. Roadways in the site vicinity are within/under various jurisdictions, including the Washington State Department of Transportation (WSDOT), and the cities of Tukwila, Kent, Renton and SeaTac. Primary vehicular access to the site is currently via the north-south corridors of Southcenter Parkway and Andover Park W, and the east-west corridors of S 180th Street, and S 196th Street/S 200th Street. The following provides a description of some of the key roadways. A complete discussion of roadways within the study area, including their characteristics (in terms of number of lanes, shoulder widths and types, and posted speed limits) is included in Appendix I.

Washington State Department of Transportation

I-5 is classified by the WSDOT as an urban interstate highway. The roadway consists of four general purpose travel lanes and a high occupancy vehicle (HOV) lane in each direction. A



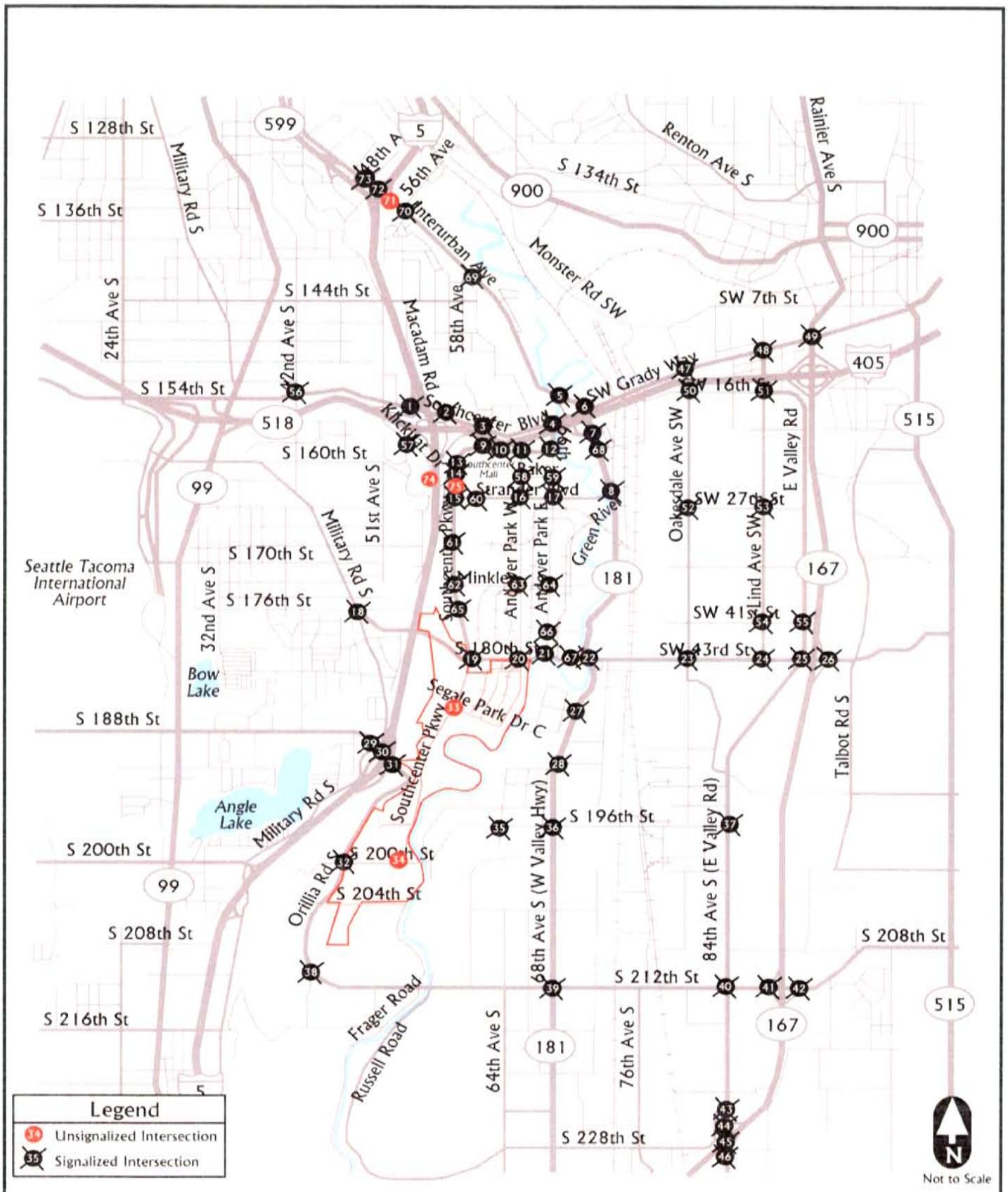
Source: TenW



Tukwila South Project EIS

Figure 3.12-1

Site and Vicinity



concrete median barrier transitions into a significant grade separation between the northbound and southbound lanes. Travel lanes are generally 12 feet wide with 3- to 10-foot paved shoulders. The posted speed limit is 60 mph.

SR 181 (W Valley Highway) is classified by the WSDOT as an urban principal arterial with 12-foot travel lanes. The roadway generally consists of four travel lanes north of S 190th Street and six travel lanes south of S 190th Street. The roadway varies between curbs, gutters, and sidewalks north of S 188th Street and 2- to 4-foot paved shoulders south of S 188th Street. The posted speed limit varies between 40 and 50 mph.

SR 167 is classified by the WSDOT as an urban principal arterial. A concrete median barrier separates northbound/southbound travel with two lanes in each direction. An HOV lane is provided between Auburn (just north of SR 18) and I-405. Travel lanes are generally 11 to 12 feet wide with 10- to 20-foot paved shoulders. The speed limit is posted at 60 mph.

I-405 is classified by the WSDOT as an urban interstate highway. The roadway consists of two travel lanes and an HOV lane in each direction. Travel lanes are generally 12 feet wide with 8- to 16-foot paved shoulders. The speed limit is posted at 60 mph.

City of Tukwila

Interurban Avenue S is generally a four-lane roadway with a center, left-turn lane along various parts of the roadway. Travel lanes are 11 to 12 feet with curbs, gutters, and sidewalks on both sides of the street. The posted speed limit is 35 mph.

Tukwila Parkway is a four-lane east-west roadway with a center left-turn lane. Travel lanes are 11 to 12 feet. Curbs, gutters and sidewalks are provided on both sides of the street. The posted speed limit is 35 mph.

Klickitat Drive is a two- to four-lane roadway with 11- to 12-foot travel lanes and 4- to 7-foot paved shoulders. Sidewalks are provided on the bridge. The posted speed limit is 30 mph.

61st Avenue S is a five-lane roadway (2 northbound, 3 southbound) crossing I-405 and providing access between Southcenter Boulevard and Tukwila Parkway. Travel lanes are generally 12 feet wide with curbs, gutters, and sidewalks. The speed limit is assumed to be 25 mph.

Southcenter Parkway is a five-lane, north-south roadway between Tukwila Parkway and S 180th Street, with curbs, gutters and sidewalks along a majority of its length. In the vicinity of Segale Park Drive C (south of S 180th Street), the roadway narrows to a 2-lane cross-section with travel lanes 12 feet wide, 0- to 1-foot paved shoulders on the west side of the street, 0- to 9-foot paved shoulders on the east side of the street, and approximate 1-foot gravel shoulders on both sides of the street. The speed limit is posted at 35 mph. Southcenter Parkway becomes Frager Road S as it crosses into unincorporated King County.

Andover Park W is a north-south minor arterial consisting of four lanes. Travel lanes are 11 to 12 feet. Curbs, gutters and sidewalks are provided on both sides of the street. A center left-turn lane is provided briefly south of Strander Boulevard in the vicinity of the retail commercial district. South of S 180th Street, Andover Park W is a private roadway. The posted speed limit is 35 mph.

Southcenter Boulevard is generally a four-lane roadway east of 61st Avenue S and a six-lane roadway west of 61st Avenue S with a center left-turn lane along various parts. Travel lanes are 11 to 12 feet with curbs, gutters, and sidewalks on both sides of the street. The posted speed limit is 35 mph.

Strander Boulevard is a four-lane, east-west minor arterial with a center left-turn lane. Travel lanes are 11 to 12 feet. Curbs, gutters and sidewalks are located on both sides of the street. The posted speed limit is 35 mph.

Minkler Boulevard is a two-lane roadway with curbs, gutters, and sidewalks along various parts of the roadway. The curb-to-curb pavement width east of Southcenter Parkway is 24 feet. East of Andover Park W, the roadway expands to a 3-lane cross-section, providing a center left-turning lane with a total curb-to-curb pavement width of approximately 48 feet. The posted speed limit is 30 mph.

S 180th Street (SW 43rd Street) is a four-lane, east-west roadway providing access to and from Tukwila, Kent, Renton and unincorporated King County. The total curb-to-curb width is approximately 57 feet. Curbs, gutters and 5-foot sidewalks are provided on both sides of the street. The speed limit is posted at 35 mph.

S 178th Street is a 2-lane, east-west roadway connecting the Tukwila and SeaTac communities over I-5. It is a steep roadway (over 20 percent grade) as it travels west of Southcenter Boulevard, and has no sidewalks. The speed limit is 35 mph.

Segale Park Drive C is a north-south, two lane private roadway with curbs, gutters, and sidewalks and serves as an extension of Andover Park W. The curb-to-curb pavement width is approximately 36 feet in the vicinity of Andover Park W and 46 feet in the vicinity of Southcenter Parkway. The posted speed limit is 25 mph.

Unincorporated King County

Fragar Road S is a two-lane roadway, which eventually turns into Southcenter Parkway further to the north. Immediately north of S 200th Street, the roadway consists of 2 travel lanes with 8- to 9-foot paved shoulders. The total pavement width is approximately 54 feet. The posted speed limit is 35 mph.

Orillia Road S is four-lane roadway consisting of 11-to 12-foot travel lanes with 4- to 5-foot paved bicycle lanes. Curbs, gutters, and sidewalks are located on both sides of the street; however, there are certain areas where there are curbs and gutters but no sidewalks on the east side of the street. The speed limit is posted at 40 mph.

City of Kent

S 196th Street is a four-lane roadway with a center left-turning lane. Travel lanes are 11 to 12 feet. Curbs, gutters, sidewalks, and 5-foot bicycle lanes/shoulders are provided. The posted speed limit is 35 mph.

S 200th Street is a four-lane roadway with a center left-turning lane with curbs, gutters, sidewalks, and 4- to 5-foot bicycle lanes/shoulders. Travel lanes are 11 to 12 feet. The speed limit is posted at 35 mph.

S 212th Street is an east-west roadway with 12-foot travel lanes and curbs, gutters, and sidewalks. The roadway consists of four travel lanes west of 59th Place S and an additional center left-turn lane is provided east of 59th Places S. East of 64th Avenue S, the roadway consists of 6 travel lanes (2 general purpose and 1 HOV lane in each direction) with a center left-turn lane east of 64th Avenue S. The posted speed limit varies between 35 and 40 mph.

City of Renton

Oakesdale Avenue SW is a north-south roadway with four travel lanes with a center left-turn lane. Curbs, gutters, 6-foot sidewalks and 5-foot bicycle lanes are located on both sides of the street. The total curb-to-curb width is approximately 67 feet. The posted speed limit is 35 mph.

Lind Avenue SW is a four-lane, north-south minor arterial. The curb-to-curb width is 44 feet. There is a center left-turn lane along various sections of the roadway. Curbs, gutters and 6- to 8-foot sidewalks are located on the west side of the street and along various sections of the east side of the street. In places where there are no sidewalks, curbs and gutters are located on the east side of the street. The speed limit is posted at 35 mph.

East Valley Road (84th Avenue S) is a north-south principal arterial providing access to and from SR 167 and business/commercial districts within the City of Renton. Travel lanes are 11 to 12 feet wide with curbs, gutters and sidewalks. North of SW 41st Street, the roadway consists of 2 lanes with a center left-turning lane. South of SW 41st Street, the roadway consists of 4 lanes with a center left-turning lane. The speed limit is posted between 35 and 40 mph.

Intersection and Road Segment Levels of Service

The City of Tukwila has adopted transportation concurrency regulations that require an analysis of the transportation impacts of development within the City. The analysis is based upon level of service standards at intersections and road segments. Level of service (LOS) is the primary indicator of the quality of traffic flow at an intersection or road segment. LOS is measured by the number of seconds, on average, of delay at intersections and in travel speeds on a road segment. LOS grading ranges from A to F, with LOS A indicating minimal delays and low volumes, and LOS F indicating long delays and/or forced flow. Table 3.12-1 shows level of service criteria for signalized and unsignalized intersections used by the City in estimating existing and future LOS at City intersections and road segments and in reviewing transportation impacts of development for concurrency compliance. These criteria were also used by Mirai Associates in updating the City's 2020 transportation demand forecast model.

Peak Hour Traffic Volumes

Peak hour traffic volumes typically represent the highest hourly volume of vehicles passing through an intersection during a typical weekday afternoon (4-6 PM) peak commute period. The analysis of the level of service for intersections and road segments within the study area and the operational impacts associated with Alternatives 1 and 2 and the No Action Alternative were based upon data collected during typical PM peak hour commute periods in May and June 2004. Existing (2004) PM peak period traffic volumes at all study area intersections are summarized in Figures 9 through 11 of Appendix I.

**Table 3.12-1
LEVEL OF SERVICE CRITERIA**

Level of Service (LOS)	Signalized Intersection Delay Range (seconds per vehicle)	Unsignalized Intersection Delay Range (seconds per vehicle)
A	≤ 10	≤ 10
B	> 10 to ≤ 20	> 10 to ≤ 15
C	> 20 to ≤ 35	> 15 to ≤ 25
D	> 35 to ≤ 55	> 25 to ≤ 35
E	> 55 to ≤ 80	> 35 to ≤ 50
F	≥ 80	≥ 50

Source: "Highway Capacity Manual," Special Report 209, Transportation Research Board, 2000, Update.

Existing Intersection Levels of Service

Intersections within the Tukwila Urban Center (TUC), defined as the area bounded by I-5, I-405, the Green River and S 180th Street, must have an overall average of LOS E or better. For areas outside of the TUC a minimum LOS E is required for individual intersections principally serving commercially zoned property, and a minimum LOS D is required for individual intersections principally serving residential areas. City of Tukwila standards were used to analyze all study intersections, including those located outside of the city limits.

Table 3.12-2 summarizes existing (2004) PM peak hour LOS at each of the 75 study area intersections. (Intersections located within the City are shaded.) Average intersection delay (in seconds per vehicle) and volume-to-capacity ratios are also shown. The volume-to-capacity (V/C) ratio expresses traffic as a proportion of capacity. The maximum V/C ratio is 1.0, indicating that the traffic volume is equal to roadway capacity. V/C ratios less than 1.0 indicate that the roadway is operating within its design capacity. V/C ratios greater than 1.0 indicate that traffic volumes exceed the design capacity of the road.

With three exceptions, all study area intersections currently operate at LOS D or better during the PM peak hour. Intersections #49 (SR 167/Rainier Avenue S at Grady Way) and #74 (Klickitat Drive S at I-5 SB On-Ramp) currently operate at LOS F. Intersections #22 (SR 181 at S 180th Street) and #42 (SR 167 NB Ramps at S 212th Street) currently operate at LOS E.

Intersections within the Tukwila Urban Center currently average 30 seconds of delay per vehicle, or LOS C, meeting adopted level of service standards.

Existing Roadway Corridor Levels of Service

The City of Tukwila has established LOS standards for specific road segments within city boundaries (Tukwila Municipal Code [TMC] 9.48.050 and Tukwila Comprehensive Land Use Plan Goal 13.3). Level of service ranges from LOS A to F based upon average travel speeds. Per City of Tukwila LOS standards, a minimum LOS E shall be maintained along the following roadways:

- Interurban Avenue between Southcenter Boulevard and I-5;

**Table 3.12-2
2004 PM PEAK HOUR INTERSECTION LEVELS OF SERVICE**

Int #	Intersection	Control	LOS Delay V/C		
1	I-5 SB Off-Ramp / S 154th St / Southcenter Blvd	Signalized	C	27	0.75
2	Macadam Road S / Southcenter Blvd	Signalized	B	11	0.72
3	61st Ave S / Southcenter Blvd	Signalized	B	16	0.74
4	66th Ave S / Southcenter Blvd	Signalized	C	22	0.62
5	Interurban Ave S / Fort Dent Way / I-405 SB Ramps	Signalized	D	54	1.03
6	Interurban Ave S / Southcenter Blvd / S Grady Way	Signalized	D	48	0.94
7	SR 181 (West Valley Hwy) / I-405 NB Ramps	Signalized	D	39	1.01
8	SR 181 (West Valley Hwy) / Strander Blvd	Signalized	D	45	0.89
9	61st Ave S / Tukwila Pkwy	Signalized	B	18	0.64
10	I-405 NB On-Ramp / Tukwila Pkwy	Signalized	A	7	0.41
11	Andover Park W / Tukwila Pkwy	Signalized	C	24	0.53
12	Andover Park E / Tukwila Pkwy	Signalized	B	20	0.62
13	Southcenter Pkwy / I-5 NB Off-Ramp	Signalized	C	20	0.53
14	Southcenter Pkwy / Klickitat Drive	Signalized	B	17	0.64
15	Southcenter Pkwy / Strander Blvd	Signalized	B	14	0.56
16	Andover Park W / Strander Blvd	Signalized	C	35	0.79
17	Andover Park E / Strander Blvd	Signalized	C	33	0.77
18	Military Road S / S 176 th St	Signalized	C	31	0.82
19	Southcenter Pkwy / S 180th St	Signalized	D	37	0.85
20	Andover Park W / S 180th St	Signalized	D	36	0.83
21	Andover Park E / S 180th St	Signalized	B	16	0.76
22	SR 181 (West Valley Hwy) / S 180th St	Signalized	E	57	0.95
23	Oakesdale Ave SW / SW 43rd St	Signalized	B	15	0.61
24	Lind Ave SW / SW 43rd St	Signalized	C	33	0.79
25	E Valley Road / SW 43 rd St	Signalized	D	46	1.04
26	SR 167 NB Ramps / SW 43rd St	Signalized	C	27	0.90
27	SR 181 (West Valley Hwy) / Todd Blvd	Signalized	B	11	0.73
28	SR 181 (West Valley Hwy) / S 190th Street	Signalized	B	10	0.66
29	Military Road S / S 188 th St	Signalized	C	29	0.71
30	I-5 SB Ramps / Orillia Road S	Signalized	C	25	0.87
31	I-5 NB Ramps / Orillia Road S	Signalized	C	20	0.80
32	Orillia Road S / S 200th St	Signalized	B	16	0.75
33	Southcenter Pkwy / Segale Park Drive C	Unsignalized	B	14	0.26
34	Frager Road / S 200th St	Unsignalized	C	22	0.67
35	S 196th St / 62 nd Ave S	Signalized	B	12	0.40
36	SR 181 (West Valley Hwy) / S 196th St ¹	Signalized	C	31	0.78
37	E Valley Road / S 196th St ¹	Signalized	D	42	0.84
38	42nd Ave S / Orillia Road S / S 212th St	Signalized	B	15	0.70
39	SR 181 (West Valley Hwy) / S 212th St	Signalized	D	39	0.89
40	E Valley Road / S 212th St	Signalized	D	40	0.85
41	SR 167 SB Ramps / S 212th St	Signalized	B	17	0.77
42	SR 167 NB Ramps / S 212th St ¹	Signalized	E	56	0.99

Table 3.12-2 is continued on the following page.

Table 3.12-2 (cont'd)
2004 PM PEAK HOUR INTERSECTION LEVELS OF SERVICE

Int #	Intersection	Control	LOS	Delay	V/C
43	84th Avenue S / S 224th St	Signalized	C	25	0.78
44	84th Ave S (Central Ave N) / SR 167 SB Ramps	Signalized	B	17	0.68
45	84th Ave S (Central Ave N) / SR 167 NB Ramps	Signalized	A	8	0.67
46	84th Ave S (Central Ave N) / S 228th St	Signalized	B	13	0.56
47	Oakesdale Ave SW / SW Grady Way	Signalized	D	46	0.90
48	Lind Ave SW / SW Grady Way	Signalized	C	27	0.72
49	SR 167 (Rainier Ave S) / SW Grady Way	Signalized	F	82	1.10
50	Oakesdale Ave SW / SW 16th St	Signalized	C	22	0.47
51	Lind Ave SW / SW 16th St	Signalized	A	9	0.57
52	Oakesdale Ave SW / SW 27th St	Signalized	A	6	0.20
53	Lind Ave SW / SW 27th St	Signalized	A	7	0.22
54	Lind Ave SW / SW 41st St	Signalized	B	20	0.45
55	E Valley Road / SR 167 SB Ramps	Signalized	D	53	0.88
56	42nd Ave S / Southcenter Blvd	Signalized	C	22	0.66
57	53rd Ave S / Klickitat Drive	Signalized	B	14	0.78
58	Andover Park W / Baker Blvd	Signalized	A	10	0.36
59	Andover Park E / Baker Blvd	Signalized	B	11	0.34
60	Strander Blvd / 61 st Place S	Signalized	B	17	0.57
61	Southcenter Pkwy / S 168th St	Signalized	A	5	0.48
62	Southcenter Pkwy / Minkler Blvd	Signalized	A	9	0.48
63	Andover Park W / Minkler Blvd	Signalized	C	28	0.67
64	Andover Park E / Minkler Blvd	Signalized	B	16	0.54
65	Southcenter Pkwy / 17500 Block	Signalized	B	15	0.37
66	Andover Park E / Costco Drive	Signalized	A	8	0.52
67	Sperry Drive / S 180th St	Signalized	B	19	0.81
68	SR 181 (West Valley Hwy) / S Longacres Way	Signalized	B	11	0.58
69	Interurban Ave S / 58th Ave S	Signalized	A	5	0.55
70	Interurban Ave S / 52nd Ave S / 56th Ave S	Signalized	A	7	0.57
71	Interurban Ave S / I-5 NB On-Ramp	Unsignalized	B	10	0.01
72	Interurban Ave S / I-5 SB Off-Ramp	Signalized	B	16	0.49
73	Interurban Ave S / 48th Ave S	Signalized	A	8	0.34
74	Klickitat Drive / I-5 SB On-Ramp ¹	Unsignalized	F	64	0.91
75	Southcenter Parkway / I-5 NB Off-Ramp	Unsignalized	C	16	0.57
TUC	Average of Int#'s 3-4,8,11-12,14-17, 19, 20, 22	--	C	30	0.73

Source: *Transportation Engineering Northwest, LLC, 2005.*

Analysis based on Synchro 6, Traffic Signal Coordination Software and HCS 2000, using HCM 2000 control delays and LOS.

Two-way stop controlled intersections show LOS and control delays for the worst directional movement.

Delays are expressed in seconds per vehicle. V/C - volume to capacity ratio.

Intersections that are shaded are located within the City of Tukwila.

- SR 181/West Valley Highway from I-405 to S 180th Street;
- Southcenter Boulevard between Grady Way and I-5; and
- Southcenter Parkway south of S 180th Street.

Per City of Tukwila LOS standards, a minimum average of LOS E shall be maintained in the following area:

- The Tukwila Urban Center (TUC) area (bounded by I-5, I-405, the Green River, and S 180th Street). The LOS in the TUC is determined by using link averages for 17 segments and intersections within the TUC.

In addition to the above requirements, a minimum standard of LOS E is required for roadway corridor segments outside of the TUC that principally serve commercially zoned property. Corridor segments for all other minor, collector and principal arterials serving primarily residential areas must meet a minimum standard of LOS D, subject to certain exceptions where the LOS on specified road segments must average LOS D.

Existing PM peak hour arterial traffic conditions were analyzed along all roadway segments within the City of Tukwila. All of the individual arterial segments analyzed operate at LOS D or better, and the average arterial LOS within the Tukwila Urban Center was calculated at LOS D. Therefore, under existing conditions the road segments within Tukwila meet City of Tukwila LOS standards.

Table 3.12-3 summarizes existing (2004) PM peak hour arterial LOS on study area arterials within the City of Tukwila. Speeds shown in Table 3.12-3 are average speeds on the arterial segment.

**Table 3.12-3
2004 PM PEAK HOUR ARTERIAL LEVELS OF SERVICE**

Arterial Segment	Location	Speed (mph)	LOS
Interurban Avenue	Southcenter Boulevard to I-5	28.9	B
SR 181 (West Valley Road)	I-405 to S 180 th Street	24.1	B
Southcenter Boulevard	Grady Way to I-5	17.2	D
Southcenter Parkway	South of S 180 th Street	21.9	C
Tukwila Urban Center Arterial Segments	Location	Speed (mph)	LOS
Southcenter Parkway	Tukwila Parkway to Strander Boulevard	19.2	C
Southcenter Parkway	Strander Boulevard to Minkler Boulevard	25.0	B
Southcenter Parkway	Minkler Boulevard to S 180 th Street	22.6	C
Andover Park W	Tukwila Parkway to S 180 th Street	19.0	C
Andover Park E	Tukwila Parkway to S 180 th Street	19.1	C
61 st Avenue S	Southcenter Boulevard to Tukwila Parkway	12.8	D
66 th Avenue S	Southcenter Boulevard to Tukwila Parkway	16.3	C
Tukwila Parkway	Southcenter Parkway to Andover Park E	16.3	D
Strander Boulevard	Southcenter Pkwy to SR 181/West Valley Hwy	12.8	E
Klickitat Drive	SR 518 WB On-Ramp to Southcenter Pkwy	19.3	C
Minkler Boulevard	Southcenter Parkway to Andover Park E	15.4	D
S 180 th Street	Southcenter Pkwy to SR 181/West Valley Hwy	13.9	E
	Tukwila Urban Center Average	17.6	D

Source: Transportation Engineering Northwest, LLC, 2005.

Note: Analysis based on Synchro 6, Traffic Signal Coordination Software using HCM 2000 control delays and LOS.

Collision History

Collision data was compiled and evaluated to identify unsafe road locations, set priorities for safety improvements, support economic analyses, and identify patterns, causes (i.e., driver, highway, or vehicle), and possible countermeasures. Collisions are classified in three severity categories, including fatalities, injuries, or property damage only (PDO).

The City of Tukwila does not define what constitutes a high collision location. The City did provide historical collision data for the most recent 3-year period between 2001 and 2003. The average annual collision rate was calculated by summing the total number of collisions that occurred at a specified intersection or roadway segment during the past three years, and dividing the total by three. Collision data is also measured by collision rates per million entering vehicles (MEV). Collisions per MEV reflect the number of vehicles traveling through an intersection, providing a different indication of design-related versus volume-related incidences. Classification of accident type, average annual accident rates and collisions rates per MEV for the 41 intersections located within the City of Tukwila (41 of the total 75 study area intersections) are summarized in Table 5 of Appendix I.

Of the 41 intersections analyzed, approximately half of the intersections experienced 5 collisions per year or more in the last 3 years. The intersections of Southcenter Parkway at Minkler Boulevard and Southcenter Parkway at Strander Boulevard experienced greater than 3.0 collisions per MEV. Within the latest 3-year period, two fatalities have occurred, one at the intersection of Andover Park E at Baker Boulevard involving a pedestrian/cyclist and another at the Andover Park W at Minkler Boulevard intersection.

Adjacent cities within the study area were also contacted to obtain intersections defined as high collision locations. While historical collision statistics were available, the cities of Renton, Kent, and SeaTac do not define high collision locations.

Public Transportation Services

King County-Metro provides public transportation services in the vicinity of the Tukwila South site. Metro Route 155 serves the existing Segale Business Park with stops on S 180th Street at its intersections with Southcenter Parkway and Andover Park W. All other fixed route transit services within proximity of the site serve the Westfield Shoppingtown Southcenter vicinity north of the site area, park-and-ride facilities, or the Sound Transit commuter rail station within Tukwila, and are not within walking distance of the site. Three park-and-ride lots are located within the City of Tukwila but are not within the immediate vicinity of the site. The Sound Transit commuter rail station is located approximately 1.6 miles northeast of the site, and a future light rail station, with service to be provided in 2009, will be constructed at S 154th Street on International Boulevard (formerly SR 99), approximately 2.25 miles from the site. (Refer to Appendix I for more detail on public transportation facilities.)

Non-Motorized Transportation Services

Existing non-motorized transportation facilities on the site include raised sidewalks on Segale Park Drive B, C, D, Andover Park W, and S 180th Street. Southcenter Parkway in the vicinity of Segale Park Drive C includes 1-foot paved shoulders, while Frager Road immediately north of S 200th Street includes 8- to 9-foot paved shoulders. No formal non-motorized facilities are provided along these existing collector arterials.

In the site vicinity, raised sidewalks exist on most principal arterials, minor arterials, and local access streets within the Tukwila Urban Center, north of S 180th Street. Bicycle lanes are provided on Orillia Road S, Oakesdale Avenue SW, S 196th Street, S 200th Street, and SW 16th Street, and paved shoulders are located on most roadways within the study area. Mixed-use facilities are provided on the Interurban Trail and the Green River Trail (both are regional trails and are located east of the site and the Green River). A portion of the Green River Trail is located immediately east of the site. In Tukwila, the Interurban Trail follows Puget Sound Energy's right-of-way east of SR 181 (West Valley Highway), approximately one-quarter mile from the site. An east-west trail connects the Green River and Interurban trails within the City of Kent. This connection is located between S 212th and S 228th streets, approximately 1.3 miles from the site.

The *Tukwila Comprehensive Plan* (Policy 10.2.2) calls for creating a street network within the Tukwila Urban Center that reflects the demand and need for motor vehicles, transit, pedestrians, and bicyclists; provides a safe, convenient, attractive, and comfortable pedestrian and bicycling environment that eliminates potential conflicts and promotes safety for all modes of travel; and reinforces the different functions of streets by creating distinct identities for major rights-of-way.

Rail Facilities and Services

Existing rail lines in the vicinity of the site include the Burlington Northern Santa Fe Railroad (BNSF) and Union Pacific Rail Road (UPRR) Main Line tracks between Seattle and Tacoma, Washington. The BNSF and UPRR Main Line tracks run north-south and are located along the City of Tukwila's eastern boundary. These Main Line tracks carry a substantial volume of freight service, as well as passenger service provided by Amtrak. Sound Transit utilizes the BNSF Main Line to offer weekday commuter rail services between the King Street Station in downtown Seattle to Tacoma with stops in Puyallup, Sumner, Auburn, Kent, and Tukwila. BNSF operates approximately 30 trains per day through Tukwila, and Union Pacific operates approximately 20 trains per day. In addition, Amtrak operates 8 passenger trains per day through the City, and Sound Transit's Sounder Commuter Rail runs 4 passenger trains per day.

A number of industrial spur lines traverse the Tukwila Urban Center, including two north/south lines east of Andover Park East and Andover Park West and three shorter north/south lines in the blocks between Minkler Boulevard and Triland Drive and Southcenter Parkway and Andover Park West. The infrequent use of the UPRR spur track that crosses the Green River south of Strander Boulevard, crossing Andover Park East and ultimately into the existing Segale Business Park within the Tukwila South site, results in minimal disruption to vehicular traffic movements within the immediate site vicinity.

Truck Facilities and Services

The City of Tukwila *Comprehensive Plan* Goal 13.6 allows truck traffic on all principal and minor arterials as well as on commercial area local access streets. There are load limit restrictions on residential collector arterials and residential local access streets.

Based upon 2004 PM peak hour traffic counts, the following roadways in the study area experience truck traffic greater than 5 percent of the total traffic volume:

- Orillia Road S between I-5 Ramps and south of S 200th Street;

- Segale Park Drive C east of Southcenter Parkway;
- SR 181/W Valley Highway from I-405 Ramps to S 212th Street;
- Oakesdale Avenue SW from Grady Way to S 180th Street/SW 43rd Street;
- Lind Avenue SW from SW 16th Street to south of S 180th Street/SW 43rd Street;
- E Valley Road/84th Avenue S/Central Avenue from S 180th Street/SW 43rd Street to SR 167 Ramps;
- Todd Boulevard west of SR 181/W Valley Highway;
- S 190th Street in the vicinity of SR 181/W Valley Highway;
- S 200th Street/S 196th Street from Orillia Road S to E Valley Road;
- S 212th Street between SR 181/W Valley Highway to SR 167 Ramps;
- S 224th Street west of 84th Avenue S;
- SW 27th Street between Oakesdale Avenue SW and Lind Avenue SW; and
- SW 41st Street in the vicinity of Lind Avenue SW.

Planned Transportation Improvements

This section summarizes planned transportation improvements within the transportation study area. Data relating to certain future road improvements was used to evaluate the 2015 and 2030 baseline road networks (the baseline road networks assume no development on Tukwila South). The 2015 and 2030 baseline road networks were then used to analyze the transportation impacts of the No Action Alternative and Alternatives 1 and 2. The 2015 and 2030 baseline networks are discussed more fully in Section 3.12.3, Transportation Impacts below.

Future roadway improvements are identified in the following planning documents and by the following agencies: the Regional Transportation Investment District (RTID); the WSDOT Nickel Funding Package; WSDOT's 2003-2012 Ten-Year Plan; the City of Tukwila's 2005-2010 Six-Year Transportation Improvement Program (TIP); the City of Tukwila's 2005-2010 Capital Improvement Program (CIP); the City of Renton's Six-Year TIP, 2004-2009; the City of SeaTac's Six-Year TIP, 2004-2013; the City of Kent's Six-Year TIP, 2004-2009; Sound Transit's Renton HOV Access Project; and, King County Metro. Some of the planned improvements are listed more than once if they were identified by separate agencies. Planned improvements define needs that should be addressed as funding becomes available and are not guaranteed for construction.

The Regional Transportation Investment District (RTID) is a funding tool to address specific improvement projects of regional significance in King, Pierce and Snohomish counties; RTID identified the following transportation improvement projects (last updated May 10, 2004), which are under consideration by RTID but not funded:

- **SR 167 Green Valley Corridor in vicinity of SR 18 in Auburn to King/Pierce County Line.** Complete remaining sections of HOV lane.
- **I-5/SR 509 Freight Mobility and Congestion Relief Project.**
- **SR 518 Corridor Improvements Phase I between southbound SR 509 to eastbound SR 518.** Provide freeway-to-freeway connector ramp.
- **I-405 Implementation Plan.** Within the immediate site vicinity, construct one lane in each direction between I-5 and SR 181, and two lanes in each direction from SR 181 to I-90; reconstruct the I-405/SR 167 interchange with direct freeway-to-freeway ramps; and local

interchange/arterial improvements at Interurban, Lind/Talbot/Rainier. On SR 167, one additional lane in each direction is also included between S 180th Street and I-405.

The WSDOT Nickel Funding Package identified the following improvements that are fully funded:

- **SR 167 from 15th St SW to 15th St NW.** Provide 1 northbound HOV lane; 1 southbound HOV bypass lane and roadway meters at on-ramps.
- **I-405 Congestion Relief and Bus Rapid Transit Projects.** Add one northbound lane between SR 181 (West Valley Highway) and SR 167 (Valley Freeway) and one southbound lane from SR 169 (Maple Valley Highway) to SR 167. The project will also extend the SR 167 southbound HOV lane north to I-405.

WSDOT's *2003-2012 Ten-Year Plan* identified the following transportation improvement project in the study area, which is funded and scheduled for completion by 2007:

- **I-5 from Pierce County Line to I-405/Tukwila.** Complete HOV system on I-5 to Pierce County line.

The City of Tukwila's *2005-2010 Six-Year Transportation Improvement Program* (TIP) includes the following transportation improvement projects:

- **Southcenter Parkway from S 180th Street to South City Limits.** Improve the roadway from two lanes to four or five lanes with curbs, gutters, and sidewalks.
- **Klickitat Drive/Southcenter Parkway/I-5 Access Revision.** Design and construct safety and capacity improvements.
- **Green River Valley Signal Coordination.** Coordinate signals along W Valley Highway and S 180th Street in Tukwila, Renton, and Kent. Provide coordination with freeway ramp metering and other arterials.
- **CBD Traffic Signal Interconnect.** Coordinate and operate traffic signals using a signal master in the Central Business District.
- **Interurban Avenue S from S 143rd Street to Fort Dent Way.** Design and construct sidewalks (construction assumed to occur beyond 2010). Provide pavement restoration.
- **Andover Park E at Minkler Boulevard intersection.** Design and construct left-turn lanes on Andover Park E and reconstruct traffic signal.
- **S 168th Street between Southcenter Parkway and Andover Park W.** Construct new roadway with curbs, gutters, and sidewalks (assumed to occur beyond 2010).
- **SR 181/West Valley Highway Southcenter Boulevard to S 156th Street.** Construct additional northbound left-turn lane at S 156th Street for northbound HOV lane to northbound I-405 (assumed to occur beyond 2010 and dependent upon private development).
- **SR 181/West Valley Highway from I-405 to Strander Boulevard.** Design and construct widening to 7 lanes with curbs, gutters, and sidewalks.
- **Minkler Boulevard from Andover Park W to Southcenter Parkway.** Add a third lane with curbs, gutters, and sidewalks on the south side.
- **Andover Park E at Industry Drive intersection.** Design and construct a traffic signal with left-turn lanes and crosswalks on Andover Park E.
- **Southcenter Boulevard from I-5 to Tukwila International Boulevard.** Upgrade the roadway to a 3-lane urban arterial with medians, curbs, turn lanes, gutters, and sidewalks.

- **Andover Park W from Tukwila Parkway to Strander Boulevard.** Complete widening for left-turn lane (construction assumed to occur beyond 2010).
- **Southcenter Boulevard/61st Avenue S Bridge Widening from I-5 to 62nd Ave S.** Widen roadway for an additional lane.

The City of Tukwila's 2005-2010 Capital Improvement Program (CIP) includes the following transportation improvement projects:

- **Interurban Bridge Widening Southcenter Boulevard to I-405 SB On-Ramp.** Design and construct widening for northbound HOV lane. Widen the Interurban Avenue Bridge over the Green River to provide dual turn lanes (one will be HOV) onto I-405 SB and construct a trail bridge over the Green River; also trail connection between the Green River Trail and the Interurban Trail.
- **S 180th Street at Andover Park W intersection.** Widen for northbound/southbound left-turn lanes.
- **Strander Boulevard Extension to SW 27th Street (Oakesdale Avenue SW).** Design and construct arterial improvements; design report to select alternatives and identify costs. Proposed project will be grade-separated. No funding has been identified for this project in Tukwila's CIP. The City of Renton is the lead agency for this project.
- **S 178th Street Realignment.** Widen and realign this roadway west of Southcenter Parkway. This project is noted in the 2005 CIP as related to a private development project. For the purposes of this EIS, it is assumed that this project would only occur with development under Alternative 1 or 2.

Additional planned roadway improvements in the site vicinity are included in the City of Renton's Six-Year TIP, 2004-2009; the City of SeaTac's Six-Year TIP, 2004-2013; the City of Kent's Six-Year TIP, 2004-2009; and, Sound Transit's Renton HOV Access Project (see Appendix I for further information).

Proposed improvements to public transportation routes serving the area are proposed by King County Metro and Sound Transit within the next six years. These include: replacement of Metro Route 167 by Sound Transit routes, addition of AM and PM peak hour trips to Metro Route 247, improved weekend service for Sound Transit Route 560, and the addition of evening and weekend service to Sound Transit Route 565; these routes are not within walking distance of the site. Improvements to non-motorized transportation facilities in the site vicinity are proposed by the City of Tukwila in the 2004-2009 CIP and include connecting the CBD Interurban Trail with existing trail sections in Kent and Auburn. Sound Transit plans to provide light rail service in 2009 to the City of Tukwila, connecting it with downtown Seattle and SeaTac. (See Appendix I for further information.) Sound Transit also plans to increase Sounder Commuter rail service from 4 to 9 trains per day.

3.12.3 Impacts

This section describes transportation impacts of the site infrastructure development phase (2006-2009) of Alternatives 1 and 2 and the impacts of development under the No Action Alternative and Alternatives 1 and 2 for the years 2015 and 2030. Assumptions regarding potential development levels in 2015 and 2030 are described in Table 3.12-4 on page 24 of this section. As described in Chapter 2, Description of the Proposed Action and Alternatives, assumptions have been made for environmental review purposes regarding the mix of uses,

levels of development and subsequent numbers of employees and residents that could be generated under the alternatives. These assumptions are not intended to represent definitive levels of future uses; ultimately the rate of development at the site over the long term, and the specific mix of uses, would be dependent on market, economic, and regulatory factors.

Infrastructure Development Phase

To support mass site grading and infrastructure development on the site under Alternatives 1 and 2, it is estimated that approximately 400,000 cubic yards of import fill materials would be hauled to the site during the road and utility infrastructure development phase (a three-year period beginning in 2006 through 2008). An additional estimated 500,000 cubic yards would be hauled to the site during full build-out, as described below. This soil material would be primarily hauled during typical construction periods of April through September, with a majority being transported within the first four months of this period. The following conservative assumptions were applied to the anticipated onsite transport needs to estimate average daily truck trips during peak construction periods:

- 75 percent of annual haul material would occur within a peak 4-month period.
- Construction period is assumed over a 2-year construction season.
- An average 20 cubic-yard truckload was assumed for haul material.
- Average 10-hour haul day during peak 4-month period.

The resultant hourly truck volumes under both Alternatives 1 and 2 are estimated at approximately 10 one-way truck trips per hour. This short-term haul requirement would not be expected to result in any significant adverse traffic impacts, safety impacts, or congestion concerns off the site. Haul route agreements and truck routes would be established in coordination with local jurisdictions and WSDOT as necessary depending upon the offsite locations from where haul material was transported. Once the haul construction is complete, these volumes would be eliminated. All agreed upon haul routes would have their condition assessed at the beginning of the operation, videotaped, and assessed at the completion. The applicant would be responsible for restoring the routes to the condition the roads were in at the start of the hauling operation. Trucks hauling fill material to the site (from offsite sources) would likely use Southcenter Parkway (Frager Road) as a haul route.

Within the site, localized impacts would occur across Southcenter Parkway between S 180th Street and Segale Park Drive C (see Figure 2-3), as truck haul movements would transport material between Planning Area B and other portions of the site via the haul road onsite. During the first construction season, excavation would begin for the relocation of S 178th Street in the northwest portion of the site, as would construction of the Southcenter Parkway improvements. Once construction of the Southcenter Parkway improvement commences, the existing Southcenter Parkway would be open for local access only; therefore, traffic volumes on this roadway would be limited. Truck crossings of the Parkway would result in conflicts with this limited traffic. During the second year of construction, the newly expanded Parkway would be reopened. Excavation activities for the north basin stormwater facility and site grading in the northwest portion of the site would continue. However, in order to reduce impacts to traffic on the Parkway, the existing S 178th Street alignment would remain open until the newly aligned road is fully completed. Traffic volumes on the new Southcenter Parkway during this second year would be similar to existing (2004) volumes. Truck crossings would be required, and a higher level of conflict with general traffic would occur.

Once the new S 178th Street roadway is open (during year 3), traffic volumes on Southcenter Parkway between S 180th Street and Segale Park Drive C would increase. Excavation activities in the northwest portion of the site would continue, as would the associated truck crossings of this stretch of Southcenter Parkway. During an approximate 6-month construction season in year 3, conflicts between general traffic on the new Southcenter Parkway and truck crossings would peak.

Construction traffic control/flagging during truck hauling would be necessary onsite at certain locations during the entire infrastructure development phase. As indicated, to mitigate the heavier volumes of truck crossings, the existing S 178th Street alignment would remain open for as long as possible.

Additionally, an estimated 500,000 cubic-yards of fill for preload is estimated to be hauled to specific building sites during the first 10 years of full buildout, and could begin as early as 2007. This activity is not weather dependent and would be hauled throughout each year to minimize the potential for impacts, averaging approximately 50,000 cubic-yards per year. This additional haul requirement would also not be expected to result in significant adverse traffic impacts, safety, or congestion concerns if appropriate traffic control measures are implemented.

Mass grading activities during the infrastructure development phase would not occur under the No Action Alternative. Truck trips would be required for earthwork and to support construction of buildings and roads on an incremental basis. There would be considerably fewer truck trips than under Alternatives 1 and 2. Truck crossings of Southcenter Parkway would occur to a much lesser degree.

Baseline Transportation Road Networks in 2015 and 2030

Baseline Transportation Network Assumptions

Given the long-term nature of the construction of the EIS development alternatives, two different future baseline transportation network were developed, one for the analysis of traffic conditions in 2015, and one for 2030. The network assumptions were based upon consistency with planned regional freeway and arterial infrastructure in the study area, known funding priorities, and assumed stages of development within the site. The following paragraphs highlight the existing and future roadway network assumptions under the future baseline conditions in 2015 and 2030. Baseline conditions refer to conditions without any further development of the Tukwila South site, but account for general growth in the area.

2015 Baseline Network

The 2015 Baseline Network assumes the existing transportation network remains as it is today, with the addition of selected planned local roadway improvements called for in city transportation improvement plans (TIPs) and regional improvements identified in WSDOT plans that have a high likelihood of funding. It also assumes other needed improvements necessary to support other major study area pipeline development projects (namely Pacific Gateway in Kent and redevelopment as a result of Boeing Renton Comprehensive Plan Amendments in Renton). These improvements include:

- Construct HOV lanes on I-5 from I-405 Tukwila to Pierce County line (funded).
- Upgrade Southcenter Boulevard to a 3-lane urban arterial between I-5 and SR 99 (funded).

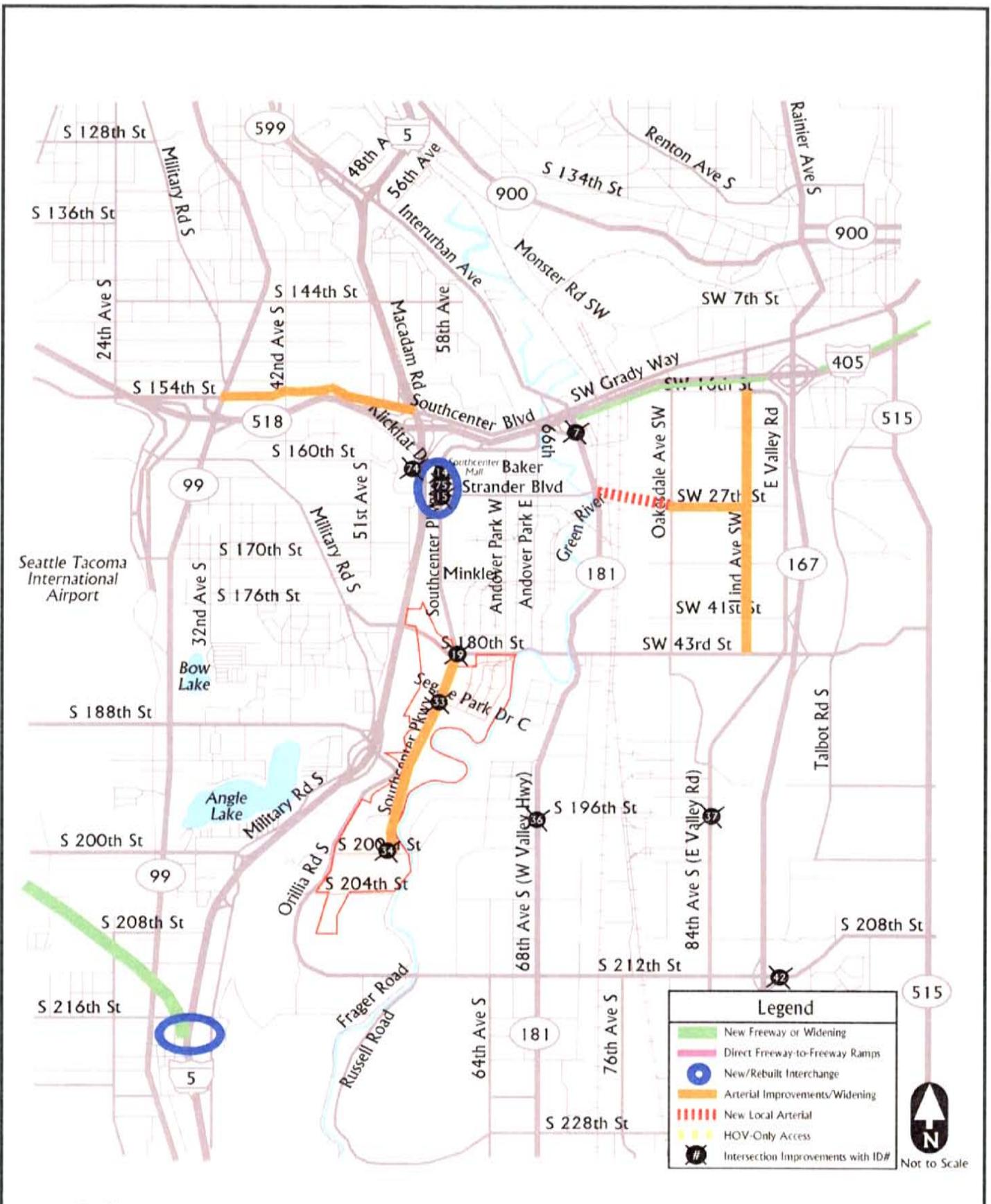
- Widen Southcenter Parkway to 5 lanes between S 180th Street to S 200th Street (not funded). This includes associated improvements at Intersections #19 (Southcenter Parkway/S 180th Street), #33 (Southcenter Parkway/Segale Park Drive C-S 178th Street), and #34 (Southcenter Parkway/S 200th Street).
- Widen Lind Avenue to 5 lanes from SW 16th Street to SW 43rd Street where required (not funded).
- Provide a Klickitat “flyover” for NB to WB movements from Southcenter Parkway to Klickitat Drive S (not funded). Includes associated improvements at Intersections #14 (remove northbound left-turn lane) and #75 (construct a NB right-turn lane).
- Provide double northbound left-turn lanes (1 general purpose, 1 HOV) at Intersection #7, SR 181 at I-405 NB Ramps (not funded).
- SR 509 Extension to I-5 and South Access Freeway to SeaTac International Airport (partially funded).
- Extend Strander Boulevard/SW 27th Street between SR 181 and Lind Avenue with 5 lane cross-section as part of buildout of Longacres Office Park (partially funded).
- Provide an eastbound right-turn lane at Intersection #36 SR 181 at S 196th Street (funded).
- Provide an eastbound right-turn lane and westbound left-turn lane at Intersection #37 E Valley Road at S 196th Street (funded).
- At Intersection #42 (SR 167 NB Ramps and S 212th Street), provide an eastbound right-turn lane, change northbound movements to 1 left-lane, 1 left-thru lane, and 1 right lane, and change southbound movements to 2 left-lanes and 1 thru-right lane as part of a vicinity retail development (funded).
- Install a traffic signal at Intersection #74 Klickitat Drive S/I-5 SB On-Ramp (not funded).
- I-405 Mainline (funded). Add one northbound lane between SR 181 (West Valley Highway) and SR 167 (Valley Freeway) and one southbound lane from SR 169 (Maple Valley Highway) to SR 167. The project will also extend the SR 167 southbound HOV lane north to I-405.

Figure 3.12-3 shows the assumed 2015 Baseline Network.

2030 Baseline Network

The 2030 Baseline Network assumes the same network as the 2015 Baseline Network plus additional improvements (which are not yet funded), including the following:

- Provide direct access arterial HOV lanes on SW 27th Street between East Valley Road and Oakesdale Avenue SW.
- Construct a new direct access/HOV interchange at SR 167 and SW 27th Street.
- I-405 Implementation Plan. Provide two general purposes lanes in each direction on I-405 (from I-90 south to I-5). Complete reconstruction of the SR 167 and I-405 interchange, providing direct freeway-to-freeway general purpose and HOV lane ramps, HOV-only interchange access onto Rainier Avenue and new split diamond interchanges at Lind Avenue and Talbot Avenue connected via a one-way frontage road system. Reconfigure Interurban Avenue interchange and widen 61st Street Bridge overpass.
- Extend Tukwila Parkway from Andover Park E to SR 181. Construct a new I-405 northbound on-ramp via the Tukwila Parkway extension, and remove existing I-405 northbound on-ramps at Tukwila Parkway and SR 181. Associated improvements at Intersections #7, #10, #12, and #68.
- Extend S 228th Street west to Military Road S.



Source: TenW

- Extend S 228th Street between 84th Avenue S to SR 515 with a new 3- to 5-lane roadway.
- Complete HOV lanes on SR 167 between 15th Street NW to King/Pierce County line.
- Add a 3rd lane on Minkler Boulevard from Southcenter Parkway to Andover Park W. Rechannelize eastbound movements to provide 1 left-turn lane and 1 thru-right lane at Intersection #63 Andover Park W at Minkler Boulevard (as mitigation for private development). Provide 1 general purpose lane in each direction on SR 167 from I-405 to 84th Avenue S.
- Provide a southbound right-turn lane at Intersection #37, E Valley Road at S 196th Street.

Figure 3.12-4 shows the assumed 2030 Baseline Network. The 2015 Baseline improvements are assumed to be in place. (Refer to Figure 3.13-3 for 2015 Baseline roadway improvements.)

Baseline Travel Demand Forecasts for 2015 and 2030

Baseline travel demand forecasts for the study area were prepared for 2015 and 2030 using a combination of regional land use forecasting information from the Puget Sound Regional Council (PSRC) as refined by the City of Tukwila model data for 2020. It includes known vicinity development pipeline projects that have been recently entitled in the cities of Tukwila, Kent and Renton. This data was used to project future development and associated traffic for the years 2015 and 2030, but assumes no new development on the Tukwila South site.

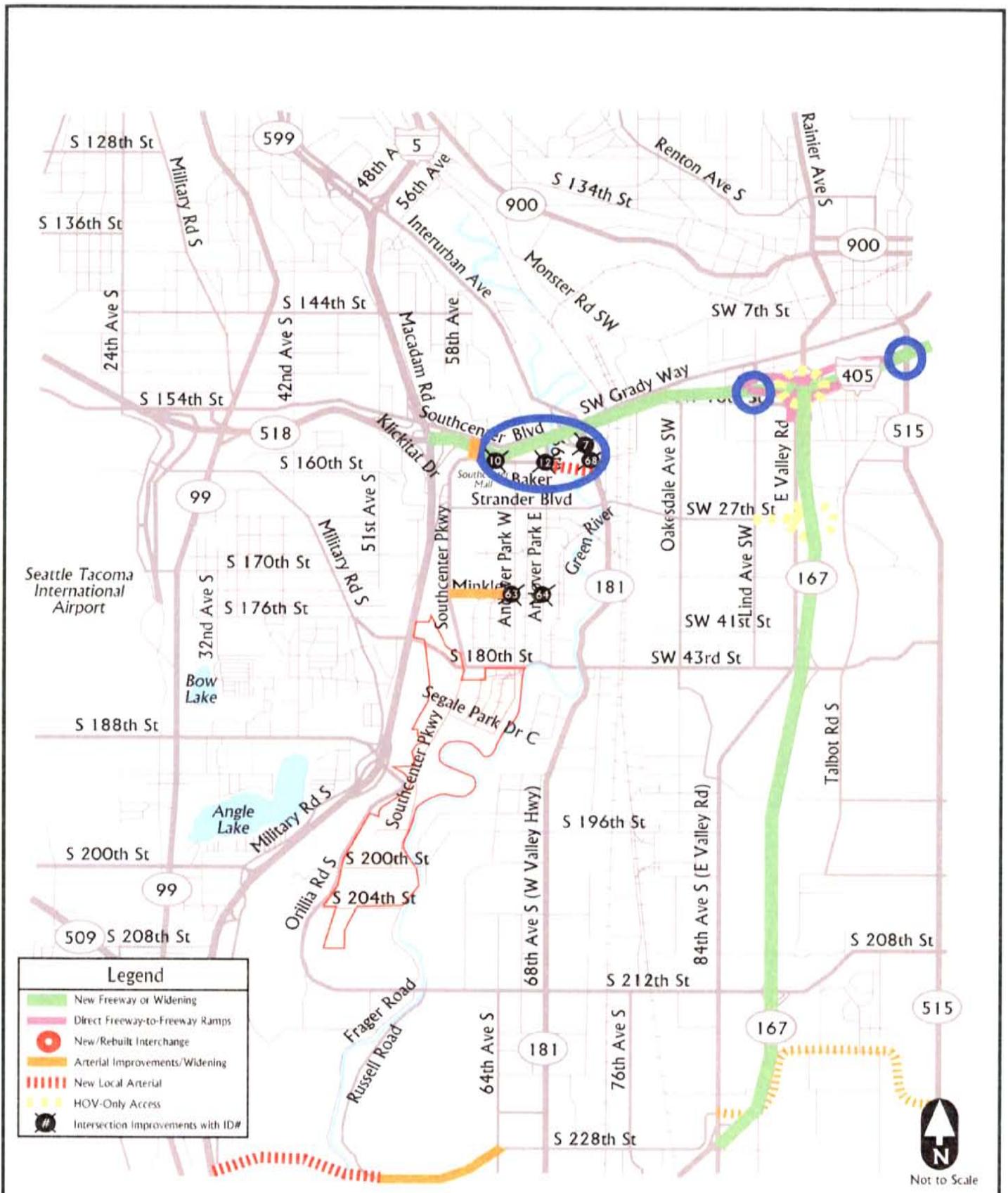
Transportation Modeling

The City of Tukwila uses a travel model (2020 EMME/2) to estimate existing and future traffic conditions. Because land use forecast assumptions in the City of Tukwila's model were for the year 2020, growth factoring was applied to adjust the City's 2020 baseline forecasts backward to 2015 and forward to 2030 (the two horizon years for analysis of transportation impacts). This refinement took into account relevant City of Tukwila, Kent and Renton "pipeline" projects (Westfield Shoppingtown Southcenter Expansion, Pacific Gateway and Boeing Renton Comprehensive Plan Amendments). Specific transportation improvements to support these projects are included in the 2015 Baseline Network.. A future project on the JC Penney warehouse site, which has not yet been entitled, is also accounted for in the City's EMME/2 model. Additional refinements were made to reflect the two Baseline Network roadway improvement scenarios described above

In order to analyze traffic impacts at the intersection level, turning movements were forecast using a Fratar growth factoring process. The objective of this method is to determine the most logical distribution of vehicle trips through an intersection given future regional development and redistribution of traffic related to infrastructure investments (e.g., I-405 widening). A complete discussion of the transportation modeling methodologies used for this analysis is included in Appendix I.

Trip Generation of Tukwila South EIS Development Alternatives

To evaluate vehicular trip generation rates from potential development at Tukwila South under the three EIS alternatives, trip generation surveys of comparable developments compiled by the Institute of Transportation Engineers (ITE) were used as published in the ITE *Trip Generation*, 7th Edition, 2003. The methods and application of trip generation rates to each land use type were applied consistent with the ITE Trip Generation Handbook (2003). It should be noted that



Source: TenW

the trip generation rates and land use assumptions used in this EIS analysis are conservative estimates. As described above, the specific mix of land uses on the site would be dependent on market, economic, and regulatory factors. Given the potential variance in employee densities associated with certain research and development and lab uses, resultant trip generation could be reduced between 10 and 20 percent below the rates used in this transportation impact analysis.

Pass-By and Diverted Trips

Retail development has a unique characteristic to its trip generation rate. Many of the trips that would use new retail developments are not “new” trips. They are existing trips on the network that would be traveling near a new retail development site, regardless of whether the development were there or not, but have no reason to stop without the development. These existing trips are called pass-by trips and diverted trips. Pass-by trips are those traveling on streets immediately adjacent to the site and with easy access to it. Pass-by trips are not considered to have direct impacts on the adjacent transportation facilities because they would be there anyway.

Diverted trips are those that are traveling on other streets that would change their existing travel pattern and divert to the site. It is only the impacts created by these diverted trips and by “new” trips (which would not be made unless the retail development occurred) that are considered in relation to site-specific transportation impacts.

Pass-by assumptions applied to overall trip generation rates reduced the overall external site area trip generation during the PM peak hour by 4 to 5 percent in 2015, and by 11 to 15 percent in 2030, depending upon the EIS alternative. Reduction of overall trip generation for pass-by trips for the No Action Alternative is less than for Alternatives 1 and 2 because of the nature of the land use assumptions. Refer to Appendix I for additional discussion of pass-by trips.

Internalization

To account for trips made between uses within the Tukwila South site under the EIS alternatives, an evaluation by individual planning area for each EIS alternative was conducted to determine the potential for internal trip reduction of the site area as a whole. This trip reduction potential or “capture” of trips internal to the site has the net effect of reducing vehicle trips to the external street system outside of the site and the associated impacts. ITE research shows that internalization potential typically ranges from approximately 5 percent to 25 percent depending upon the type, size and amount of retail use, and the relationship of onsite jobs to onsite residences. As an aggregate, internalization adjustments reduced external trip generation estimates for the EIS alternatives by between 8 to 11 percent in 2015, and 7 to 12 percent in 2030, depending upon the alternative. Of the internal vehicular trips estimated between uses, approximately 70 percent would utilize a public street (i.e. Southcenter Parkway, S 178th Street, S 200th Street) or through a public intersection to travel between the various subareas of the site.

Potential for Vehicle Trip Reduction

While there is the potential for vehicle trip reductions from future development on the site based on the implementation of commuter trip reduction measures, (including carpooling and an

**Table 3.12-4
TRIP GENERATION ESTIMATES OF THE ALTERNATIVES**

Key Findings	No Action Alternative			Alternative 1			Alternative 2		
2015 Alternative Descriptions									
2015 Land Use Assumptions (New Land Uses)	Retail - 300,000 sf <u>Industrial - 1,100,000 sf</u> Total - 1,400,000 sf			Retail - 400,000 sf Hotel - 100,000 sf (100 rooms) Residential - 1,000,000 sf (800 units) <u>Office - 2,000,000 sf</u> Total - 3,500,000 sf			Lt Industrial/Flex/Lab - 400,000 sf Retail - 400,000 sf Residential - 400,000 sf (400 units) Hotel - 100,000 sf (100 rooms)		
2015 PM Peak Hour Trip Generation									
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
ITE Gross PM Peak Hour Trips	793	1,626	2,419	1,529	2,954	4,483	1,263	2,468	3,731
<i>Less Total Internal Trips</i>	134	134	268	186	186	371	173	173	346
<i>Less Total Passby Trips</i>	52	52	104	95	101	196	95	101	196
<i>Less Trips Generated by Remove</i>	56	132	188	56	132	188	56	132	188
Net PM Peak Hour Trips after Adj	551	1,308	1,859	1,192	2,535	3,728	939	2,062	3,001
2030 Alternative Descriptions									
2030 Land Use Assumptions	Remaining Segale Business Park Uses (1,654,800 sf) Bank - 5,000 sf Retail - 523,000 sf Light Industrial - 429,000 sf <u>Warehouse - 1,050,000 sf</u> Total - 3,661,800 sf			Retail - 1,304,000 sf Restaurant - 285,000 sf Residential - 1,900,000 sf Office - 4,855,500 sf Research - 3,905,500 sf <u>Hotel - 1,750,000 sf</u> Total - 14,000,000 sf			Retail - 954,000 sf Restaurant - 85,000 sf Residential - 700,000 sf Office - 3,755,500 sf Research - 3,555,500 sf Flex-Tech - 500,000 sf <u>Hotel - 750,000 sf</u> Total - 10,300,000 sf		
2030 PM Peak Hour Trip Generation									
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
ITE Gross PM Peak Hour Trips	1,592	2,590	4,182	7,101	12,906	20,007	4,216	9,698	13,914
<i>Less Total Internal Trips</i>	248	248	496	905	905	1,810	486	486	972
<i>Less Total Passby Trips</i>	251	259	510	1,594	1,387	2,981	786	749	1,535
<i>Less Trips Generated by Existing</i>	298	943	1,241	298	943	1,241	298	943	1,241
Net PM Peak Hour Trips after Adj	795	1,140	1,935	4,304	9,671	13,975	2,646	7,520	10,166

Source: Transportation Engineering Northwest, LLC, 2005.

¹ In 2030, approximately 1.65 million square-feet of existing uses remain under the No Action Alternative. Trips generated by these remaining uses are shown in the gross total in 2030, with a deduction shown for existing site trip generation to determine net off-site impacts consistent with the other EIS alternatives.

increase in the use of other modes of transportation other than single occupancy vehicles, including), possible future high capacity transit service to the site, these factors were not included in this analysis. Therefore, this EIS analysis likely provides conservative estimates of trip generation (refer to Appendix I for further detail on potential trip reduction).

Net External Site Area Trip Generation Results

Table 3.12-4 summarizes the net external trip generation estimates under each EIS alternative in 2015 and 2030. Net external trip generation estimates include reductions for pass-by trips and internalized trips, and account for trips associated with existing uses that would be removed as part of development, such as Southcenter Golf, Seattle Tractor, etc. As shown in Table 3.12-4, net external PM peak hour trip generation in 2015 would be approximately 3,728 trips under Alternative 1, 3,001 trips under Alternative 2 and 1859 trips under the No Action Alternative. During the PM peak hour in 2030, net external trip generation would be approximately 13,975 trips under Alternative 1, 10,166 trips under Alternative 2 and 1,935 trips under the No Action Alternative.

Trip Distribution

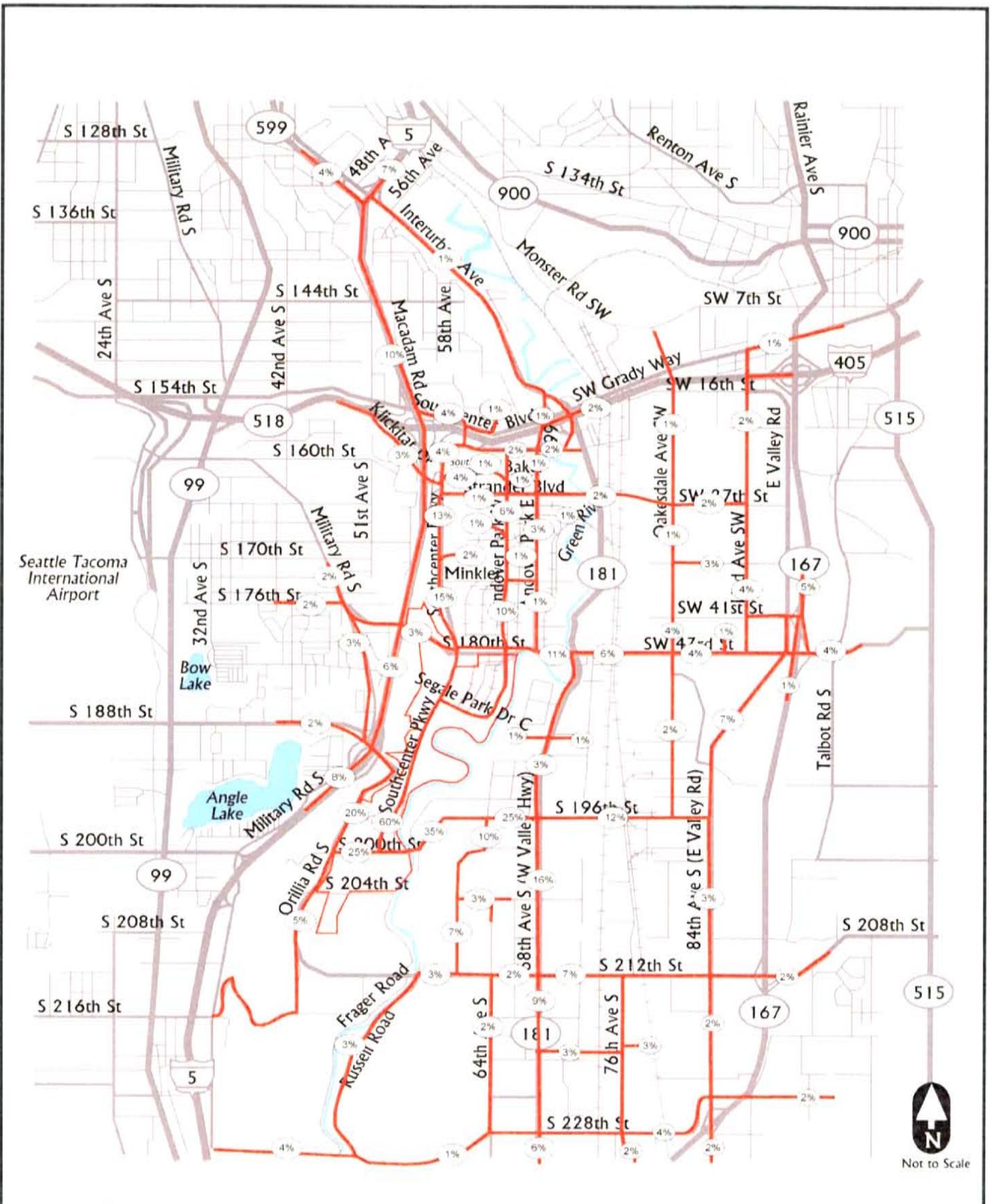
Existing traffic patterns, standard traffic engineering practices and guidelines, and the City of Tukwila's 2020 EMME/2 forecasting model were used in determining the distribution of future trips generated by the EIS development alternatives under the future baseline network assumptions for 2015 and 2030. In general, trips from the site are estimated to be distributed as follows:

- 15 percent west via Klickitat Drive S, Military Road S, S 176th Street, S 188th Street, and S 216th Street;
- 15 percent east via SR167/I-405, SW Grady Way, SW 43rd Street, S 212th Street, and S 228th Street;
- 15 percent north via I-5, SR 599, Interurban Avenue, Oakesdale Avenue SW, and Lind Avenue SW;
- 15 percent south via I-5, Russell Road, 64th Avenue S, West Valley Highway, 76th Avenue S, E Valley Road;
- 30 percent locally to employment centers and residential neighborhoods in the Tukwila site vicinity; and
- 10 percent locally to Westfield Shoppingtown Southcenter and the Tukwila Urban Center.

Figure 3.12-5 highlights trip distribution assumptions, including aggregate trip assignments along arterials. Generally, these trip distribution assumptions would remain similar under different future network assumptions (i.e., 2015 Baseline Network and 2030 Baseline Network); however, project traffic assignments to arterials and intersections immediately adjacent to the site would be redistributed slightly to reflect new arterial connections. Slight redistributions in traffic would also occur as congestion levels increase, and are considered in this analysis.

Intersection Level of Service Impacts

Level of service (LOS) impacts were evaluated at the 75 study area intersections (refer to Figure 3.12-2) during the PM peak hour in 2015 and 2030. For 2015, future levels of service and road infrastructure needs at study area intersections for development under Alternatives 1



Source: TenW

**Table 3.12-5
2015 PM PEAK HOUR INTERSECTION LEVEL OF SERVICE IMPACTS**

Int #	Intersection	Control	Existing Network			2015 Baseline Network																							
			2004 Existing			2015 Baseline			2015 No Action Alternative			2015 No Action Alternative with Improvements ¹			2015 Alternative 1			2015 Alternative 1 with Improvements ¹			2015 Alternative 2			2015 Alternative 2 with Improvements ¹					
			LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C
1	I-5 SB Off-Ramp / S 154th St / Southcenter Blvd	Signalized	C	27	0.75	D	37	0.85	D	38	0.86	D	38	0.86	D	38	0.86	D	38	0.86	D	38	0.86	D	38	0.86	D	38	0.86
2	Macadam Road S / Southcenter Blvd	Signalized	B	11	0.72	C	20	0.87	C	24	0.90	D	24	0.90	C	24	0.90	C	24	0.90	C	24	0.90	C	22	0.89	C	22	0.89
3	61st Ave S / Southcenter Blvd	Signalized	B	16	0.74	C	32	0.97	C	33	1.00	C	33	1.00	D	36	1.03	D	36	1.03	D	36	1.03	D	36	1.02	D	36	1.02
4	66th Ave S / Southcenter Blvd	Signalized	C	22	0.62	C	23	0.75	C	22	0.76	C	22	0.76	C	23	0.77	C	23	0.77	C	23	0.77	C	23	0.77	C	23	0.76
5	Interurban Ave S / Fort Dent Way / I-405 SB Ramps	Signalized	D	54	1.03	F	> 120	1.33	F	> 120	1.34	F	> 120	1.34	F	> 120	1.34	F	> 120	1.34	F	> 120	1.34	F	> 120	1.34	F	> 120	1.34
6	Interurban Ave S / Southcenter Blvd / S Grady Way	Signalized	D	48	0.94	F	88	1.14	F	90	1.18	F	90	1.18	F	91	1.19	F	91	1.19	F	91	1.19	F	90	1.19	F	90	1.19
7	SR 181 (West Valley Hwy) / I-405 NB Ramps	Signalized	D	39	1.01	B	19	0.86	B	19	0.86	B	19	0.86	B	18	0.86	B	18	0.86	B	18	0.86	B	18	0.86	B	18	0.86
8	SR 181 (West Valley Hwy) / Strander Blvd	Signalized	D	45	0.89	E	61	0.98	E	62	0.98	E	62	0.98	E	69	1.00	E	69	1.00	E	69	1.00	E	68	1.00	E	68	1.00
9	61st Ave S / Tukwila Pkwy	Signalized	B	18	0.64	B	20	0.76	C	21	0.79	C	21	0.79	C	22	0.81	C	22	0.81	C	22	0.81	C	22	0.80	C	22	0.80
10	I-405 NB On-Ramp / Tukwila Pkwy	Signalized	A	7	0.41	B	12	0.43	B	12	0.43	B	12	0.43	B	12	0.43	B	12	0.43	B	12	0.43	B	12	0.43	B	12	0.43
11	Andover Park W / Tukwila Pkwy	Signalized	C	24	0.53	C	22	0.66	C	23	0.68	C	23	0.68	C	24	0.71	C	24	0.71	C	24	0.71	C	23	0.70	C	23	0.70
12	Andover Park E / Tukwila Pkwy	Signalized	B	20	0.62	C	27	0.80	C	29	0.80	C	29	0.80	C	28	0.81	C	28	0.81	C	28	0.81	C	27	0.81	C	27	0.81
13	Southcenter Pkwy / I-5 NB Off-Ramp	Signalized	C	20	0.53	D	35	0.75	D	36	0.80	D	36	0.80	D	37	0.85	D	37	0.85	C	36	0.83	C	36	0.83	C	36	0.83
14	Southcenter Pkwy / Klickitat Drive	Signalized	B	17	0.64	C	22	0.55	C	24	0.60	C	24	0.60	B	17	0.64	B	20	0.64	B	20	0.64	B	17	0.62	B	17	0.62
15	Southcenter Pkwy / Strander Blvd	Signalized	B	14	0.56	C	24	0.68	C	23	0.74	C	23	0.74	C	25	0.81	C	26	0.77	C	26	0.77	C	24	0.78	C	24	0.78
16	Andover Park W / Strander Blvd	Signalized	C	35	0.79	D	51	0.93	E	56	0.97	E	56	0.97	E	63	1.01	E	63	1.01	E	63	1.01	E	60	1.00	E	60	1.00
17	Andover Park E / Strander Blvd	Signalized	C	33	0.77	D	42	0.93	D	43	0.96	D	43	0.96	D	45	0.98	D	45	0.98	D	45	0.98	D	43	0.97	D	43	0.97
18	Military Road S / S 176th St	Signalized	C	31	0.82	D	36	0.86	D	39	0.89	D	39	0.89	D	41	0.85	D	41	0.85	D	41	0.85	D	40	0.84	D	40	0.84
19	Southcenter Pkwy / S 180th St	Signalized	D	37	0.85	D	50	0.85	E	58	0.98	E	58	0.98	B	19	0.78	C	20	0.78	B	18	0.74	B	19	0.74	B	19	0.74
20	Andover Park W / S 180th St	Signalized	D	36	0.83	D	48	0.91	E	70	1.02	E	70	1.02	F	> 120	1.25	E	78	1.07	F	> 120	1.17	E	67	1.00	E	67	1.00
21	Andover Park E / S 180th St	Signalized	B	16	0.76	B	16	0.73	B	16	0.77	B	16	0.77	B	16	0.76	B	17	0.76	B	17	0.76	B	17	0.75	B	16	0.75
22	SR 181 (West Valley Hwy) / S 180th St	Signalized	E	57	0.95	D	49	0.85	D	48	0.91	D	48	0.91	D	50	0.94	D	52	0.94	D	48	0.93	D	49	0.93	D	49	0.93
23	Oakdale Ave SW / SW 43rd St	Signalized	B	15	0.61	C	21	0.81	C	22	0.83	C	22	0.83	C	23	0.85	C	23	0.85	C	23	0.85	C	23	0.84	C	23	0.84
24	Lind Ave SW / SW 43rd St	Signalized	C	33	0.79	D	37	0.84	D	40	0.85	D	40	0.85	D	41	0.87	D	41	0.87	D	41	0.87	D	40	0.87	D	40	0.87
25	E Valley Road / SW 43rd St	Signalized	D	46	1.04	F	84	1.14	F	102	1.23	F	102	1.23	F	93	1.22	F	94	1.22	F	94	1.22	F	88	1.20	F	89	1.20
26	SR 167 NB Ramps / SW 43rd St	Signalized	C	27	0.90	D	46	1.06	D	54	1.10	D	54	1.10	E	65	1.16	E	65	1.16	E	65	1.16	E	61	1.14	E	61	1.14
27	SR 181 (West Valley Hwy) / Todd Blvd	Signalized	B	11	0.73	B	12	0.69	B	12	0.66	B	12	0.66	B	12	0.68	B	12	0.68	B	12	0.68	B	12	0.67	B	12	0.67
28	SR 181 (West Valley Hwy) / S 190th Street	Signalized	B	10	0.66	A	9	0.67	A	8	0.70	A	8	0.70	B	11	0.73	B	11	0.73	B	11	0.73	B	11	0.72	B	11	0.72
29	Military Road S / S 188th St	Signalized	C	29	0.71	C	24	0.61	C	24	0.64	C	24	0.64	C	24	0.64	C	24	0.64	C	24	0.64	C	24	0.64	C	24	0.64
30	I-5 SB Ramps / Orillia Road S	Signalized	C	25	0.87	C	24	0.87	C	34	0.94	C	34	0.94	D	45	1.06	D	45	1.06	D	45	1.06	D	40	1.01	D	40	1.01
31	I-5 NB Ramps / Orillia Road S	Signalized	C	20	0.80	E	56	1.19	E	65	1.25	E	65	1.25	E	79	1.33	E	79	1.33	E	79	1.33	E	74	1.30	E	74	1.30
32	Orillia Road S / S 200th St	Signalized	B	16	0.75	B	17	0.80	C	23	0.88	C	23	0.88	C	32	0.96	C	32	0.96	C	32	0.96	C	28	0.94	C	28	0.94
33	Southcenter Pkwy / Segale Park Drive C	Unsignalized	B	14	0.26	D	34	0.61	D	35	0.63	D	35	0.63	F	> 100	> 1.50	--	--	--	F	> 100	> 1.50	--	--	--	--	--	--
33	Southcenter Pkwy / Segale Park Drive C	Signalized	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	E	73	1.06	--	--	--	E	60	0.96	E	60	0.96
34	Fragar Road / S 200th St	Unsignalized	C	22	0.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
34	S 200th St / Southcenter Parkway	Signalized	--	--	--	C	21	0.86	C	24	0.85	E	56	1.02	F	> 120	> 1.50	E	56	1.02	F	> 120	1.41	D	38	0.96	D	38	0.96
35	S 196th St / 62nd Ave S	Signalized	B	12	0.40	B	16	0.59	B	19	0.64	B	19	0.64	C	29	0.85	C	29	0.85	C	21	0.84	C	21	0.84	C	21	0.84
36	SR 181 (West Valley Hwy) / S 196th St	Signalized	C	31	0.78	D	43	0.91	D	43	0.90	D	43	0.90	D	55	1.02	D	55	1.02	D	50	0.99	D	50	0.99	D	50	0.99
37	E Valley Road / S 196th St	Signalized	D	42	0.84	D	38	0.82	D	41	0.88	D	41	0.88	D	48	1.03	D	47	1.03	D	45	1.00	D	42	1.00	D	42	1.00
38	42nd Ave S / Orillia Road S / S 212th St	Signalized	B	15	0.70	C	26	0.86	C	25	0.85	C	25	0.85	C	28	0.87	C	28	0.87	C	27	0.86	C	27	0.86	C	27	0.86
39	SR 181 (West Valley Hwy) / S 212th St	Signalized	D	39	0.89	D	49	1.00	E	57	1.06	E	57	1.06	E	65	1.09	E	65	1.09	E	62	1.05	E	62	1.08	E	62	1.08
40	E Valley Road / S 212th St	Signalized	D	40	0.85	F	101	1.30	F	103	1.26	F	103	1.26	F	108	1.27	F	108	1.27	F	108	1.27	F	108	1.27	F	106	1.27
41	SR 167 SB Ramps / S 212th St	Signalized	B	17	0.77	D	54	1.06	E	56	1.06	E	56	1.06	E	56	1.07	E	56	1.07	D	54	1.07	E	56	1.07	E	56	1.07
42	SR 167 NB Ramps / S 212th St	Signalized	E	56	0.99	E	73	1.07	E	76	1.08	E	76	1.08	E	80	1.09	E	80	1.09	E	78	1.09	E	79	1.09	E	79	1.09
43	84th Avenue S / S 224th St	Signalized	C	25	0.78	C	29	0.81	C	31	0.82	C	31	0.82	D	35	0.83	D	35	0.83	C	34	0.83	C	34	0.83	C	34	0.83
44	84th Ave S (Central Ave N) / SR 167 SB Ramps	Signalized	B	17	0.68	B	17	0.67	B	16	0.68	B	16	0.68	B	16	0.69	B	16	0.69	B	16	0.68	B	16	0.68	B	16	0.68
45	84th Ave S (Central Ave N) / SR 167 NB Ramps																												

**Table 3.12-6
2030 PM PEAK HOUR LEVEL OF SERVICE IMPACTS**

Int #	Intersection	Control	Existing Network			2030 Baseline Network																					
			2004 Existing			2030 Baseline			2030 No Action Alternative			2030 No Action Alternative with Improvements ¹			2030 Alternative 1			2030 Alternative 1 with Improvements ¹			2030 Alternative 2			2030 Alternative 2 with Improvements ¹			
			LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS
1	I-5 SB Off-Ramp / S 154th St / Southcenter Blvd	Signalized	C	27	0.75	E	78	1.03	F	82	1.04	F	82	1.04	F	99	1.10	D	52	0.94	F	89	1.07	D	47	0.92	
2	Macadam Road S / Southcenter Blvd	Signalized	B	11	0.72	C	34	0.98	D	40	1.02	D	40	1.02	F	91	1.20	E	61	1.11	E	70	1.13	E	70	1.13	
3	61st Ave S / Southcenter Blvd	Signalized	B	16	0.74	D	42	1.09	D	45	1.12	D	45	1.12	F	81	1.26	E	69	1.22	E	69	1.21	E	70	1.21	
4	66th Ave S / Southcenter Blvd	Signalized	C	22	0.82	B	19	0.82	B	19	0.84	D	20	0.84	C	23	0.86	C	23	0.86	C	22	0.84	C	22	0.84	
5	Interurban Ave S / Fort Dent Way / I-405 SB Ramps	Signalized	D	54	1.03	F	> 120	1.41	F	> 120	1.42	F	> 120	1.42	F	> 120	1.46	F	> 120	1.46	F	> 120	1.46	F	> 120	1.46	
6	Interurban Ave S / Southcenter Blvd / S Grady Way	Signalized	D	48	0.94	F	> 120	1.33	F	> 120	1.33	F	> 120	1.33	F	> 120	1.42	F	> 120	1.42	F	> 120	1.41	F	> 120	1.41	
7	SR 181 (West Valley Hwy) / I-405 NB Ramps	Signalized	D	39	1.01	B	13	0.76	B	13	0.76	B	13	0.76	B	11	0.76	B	11	0.76	B	11	0.76	B	11	0.76	
8	SR 181 (West Valley Hwy) / Strander Blvd	Signalized	D	45	0.89	E	71	1.08	E	73	1.09	E	73	1.09	E	75	1.09	E	74	1.09	E	70	1.11	E	75	1.11	
9	61st Ave S / Tukwila Pkwy	Signalized	B	18	0.64	C	30	0.90	C	34	0.94	C	34	0.94	D	43	1.02	C	35	0.97	D	39	0.98	C	33	0.94	
10	I-405 NB On-Ramp / Tukwila Pkwy	Signalized	A	7	0.41	B	17	0.64	B	17	0.65	B	17	0.65	C	23	0.65	C	22	0.65	C	24	0.65	C	22	0.65	
11	Andover Park W / Tukwila Pkwy	Signalized	C	24	0.53	C	30	0.92	C	33	0.95	C	33	0.95	E	66	1.11	E	67	1.11	E	58	1.08	E	57	1.08	
12	Andover Park E / Tukwila Pkwy	Signalized	B	20	0.62	D	52	1.00	D	50	0.98	D	50	0.98	E	64	1.05	E	63	1.05	E	58	1.03	E	59	1.03	
13	Southcenter Pkwy / I-5 NB Off-Ramp	Signalized	C	20	0.53	D	42	0.87	D	45	0.91	D	45	0.91	F	101	1.19	D	47	1.00	E	76	1.11	E	64	1.05	
14	Southcenter Pkwy / Klickitat Drive	Signalized	B	17	0.64	B	17	0.61	B	16	0.66	B	16	0.66	C	27	0.94	C	28	0.88	C	22	0.85	C	23	0.81	
15	Southcenter Pkwy / Strander Blvd	Signalized	B	14	0.56	C	31	0.77	C	30	0.78	C	30	0.78	D	54	0.97	D	50	0.93	D	36	0.91	D	39	0.88	
16	Andover Park W / Strander Blvd	Signalized	C	35	0.79	F	> 120	1.23	F	> 120	1.26	F	> 120	1.26	F	> 120	> 1.50	F	> 120	1.46	F	> 120	1.46	F	> 120	1.41	
17	Andover Park E / Strander Blvd	Signalized	C	33	0.77	F	86	1.18	F	92	1.19	F	92	1.19	F	> 120	1.31	F	> 120	1.31	F	111	1.27	F	111	1.27	
18	Military Road S / S 176th St	Signalized	C	31	0.82	D	52	0.94	E	58	0.96	E	58	0.97	F	94	1.09	E	67	1.03	E	79	1.06	E	79	1.06	
19	Southcenter Pkwy / S 180th St	Signalized	D	37	0.85	E	73	1.08	F	98	1.15	E	73	1.08	F	119	1.35	D	41	1.03	E	75	1.17	E	81	1.17	
20	Andover Park W / S 180th St	Signalized	D	36	0.83	F	107	1.15	F	> 120	1.29	E	56	1.04	F	> 120	> 1.50	E	65	1.01	F	> 120	> 1.50	E	64	0.99	
21	Andover Park E / S 180th St	Signalized	B	16	0.76	B	20	0.81	C	20	0.85	C	22	0.85	D	42	1.01	C	25	0.97	C	28	0.93	C	25	0.91	
22	SR 181 (West Valley Hwy) / S 180th St	Signalized	E	57	0.95	E	77	1.04	F	84	1.07	E	74	1.07	F	> 120	1.35	E	76	1.13	F	> 120	1.30	E	65	1.05	
23	Oakesdale Ave SW / SW 43rd St	Signalized	B	15	0.61	D	38	1.04	D	40	1.06	D	40	1.06	F	91	1.18	D	43	1.00	E	75	1.13	E	77	1.13	
24	Lind Ave SW / SW 43rd St	Signalized	C	33	0.79	E	58	1.01	E	62	1.07	E	62	1.02	E	79	1.07	E	68	1.06	E	77	1.06	E	76	1.06	
25	E Valley Road / SW 43rd St	Signalized	D	46	1.04	F	> 120	> 1.50	F	> 120	> 1.50	F	> 120	> 1.50	F	> 120	> 1.50	F	> 120	> 1.50	F	> 120	> 1.50	F	> 120	> 1.50	
26	SR 167 NB Ramps / SW 43rd St	Signalized	C	27	0.90	F	107	1.26	F	119	1.31	F	119	1.31	F	> 120	> 1.50	F	> 120	> 1.50	F	> 120	> 1.50	F	> 120	> 1.50	
27	SR 181 (West Valley Hwy) / Todd Blvd	Signalized	B	11	0.73	B	14	0.75	B	15	0.77	B	15	0.77	B	20	0.90	B	20	0.90	B	14	0.86	B	14	0.86	
28	SR 181 (West Valley Hwy) / S 190th Street	Signalized	B	10	0.66	A	9	0.77	A	9	0.79	A	9	0.79	B	18	0.96	C	28	1.03	B	17	0.92	C	21	0.96	
29	Military Road S / S 188th St	Signalized	C	29	0.71	C	28	0.74	C	28	0.75	C	28	0.75	C	31	0.85	C	33	0.82	C	28	0.82	C	27	0.79	
30	I-5 SB Ramps / Orillia Road S	Signalized	C	25	0.87	D	45	1.03	E	63	1.16	E	63	1.16	F	> 120	> 1.50	F	102	1.30	F	> 120	> 1.50	E	64	1.10	
31	I-5 NB Ramps / Orillia Road S	Signalized	C	20	0.80	F	89	1.41	F	104	1.50	F	104	1.50	F	> 120	> 1.50	F	101	1.32	F	> 120	> 1.50	E	61	1.20	
32	Orillia Road S / S 200th St	Signalized	B	16	0.75	C	22	0.90	C	32	0.98	C	32	0.98	F	> 120	> 1.50	C	30	0.84	F	> 120	1.29	C	29	0.76	
33	Southcenter Pkwy / Segale Park Drive C	Unsignalized	B	14	0.26	F	111	1.01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
33	Southcenter Pkwy / Segale Park Drive C	Signalized	--	--	--	--	--	--	A	7	0.49	A	7	0.49	F	> 120	> 1.50	E	68	0.99	F	> 120	> 1.50	E	65	0.98	
34	Fragar Road / S 200th St	Unsignalized	C	22	0.67	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
34	S 200th St / Fragar Rd	Signalized	--	--	--	D	44	0.99	F	> 120	> 1.50	D	39	1.07	F	> 120	> 1.50	F	91	1.13	F	> 120	> 1.50	D	52	0.99	
35	S 196th St / 62nd Ave S	Signalized	B	12	0.40	B	18	0.57	D	39	0.80	D	39	0.80	F	> 120	> 1.50	E	73	1.09	F	> 120	> 1.50	E	59	1.05	
36	SR 181 (West Valley Hwy) / S 196th St	Signalized	C	31	0.78	F	91	1.22	F	119	1.27	F	119	1.27	F	> 120	> 1.50	F	> 120	> 1.50	F	> 120	> 1.50	F	> 120	> 1.50	
37	E Valley Road / S 196th St	Signalized	D	42	0.84	F	99	1.16	F	120	1.26	F	120	1.26	F	> 120	> 1.50	F	> 120	> 1.50	F	> 120	1.50	F	> 120	1.50	
38	42nd Ave S / Orillia Road S / S 212th St	Signalized	B	15	0.70	C	26	0.87	C	29	0.90	C	29	0.90	E	65	1.15	E	65	1.15	D	43	1.03	D	43	1.03	
39	SR 181 (West Valley Hwy) / S 212th St	Signalized	D	39	0.89	F	114	1.28	F	> 120	1.31	F	> 120	1.31	F	> 120	> 1.50	F	> 120	> 1.50	F	> 120	1.45	F	> 120	1.45	
40	E Valley Road / S 212th St	Signalized	D	40	0.85	F	> 120	> 1.50	F	> 120	> 1.50	F	> 120	> 1.50	F	> 120	> 1.50	F	> 120	> 1.50	F	> 120	> 1.50	F	> 120	> 1.50	
41	SR 167 SB Ramps / S 212th St	Signalized	B	17	0.77	F	114	1.29	F	117	1.29	F	117	1.29	F	> 120	1.33	F	> 120	1.33	F	> 120	1.32	F	> 120	1.32	
42	SR 167 NB Ramps / S 212th St	Signalized	E	56	0.99	F	> 120	1.24	F	> 120	1.25	F	> 120	1.25	F	> 120	1.29	F	> 120	1.29	F	> 120	1.27	F	> 120	1.27	
43	84th Avenue S / S 224th St	Signalized	C	25	0.78	E	56	0.96	E	59	0.97	E	59	0.97	E	66	1.02	E	66	1.02	E	60	1.00	E	66	1.01	
44	84th Ave S (Central Ave N) / SR 167 SB Ramps	Signalized	B	17	0.68	C	24	0.80	C	24	0.81	C	24	0.81	C	29	0.85	C	29	0.85	C	27	0.88	C	25	0.89	
45	84th Ave S (Central Ave N) / SR 167 NB Ramps	Signalized	A	8	0.67	A	10	0.72	A	10	0.73	A	10	0.73	B	11	0.77	B	11	0.77	B	14	0.75	B	13	0.76	
46	84th Ave S (Central Ave N) / S 228th St	Signalized	B	13	0.56	B	14	0.62	B	14	0.63	B	14	0.63	B	16	0.67	B	16	0.67	B	16	0.66	B	14	0.66	
47	Oakesdale Ave SW / SW Grady Way	Signalized	D	46	0.90	F	108	1.15	F	109	1.15	F	109	1.15	F	119	1.18	F	118	1.18	F	114	1.17	F	114	1.17	
48																											

and 2 were found to be generally similar. The No Action Alternative had fewer impacts and infrastructure needs. However, impacts and infrastructure needs for development under Alternatives 1 and 2 in 2030 would vary more widely. Impacts and infrastructure needs would remain relatively insignificant for the No Action Alternative. See Tables 3.12-5 and 3.12-6 for the results of the LOS analysis. (See Appendix I for further background on the intersection level of service analysis.)

2015

Table 3.12-5 shows existing PM peak hour LOS at the 75 study intersections and also shows the LOS in 2015, with no new development on Tukwila South and with the three EIS development alternatives. It also shows the LOS with development under each of the three EIS alternatives assuming certain infrastructure improvements, which are described in Section 3.12.4, Mitigation Measures.

Baseline Condition. Without development under Alternatives 1 and 2 and the No Action Alternative in 2015, the following six intersections will operate at LOS F during the PM peak hour (refer Figure 3.12-2 for intersection identification numbers):

- Int. #5 - Interurban Avenue S at Fort Dent Way/I-405 SB Ramps (in Tukwila);
- Int. #6 - Interurban Avenue S at Southcenter Boulevard/SW Grady Way (in Tukwila);
- Int. #25 - E Valley Road at SW 43rd Street (in Renton/Kent);
- Int. #40 - E Valley Road at S 212th Street (in Kent);
- Int. #49 - SR 167/Rainier Avenue S at SW Grady Way (in Renton); and,
- Int. #55 - E Valley Road at SR 167 SB Ramps (in Kent).

Alternatives 1 and 2 and the No Action Alternative. No additional intersections would degrade to LOS F under the No Action Alternative. Under either Alternative 1 or 2 in 2015, assuming the 2015 Baseline Network, two additional intersections would degrade to LOS F:

- Int. #20 - Andover Park W at S 180th Street (in Tukwila); and,
- Int. #33 - Southcenter Parkway at Segale Park Drive C (in Tukwila).

Level of service conditions reported in Table 3.12-5 that are noted as “with Improvements” summarize estimated operating conditions with potential transportation improvements to address likely level of service deficiencies. These improvements are outlined in Section 3.12.4, Mitigation Measures, and in the Infrastructure Measures section of Appendix I.

2030

Table 3.12-6 summarizes PM peak hour intersection LOS at the 75 study area intersections in 2030, with and without the EIS alternatives, assuming the 2030 Baseline Network.

Baseline Condition. If no new development occurs on the Tukwila South site the following 18 intersections will operate at LOS F:

- Int. #5 - Interurban Avenue S at Fort Dent Way/I-405 SB Ramps (in Tukwila);
- Int. #6 - Interurban Avenue S at Southcenter Boulevard/SW Grady Way (in Tukwila);
- Int. #16 - Andover Park W at Strander Boulevard (in Tukwila);

- Int. #17 - Andover Park E at Strander Boulevard (in Tukwila);
- Int. #20 - Andover Park W at S 180th Street (in Tukwila);
- Int. #25 - E Valley Road at SW 43rd Street (in Renton/Kent);
- Int. #26 - SR 167 NB Ramps at SW 43rd Street (in Renton);
- Int. #31 - I-5 NB Ramps at Orillia Road S (in SeaTac);
- Int. #33 - Southcenter Parkway at Segale Park Drive C (in Tukwila);
- Int. #36 - SR 181/W Valley Highway at S 196th Street (in Kent);
- Int. #37 - E Valley Road at S 196th Street (in Kent);
- Int. #39 - SR 181/W Valley Highway at S 212th Street (in Kent);
- Int. #40 - E Valley Road at S 212th Street (in Kent);
- Int. #41 - SR 167 SB Ramps at S 212th Street (in Kent);
- Int. #42 - SR 167 NB Ramps at S 212th Street (in Kent);
- Int. #47 - Oakesdale Avenue SW at SW Grady Way (in Renton);
- Int. #55 - E Valley Road at SR 167 SB Ramps (in Renton); and,
- Int. #67 - Sperry Drive at S 180th Street (in Tukwila).

Alternative 1. Under Alternative 1 in 2030, the following 19 additional intersections would operate at LOS F during PM peak commute hours, assuming the 2030 Baseline Network, without additional improvements:

- Int. #1 - I-5 SB Off-Ramp/S 154th Street at Southcenter Boulevard (in Tukwila);
- Int. #2 - Macadam Road at Southcenter Boulevard (in Tukwila);
- Int. #3 - 61st Avenue S at Southcenter Boulevard (in Tukwila);
- Int. #13 - Southcenter Parkway at I-5 NB Off-Ramp (in Tukwila);
- Int. #18 - Military Road S at S 176th Street (in SeaTac);
- Int. #19 - Southcenter Parkway at S 180th Street (in Tukwila);
- Int. #22 - SR 181/W Valley Highway at S 180th Street (in Tukwila);
- Int. #23 - Oakesdale Avenue at SW 43rd Street (in Renton);
- Int. #30 - I-5 SB Ramps at Orillia Road S (in SeaTac);
- Int. #32 - Orillia Road S at S 200th Street (in unincorporated King County);
- Int. #33 - Southcenter Parkway at Segale Park Drive C (in Tukwila);
- Int. #34 - Southcenter Parkway at S 200th Street (in Tukwila);
- Int. #35 - S 196th Street at 62nd Avenue S (in Kent);
- Int. #49 - SR 167 (Rainier Ave S) at SW Grady Way (in Renton)
- Int. #61 - Southcenter Parkway at S 168th Street (in Tukwila);
- Int. #62 - Southcenter Parkway at Minkler Boulevard (in Tukwila)
- Int. #63 - Andover Park W at Minkler Boulevard (in Tukwila);
- Int. #65 - Southcenter Parkway at 17500 Block; and,
- Int. #75 - Southcenter Parkway at I-5 NB Off-Ramp.

Combined with the 18 intersections that would operate at LOS F in 2030 under baseline conditions, a total of 37 intersections would operate at LOS F under Alternative 1. With the additional transportation improvements described in Section 3.12.4, Mitigation Measures, 18 of these 37 intersections would still operate at LOS F. Table 3.12-6 identifies these intersections.

Alternative 2. Under Alternative 2 in 2030, the following 10 additional intersections would operate at LOS F, assuming the 2030 Baseline Network without additional improvements:

- Int. #1 - I-5 SB Off-Ramp/S 154th Street at Southcenter Boulevard (in Tukwila);
- Int. #22 - SR 181/W Valley Highway at S 180th Street (in Tukwila);
- Int. #30 - I-5 SB Ramps at Orillia Road S (in SeaTac);
- Int. #32 - Orillia Road S at S 200th Street (in unincorporated King County);
- Int. #33 - Southcenter Parkway at Segale Park Drive C (in Tukwila);
- Int. #34 - Southcenter Parkway/Frager Road at S 200th Street (in Tukwila);
- Int. #35 - S 196th Street at 62nd Avenue S (in Kent);
- Int. #61 - Southcenter Parkway at S 168th Street (in Tukwila);
- Int. #63 - Andover Park W at Minkler Boulevard (in Tukwila); and,
- Int. #75 - Southcenter Parkway at I-5 NB Off-Ramp.

Combined with the 18 intersections that would operate at LOS F in 2030 under baseline conditions, a total of 28 intersections would operate at LOS F under Alternative 2. With the additional transportation improvements described in Section 3.12.4, Mitigation Measures, 15 of these 28 intersections would still operate at LOS F. Table 3.12-6 identifies these intersections.

No Action Alternative. Under the No Action Alternative the following 5 additional intersections would operate at LOS F, assuming the 2030 Baseline Network, without additional improvements:

- Int. #1 - I-5 SB Off-Ramp/S 154th Street at Southcenter Boulevard (in Tukwila);
- Int. #19 - Southcenter Parkway at S 180th Street (in Tukwila);
- Int. #22 - SR 181/W Valley Highway at S 180th Street (in Tukwila);
- Int. #34 - Southcenter Parkway/Frager Road at S 200th Street (in Tukwila); and
- Int. #63 - Andover Park W at Minkler Boulevard (in Tukwila).

Combined with the 18 intersections that would operate at LOS F in 2030 under baseline conditions, a total of 23 intersections would operate at LOS F under the No Action Alternative. With the additional transportation improvements described in Section 3.12.4, Mitigation Measures, 15 of these 37 intersections would still operate at LOS F. Table 3.12-6 identifies these intersections.

All other intersections would operate at LOS E or better during the PM peak hour under Alternatives 1 and 2 and the No Action Alternative in 2030. Potential improvements to intersections internal to the site, and related to roadway infrastructure improvements required as part of the development, were identified as part of this analysis (see Section 3.12.4, Mitigation Measures, and the Infrastructure Measures section of Appendix I).

With potential infrastructure improvements to mitigate impacts (which includes the addition of one new off-site intersection at a new east-west site access roadway with Orillia Road by 2030; see Section 3.12.4, Mitigation Measures) for Alternative 1 in the year 2030, 18 intersections would still continue to operate at LOS F. With potential infrastructure improvements (as identified under Mitigation Measures) under Alternative 2 in the year 2030, the total number of intersections operating at LOS F would be 15 intersections (15 out of 28 without improvements; 18 under baseline conditions and 10 under Alternative 2). With potential infrastructure improvements under the No Action Alternative 15 intersections would continue to operate at LOS F.

Arterial Level of Service Impacts

Travel speeds were forecasted and resulting arterial LOS were calculated for specific arterial segments during the PM peak hour using the 2015 baseline network for the 2015 horizon year and the 2030 baseline network for the 2030 horizon year. The City of Tukwila has a minimum LOS E standard for specific arterial segments within city boundaries (including the Tukwila Urban Center [TUC]) and LOS D for minor and collector arterials in residential areas, as discussed previously (TMC 9.48.050 and Tukwila Comprehensive Land Use Plan Goal 13.3).

2015

In 2015 under Alternatives 1 and 2 and the No Action Alternative, all of the individual arterial segments analyzed would operate at LOS D or better, and the average operation of arterial segments within the TUC would operate at LOS D. The average intersection level of service within the TUC would be LOS C. City of Tukwila concurrency intersection and road corridor LOS standards would be met for all intersections and road segments within the City for all alternatives. Tables 3.12-7 and 3.12-7A summarize the results of the arterial LOS analysis and TUC arterial/intersection levels of service under Alternatives 1 and 2 and the No Action Alternative in 2015.

2030

In the year 2030, assuming the 2030 Baseline Network, Southcenter Boulevard from Grady Way to I-5 would operate at LOS F under Alternative 1, and the Tukwila Urban Center arterial average would be at LOS F under Alternatives 1 and 2 without improvements. With the addition of a new east-west site access roadway from the site to Orillia Road in 2030, these arterial LOS deficiencies would be alleviated (see Section 3.12.4, Mitigation Measures). All other arterials that principally serve commercial areas would operate at LOS E or better.

The average TUC intersection LOS would be LOS E or better under all EIS alternatives in 2030. Tables 3.12-8 and 3.12-8A summarize the results of the arterial LOS analysis and TUC arterial/intersection levels of service, under Alternatives 1 and 2 in 2030, assuming the 2030 Baseline Network.

Site Access and Circulation

Under all of the EIS alternatives, primary vehicular site access would continue to be provided via the north-south corridors of Southcenter Parkway and Andover Park W, and the east-west corridors of S 180th Street and S 200th Street. Within the Tukwila South site, Segale Park Drive C would remain open as a private road (until such time as the Segale Business Park is redeveloped; at the time of redevelopment the private road system may or may not be converted to public streets). It would provide east-west access between Southcenter Parkway and Andover Park W.

The primary site intersections for the Tukwila South site would consist of the following:

- Int. #19 - Southcenter Parkway at S 180th Street
- Int. #20 - Andover Park W at S 180th Street
- Int. #33 - Southcenter Parkway at Segale Park Drive C

**Table 3.12-7
2015 PM PEAK HOUR ARTERIAL LEVEL OF SERVICE AND CONCURRENCY IMPACTS**

Arterial Segment	Location	Existing Network		2015 Baseline Network													
		2004 Existing		2015 Baseline		2015 No Action Alternative		2015 No Action Alternative with Improvements		2015 Alternative 1		2015 Alternative 1 with Improvements		2015 Alternative 2		2015 Alternative 2 with Improvements	
		Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS
Interurban Avenue	Southcenter Boulevard to I-5	28.6	B	27.8	B	27.7	B	27.7	B	28.1	B	28.1	B	28.1	B	28.1	B
SR 181/West Valley Road	I-405 to S 180 th Street	24.1	B	21.2	C	21.0	C	21.0	C	19.8	C	19.8	C	20.1	C	20.1	C
Southcenter Boulevard	Grady Way to I-5	17.2	D	14.9	D	14.8	D	14.8	D	14.5	D	14.5	D	14.5	D	14.5	D
Southcenter Parkway	South of S 180 th Street	21.9	C	22.0	C	19.4	C	21.0	C	16.8	D	19.9	C	19.9	C	20.8	C
Tukwila Urban Center Segments	Location	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS
Southcenter Parkway	Tukwila Parkway to Strander Boulevard	19.2	C	15.7	D	15.3	D	15.3	D	16.5	D	16.9	D	16.6	D	16.6	D
Southcenter Parkway	Strander Boulevard to Minkler Boulevard	25.0	B	22.3	C	21.1	C	21.1	C	20.4	C	21.7	C	20.8	C	20.8	C
Southcenter Parkway	Minkler Boulevard to S 180 th Street	22.6	C	20.3	C	19.5	C	19.5	C	21.2	C	21.1	C	24.8	B	21.4	C
Andover Park W	Tukwila Parkway to S 180 th Street	19.0	C	15.4	D	13.1	E	13.1	D	12.1	E	14.5	D	12.8	E	15.0	D
Andover Park E	Tukwila Parkway to S 180 th Street	19.1	C	18.0	D	17.7	D	17.7	D	17.8	D	17.8	D	18.0	D	18.0	D
61 st Avenue S	Southcenter Boulevard to Tukwila Parkway	12.8	D	11.6	D	11.4	D	11.4	D	11.2	D	11.2	D	11.3	D	11.3	D
66 th Avenue S	Southcenter Boulevard to Tukwila Parkway	16.3	C	18.7	C	18.6	C	18.6	C	18.7	C	18.7	C	18.7	C	18.7	C
Tukwila Parkway	Southcenter Parkway to Andover Park E	16.3	D	13.2	E	13.0	E	13.0	E	12.8	E	12.8	E	12.9	E	12.9	E
Strander Boulevard	Southcenter Pkwy to SR 181/West Valley Hwy	12.8	E	13.9	E	13.6	E	13.6	E	12.7	E	12.9	E	13.0	E	13.0	E
Klickitat Drive	SR 518 WB On-Ramp to Southcenter Pkwy	19.3	C	17.1	D	16.5	D	16.5	D	16.5	D	16.5	D	16.6	D	16.6	D
Minkler Boulevard	Southcenter Parkway to Andover Park E	15.4	D	13.9	E	13.6	E	13.6	E	13.1	E	13.1	E	13.3	E	13.3	E
S 180 th Street	Southcenter Pkwy to SR 181/West Valley Hwy	13.9	E	14.4	D	13.3	E	13.3	E	9.6	F	11.4	E	10.3	E	12.6	E
Tukwila Urban Center Average		17.6	D	16.2	D	15.5	D	15.5	D	15.2	D	15.7	D	15.7	D	15.8	D

Source: Transportation Engineering Northwest, LLC, 2005.

**Table 3.12-7A
2015 PM PEAK HOUR LEVEL OF SERVICE AND CONCURRENCY IMPACTS – CBD AND CBD CORDON INTERSECTIONS**

Int #	Intersection	Existing Network		2015 Baseline Network													
		2004 Existing		2015 Baseline		2015 No Action Alternative		2015 No Action Alternative with Improvements		2015 Alternative 1		2015 Alternative 1 with Improvements		2015 Alternative 2		2015 Alternative 2 with Improvements	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
3	61st Ave S / Southcenter Blvd	B	16	C	32	C	33	C	33	D	36	D	36	D	36	D	36
4	66th Ave S / Southcenter Blvd	C	22	C	23	C	22	C	22	C	23	C	23	C	23	C	23
8	SR 181 (West Valley Hwy) / Strander Blvd	D	45	E	61	E	62	E	62	E	69	E	69	E	68	E	68
11	Andover Park W / Tukwila Pkwy	C	24	C	22	C	23	C	23	C	24	C	24	C	23	C	23
12	Andover Park E / Tukwila Pkwy	B	20	C	27	C	29	C	29	C	28	C	28	C	27	C	27
14	Southcenter Pkwy / Klickitat Drive	B	17	C	22	C	24	C	24	B	18	B	20	B	17	B	17
15	Southcenter Pkwy / Strander Blvd	B	14	C	24	C	23	C	23	C	25	C	26	C	24	C	24
16	Andover Park W / Strander Blvd	C	35	D	51	E	56	E	56	E	63	E	63	E	60	E	60
17	Andover Park E / Strander Blvd	C	33	D	42	D	43	D	43	D	45	D	45	D	43	D	43
19	Southcenter Pkwy / S 180th St	D	37	D	50	E	58	E	58	B	19	C	20	B	18	B	19
20	Andover Park W / S 180th St	D	36	D	48	E	70	E	70	F	120	E	78	F	120	E	67
22	SR 181 (West Valley Hwy) / S 180th St	E	57	D	49	D	48	D	48	D	50	D	52	D	48	D	49
Average		C	30	C	38	C	41	C	41	C	43	C	40	C	42	C	38

Source: Transportation Engineering Northwest, LLC, 2005.

**Table 3.12-8
2030 PM PEAK HOUR ARTERIAL LEVEL OF SERVICE AND CONCURRENCY IMPACTS**

Arterial Segment	Location	Existing Network		2030 Baseline Network													
		2004 Existing		2030 Baseline		2030 No Action Alternative		2030 No Action Alternative with Improvements		2030 Alternative 1		2030 Alternative 1 with Improvements		2030 Alternative 2		2030 Alternative 2 with Improvements	
		Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS
Interurban Avenue	Southcenter Boulevard to I-5	28.6	B	26.5	B	26.4	B	26.4	B	26.2	B	26.2	B	26.3	B	26.3	B
SR 181/West Valley Road	I-405 to S 180 th Street	24.1	B	16.4	D	16.3	D	16.2	D	13.6	E	14.3	D	14.3	D	14.2	D
Southcenter Boulevard	Grady Way to I-5	17.2	D	11.4	E	11.3	E	11.3	E	9.8	F	11.3	E	10.4	E	11.2	E
Southcenter Parkway	South of S 180 th Street	21.9	C	19.4	C	14.3	D	18.1	C	10.1	E	13.1	E	11.8	E	14.5	D
Tukwila Urban Center Segments	Location	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS	Speed	LOS
Southcenter Parkway	Tukwila Parkway to Strander Boulevard	19.2	C	13.7	E	12.9	E	12.8	E	10.2	E	12.9	E	11.5	E	16.5	D
Southcenter Parkway	Strander Boulevard to Minkler Boulevard	25.0	B	18.4	C	16.6	D	19.0	C	8.0	F	11.9	E	12.7	E	14.7	D
Southcenter Parkway	Minkler Boulevard to S 180 th Street	22.6	C	14.7	D	12.1	E	16.5	D	13.1	E	15.5	D	16.6	D	12.2	E
Andover Park W	Tukwila Parkway to S 180 th Street	19.0	C	10.6	E	9.1	F	11.4	E	5.4	F	12.2	E	6.3	F	12.4	E
Andover Park E	Tukwila Parkway to S 180 th Street	19.1	C	13.8	E	13.5	E	13.4	E	11.4	E	12.5	E	12.3	E	13.2	E
61 st Avenue S	Southcenter Boulevard to Tukwila Parkway	12.8	D	11.2	D	10.5	E	10.5	E	6.3	F	6.6	F	6.8	F	6.7	F
66 th Avenue S	Southcenter Boulevard to Tukwila Parkway	16.3	C	10.1	E	10.0	E	10.0	E	6.5	F	5.1	F	6.5	F	5.3	F
Tukwila Parkway	Southcenter Parkway to Andover Park E	16.3	D	9.3	F	9.2	F	9.3	F	8.0	F	9.0	F	9.1	F	9.1	F
Strander Boulevard	Southcenter Pkwy to SR 181/West Valley Hwy	12.8	E	10.3	E	10.0	E	9.9	F	7.9	F	8.6	F	8.2	F	9.2	F
Klickitat Drive	SR 518 WB On-Ramp to Southcenter Pkwy	19.3	C	14.5	D	13.8	E	13.8	E	10.5	E	10.6	E	11.6	E	11.7	E
Minkler Boulevard	Southcenter Parkway to Andover Park E	15.4	D	12.2	E	11.9	E	12.0	E	8.6	F	11.1	E	9.1	F	9.9	F
S 180 th Street	Southcenter Pkwy to SR 181/West Valley Hwy	13.9	E	9.8	F	8.7	F	10.1	E	2.8	F	6.8	F	3.6	F	7.3	F
Tukwila Urban Center Average		17.6	D	12.4	E	11.5	E	12.4	E	8.2	F	10.2	E	9.5	F	10.7	E

Source: Transportation Engineering Northwest, LLC, 2005.

**Table 3.12-8A
2030 PM PEAK HOUR LEVEL OF SERVICE AND CONCURRENCY IMPACTS – TUC AND TUC CORDON INTERSECTIONS**

Int #	Intersection	Existing Network		2030 Baseline Network													
		2004 Existing		2030 Baseline		2030 No Action Alternative		2030 No Action Alternative with Improvements		2030 Alternative 1		2030 Alternative 1 with Improvements		2030 Alternative 2		2030 Alternative 2 with Improvements	
		LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
3	61st Ave S / Southcenter Blvd	B	16	D	42	D	45	D	48	F	81	E	69	E	69	E	70
4	66th Ave S / Southcenter Blvd	C	22	B	19	B	19	B	20	C	23	C	23	C	22	C	22
8	SR 181 (West Valley Hwy) / Strander Blvd	D	45	E	71	E	73	E	73	E	75	E	74	E	70	E	75
11	Andover Park W / Tukwila Pkwy	C	24	C	30	C	33	C	33	E	6	E	67	E	58	E	57
12	Andover Park E / Tukwila Pkwy	B	20	D	52	D	50	D	50	E	64	E	63	E	58	E	59
14	Southcenter Pkwy / Klickitat Drive	B	17	C	17	C	16	C	16	C	27	C	28	C	22	C	23
15	Southcenter Pkwy / Strander Blvd	B	14	D	31	C	30	C	30	D	54	D	50	D	36	D	39
16	Andover Park W / Strander Blvd	C	35	F	120	F	120	F	120	F	120	F	80	F	120	F	120
17	Andover Park E / Strander Blvd	C	33	F	86	F	92	F	92	F	120	F	120	F	111	F	111
19	Southcenter Pkwy / S 180th St	D	37	E	23	F	98	E	73	F	119	D	41	E	75	E	81
20	Andover Park W / S 180th St	D	36	F	107	F	120	E	56	F	120	E	65	F	120	E	64
22	SR 181 (West Valley Hwy) / S 180th St	E	57	E	77	F	84	E	74	F	120	E	76	F	120	E	65
Average		C	30	D	56	D	65	D	57	E	77	D	63	E	73	D	66

Source: Transportation Engineering Northwest, LLC, 2005.

- Int. #34 - Southcenter Parkway/Frager Road at S 200th Street

A traffic signal is assumed to be installed at the site access intersection #33 (Southcenter Parkway at Segale Park Drive C) by 2015 under Alternatives 1 and 2 as mitigation for project impacts. Additional intersection improvements would be necessary to support 2030 build-out at this intersection.

Extension of Southcenter Parkway would occur under a different alignment under the No Action Alternative than under Alternatives 1 and 2, and could require intersection improvements for site access and circulation. It is assumed that S 178th Street would not be realigned under the No Action Alternative.

S 178th Street Realignment

Under the proposed Master Plan, S 178th Street would be realigned to connect to Segale Park Drive C. The existing grade and configuration of S 178th Street reduces the arterial's capacity and limits the potential for future capacity improvements. Elimination of the S 178th Street approach at its intersection with Southcenter Parkway/S 180th Street would improve the operational efficiency of the intersection and increase the allowable capacity for future turning movement volume. This realignment, combined with the Southcenter Parkway expansion, would better balance traffic flows through the intersection.

As part of the infrastructure development phase under Alternatives 1 and 2, the west leg (S 178th Street) of the Southcenter Parkway at S 180th Street intersection would be removed and re-routed through the Tukwila South site to connect to the west leg of the Southcenter Parkway at Segale Park Drive C intersection (refer to Chapter 2 for a description of the infrastructure development phase). This new roadway would be 2 lanes in 2015 and between 2 and 4 lanes in 2030 (depending upon the specific type and density of land uses developed within Planning Areas A and B of the Tukwila South site). Channelization improvements would be made to Intersections #19 (Southcenter Parkway at S 180th Street), and #33 (Southcenter Parkway at S Segale Park Drive C) as a result of the new S 178th Street alignment as mitigation for project impacts.

Given the uncertainty of the timing of the redevelopment of the Segale Business Park, a sensitivity analysis was conducted regarding the operating conditions of the S 178th Street realignment, with and without the use of Segale Park Drive C as a through-route between the realigned S 178th Street and S 180th Street, which currently provides a cross-valley connection.

Two levels of traffic operations review were considered in the context of the S 178th Street realignment sensitivity analysis:

1. Review of existing traffic distribution patterns between S 178th Street and Southcenter Parkway/S 180th Street; and
2. Traffic operations analysis of existing and future key intersection systems that would serve the realigned arterial system. The analysis was intended to simulate a condition that would occur in 2008. Under this condition, the realigned S 178th Street would be open but the Tukwila South site would not be developed; conditions both with and without the use of Segale Park Drive C as a public or private through-street were evaluated. Forecasts that were prepared for the 2015 Baseline Condition (described above) were used to simulate 2008 traffic volumes and to provide a conservative (worst-case scenario) analysis of 2008 traffic operations.

Existing S 178th Street Traffic Distribution Impacts. Currently, there are approximately 12,000 average daily vehicles that travel on S 178th Street west of Southcenter Parkway. Of this traffic approximately 40 percent turn onto Southcenter Parkway, while 60 percent, or roughly 7,200 average daily vehicles, continue on S 180th Street. These existing 7,200 average daily vehicles represent traffic that could be most directly impacted by the realignment of S 178th Street.

Of the 7,200 vehicles on the S 180th Street corridor, approximately 30 percent distribute onto SR 181 (West Valley Highway) to the south, or a total of about 20 percent of all S 178th Street traffic (approximately 2,400 average daily vehicles). Once the realigned S 178th Street and the improved Southcenter Parkway are open, a portion of the traffic headed to SR 181 would use this new north-south route and would divert off of S 180th Street. The estimated remaining traffic that would continue east on S 180th Street would be approximately 4,800 average daily vehicles, or roughly 40 percent of all existing S 178th Street traffic. Under the scenario where Segale Park Drive C would remain as a private street (and through-traffic would be discouraged from using it via signage or other means), approximately 4,800 additional average daily vehicles would use Southcenter Parkway between the realigned S 178th Street and S 180th Street. If Segale Park Drive C were to be opened to public through-traffic after completion of the proposed realignment (and before redevelopment would occur on the site), it is anticipated that nearly all of the estimated 4,800 average daily vehicles would use Segale Park Drive C between the realigned S 178th Street and S 180th Street.

Intersection Traffic Operations Analysis of S 178th Street Realignment. To evaluate a worst-case scenario for the year 2008, this analysis of opening Segale Park Drive C to public through-traffic in the context of the S 178th Street realignment assumed the following:

- 2015 baseline traffic volumes (this baseline assumes no additional development on the Tukwila South site – see description above) were used; 2015 volumes provide a conservative estimate for the analysis of 2008 volumes at this intersection.
- Minimum cross-section assumptions were made for the northbound and southbound Southcenter Parkway intersection approaches at the new intersection of Southcenter Parkway at Segale Park Drive C/S 178th Street. Two minimum intersection configurations were tested at this new intersection, with no significant difference in traffic operations.

Table 3.12-9 summarizes the resulting intersection traffic operations at key intersections serving the local arterial system in the vicinity of Tukwila South with the realignment of S 178th Street. As shown, all key intersections would operate at LOS D or better, with or without Segale Park Drive C open to through-traffic between a realigned S 178th Street and S 180th Street. Significant operational improvements would result at Intersection #19 (Southcenter Parkway and S 180th Street) by 2015 assuming the existing S 178th Street intersection approach is removed, and Segale Park Drive C would be open to through-traffic. This intersection would operate at an estimated LOS B with an average of approximately 16 seconds of delay per vehicle under this scenario. With the realignment of S 178th Street but without Segale Park Drive C open to the public, the intersection would operate at LOS C with an average delay of 31 seconds per vehicle. Without the realignment of S 178th Street and without development of Tukwila South, in 2015 this intersection would operate at LOS D with 50 seconds average delay per vehicle.

Conclusion. No significant adverse traffic impacts or traffic redistribution would occur as a result of the S 178th Street realignment, prior to opening Segale Park Drive C as a public street. If this

**Table 3.12-9
2015¹ S 178TH STREET REALIGNMENT LOS IMPACTS**

Intersection #33 (Southcenter Pkwy at Segale Park Drive C/S 178th Street)					
Tested Configuration #1					
Eastbound: 2 lefts, 1 thru-right					
Westbound: 1 shared approach lane					
Northbound : 1 shared approach lane					
Southbound: 1 left-thru, 1 right					
Int #	Intersection	Control	LOS	Delay	V/C
Without Segale Park Drive C Open to Through Traffic					
19	Southcenter Pkwy / S 180th St	Signalized	C	31	0.85
20	Andover Park W / S 180th St	Signalized	D	46	0.91
33	Southcenter Pkwy / Segale Park Drive C	Signalized	D	37	0.87
With Segale Park Drive C Open to Through Traffic					
19	Southcenter Pkwy / S 180th St	Signalized	B	16	0.79
20	Andover Park W / S 180th St	Signalized	D	52	0.86
33	Southcenter Pkwy / Segale Park Drive C	Signalized	D	50	0.97
Intersection #33 (Southcenter Pkwy at Segale Park Drive C/S 178th Street)					
Tested Configuration #2					
Eastbound: 1 left, 1 thru-right					
Westbound: 1 shared approach lane					
Northbound : 1 left, 1 thru-right					
Southbound: 1 left-thru, 1 right					
Int #	Intersection	Control	LOS	Delay	V/C
Without Segale Park Drive C Open to Through Traffic					
19	Southcenter Pkwy / S 180th St	Signalized	C	31	0.85
20	Andover Park W / S 180th St	Signalized	D	46	0.91
33	Southcenter Pkwy / Segale Park Drive C	Signalized	D	47	0.95
With Segale Park Drive C Open to Through Traffic					
19	Southcenter Pkwy / S 180th St	Signalized	B	16	0.79
20	Andover Park W / S 180th St	Signalized	D	52	0.86
33	Southcenter Pkwy / Segale Park Drive C	Signalized	D	54	0.99

Source: Transportation Engineering Northwest, LLC, 2005.

Analysis based on Synchro 6, Traffic Signal Coordination Software and HCS 2000, using HCM 2000 control delays and LOS.

Delays area expressed in seconds per vehicle. V/C – volume to capacity ratio estimated using HCM procedures.

¹ Although realignment impacts of S 178th Street are anticipated to occur in 2008, forecasted baseline traffic volumes in 2015 were used in the analysis as a worst-case scenario.

scenario occurs, the intersection configuration of #33 (Southcenter Parkway at S Segale Park Drive C) would be signed and controlled with a signal to discourage through-traffic to move directly between the realigned S 178th Street and Segale Park Drive C.

Southcenter Parkway Access

By 2030 under Alternatives 1 and 2, it is assumed that a site access roadway would also be connected as the south leg of the Southcenter Parkway/S 200th Street intersection for uses south of S 200th Street in Planning Area I (See Figure 2-3). Channelization improvements would also be necessary at Intersection #34 (Southcenter Parkway at S 200th Street) to support full build-out. Additionally, a signalized site access roadway into Planning Area F would likely

be required between the new arterial access from Southcenter Parkway to Orillia Road (described below), and a realigned S 178th Street/Segale Park Drive C (this new intersection is noted as Intersection #76). The need for additional access onto Southcenter Parkway, beyond these major intersection locations or internal parallel collector roadway systems within the site, would be dependent upon the ultimate type, density, and location of development on the site.

New Arterial Site Access

Construction of a new east-west site access roadway from the west portion of the site to Orillia Road S would occur at some point prior to build-out in 2030 (through Planning Area G). The specific design, alignment and timing of the construction of this new east-west access road would be determined in conjunction with the City of Tukwila in the future and would be dependent upon the specific type and density of land uses developed at the site. This roadway would need to be a minimum of 4 lanes to accommodate traffic demand and reduce impacts onto S 200th Street. The new east-west connection would create two new site access intersections:

- Int. #77 - Southcenter Parkway / Site Roadway Access to G/H
- Int. #78 - Orillia Road S / Site Roadway Access to G/H

Infrastructure improvements under 2030 are further summarized under Mitigation Measures below, and in Appendix I to this Draft EIS.

Public Transportation Impacts

Potential future transit markets and service levels are speculative in the context of this EIS, given that no public transit agency plans have previously anticipated development at the magnitude assumed for the Tukwila South site. Under Alternatives 1 and 2, a high demand for transit services would likely result that could lead to investment in both local shuttle and regional fixed-route transit services to, from, and within the site. Implementation of employer shuttle programs between the site and vicinity future rail stations (Sound Transit light rail or commuter rail), as well as the nearby SeaTac airport or other local transit service hubs, could also be considered. Future transit ridership demands that could be generated by development of the site would depend upon the ultimate mix of land use and density, as well as the level of public transportation services and facility improvements implemented to serve the site. As indicated earlier, this EIS analysis assumed no reductions in vehicle trip generation levels to account for increased public transportation services, and, therefore, provides a conservative analysis.

Non-Motorized Transportation Impacts

Under Alternatives 1 and 2, increases in employment and residential population on the site would increase the use of non-motorized facilities within the site vicinity. Infrastructure improvements to Southcenter Parkway would include full curbs, gutters, and sidewalks.. Non-motorized treatments to, from, and within the site could provide quality pedestrian treatments consistent with arterial systems north of the site. Major intersections identified along Southcenter Parkway would provide for safe non-motorized crossing treatments of this road at five potential locations, including S 200th Street, New Orillia Road Connector, New Internal Road (Parcel E/F), S 178th Street/Segale Park Drive C, and S 180th Street. Within the site, separated sidewalks and walkways could be constructed along internal streets, within parking areas, between parking areas and building entries, and between linked buildings within the

development in a campus setting (refer to Chapter 2 for further discussion of possible pedestrian and bicycle opportunities at Tukwila South).

With the addition of approximately 24,000 to 33,000 employees and residents on the site under Alternatives 1 and 2, plus customers drawn to the site by retail land uses, the potential for pedestrian and bicycle collisions on streets, at intersections, and where pedestrian/bicycle pathways intersect with streets would increase. With fewer employees, fewer retail uses, and no new residents on the site under the No Action Alternative, the potential for pedestrian and bicycle collisions on streets, at intersections, and where pedestrian/bicycle pathways intersect with streets would be considerably lower.

Rail Transportation Impacts

It is assumed that future growth within the City of Tukwila would not result in an increase in rail freight service to the site. Additional arterial infrastructure to support growth and provide flexibility in meeting the long-range needs of east-west mobility and general freeway access needs within the vicinity of the site would result in increased traffic loads over existing at-grade rail crossings. The BNSF spur line would not preclude the ability to make arterial infrastructure improvements necessary to meet future development needs under Alternatives 1 and 2. However, retention of the existing spur rail facilities by BNSF could prove problematic in providing local infrastructure needs within the site if additional at-grade crossings are necessary,

Segale Park Drive C, an existing private street, could be converted into a public street during the redevelopment of the Segale Business Park. Existing at-grade railroad crossings that intersect new or converted public streets within the redeveloped Segale Business Park area would be required to meet federal railway crossing standards for public roadways, or the spur/crossing would have to be abandoned.

Summary of Impacts

The specific impacts of each alternative are discussed below. However, in the future, many intersections would operate poorly under future baseline conditions without any development at Tukwila South, indicating that background traffic growth and pipeline development projects in the area would create the need for intersection improvements regardless of the Tukwila South development. Tukwila South development would contribute to congestion and the need for improvements at these intersections. The planned widening of Southcenter Parkway south of S 180th Street would reduce demand on parallel facilities (i.e., SR 181) and intersection improvement needs along S 180th Street under future baseline conditions.

Under Alternatives 1 and 2 in 2015, assuming the 2015 Baseline Network, two additional intersections (beyond those six operating at LOS F under baseline conditions) are forecast to operate at LOS F. Arterial segments analyzed, including individual arterial segments and the average of the Tukwila Urban Center arterials, would operate at LOS D or better. Assuming the 2015 Baseline Network plus additional identified roadway improvements (see Section 3.12.4, Mitigation Measures), all site access intersections would operate at LOS E or better, and City of Tukwila arterial LOS standards would be met. Therefore, the existing transportation network with assumed baseline improvements and additional improvements could accommodate Alternatives 1 and 2.

In 2030 assuming the 2030 Baseline Network, 19 additional intersections under Alternative 1, and 10 additional intersections under Alternative 2 are forecast to operate at LOS F (beyond the 18 intersections operating at LOS F under the baseline condition) for a total of 37 and 28, respectively. Land uses assumed under Alternatives 1 and 2 would cause increased congestion at study area intersections, arterials, and freeway access ramps. With full build-out of Alternative 1 in 2030, assumed development levels could not be accommodated with conventional at-grade arterial systems internal to the site area and concurrency standards would not be met. Assumed development levels would be better accommodated under Alternative 2 with potential additional infrastructure improvements in 2030. Under Alternatives 1 and 2, Southcenter Boulevard west of Grady Way is forecast to be over capacity and the operation of the Tukwila Urban Center arterials would be over capacity without additional arterial improvements as outlined in Section 3.12.4, Mitigation Measures.

With the addition of a future east-west access connection in 2030 under Alternatives 1 and 2, arterial LOS deficiencies would be alleviated. Under Alternatives 1 and 2, mitigation improvements would alleviate arterial LOS deficiencies based upon City LOS/Concurrency standards and criteria, but would not alleviate intersection LOS deficiencies under Alternative 1. New site infrastructure by 2030 would include construction of an east-west arterial connection from the site to Orillia Road.

Tables 3.12-10 and 3.12-11 summarize the conclusions of the transportation analysis in 2015 and 2030, respectively.

3.12.4 Mitigation Measures

Infrastructure Development

- All agreed upon truck haul routes would have their condition assessed at the beginning of the operation, videotaped, and assessed at the completion. The applicant would be responsible for restoring the routes to the condition the roads were in at the start of the hauling operation.
- Construction traffic control/flagging during truck hauling would be implemented onsite at certain locations during the entire infrastructure development phase to reduce impacts from truck crossings of Southcenter Parkway.
- Existing S 178th Street could remain open after the newly realigned roadway is complete (during the third construction season of the infrastructure development phase) to limit new traffic volumes on Southcenter Parkway; this would reduce impacts from truck crossings associated with excavation activities in the northwest portion of the site.

The new intersection of S 178th Street/Southcenter Parkway/Segale Park Drive C would be signed and controlled with a signal to discourage through-traffic from moving through the private Segale Business Park street system.

**Table 3.12-10
2015 SUMMARY OF TRANSPORTATION IMPACT ANALYSIS**

Key Findings	Baseline	No Action Alternative	Alternative 1	Alternative 2
Project Description				
Land Use Assumptions ¹	No New Land Uses	New Land Uses Retail - 300,000 sf <u>Industrial - 1,100,000 sf</u> Total - 1,400,000 sf	New Land Uses Retail - 400,000 sf Hotel - 100,000 sf (100 rooms) Residential - 1,000,000 sf (800 units) <u>Office - 2,000,000 sf</u> Total - 3,500,000 sf	New Land Uses Lt Industrial/Flex/Lab - 400,000 sf Retail - 400,000 sf Residential - 400,000 sf (400 units) Hotel - 100,000 sf (100 rooms) <u>Office - 1,200,000 sf</u> Total - 2,500,000 sf
PM Peak Trip Generation	No New Trips	Gross - 2,419 trips Net New - 1,859 trips	Gross - 4,483 trips Net New - 3,728 trips	Gross - 3,731 trips Net New - 3,001 trips
Summary of Results				
2015 Baseline Network				
Intersections at LOS E/F	LOS E - 4 intersections LOS F - 6 intersections (2 in Tukwila)	LOS E - 10 intersections LOS F - 6 intersections (2 in Tukwila)	LOS E - 10 intersections LOS F - 9 intersections (4 in Tukwila)	LOS E - 12 intersections LOS F - 9 intersections (4 in Tukwila)
Arterial LOS	TUC Arterial Average - LOS D TUC Intersection Average - LOS C Interurban Ave n/o Southcenter Blvd - LOS B SR 181 n/o S 180th St - LOS C Southcenter Blvd w/o Grady Way - LOS D Southcenter Pkwy s/o S 180th St - LOS C	TUC Arterial Average - LOS D TUC Intersection Average - LOS C Interurban Ave n/o Southcenter Blvd - LOS B SR 181 n/o S 180th St - LOS C Southcenter Blvd w/o Grady Way - LOS D Southcenter Pkwy s/o S 180th St - LOS C	TUC Arterial Average - LOS D TUC Intersection Average - LOS C Interurban Ave n/o Southcenter Blvd - LOS B SR 181 n/o S 180th St - LOS C Southcenter Blvd w/o Grady Way - LOS D Southcenter Pkwy s/o S 180th St - LOS D	TUC Arterial Average - LOS D TUC Intersection Average - LOS C Interurban Ave n/o Southcenter Blvd - LOS B SR 181 n/o S 180th St - LOS C Southcenter Blvd w/o Grady Way - LOS D Southcenter Pkwy s/o S 180th St - LOS C
Conclusions	Assumed baseline improvements results in the baseline network operating efficiently, meeting City LOS standards.	No additional infrastructure improvements would be necessary to support the No Action Alternative. City LOS standards would be met.	With roadway improvements identified in Figure 15 and outlined in Table 14, all site access intersections would operate at LOS E or better and City arterial LOS standards would be met.	
2015 Baseline Network with Improvements (see Table 14 for list of Potential Improvements)				
Intersections at LOS E/F	n/a.	LOS E - 11 intersections LOS F - 6 intersections (2 in Tukwila)	LOS E - 13 intersections LOS F - 6 intersections (2 in Tukwila)	LOS E - 12 intersections LOS F - 6 intersections (2 in Tukwila)
Arterial LOS	n/a.	TUC Arterial Average - LOS D TUC Intersection Average - LOS C Interurban Ave n/o Southcenter Blvd - LOS B SR 181 n/o S 180th St - LOS C Southcenter Blvd w/o Grady Way - LOS D Southcenter Pkwy s/o S 180th St - LOS C	TUC Arterial Average - LOS D TUC Intersection Average - LOS C Interurban Ave n/o Southcenter Blvd - LOS B SR 181 n/o S 180th St - LOS C Southcenter Blvd w/o Grady Way - LOS D Southcenter Pkwy s/o S 180th St - LOS C	TUC Arterial Average - LOS D TUC Intersection Average - LOS C Interurban Ave n/o Southcenter Blvd - LOS B SR 181 n/o S 180th St - LOS C Southcenter Blvd w/o Grady Way - LOS D Southcenter Pkwy s/o S 180th St - LOS C
Conclusions	n/a.	No additional infrastructure improvements would be necessary to support the No Action Alternative. City LOS standards would be met.	With roadway improvements identified in Figure 15 and outlined in Table 14, all site access intersections would operate at LOS E or better and City arterial LOS standards would be met.	

Source: *Transportation Engineering Northwest, LLC, 2005.*

Intersections at LOS E/F; intersections that operate better than LOS E/F after appropriate transportation improvements are not listed.

¹ Retained Segale Business Park uses of approximately 1.65 million square-feet are not included in these figures. Only assumed new land uses to the site area are and increased trips are provided in the table.

**Table 3.12-11
2030 SUMMARY OF TRANSPORTATION IMPACT ANALYSIS**

Key Findings	Baseline	No Action Alternative	Alternative 1	Alternative 2
<i>Project Description</i>				
Land Use Assumptions	No New Land Uses	Total Land Uses Existing Business Park (1,654,800 sf) Bank - 5,000 sf Retail - 523,000 sf Light Industrial - 429,000 sf <u>Warehouse - 1,050,000 sf</u> Total - 3,661,800 sf	Total Land Uses Retail - 1,304,000 sf Restaurant - 285,000 sf Residential - 1,900,000 sf Office - 4,855,500 sf Research - 3,905,500 sf <u>Hotel - 1,750,000 sf</u> Total - 14,000,000 sf	Total Land Uses Retail - 954,000 sf Restaurant - 85,000 sf Residential - 700,000 sf Office - 3,755,500 sf Research - 3,555,500 sf Flex-Tech - 500,000 sf <u>Hotel - 750,000 sf</u> Total - 10,300,000 sf
PM Peak Trip Generation	No New Trips	Gross - 4,182 trips Net New - 1,935 trips	Gross - 20,007 trips Net New - 13,975 trips	Gross - 13,914 trips Net New - 10,166 trips
<i>Summary of Results</i>				
2030 Baseline Network				
Intersections at LOS E/F	LOS E - 11 intersections LOS F - 18 intersections (7 in Tukwila)	LOS E - 11 intersections LOS F - 22 intersections (10 in Tukwila)	LOS E - 9 intersections LOS F - 45 intersections (18 in Tukwila)	LOS E - 17 intersections LOS F - 27 intersections (12 in Tukwila)
Arterial LOS	TUC Arterial Average - LOS E TUC Intersection Average - LOS D Interurban Ave n/o Southcenter Blvd - LOS B SR 181 n/o S 180th St - LOS D Southcenter Blvd w/o Grady Way - LOS E Southcenter Pkwy s/o S 180th St - LOS C	TUC Arterial Average - LOS E TUC Intersection Average - LOS D Interurban Ave n/o Southcenter Blvd - LOS B SR 181 n/o S 180th St - LOS D Southcenter Blvd w/o Grady Way - LOS E Southcenter Pkwy s/o S 180th St - LOS D	TUC Arterial Average - LOS F TUC Intersection Average - LOS E Interurban Ave n/o Southcenter Blvd - LOS B SR 181 n/o S 180th St - LOS E Southcenter Blvd w/o Grady Way - LOS F Southcenter Pkwy s/o S 180th St - LOS E	TUC Arterial Average - LOS F TUC Intersection Average - LOS E Interurban Ave n/o Southcenter Blvd - LOS B SR 181 n/o S 180th St - LOS D Southcenter Blvd w/o Grady Way - LOS E Southcenter Pkwy s/o S 180th St - LOS E
Conclusions	Specific intersections are anticipated to operate poorly in 2030 without appropriate improvements. However, based upon arterial LOS, roadways within the City of Tukwila are anticipated to operate at an acceptable LOS.	Increased trip generation from the No Action alternative in 2030 has limited impact on future traffic operations and no impact on City LOS standards over future baseline conditions.	Land uses under Alternative 1 will cause increased congestion at site access points and beyond the site vicinity. Appropriate mitigation can alleviate arterial but not intersection LOS deficiencies. High capacity transit measures or a new I-5 interchange could be considered to support development assumed under Alternative 1, but may not be feasible.	Land uses under Alternative 2 will cause increased congestion at site access points and beyond the site vicinity. Appropriate mitigation can alleviate arterial and all site access intersection LOS deficiencies.
2030 Network 3 with Improvements (see Table 15 for a list of Potential Improvements)				
Intersections at LOS E/F	n/a.	LOS E - 13 intersections LOS F - 17 intersections (6 in Tukwila)	LOS E - 21 intersections LOS F - 18 intersections ¹ (5 in Tukwila)	LOS E - 24 intersections LOS F - 15 intersections ¹ (5 in Tukwila)
Arterial LOS	n/a.	TUC Arterial Average - LOS E TUC Intersection Average - LOS D Interurban Ave n/o Southcenter Blvd - LOS B SR 181 n/o S 180th St - LOS D Southcenter Blvd w/o Grady Way - LOS E Southcenter Pkwy s/o S 180th St - LOS C	TUC Arterial Average - LOS E TUC Intersection Average - LOS D Interurban Ave n/o Southcenter Blvd - LOS B SR 181 n/o S 180th St - LOS D Southcenter Blvd w/o Grady Way - LOS E Southcenter Pkwy s/o S 180th St - LOS E	TUC Arterial Average - LOS E TUC Intersection Average - LOS D Interurban Ave n/o Southcenter Blvd - LOS B SR 181 n/o S 180th St - LOS D Southcenter Blvd w/o Grady Way - LOS E Southcenter Pkwy s/o S 180th St - LOS D
Conclusions	n/a.	Increased trip generation from the No Action alternative in 2030 has limited impact on future traffic operations and no impact on City LOS standards over future baseline conditions.	Land uses under Alternative 1 will cause increased congestion at site access points and beyond the site vicinity. Appropriate mitigation can alleviate arterial but not intersection LOS deficiencies. High capacity transit measures or a new I-5 interchange could be considered to support development assumed under Alternative 1, but may not be feasible.	Potential improvements to the local and regional network would accommodate assumed land uses under Alternative 2 based upon City LOS standards.

Source: Transportation Engineering Northwest, LLC, 2005.

Intersections at LOS E/F; intersections that operate better than LOS E/F after appropriate transportation improvements are not listed.

¹ Total # of study area intersections increases to 78 with 3 new access intersections.

Full Buildout

- As provided under Tukwila Municipal Code 9.48, project traffic impacts, as defined by the City's LOS/Concurrency standards, would be mitigated through a combination of impact fee payments, proportional share contributions, and project-specific improvements to support site access.
- Specific intersection improvements that would be required under Alternatives 1 and 2 (and the No Action Alternative) in 2015 and 2030 to mitigate impacts from Tukwila South development are summarized in Tables 3.12-12 and 3.12-13, respectively. Tables 3.12-12 and 3.12-13 also highlight potential transportation infrastructure improvement measures necessary to address future traffic needs (forecasted LOS F conditions) without development of Tukwila South in 2015 and 2030, respectively. For each improvement, the tables indicate whether it would be required under future baseline conditions and each EIS alternative. Where necessary, differences in potential transportation infrastructure needs among the alternatives are also identified.

Arterial Access Improvements, 2015

- At key intersections on Southcenter Parkway between S 180th Street and S 200th Street, additional turning movement capacity would be necessary under the 2015 Baseline Condition and Alternatives 1 and 2.
- As proposed, the west leg of the Southcenter Parkway at S 180th Street intersection (S 178th Street) would be removed and re-routed through the Tukwila South site to connect to the west leg of the Southcenter Parkway at Segale Park Drive C intersection. This new roadway would need to be 2 lanes in 2015. Channelization improvements would be made to Intersections #19 (Southcenter Parkway at S 180th Street), and #33 (Southcenter Parkway at S Segale Park Drive C) as a result of this new roadway alignment.

Arterial Access Improvements, 2030

- By 2030, a new east-west access connector arterial between the site and Orillia Road would be required; with this additional improvement, the forecasted arterial LOS on Southcenter Boulevard and within the Tukwila Urban Center would meet City arterial LOS standards under Alternatives 1 and 2. Construction of this new arterial connection would also reduce impacts under build-out of Alternatives 1 and 2 on S 200th Street. The specific design, alignment and timing of this improvement would be determined in conjunction with the City of Tukwila and would be dependent on the specific mix of uses and level of development at the site, but would likely be necessary prior to build-out under Alternatives 1 and 2. This roadway would likely need to be a minimum of 4 lanes to accommodate traffic demand and reduce impacts on S 200th Street.
- Additional channelization improvements would also be necessary at Intersection #34 (Southcenter Parkway at S 200th Street) to support full build-out.
- Additionally, a signalized site access roadway into Planning Area F would likely be required between the future new arterial access from Southcenter Parkway to Orillia Road (described above), and a realigned S 178th Street/Segale Park Drive C (noted as Intersection #76).

**Table 3.12-12
2015 POTENTIAL INTERSECTION IMPROVEMENT MEASURES**

Int. #	Intersection	Improvement Needed					Potential Improvement(s)
		Existing	Baseline	No Action	Alternative 1	Alternative 2	
5	Interurban Ave S at I-405 SB Ramps	No	Yes	Yes	Yes	Yes	Provide an additional NB left-turn lane for dual lefts.
6	Interurban Ave S at S Grady Way	No	Yes	Yes	Yes	Yes	Provide an additional EB left-turn lane for dual lefts.
20	Andover Park W at S 180th St	No	No	No	Yes	Yes	Provide separate NB/SB left, thru and right-turn lanes.
25	E Valley Road at SW 43rd St	No	Yes	Yes	Yes	Yes	Provide an additional WB left-turn lane for dual lefts.
33	Southcenter Pkwy at Segale Park Dr C	No	No	No	Yes	Yes	Install a fully-actuated traffic signal with associated channelization improvements with S 178th Street realignment.
34	Southcenter Parkway at S 200th St	No	Yes	Yes	Yes Additional	Yes Additional	For the 2015 Baseline Condition and No Action Alternative, install a fully-actuated traffic signal. For Alternatives 1 and 2, provide an additional SB left-turn for dual lefts and a WB right-turn lane.
40	E Valley Rd at S 212th St	No	Yes	Yes	Yes	Yes	Provide an additional WB and NB left-turn lane for dual lefts.
49	SR 167 (Rainier Ave S) at SW Grady Way	Yes	Yes	Yes	Yes	Yes	Construct new interchange (planned after 2015 per I-405 Implementation Plan).
55	E Valley Rd at SR 167 SB Ramps	No	Yes	Yes	Yes	Yes	Provide an additional SB left-turn lane for dual lefts. Rechannelize EB movements to provide dual left-turns, a thru lane and a right-turn lane. Rechannelize WB movements for left-turn lane, thru lane, and a thru-right lane.

Source: Transportation Engineering Northwest, LLC, 2005.

**Table 3.12-13
2030 POTENTIAL INTERSECTION IMPROVEMENT MEASURES**

Int. #	Intersection	Improvement Needed					Potential Improvement(s)
		Existing	Baseline	No Action	Alternative 1	Alternative 2	
1	I-5 SB Off-Ramp at S 154th St / Southcenter Blvd	No	Yes	Yes	Yes	Yes	Reconfigure SB intersection approach.
2	Macadam Rd S at Southcenter Blvd	No	No	No	Yes	No	Provide two separate EB left-turns, one for u-turns and the other for left-turns onto Macadam Road S.
3	61st Ave S at Southcenter Blvd	No	No	No	Yes	No	Expand the 61st Avenue S bridge to accommodate double left-turn lanes and a right-turn only lane.
5	Interurban Ave S at I-405 SB Ramps	No	Yes	Yes	Yes	Yes	Provide an additional NB left-turn lane for dual lefts.
6	Interurban Ave S at S Grady Way	No	Yes	Yes	Yes	Yes	Provide an additional EB left-turn lane for dual lefts.
13	Southcenter Pkwy at I-5 NB Off-Ramp	No	No	No	Yes	No	Rechannelize the EB leg to a left-turn lane, thru lane, and right-turn lane.
16	Andover Park W at Strander Blvd	No	Yes	Yes	Yes	Yes	Construct NB/SB/WB right-turn lanes. Provide an additional WB left-turn lane for dual lefts.
17	Andover Park E at Strander Blvd	No	Yes	Yes	Yes	Yes	Construct WB/NB right-turn lanes.
18	Military Rd S at S 176th St	No	No	No	Yes	No	Provide an EB/WB right-turn only lane.
19	Southcenter Pkwy at S 180th St	No	No	Yes	Yes Different	Yes	For the No Action Alternative, construct a SB right-turn lane. For Alternative 1, provide a SB left-turn lane for dual lefts.
20	Andover Park W at S 180th St	No	Yes	Yes	Yes	Yes	Provide separate NB/SB left, thru and right-turn lanes and a WB right-turn lane.
22	SR 181 (W Valley Hwy) at S 180th St	No	No	Yes	Yes Additional	Yes Different	For the No Action Alternative, construct a SB right-turn lane. For Alternative 1, provide 3 thru lanes in the EB/WB/NB direction; and, construct an EB right-turn lane for dual-rights and a NB/SB right-turn only lane. For Alternative 2, provide 3 thru lanes in the EB/WB direction; and, construct a NB right-turn only lane.
23	Oakesdale Ave SW at SW 43rd St	No	No	No	Yes	No	Provide an additional SB left-turn lane for dual lefts and a SB right-turn lane.
25	E Valley Road at SW 43rd St	No	Yes	Yes	Yes	Yes	Provide an additional WB left-turn lane for dual lefts.

Source: Transportation Engineering Northwest, LLC, 2005.

**Table 3.12-13 (CONT.)
2030 POTENTIAL INTERSECTION IMPROVEMENT MEASURES**

Int. #	Intersection	Improvement Needed					Potential Improvement(s)
		Existing	Baseline	No Action	Alternative 1	Alternative 2	
26	SR 167 NB Ramps at SW 43rd St	No	Yes	Yes	Yes	Yes	Provide an additional NB right-turn lane for dual rights.
30	I-5 SB Ramps at Orillia Rd S	No	No	No	Yes	Yes	Provide an additional WB left-turn lane for dual lefts and an additional EB right-turn lane for dual rights. Rechanelize the SB leg for dual left-turn lanes and a thru-right lane.
31	I-5 NB Ramps at Orillia Rd S	No	Yes	Yes	Yes	Yes	Provide dual WB right-turn lanes. Rechanelize the NB leg for dual left-turn lanes, a thru-right lane, and a right-turn lane.
32	Orillia Rd S at S 200th St	No	No	No	Yes	Yes	Provide double WB left-turn lanes, an additional NB thru lane for 3 thru lanes, and a NB right-turn only lane.
33	Southcenter Pkwy at Segale Park Dr C	No	Yes	Yes	Yes Additional	Yes Additional	For the 2030 Baseline Condition, install a fully-actuated traffic signal. For Alternatives 1 and 2, provide increased capacity for turning volumes on all approaches internal to the site.
34	Southcenter Parkway at S 200th St	No	Yes	Yes Additional	Yes Additional	Yes Additional	For the 2030 Baseline Condition, install a fully-actuated traffic signal. For Alternative 1 and 2 and the No Action Alternative, provide an additional SB left-turn for dual lefts and a WB right-turn lane.
35	S 196th St at 62nd Ave S	No	No	No	Yes	Yes Different	For Alternative 1, provide an additional EB/WB thru lane for 3 thru lanes; and, construct an EB right-turn lane and provide an additional NB left-turn lane for dual lefts. For Alternative 2, provide the same improvements as for Alternative 1 except only 2 WB thru lanes and 1 NB left-turn only lane.
36	SR 181 (W Valley Hwy) at S 196th St	No	Yes	Yes	Yes	Yes	Construct NB/SB right-turn lanes.
37	E Valley Rd at S 196th St	No	Yes	Yes	Yes	Yes	Construct a SB right-turn lane.
39	SR 181 (W Valley Hwy) at S 212th St	No	Yes	Yes	Yes	Yes	Construct EB/NB right-turn lanes. Provide an additional WB left-turn lane for dual lefts.

Source: Transportation Engineering Northwest, LLC, 2005.

**Table 3.12-13 (CONT.)
2030 POTENTIAL INTERSECTION IMPROVEMENT MEASURES**

Int. #	Intersection	Improvement Needed					Potential Improvement(s)
		Existing	Baseline	No Action	Alternative 1	Alternative 2	
40	E Valley Rd at S 212th St	No	Yes	Yes	Yes	Yes	Provide an additional WB and NB left-turn lane for dual lefts.
41	SR 167 SB Ramps at S 212th St	No	Yes	Yes	Yes	Yes	Construct a SB left-turn lane.
42	SR 167 NB Ramps at S 212th St	No	Yes	Yes	Yes	Yes	Provide an additional EB/WB left-turn lane for dual lefts. Construct a SB right-turn lane.
47	Oakesdale Ave SW at SW Grady Way	No	Yes	Yes	Yes	Yes	Construct EB/SB right-turn lanes.
55	E Valley Rd at SR 167 SB Ramps	No	Yes	Yes	Yes	Yes	Provide an additional SB left-turn lane for dual lefts. Rechannelize EB movements to provide dual left-turns, a thru lane and a right-turn lane. Rechannelize WB movements for left-turn lane, thru lane, and a thru-right lane.
61	Southcenter Pkwy at S 168th St	No	No	No	Yes	Yes Different	For Alternative 1, provide an additional NB thru lane and a right-turn only lane. For Alternative 2, provide the same improvements as for Alternative 1 except only 2 NB thru lanes and 1 NB right-turn lane.
62	Southcenter Pkwy at Minkler Blvd	No	No	No	Yes	No	Provide an additional WB left-turn lane for dual lefts.
63	Andover Park W at Minkler Blvd	No	No	Yes	Yes	Yes Different	For Alternative 1, provide NB/SB left-turn lanes; and, construct a WB left-turn lane. For Alternative 2, provide the same improvements as for Alternative 1 except no need for a WB left-turn lane.
65	Southcenter Pkwy at 17500 Block	No	No	No	Yes	No	Construct a NB right-turn lane.
67	Sperry Dr at S 180th St	No	Yes	Yes	Yes	Yes	Construct a WB right-turn lane.

Source: Transportation Engineering Northwest, LLC, 2005.

- The need for additional access onto Southcenter Parkway beyond these major intersection locations or internal parallel collector roadway systems within the site area would be dependent upon the ultimate type, density, and location of development within the Tukwila South site.
- S 178th Street intersection (which would be re-routed through the Tukwila South site to connect to Southcenter Parkway at Segale Park Drive C during the infrastructure development phase) would need to be between 2 and 4 lanes in 2030 (depending upon the ultimate type and density of land uses developed within Planning Areas A and B).
- Inclusion of additional freeway connections to I-5 to directly serve the site would reduce access demands at other interchange connections and arterials leading to established interchange systems, and could better meet the travel demand needs of Alternative 1. However, previous studies of new freeway access in the site vicinity by WSDOT have determined that this type solution may not be feasible.

Potential for Vehicle Trip Reduction

- The City of Tukwila's Commute Trip Reduction (CTR) Plan is consistent with the 1992 South King County CTR as required under the 1990 Washington State CTR legislation. Future developments at the Tukwila South site that exceed 100 employees would be required to reduce the proportion of single-occupant vehicle (SOV) and vehicle miles of travel by 35 percent over those rates in 1992. Carpooling could potentially result in net PM peak hour trip reductions to and from the Tukwila South site of between 6 and 9 percent over the trip generation levels used in this EIS analysis.
- While there are no current regional plans to serve the site directly by existing or future high capacity transit systems, potential reductions in PM peak hour site trip generation resulting from such high capacity system connections in the future could range between 10 and 25 percent, depending upon the specific type and connection made. Example systems could include a shuttle/fixed system between the site and future transit centers and major trip generators.

3.12.5 Significant Unavoidable Adverse Impacts

In 2030, increased traffic generated by Alternatives 1 and 2 would cause increased congestion at study area intersections, arterials, and freeway access ramps. With the addition of a new east-west access connector arterial between the site and Orillia Road under Alternatives 1 and 2, the arterial LOS deficiencies are forecasted to meet City LOS standards in 2030. With other identified improvements, trips generated under Alternative 2 would meet City LOS standards on local and regional roadways and all site access intersection LOS deficiencies would be alleviated. However, under Alternative 1, with or without an additional east-west connection and other identified improvements, high capacity transit measures and/or new freeway connections directly to I-5 to serve the site area would be required to meet City concurrency standards. New freeway connections may not be feasible; therefore, Alternative 1 would not meet concurrency standards for intersections even with identified improvements.