

SECTION III

AMENDMENTS and REVISIONS
to the
Draft EIS

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AMENDMENTS and REVISIONS to the DRAFT EIS

The Draft EIS was issued on November 21, 2003. As part of ongoing analyses and in response to comments received during the Draft EIS comment period and from ongoing agency discussions, a number of amendments and revisions have been made to the text. These revisions reflect minor additions and corrections to the text, updated data regarding existing traffic conditions, and supplemental analysis of water quality (phosphorous) impacts and mitigation measures.

1. WATER RESOURCES

A. Water Quality

The following additional discussion of water quality was prepared in response to questions related to phosphorous impacts. It summarizes information contained in a technical memorandum included in Appendix 2 of this Final EIS.

Lake Garrett/Phosphorous

Section 303(d) of the 1972 Federal Clean Water Act (CWA) requires states to identify and list threatened and impaired water bodies. The current active listing approved by EPA is the 1998 303(d) list, which lists Lake Garrett as impaired for total phosphorus and fecal coliforms. Under the CWA, the list is updated every four years. Lake Garrett is also included on the draft 2002/2004 303(d) list as impaired for total phosphorus and fecal coliforms.

An interlocal agreement between King County, the City of Burien, the City of SeaTac, the Port of Seattle, and the Washington State Department of Transportation is in place and these entities are working with citizens to identify and prioritize potential projects in the Miller/Salmon basins, some of which would improve Lake Garrett. Data on Total Maximum Daily Load (TMDL) will eventually be gathered for Lake Garrett; however, Ecology is waiting for completion of the Salmon Creek Basin Plan to identify recommendations for phosphorus and fecal coliform reduction. It should be noted that the currently proposed recommendations in the Salmon Creek Basin Plan include implementation of Lake Protection Standards, which is a higher level of phosphorus removal than the Proposed Master Plan. No current phosphorus loading data have been collected for the specific purpose of formulating a TMDL to address the fecal coliform and total phosphorus impairments, and only limited data are available. Ecology interprets the available data as suggesting most of the phosphorus causing algal growth problems in the lake is from inflow, as opposed to internally derived from lake sediments. Although specific loading data are not available, the observed eutrophic conditions and preliminary data are sufficient to conclude that Lake Garrett would benefit from measures to reduce introduction of phosphorus to discharge reaching the lake.

Currently, stormwater runoff from the project site flows untreated to Lake Garrett. Redevelopment of the project site would include construction of facilities to treat stormwater runoff in compliance with the 1998 King County Surface Water Design Manual. Under the current adopted code, *“Redevelopment projects subject to Core Requirement #8 need only apply the Basic water quality menu, regardless of where they are located. However, a higher standard may be imposed by an adopted resource management plan through Special Requirement #1, Section 1.3.1, or the proposed project may apply a higher standard voluntarily.”* A basin plan including Lake Garrett has not yet been adopted under Special Requirement #1, although the proposed basin plan recommendation is to provide Lake Protection Standards even for redevelopment projects. Therefore, basic wet pond facilities on the site would meet requirements of the 1998 SWDM.

The proposed project would reduce phosphorus loadings to Lake Garrett through a combination of the following design features, BMPs and mitigation measures incorporated in the proposal:

1. Basic water quality treatment;
2. Diversion of 25 percent of the site’s contributing area to Lake Garrett out of the Lake Garrett basin (and thereby reducing phosphorus contribution from this area by 100 percent);
3. Reduction in fertilized lawn by 41 percent, plus additional removal through a proposed change in landscaping fertilization practices and the inclusion of potential soil amendments;
4. Plans for covered parking for 15 percent of the units where none now occurs;
5. Source control planning for multifamily building dumpsters by their placement under roofs; and
6. Control of construction runoff to avoid sediment phosphorus loading to Lake Garrett.

Measures one and two would reduce phosphorus loads to Lake Garrett by approximately 30 to 63 percent. With the addition of measures three through five, and particularly measure 3, phosphorus loading to the lake would be reduced further. Measure six would avoid a potential phosphorus load during construction.

The analysis provided in Appendix 2 of this Final EIS shows that the combinations of proposed mitigation measures, including basic water quality treatment, would be sufficient to reduce phosphorus loading to Lake Garrett relevant to the current proposed Section 303(d) listing for total phosphorus impairment in Lake Garrett. King County believes wet pond treatment will remove about 30 percent total phosphorus on average based on investigations during development of the 1998 Surface Water Design Manual. Even if the predicted total phosphorus removals were less than the average 50 percent used in the analysis, the conclusions of the analysis would not change. No additional mitigation measures are necessary or proposed to further lower phosphorus below existing load levels to Lake Garrett.

B. 4.3.3 Mitigation Measures

Minor changes to drainage-related mitigation measures for the Proposed Master Plan are shown below. Mitigation measures could be modified in accordance with a King County approved drainage adjustment request.

During the dry season, demolition on-site would occur within the western on-site Lake Garrett Basin draining to Mallard Lake (30 percent of the on-site area in the Lake Garrett Basin). Any

runoff generated from the western area would be collected in a pond and pumped east into the eastern on-site Garret Lake Basin. The Eastern Lake Garrett Basin (approximately 70 percent of the on-site area in the Lake Garrett Basin) could feasibly gravity drain or be pumped to a large sedimentation pond. The treated water would be pumped out of the Lake Garrett Basin either to a swale constructed along a newly constructed SW 100th Street sub-collector to drain to the Duwamish River Basin, or to an existing storm drain within the present SW 100th Street in the Duwamish River Basin. During the wet season, runoff from the western Garret Lake basin can not as feasibly be diverted out of the Lake Garrett Basin due to the volumes involved. Instead this water could be discharged to Mallard Lake and Lake Garrett provided the contributing area was well stabilized through hydroseeding. To be effective, hydroseeding would need to occur by mid-September at the latest, to be well established by commencement of the wet season. Any areas actively worked in the western basin area draining to Mallard Lake would to be captured and pumped to the east, out of the basin, irrespective of season.

The following mitigation measures would be implemented during construction of the Proposed Master Plan to satisfy requirements of a SWPPP.

- A temporary erosion and sedimentation control plan (TESCP), which may include a combination of interceptor swales, straw bale barriers, silt fences, and straw mulch for temporary protection of exposed soils and receiving surface water bodies,
- Construction of the diversion, including temporary stormwater ponds, if needed
- A spill prevention plan would be adopted to reduce any accident-related water quality impacts.

Several design elements of the Proposed Master Plan are intended to mitigate potential operational impacts. The items listed below, have been discussed in conjunction with description of impacts in the previous section.

- Diversion of a stormwater run-off from up to 11 acres (or 40 percent of the on-site portion) of the Lake Garrett sub-basin LG-1 to the Duwamish River sub-basin DR-2 (increasing the on-site portion from 35 acres to approximately 46 acres),
- Built green and low impact design concepts to enhance stormwater control and reduce development-related impacts, including:
 - Biofiltration swales integrated within street rights-of-way in Duwamish River basin and diverted portions of the Lake Garrett basin,
 - Biofiltration swale/linear park along SW 100th Street,
 -
 - The potential to amend soils in biofiltration swales to offset detention requirements,
 - Reduced road widths and slightly less impervious surface area than the Design Alternative Master Plan,
- A stormwater detention pond near the eastern site boundary,
- A water quality vault in the vicinity of the proposed community facilities.
- A water quality vault in the northeastern portion of the redevelopment,
- A water quality wetpond along the western site boundary,
- A new storm drain conveyance system would be constructed and a storm drainage plan would be prepared to outline the proposed methods to control and treat stormwater (both quantity and quality).

All stormwater control facilities would be sized to control stormwater to King County SWDM standards, or as approved through drainage adjustments. For the Proposed Master Plan, additional analysis may be needed for the final design of the stormwater and water quality

ponds and for design criteria for installation of the vault in the central (Lake Garrett) basin. It may be necessary to line stormwater ponds located in proximity to erosion, steep slope and/or landslide hazard areas.

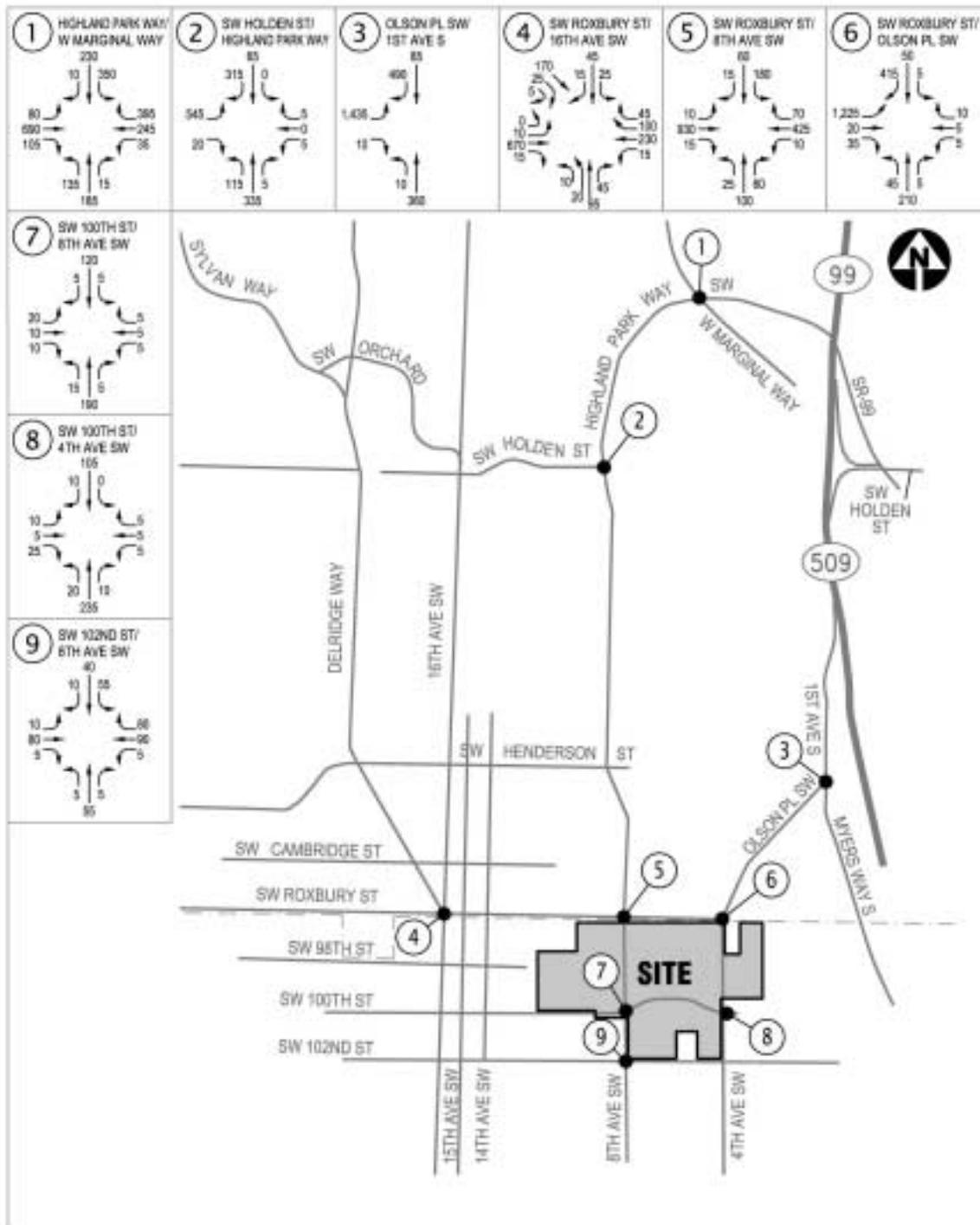
2 TRANSPORTATION and PARKING

A. 3.15 TRANSPORTATION and PARKING

Traffic Volumes

Page 3-122, Paragraph 5, of the Draft EIS, has been updated with the following information regarding traffic volumes.

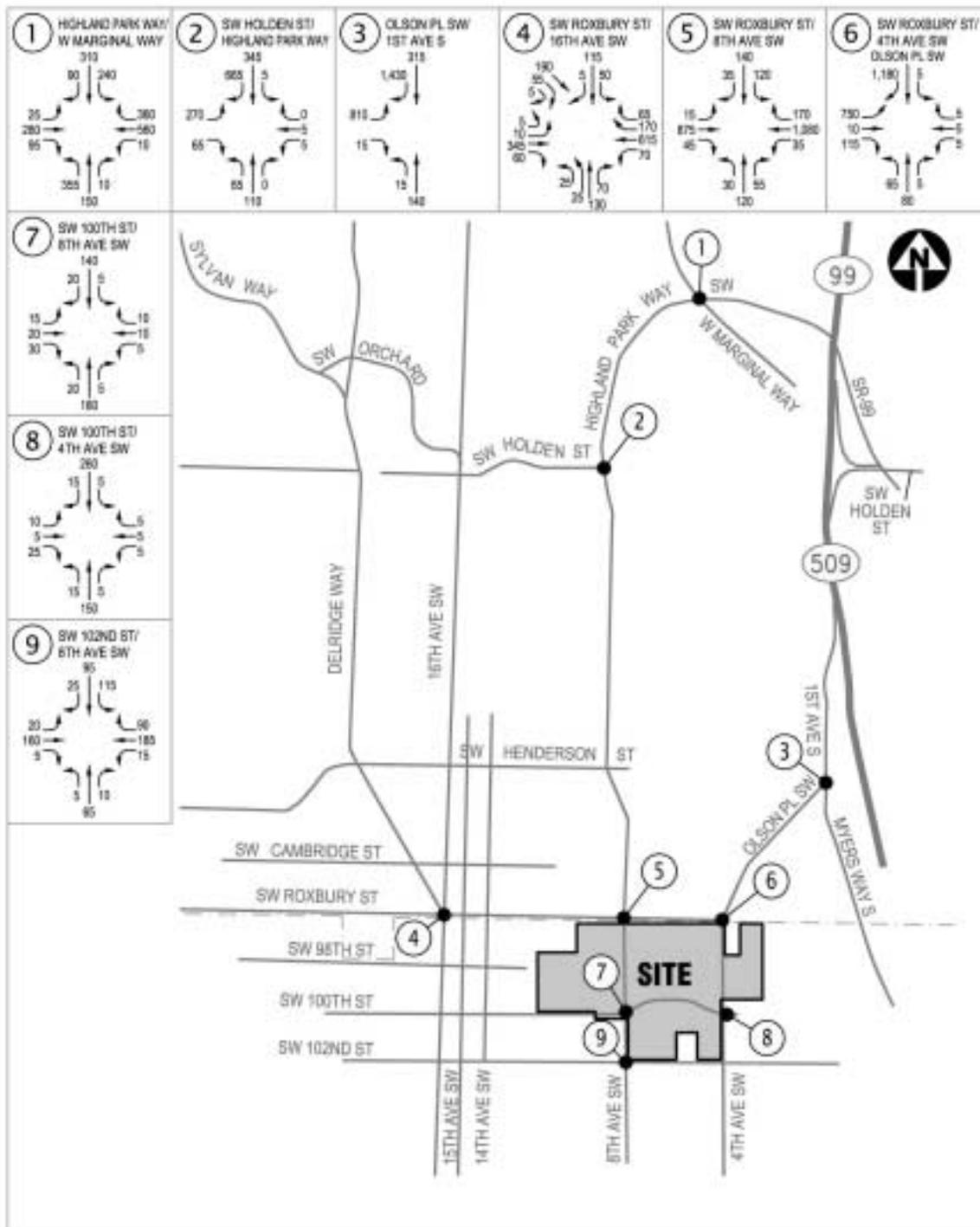
Vehicle volume counts that were collected in 2001 and shown in the Draft EIS have been updated. The vehicle volume counts have been increased by a 1.0-percent annual growth rate to estimate 2004 existing traffic volumes. **Figures 3.15-2** and **3.15-3** have been revised to show these volumes. In addition, **Table 3.15-1** has been revised to reflect the findings related to these updated volumes.



Source: The Transpo Group

Figure 3.15-2

Existing AM Peak Hour Traffic Volumes



Source: The Transpo Group

Figure 3.15-3

Existing PM Peak Hour Traffic Volumes

The results in Table 3.15-1 show that all but one of the study intersections operates at LOS D or better during the AM and PM peak hours. The eastbound left turn at the unsignalized SW Holden Street/Highland Park Way SW intersection tends to experience high delays during the AM peak hour and operates at LOS F. This intersection is stop-controlled on SW Holden Street, while Highland Park Way SW operates under free-flow conditions. Raised curb on Highland Park Way SW effectively separates eastbound left-turning traffic and northbound through traffic. However, eastbound left turns, after completing their turn onto Highland Park Way SW, have their own travel lane in which to proceed north due to Highland Park Way SW widening from one to two northbound lanes at this intersection. The only change in LOS due to the estimated growth in area traffic over the last few years is at the intersection of 1st Avenue S/Olson Place SW which goes from LOS A in the AM Peak Hour to LOS B. This is still an acceptable operational condition. Note that a modification to “existing condition” volumes does not impact the analysis for with project conditions.

Table 3.15-1
EXISTING AM AND PM PEAK HOUR LOS SUMMARY

Signalized Intersections ¹	AM Peak Hour			PM Peak Hour		
	LOS ²	Del ³	V/C ⁴	LOS	Del	V/C
16 th Avenue SW/SW Roxbury Street	C	21.9	0.51	C	24.0	0.67
8 th Avenue SW/SW Roxbury Street	C	25.0	0.62	B	17.3	0.70
Olson Place SW/SW Roxbury Street	B	15.3	0.67	B	11.5	0.43
1 st Avenue S/Olson Place SW	B	10.2	0.62	D	45.5	1.02
Highland Park Way SW/W Marginal Way SW	C	32.2	0.76	C	34.2	0.79
Unsignalized Intersections	AM Peak Hour			PM Peak Hour		
	LOS	Del ⁵	WM ⁶	LOS	Del	WM
8 th Avenue SW/SW 100 th Street	B	11.4	EB App	B	11.6	WB App
4 th Avenue SW/SW 100 th Street	B	11.7	WB App	B	11.8	WB App
8 th Avenue SW/SW 102 nd Street ⁷	A	8.6	--	B	11.3	--
Highland Park Way SW/SW Holden Street	F	62.6	EB Left	D	33.7	EB Left

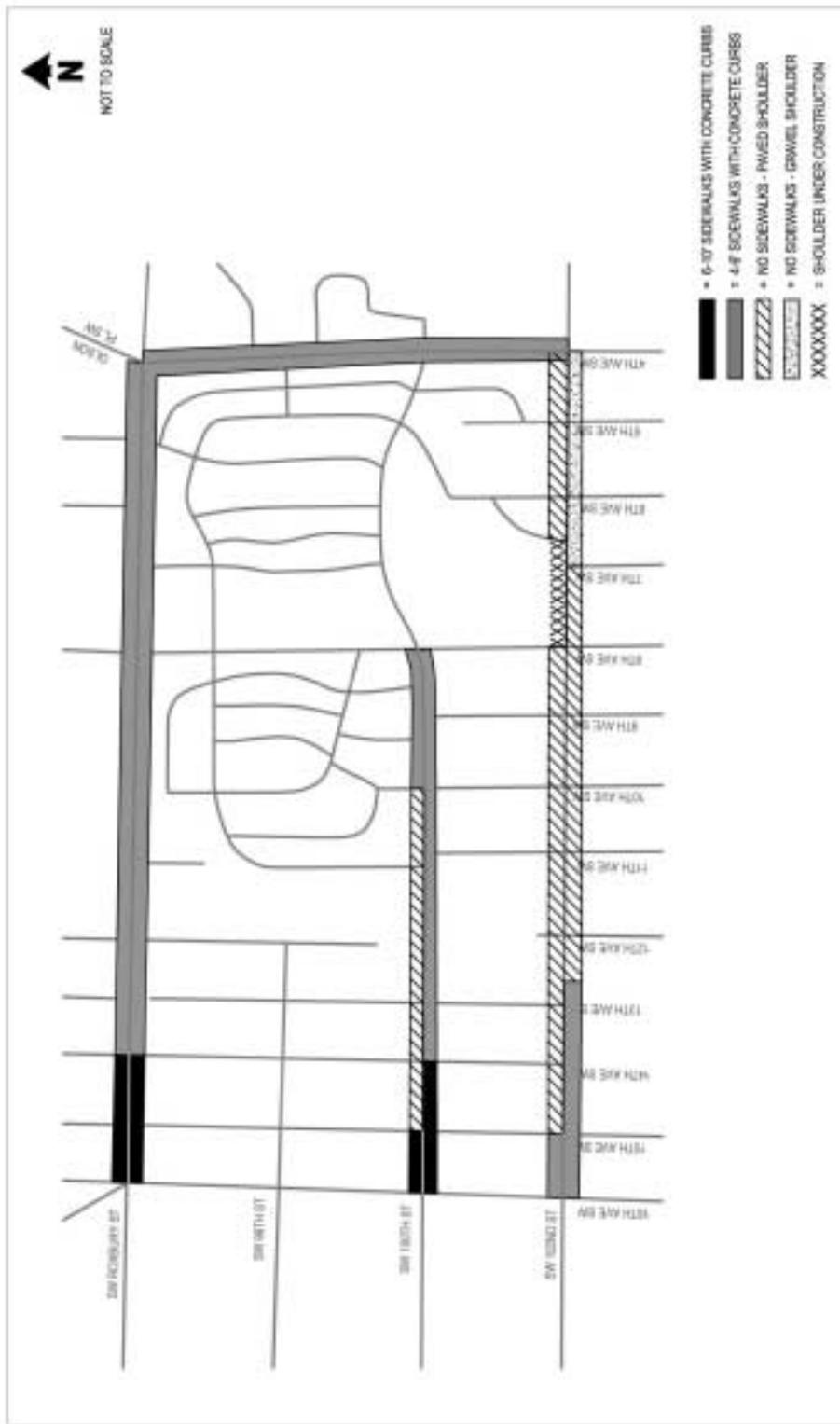
Notes:

1. LOS, delays, and v/c ratios at signalized intersections reflect the operation of the intersection as a whole.
2. LOS = Level of Service (A-F)
3. Del = Average control delay measured in seconds per vehicle
4. V/C = Critical volume-to-capacity ratio
5. Delay for unsignalized intersections reflects the delay for the worst movement.
6. WM = Worst Movement. App = Approach
7. All-way stop controlled intersection- delay represents operation of the intersection as a whole

Source: Transpo Group, 2003

Pedestrian Facilities

Figure 3.15a has been added to the Draft EIS following page 3-128. It provides an inventory of pedestrian facilities around and near the project sight. While sidewalks are provided along Roxbury and 4th Avenue SW, portions of SW 102nd Street and SW 100th Street do not provide sidewalks. These routes provide a direct connection from the project site to the commercial district of White Center.



Source: The Transpo Group

Figure 3.15a

Traffic Safety

The accident data discussed on pages 3-128, 3-129, and 3-130 of the Draft EIS have been updated to cover the most recent summary of collision data from both King County and the City of Seattle. It now covers the five-year period between January 1, 1998 and December 31, 2002. An updated summary of the total and average annual number of collisions at each study intersection is shown in **Table 3.15-3**, followed by a revised discussion.

Table 3.15-3
COLLISION SUMMARY: 1998-2002

Intersection	Signalized?	1998	1999	2000	2001	2002	Total	Avg/Yr	MEV/MVM ²
SW Roxbury Street/ 16 th Avenue SW	Yes	6	4	1	4	4	19	3.8	0.52
8 th Avenue SW/ SW Roxbury Street	Yes	8	6	5	9	7	35	7.0	0.72
Olson Place SW/ SW Roxbury Street	Yes	3	2	0	3	2	10	2.0	0.23
8 th Avenue SW/ SW 100 th Street	No	0	2	0	1	2	5	1.0	0.6
4 th Avenue SW/ SW 100 th Street	Yes	1	1	0	0	2	4	0.8	0.44
8 th Avenue SW/ SW 102 nd Street	No	0	0	0	1	1	2	0.4	0.14
1 st Avenue S/Olson Place SW	Yes	3	4	4	6	1	18	3.6	0.37
Highland Park Way SW/ SW Holden Street	No	0	3	2	0	0	5	1.0	0.18
Highland Park Way SW/ W Marginal Way SW	Yes	1	2	1	2	2	8	1.6	0.18
Roadway Segment ¹		1998	1999	2000	2001	2002	Total	Avg/Yr	MEV/MVM
16 th Avenue SW: between SW Roxbury Street and SW 102 nd Street	NA	12	12	10	23	23	80	16.0	21.31
SW 100 th Street: between 16 th Avenue SW and 4 th Avenue SW	NA	2	1	2	4	7	16	3.2	14.53
4 th Avenue SW: between SW 102 nd Street and SW Roxbury Street	NA	8	6	8	8	6	36	7.2	12.27
SW 102 nd Street: between 16 th Avenue SW and 4 th Avenue SW	NA	10	13	8	9	11	51	10.2	8.39
SW Roxbury Street: between Delridge Way SW and 4 th Avenue SW	NA	39	27	17	17	23	123	24.6	4.41

¹ Includes collisions at non-study intersections within each noted roadway segment

Source: Transpo Group, 2003

2. MEV=Collisions per million entering vehicles; MVM=Collisions per million vehicle miles traveled

The study intersection with the highest average number of collisions per year over the noted time period was found to be 8th Avenue SW/SW Roxbury Street, which averaged 7.0 collisions per year. The roadway segment with the highest average number of collisions per year was on SW Roxbury Street, between Delridge Way SW and 4th Avenue SW, with an average of 25 collisions per year. It should be noted that the collisions reported along these roadway segments include those collisions that occurred at non-study intersections.

In addition, rates for the number of accidents per million entering vehicles (MEV) were calculated at study intersections. Typically, an intersection with an MEV rate of 1.0 or higher is considered to have a safety deficiency. As is shown in Table 3.15-3, none of the study intersections have an MEV rate over this threshold, with the highest being 0.72 at 8th Ave SW/SW Roxbury Street.

Collision rates per million vehicle miles (MVM) traveled were calculated for the identified roadway segments. Typically, a corridor with an MVM rate of 10.0 or higher is considered to have some degree of safety deficiency. As is shown in Table 3.15-3, three of the identified roadway segments exceed this general 10.0 MVM rate threshold. However, these rates should be viewed with discretion.

The 16th Avenue SW roadway segment (between SW Roxbury Street and SW 102nd Street), the 4th Avenue SW (between SW 102nd Street and SW Roxbury Street) segment, and the SW 100th Street (between 16th Avenue SW and 4th Avenue SW) segment all exceed this threshold. While neither segment's data includes those collisions at study intersections along each respective corridor, they do include a substantial number of non-study intersection collisions. For instance, on the 16th Avenue SW segment, 54-percent of the collisions were at intersections, while on the 4th Avenue SW segment, 31-percent of the collisions occurred directly at 4th Avenue SW/SW 102nd Street, and 56-percent of the collisions along the SW 100th Street segment were at intersections. The signalization of 4th Avenue SW/SW 102nd Street has been identified by King County as a high priority in its 2001-2020 Transportation Needs Report.

Of the 16th Avenue SW roadway segment collisions, 20-percent were turn-related, 18-percent involved moving vehicles striking parked cars, 16-percent were angle-collisions, and 13-percent were rear-end collisions. Front-in angle on-street parking is present along 16th Avenue SW in this area, possibly contributing to a proportion of these collisions. On the 4th Avenue SW segment, the predominant collision type, representing 31-percent of the total collisions, involved vehicles striking either parked cars or fixed objects. On the SW 100th Street segment, 50-percent of the total collisions also involved vehicles striking either parked cars or fixed objects.

Washington State Department of Transportation (WSDOT) has confirmed that as of January 16, 2004, there are no High Accident Locations (HALs) or High Accident Corridors (HACs) within the study area that are currently identified on its most recent lists.

4.15 TRANSPORTATION and PARKING

A. Updated Data and Minor Corrections to the Text

Page 4-109, Paragraph 2, second sentence of the Draft EIS, has been revised to correct a bus route, as follows

”Sound Transit Route 570 currently operates between West Seattle and downtown Bellevue, via White Center, Burien, SeaTac Airport, and Renton.”

Table 4.15-1 on Page 4-113 of the Draft EIS has been revised as shown below:

Table 4.15-1
PEAK HOUR LOS SUMMARY
EXISTING AND 2012 NO ACTION ALTERNATIVE

Signalized Intersections ¹	AM Peak Hour						PM Peak Hour					
	Existing ⁵			No Action (2012)			Existing ⁵			No Action (2012)		
	LOS ²	Del ³	V/C ⁴	LOS	Del	V/C	LOS	Del	V/C	LOS	Del	V/C
16 th Ave SW/SW Roxbury St	C	21.9	0.50	C	21.1	0.59	C	24.1	0.67	C	29.3	0.78
8 th Ave SW/SW Roxbury St	C	23.7	0.61	B	14.9	0.70	B	16.8	0.68	B	15.2	0.79
Olson Pl SW/SW Roxbury St	B	14.9	0.66	B	16.5	0.71	B	11.5	0.42	B	11.7	0.47
1 st Ave S/Olson Pl SW	A	9.9	0.61	B	11.3	0.66	D	40.8	1.00	E	63.6	1.06
Highland Park Wy SW/W	C	31.8	0.69	D	37.9	0.79	C	32.3	0.77	D	35.9	0.89
Marginal Way SW	C	31.8	0.69	D	37.9	0.79	C	32.3	0.77	D	35.9	0.89
Unsignalized Intersections	LOS	Del	WM ⁶	LOS	Del	WM	LOS	Del	WM	LOS	Del	WM
8 th Ave SW/SW 100 th St	B	11.3	EB App	B	12.8	EB App	B	11.5	WB App	B	12.7	EB App
4 th Ave SW/SW 100 th St	B	11.6	WB App	B	12.4	WB App	B	11.7	WB App	B	12.6	WB App
8 th Ave SW/SW 102 nd St ⁷	A	8.4	--	A	8.6	--	B	10.9	--	B	11.9	--
Highland Park Wy SW/SW	F	56.1	EB Left	F	114.5	EB Left	D	30.1	EB Left	F	59.1	EB Left
Holden St	F	56.1	EB Left	F	114.5	EB Left	D	30.1	EB Left	F	59.1	EB Left

Source: The Transpo Group, 2003.

Notes:

1. LOS, delays, and v/c ratios at signalized intersections reflect the operation of the intersection as a whole.
2. LOS = Level of Service (A-F)
3. Del = Average control delay measured in seconds per vehicle
4. V/C = Critical volume-to-capacity ratio
5. Delay for unsignalized intersections reflects the delay for the worst movement.
6. WM = Worst Movement. App = Approach EB= Eastbound WB= Westbound
7. All-way stop controlled intersection- delay represents operation of the intersection as a whole
8. Existing conditions assumptions do not emulate signal timing/pedestrian/transit assumptions used in all future forecast conditions.

Table 4.15-4 on Page 4-122 of the Draft EIS has been revised as shown below:

Table 4.15-4
AM AND PM PEAK HOUR TRAFFIC VOLUME IMPACT – PROPOSED
MASTER PLAN

Study Intersections	2012 AM Peak Hour Trips				2012 PM Peak Hour Trips			
	2012 Baseline	Project Trips	Proposed Action	percent Impact	2012 Baseline ¹	Project Trips	Proposed Action	percent Impact
16 th Avenue SW/SW Roxbury Street	1,680	75	1,755	4.3%	2,190	94	2,284	4.1%
8 th Avenue SW/SW Roxbury Street	2,085	211	2,296	9.2%	2,985	281	3,266	8.6%
Olson PI SW/SW Roxbury Street	2,210	88	2,298	3.8%	2,600	140	2,740	5.1%
1 st Avenue S/Olson PI SW	2,585	55	2,640	2.1%	2,955	96	3,051	3.2%
Highland Park Wy SW/W Marginal Way SW	2,690	52	2,742	1.9%	2,695	69	2,764	2.5%
8 th Avenue SW/SW 100 th Street	475	69	544	12.7%	550	102	652	15.6%
4 th Avenue SW/SW 100 th Street	485	41	526	7.8%	560	59	619	9.5%
8 th Avenue SW/SW 102 nd St ⁷	480	24	504	4.8%	875	28	903	3.1%
Highland Park Wy SW/SW Holden Street	1,535	73	1,608	4.5%	1,680	91	1,771	5.1%

Source: The Transpo Group, 2003.

Figure 4.15-6 on Page 4-124 of the Draft EIS has been revised to show 55 left turning movements
From SW Roxbury Street to 8th Avenue SW instead of 45.

Figure 4.15-8 on Page 4-126 of the Draft EIS has been revised to show 95 left turning movements
From SW Roxbury Street to 8th Avenue SW instead of 85.

Page 4-127, Paragraph 2, Sentence 1 of the Draft EIS has been revised as follows:

“As shown in table 4.15-1, one intersection level of service is expected to degrade in 2012 with the Proposed Master Plan: 8th Avenue SW/SW Roxbury Street would degrade from LOS B to D in the PM peak hour, with over a 100-percent increase in average delay per vehicle.”

Table 4.15-5 on Page 4-128 of the Draft EIS has been revised as shown below:

Table 4.15-5
PEAK HOUR LOS SUMMARY-2012 NO ACTION ALTERNATIVE AND PROPOSED MASTER PLAN

Signalized Intersections ¹	AM Peak Hour						PM Peak Hour					
	No Action Alternative (2012)			Proposed Master Plan (2012)			No Action Alternative (2012)			Proposed Master Plan (2012)		
	LOS ²	Del ³	V/C ⁴	LOS	Del	V/C	LOS	Del	V/C	LOS	Del	V/C
16 th Avenue SW/SW Roxbury Street	C	21.1	0.59	C	21.3	0.60	C	29.3	0.78	C	34.4	0.84
8 th Avenue SW/SW Roxbury Street	B	14.9	0.70	B	16.5	0.78	B	15.2	0.79	D	38.2	1.02
Olson PI SW/SW Roxbury Street	B	16.5	0.71	B	18.6	0.74	B	11.7	0.47	B	12.8	0.50
1 st Avenue S/Olson PI SW	B	11.3	0.66	B	11.6	0.67	E	63.6	1.06	E	75.0	1.10
Highland Park Wy SW/W Marginal Way SW	D	37.9	0.79	D	37.9	0.75	D	35.9	0.89	D	37.6	0.91
Unsignalized Intersections	LOS	Del	WM ⁶	LOS	Del	WM	LOS	Del	WM	LOS	Del	WM
8 th Avenue SW/SW 100 th Street	B	12.8	EB App	B	14.1	EB App	B	12.7	EB App	C	15.1	EB App
4 th Avenue SW/SW 100 th Street	B	12.4	WB App	B	12.9	WB App	B	12.6	WB App	B	13.5	WB App
8 th Avenue SW/SW 102 nd St ⁷	A	8.6	--	A	8.8	--	B	11.9	--	B	12.3	--
Highland Park Wy SW/SW Holden Street	F	114.5	EB Left	F	153.1	EB Left	F	59.1	EB Left	F	106.4	EB Left

Notes:

1. LOS, delays, and v/c ratios at signalized intersections reflect the operation of the intersection as a whole.
 2. LOS = Level of Service (A-F)
 3. Del = Average control delay measured in seconds per vehicle
 4. V/C = Critical volume-to-capacity ratio
 5. Delay for unsignalized intersections reflects the delay for the worst movement.
 6. WM = Worst Movement. App = Approach EB= Eastbound WB= Westbound
 7. All-way stop controlled intersection- delay represents operation of the intersection as a whole
- Source: The Transpo Group, 2003.

Page 4-142, Paragraph 2, Sentence 2 of the Draft EIS has been revised as follows:

“During the PM peak hour, average delay at 8th Avenue SW/SW Roxbury Street intersection would increase by approximately eleven seconds per vehicle.”

Table 4.15-11 on Page 4-143 of the Draft EIS has been revised as shown below:

Table 4.15-11
PEAK HOUR LOS SUMMARY-2012 NO ACTION ALTERNATIVE AND
DESIGN ALTERNATIVE MASTER PLAN

Signalized Intersections ¹	AM Peak Hour						PM Peak Hour					
	No Action (2012)			Design Alternative Master Plan (2012)			No Action (2012)			Design Alternative Master Plan (2012)		
	LOS ²	Del ³	V/C ⁴	LOS	Del	V/C	LOS	Del	V/C	LOS	Del	V/C
16 th Avenue SW/SW Roxbury Street	C	21.1	0.59	C	21.3	0.60	C	29.3	0.78	C	34.1	0.84
8 th Avenue SW/SW Roxbury Street	B	14.9	0.70	B	16.0	0.76	B	15.2	0.79	C	26.0	0.95
Olson Pl SW/SW Roxbury Street	B	16.5	0.71	B	18.8	0.74	B	11.7	0.47	B	12.8	0.50
1 st Avenue S/Olson Pl SW	B	11.3	0.66	B	11.8	0.68	E	63.6	1.06	E	73.3	1.10
Highland Park Wy SW/W Marginal Way SW	D	37.9	0.79	D	38.1	0.74	D	35.9	0.89	D	37.3	0.90
Unsignalized Intersections	LOS	Del	WM ⁶	LOS	Del	WM	LOS	Del	WM	LOS	Del	WM
8 th Avenue SW/SW 100 th Street	B	12.8	EB App	B	14.0	EB App	B	12.7	EB App	B	14.4	EB App
4 th Avenue SW/SW 100 th Street	B	12.4	WB App	B	12.9	WB App	B	12.6	WB App	B	13.6	WB App
8 th Avenue SW/SW 102 nd Street ⁷	A	8.6	--	A	8.8	--	B	11.9	--	B	12.2	WB App
Highland Park Wy SW/SW Holden Street	F	114.5	EB Left	F	148.8	EB Left	F	59.1	EB Left	F	100.6	EB Left

Notes:

1. LOS, delays, and v/c ratios at signalized intersections reflect the operation of the intersection as a whole.
2. LOS = Level of Service (A-F)
3. Del = Average control delay measured in seconds per vehicle
4. V/C = Critical volume-to-capacity ratio
5. Delay for unsignalized intersections reflects the delay for the worst movement.
6. WM = Worst Movement. App = Approach EB= Eastbound WB= Westbound
7. All-way stop controlled intersection- delay represents operation of the intersection as a whole

B. 4.15.5 Mitigation Measures - Updated

Supplemental Mitigation Analysis

This supplemental analysis was prepared to respond to questions about the mitigation measures contained on pages 4-132 and 4-133 of the Draft EIS specific to the intersection of 8th Avenue SW & SW Roxbury Street. (More detailed analysis is contained in Appendix 3 of this Final EIS.) The following discussion recapitulates and updates the major conclusions of the transportation analysis in regard to the intersection and identifies a range of mitigation measures that could address pre-existing conditions and anticipated project impacts. The analysis identifies and assesses a range of potential physical and operational measures that could address current concerns related to intersection safety. Additionally, the analysis assesses the applicant’s proposed mitigation measures and its ability to address the Greenbridge proposal’s impacts to this intersection.

A vertical crest curve just west of the intersection limits sight distance. Concerns about the roadway profile have been documented since the 1950's. The intersection is not, however, designated as a high accident location (HAL) by the City of Seattle, nor is it currently identified as a HAL by the County.¹ Currently there are approximately 0.75 collisions per million entering vehicles. No adopted CIP project or other proposal for improvement addresses this issue.

In general, the supplemental analysis indicates that the 8th Avenue SW and SW Roxbury Street intersection would operate within King County's adopted level of service standards at buildout of the Greenbridge proposal. A combination of mitigation measures proposed by the applicant – restricting northbound right turns to not allow right-turn-on-red, adding a leading protected phase for the westbound left turn, and providing advance warning measures for eastbound traffic – could effectively mitigate the proposal's identified impacts.

Review of Intersection Characteristics

Volumes

Traffic turning movement counts were collected for the AM and PM peak periods on November 21, 2002. The 8th Avenue SW/SW Roxbury Street intersection currently processes approximately 1,865 vehicles during the AM peak period and 2,680 during the PM peak period.

AM and PM traffic volumes for the intersection were projected for 2012 with-project improvements. The 8th Avenue SW/SW Roxbury Street intersection will process approximately 2,296 vehicles during the AM peak period and 3,256 vehicles during the PM peak period under future conditions.

At buildout, the project is projected to result in 340 and 470 net new vehicle trips in the AM and PM peak hours, respectively. For project trip distribution, approximately 60 percent of project trips are expected to go through this intersection, generally follows:

- 20-25 percent to/from the north on 8th Avenue SW and Highland Park Way;
- 15-20 percent to/from the west on SW Roxbury Street; and
- 20-25 percent to/from the northeast on SW Roxbury Street.

This equates to a project contribution of approximately 9 percent and 8 percent increases in background project volumes in the AM and PM peak hours, respectively.

Level of Service

The level of service (LOS) at the 8th Avenue SW/SW Roxbury Street intersection was reevaluated for the AM and PM peak hours. Signalized intersection LOS is defined in terms of the average total vehicle delay of all movements through an intersection. **Table 4.15-12 (new)** provides the LOS calculations for future conditions with and without the proposal, assuming the current intersection layout and signal timing.

¹ Because the intersection falls on the jurisdictional boundary, it has not historically been tracked for safety rating by King County.

Table 4.15-12 (new)
LEVEL OF SERVICE SUMMARY

8 th Ave SW/ SW Roxbury St.	Existing			Without Project			With Project		
	LOS ¹	Delay ²	V/C ³	LOS	Delay	V/C	LOS	Delay	V/C
AM Peak Hour	C	23.7	0.61	B ⁴	16.3	0.69	B	18.1	0.78
PM Peak Hour	B	16.8	0.68	B	15.2	0.77	C	29.1	0.98

¹ Level of service, based on 2000 HCM methodology.

² Average delay per vehicle (in seconds. LOS and delays represent all vehicles entering intersection).

³ Volume-to-capacity.

⁴ Assumes optimization of signal timing, resulting in improved intersection operations.

Source: *The Transpo Group, 2004.*

Under 2002 conditions, the 8th Avenue SW/SW Roxbury Street intersection operates at LOS C during the AM peak hour and LOS B during the PM peak hours. At buildout of Greenbridge, the 8th Avenue SW/SW Roxbury Street intersection will operate at LOS B during the AM peak hour and LOS C during the PM peak hour. King County's LOS standard is LOS E or better at both signalized and unsignalized intersections. The proposal is, therefore, in compliance with King County LOS standards.

The proposed project is located in King County's "Green Zone" for concurrency, which means that critical roadway capacity in the project vicinity has been identified as adequate for future development. The project received notification that concurrency requirements will be met with the addition of project traffic. Operational conditions (i.e., levels of service) at this location do not warrant mitigation with the proposal's 8 percent to 9 percent increase in peak hour traffic.

Seattle's Comprehensive Plan does not define a level of service standard for individual intersections. The City's operational standards are based on screenlines across specific arterials. This criteria is based on a designated v/c ratio threshold and is referred to as a "Concurrency" measure. Seattle does not require a concurrency analysis of projects located outside of City limits.

Sight Distance

A field visit was conducted to determine existing sight distance at the 8th Avenue SW/ SW Roxbury Street intersection. The critical sight distances are to the west of 8th Avenue SW on SW Roxbury Street, due to roadway geometry with a crest vertical curve.

Stopping sight distance (SSD) primarily impacts eastbound motorists approaching the intersection with 8th Avenue SW and their ability to see and stop for other eastbound vehicles stopped at the signalized intersection. SSD was measured from the intersection to the west in 50-foot intervals. **Table 4.15-13 (new)** summarizes the measured SSD and minimum required SSD according to AASHTO, WSDOT, and King County standards.

The posted speed limit is 35 mph. As recommended in WSDOT's Design Manual Supplement, July 22, 2003, the recommended design speed for 35 MPH posted urban roadways is typically 5

mph above the posted speed, although King County typically uses a design speed of 10 mph above the posted speed. Tables 4.15-13 and 4.15-14 provide sight distance requirements based on a design speed of 40 mph. The major difference between the standards is related to both the height of the object the vehicle is moving towards and/or the height from which the object is sited.

Table 4.15-13 (new)
STOPPING SIGHT DISTANCE FOR 40 MPH DESIGN SPEED

From (ft)	Grade (percent)	Measured SSD (ft)	AASHTO and WSDOT Required SSD (ft)	King County Required SSD (ft)
0	0	290	305	325
50	+1	285	305	325
100	+1	275	305	325
150	+2	265	305	325
200	+3	270	289	325
250	+5	275	278	325
300	+7	280	278	325

At a design speed of 40 mph, the King County-required SSD is not met by existing conditions at the intersection. AASHTO and WSDOT SSD are not met except for at the top of the hill. The largest discrepancy occurs at approximately 150 feet west of the intersection where 265 feet of SSD is available for approaching vehicles. This is substandard for AASHTO and WSDOT requirements by approximately 40 feet and King County standards by 60 feet.

Entering sight distance was measured for westbound left turns (WBLT) and northbound right turns (NBRT). **Table 4.15-14 (new)** summarizes the measured estimated sight distance (ESD) and minimum required ESD according to AASHTO, WSDOT, and King County standards.

Table 4.15-14 (new)
ENTERING SIGHT DISTANCE FOR 40 MPH DESIGN SPEED

	Measured (ft)	AASHTO Requirement (ft)	WSDOT Requirement (ft)	King County Requirement (ft)
WBLT	410	325	588	555
NBRT	345	385	560	555

While AASHTO's recommended sight distance is satisfied for the northbound right turn, the current sight distance falls short of WSDOT and King County standards. Under current conditions, sight distance for the westbound left turn movement does not meet any of the cited standards.

Collision Summary

A collision analysis was performed for the 8th Avenue SW/SW Roxbury Street intersection for the five-year period including 1998 through 2001. The reasons for performing a collision analysis are to: (1) identify any accident pattern that may exist; (2) determine the probable causes of accidents with respect to drivers, highway, and vehicles; and (3) develop countermeasures that will reduce the rate and severity of accidents.

Table 4.15-15 (new) summarizes the last five years for which collision data was available from the Seattle Department of Transportation (SDOT) and King County.

Table 4.15-15 (new)
5 YEAR ACCIDENT SUMMARY FOR INTERSECTION OF ROXBURY/8TH

Accident Type	1998	1999	2000	2001	2002	Total	Annual Average
Total Accidents	8	6	5	9	7	35	7
Right Angle – WBL & EBT	4	0	1	2	2	10	2
Rear End - EB	0	0	1	0	0	1	0.2

SDOT typically identifies a signalized intersection as a high accident location (HAL) if it experiences, on average, ten or more collisions per year over four or more years. An unsignalized intersection is typically identified as a HAL if it experiences, on average, five or more collisions per year. Intersections with HAL designations are often targeted for future safety improvements. The 8th and Roxbury intersection does not meet Seattle's typical criteria for a HAL identification.

King County classifies HALs in a list that considers the most recent three-year accident history. King County's July 2003 HAL list does not include the 8th and Roxbury intersection. However, it is noted that, because the intersection signal is operated by Seattle, and is located on the jurisdictional boundary, King County has not included this intersection in its collected accident data.

The County has expressed concern regarding this intersection, particularly under project conditions where new project trips will account for approximately half of the total westbound left-turn movement. Although there is no model that would predict future accident experience, the increase in volumes could increase the potential for traffic accidents.

Mitigation Alternatives

To recapitulate the findings of the traffic analysis, the Greenbridge proposal would not cause significant impacts to intersection operations and, based on a review of accident data, the intersection does not qualify as a high accident location. King County and the City of Seattle have requested a review of potential modifications to this intersection related to the concerns about safety, recognizing that this is an existing condition that does not meet current road standards.

Ten mitigation alternatives (numbered 2 through 11; Alternative 1 is a no action scenario) for the 8th Avenue SW/SW Roxbury Street intersection were identified and evaluated by the EIS transportation consultant (The Transpo Group) and King County Department of Transportation. Appendix 3 summarizes the improvements and their relative advantages and disadvantages, costs, etc. A full discussion of each potential improvement is also contained in Appendix 3. The alternatives include the following:

Physical Improvements

- Alternative 1 (No Action) – No intersection modifications would be made; this condition provides a basis for comparing the alternatives.
- Alternative 2 - Widening SW Roxbury Street at 8th Avenue SW to provide eastbound and westbound dedicated left-turn lanes.
- Alternative 3 - Reducing the vertical curve on SW Roxbury Street to the west of 8th Avenue SW, eliminating the sight distance sight issues at the intersection.
- Alternative 4 - Moving the southern approach of the 8th Avenue SW intersection to the east, further away from the vertical curve, in order to improve sight distance.

Operational Modifications

- Alternative 5 - Prohibit westbound left turns from SW Roxbury Street onto 8th Avenue SW.
- Alternative 6 - Convert SW Roxbury Street to one through lane in each direction with a two-way center left-turn lane, with eastbound and westbound left-turn lanes at the 8th Avenue SW/SW Roxbury Street intersection.
- Alternative 7 - Convert SW Roxbury Street to include two through lanes in the westbound direction, and one through lane in the eastbound direction.
- Alternative 8 - Restrict northbound right turns to not allow right-turn-on-red.
- Alternative 9 - Add a leading protected phase for the westbound left turn.
- Alternative 10 - Provide advance warning measures for eastbound traffic.
- Alternative 11 - Institute a modified speed zone in the project vicinity.

The only alternative that would correct all of the existing sight-distance limitations is to regrade the road to reduce the vertical crest curve (Alternative 3). The cost of this modification is estimated at approximately \$2.5 million plus right-of-way. The dedication of the right-of-way (estimated to be approximately \$240,000) is equivalent to approximately 9 percent of the total cost for this improvement. This equates to approximately the same percent of increase in intersection volumes that the project is estimated to add to the intersection.

1st Avenue S/Olson Place SW Intersection

In order to better understand potential solutions for the LOS E operating conditions at the 1st Avenue S/Olson Place SW intersection in future conditions, three possible mitigation measures were explored to improve operations, particularly for the high volume southbound right turn at this intersection during the PM peak hour. These measures included: (1) optimization of signal timing at the intersection; (2) construction of an additional southbound right turn lane (3) Conversion of one of the southbound through lanes to a right turn lane, allowing for dual southbound right turns. The first alternative would result in approximately the same amount of average intersection delay (approximately 64 seconds per vehicle) during the PM peak hour in

future with master plan conditions as in future baseline conditions. Both the 2nd and 3rd alternatives would significantly reduce average delays for the intersection, and particularly the southbound right turn movement. Overall intersection operations would be at LOS B for both the 2nd and 3rd options during the PM peak hour. Such improvements would be directed towards serving the substantial amount of southbound right turns at the intersection.

Applicant's Proposed Mitigation

The applicant proposes to institute and pay for Alternatives 8, 9 and 10 as it's proportional mitigation for identified impacts. This combination of measures would address the three existing sight distance issues, would improve existing safety concerns identified by King County Department of Transportation, and would more than offset the project's proportional increase to intersection volumes (less than 10 percent during peak hours) and potential impacts to intersection safety. An analysis of potential effectiveness conducted by Transpo (see discussion in Appendix _3) indicates that the proposed mitigation is expected to improve safety at the 8th Avenue SW & SW Roxbury intersection. Based on research, as measured by percentage reductions in accidents, Alternative 8 could reduce up to 25 percent of total crashes; Alternative 9 could reduce up to 10 percent of total crashes, which includes up to 64 percent of left turn crashes; and Alternative 10 could reduce up to 40 percent of total crashes, which includes 35 percent right turn crashes.

The applicant will also dedicate additional right-of-way on the northern boundary of the project site, along the south side of Roxbury, sufficient to accommodate future widening of Roxbury to add a center left-turn lane. Such widening would be contingent on King County and/or Seattle adopting and financing this improvement. The right-of-way contribution would be valued at approximately \$240,000 (in 2004 dollars); this amount is equivalent to approximately 9 percent of the estimated cost of the improvement project and to Greenbridge's proportionate contribution to future added traffic.

Evaluation of Potential Future Mitigation for 8th Avenue SW at SW Roxbury Street

King County Department of Transportation and the City of Seattle concur that the applicant's proposed mitigation (Alternatives 8, 9 and 10 described above in previous section) is expected to improve safety for some period of time. In addition to these safety improvements, the need for, and the benefit, feasibility and timing of additional mitigation would be addressed according to the procedures, criteria and timing discussed below.

A broad range of alternatives which could address safety concerns are identified and evaluated in the Final EIS. Among others, such mitigation measures could include a dedicated west-bound left turn lane and/or reconstruction of the roadway to remove the existing vertical curve and sight distance limitation. Identification and implementation of improvements of a corridor-wide or multi-jurisdictional nature would involve coordinated monitoring, evaluation and concurrence by King County and the City of Seattle, and proportionate funding by the jurisdictions and the applicant. Alternatively, the City of Seattle or another jurisdiction may annex the White Center area at some point in the future. Therefore, the jurisdiction responsible for identifying and implementing future transportation improvements may change.

The need for additional mitigation, and its nature or timing cannot be identified with reasonable certainty at this time. Similarly, the specific timing and nature of redevelopment of Greenbridge -- including the number of housing units approved and constructed, and the mitigation identified in this Final EIS -- will affect traffic generation, distribution and potential accidents at the 8th and

Roxbury intersection. These factors will be monitored by King County on an annual basis in conjunction with build-out of Greenbridge.

Using this monitoring information, King County and the City of Seattle will review and evaluate corridor traffic growth, project trip generation, intersection traffic operations and accident history at such time as two-thirds of the approved Greenbridge housing units (based upon a representative mix of the unit types) are constructed and occupied. The focus of the 8th and Roxbury monitoring and evaluation relative to Greenbridge will be on intersection operations, including the primary turning movements related to the project (i.e., the westbound left turn movement at 8th and Roxbury). The evaluation will also reflect installation of the applicant's initial mitigation measures, as discussed above.

Based on this evaluation, the County and/or City will determine whether additional mitigation is warranted to address safety concerns. If additional mitigation is warranted, the County and/or City may propose, and the applicant will participate in, a multi-jurisdictional or corridor-wide capital improvement project to mitigate any ongoing safety problem. In this case, the applicant would contribute its proportionate share to any needed mitigation project. The monitoring program identified above will be used to help establish the applicant's proportionate share of any additional mitigation. The applicant's proposed dedication of right-of-way would be considered as part of its pro rata share.

King County and/or the City of Seattle would conduct any additional environmental review, pursuant to SEPA and/or NEPA, that is required to implement additional corridor-wide or multi-jurisdictional improvements that may be performed by these jurisdictions. The type and magnitude of impacts, if any, would depend on the specific improvement(s). Information in the Greenbridge EIS would be used to satisfy the requirements of future environmental review to the extent applicable.

SECTION IV

WRITTEN COMMENTS RECEIVED FROM
AGENCIES, TRIBES, ORGANIZATIONS and
INDIVIDUALS and
RESPONSES TO THOSE COMMENTS

SECTION IV

WRITTEN COMMENTS on the DRAFT EIS RECEIVED FROM AGENCIES, TRIBES, ORGANIZATIONS and INDIVIDUALS and RESPONSES TO THOSE COMMENTS

Comment Opportunities

A community open house meeting was held on December 17, 2003 at the Jim Wiley Community Center to provide residents and the public an opportunity to provide oral comments on the Draft EIS. The proposed procedures of SEPA and NEPA were summarized for those in attendance. The meeting minutes are included in this Final EIS as Appendix 1.

During the Draft EIS comment period, written comments were received from the public agencies listed below. The issues raised in each comment letter are numbered on each letter and are followed by correspondingly numbered responses.

1. United States Department of the Interior, December 10, 2003.
2. United States Department of the Interior, January 13, 2004.
3. United States Department of the Interior, January 27, 2004.
4. United States Environmental Protection Agency Region 10, January 8, 2004.
5. Sound Transit, December 30, 2003.

No oral comments were offered at the Draft EIS open house meeting and no written comments on the Draft EIS were received from Tribes, organizations or the public, including Park Lake Homes (Greenbridge) residents.

Agency Coordination Relevant to Section 106 of the National Historic Preservation Act, and the Endangered Species Act and Magnuson Stevens Fisheries Conservation Act

In compliance with Section 106 of the National Historic Preservation Act, and the Endangered Species Act (ESA) and Magnuson Stevens Fisheries Conservation Act (MSA), the requisite agency coordination and consultation has been completed by the King County Department of Development and Environmental Services (DDES). This coordination included requests for respective agency review of the Heritage Resources Report (Appendix I of the Draft EIS) by the State Historic Preservation Officer (SHPO) for Section 106 compliance, and review of the Biological Evaluation (BE) by The National Marine Fisheries Service (NOAA Fisheries) and the U.S. Fish and Wildlife Service for ESA compliance. The requests for review of these documents and corresponding agency response letters are included in the Environmental Review Record on file at King County Housing Authority and King County DDES offices.

The SHPO response letter concurs with the Heritage Resources Report finding that the project site is not eligible for the National Register of Historic Places. The SHPO response letter also

states that further coordination with the Office of Archaeology and Historic Preservation is not necessary unless additional information becomes available or any archeological resources are uncovered during construction.

The NOAA Fisheries response letter concurs with the BE determination of “may affect, but not likely to adversely affect” for Puget Sound chinook salmon (*Oncorhynchus tshawytscha*), which is listed as ESA “threatened” species. The NOAA response letter also states that because the habitat requirements for the MSA managed species are similar to that of ESA listed species, and because the conservation measures that the DDES included as part of the proposed action to address ESA concerns are also adequate to avoid, minimize or otherwise offset potential adverse effects to designated Essential Fish Habitat, conservation recommendations pursuant to MSA are not necessary.

The U.S. Fish and Wildlife Service (USFWS) concurs with the Biological Evaluation determination of “may affect, but not likely to adversely affect” for bull trout (*Salvelinus confluentus*) and bald eagles (*Haliaeetus leucocephalus*). The USFWS concurrence is based on adherence to the special conditions, Best Management Practices, Low Impact Development techniques, and conservation measures included in the BE.



United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, D.C. 20240

ER 03/1012

DEC 10 2003

Mr. Greg Borba
King County Department of Development
and Environmental Services
900 Oakesdale Avenue, S.W.
Renton, Washington 98055-1219

Dear Mr. Borba:

This is in regard to the Department of the Interior's review of Draft Environmental Impact Statement (EIS) for the Greenbridge Redevelopment Master Plan (Park Lake Homes), King County, Washington.

This is to inform you that the Department may have comments, but will be unable to reply within the allotted time. Please consider this letter as a request for an extension of time in which to comment.

Our comments, if any, should be available by January 20, 2004.

Sincerely,

Terence N. Martin, P.E.
Team Leader, Natural Resources
Management
Office of Environmental Policy
And Compliance

**Response to Comments From The
United States Department of the Interior
December 10, 2003, Letter**

Comment 1

The King County Department of Development and Environmental Services looks forward to receiving your comments on the Draft EIS.

Please refer to the following letter and response.



United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
500 NE Multnomah Street, Suite 356
Portland, Oregon 97232-2036

IN REPLY REFER TO:

January 13, 2004

ER 03/1011

Mr. John Eliason
King County Housing Authority
600 Andover Park West
Seattle, Washington 98188-1100

Dear Mr. Eliason:

The Department of the Interior has reviewed the Draft Environmental Impact Statement for the Greenbridge Redevelopment Master Plan (Park Lake Homes), King County, Washington. The Department does not have any comments to offer.

We appreciate the opportunity to comment.

Sincerely,

Preston A. Sleeper
Regional Environmental Officer

**Response to Comments From The
United States Department of the Interior
January 13, 2004, Letter**

Comment 1

Thank you for taking the time to review the Draft EIS.



United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
600 NE Multnomah Street, Suite 358
Portland, Oregon 97232-2036

IN REPLY REFER TO:

January 27, 2004

ER 03/1011

Mr. John Eliason
King County Housing Authority
600 Andover Park West
Seattle, Washington 98188-1100

Dear Mr. Eliason:

The Department of the Interior wishes to amend its letter of January 13, 2004, which was submitted in response to the Draft Environmental Impact Statement (DEIS) for the Greenbridge Redevelopment Master Plan (Park Lake Homes), King County, Washington. The Department offers the following comments for use in the development of the Final Environmental Impact Statement (FEIS).

Page 2-23, Section II -- Project Description and Alternatives, 2.6.5 Stormwater and Utilities:

Here, and throughout the DEIS (Section IV - Water Resources), the use of biofiltration to treat run-off from impervious surfaces at the project site is mentioned. Although Appendix B, Wetland Delineation, extensively describes and references descriptions of generic wetlands, no definition of "biofiltration" is provided in the report. The Department recommends defining "biofiltration" in the FEIS.

The project proposes draining stormwater runoff into the naturally occurring wetland, White Center Pond, west and adjacent to the proposed project. The White Center Pond, with its riparian vegetation, including trees, seems to be a relatively pristine habitat. The report as written indicates that excessive storm run-off, containing petroleum wastes from parking lot vehicles and salts from winter road treatment, might alter the water-quality balance of the White Center Pond, thus degrading the function and quality of a natural wetland habitat. The Department suggests that the FEIS include data on the expected quantity and quality of

stormwater runoff, a description of the intended technology for biofiltration of these effluents, and an assessment of how these effluents will impact the White Center Pond. This latter description will necessarily include vegetation at the drain mouth, soil types, including microbial activity and pollutant sorption capacity, and the possibility that effluents could reach ground water, if attenuation does not occur before adequate biofiltration.

2
(cont.)

We appreciate the opportunity to comment.

Sincerely,



Preston A. Sleeper
Regional Environmental Officer

**Response to Comments From The
United States Department of the Interior
January 27, 2004, Letter**

Comment 1

The commentator stated that the proposed Master Plan includes the use of “biofiltration,” but that the Draft EIS, including Appendix B (Wetland Delineation) does not define the term. Biofiltration is generally defined as the filtration of pollutants from stormwater runoff (often from developed areas) by means of living vegetation. As defined in the King County (1998) Surface Water Design Manual (SWDM), a biofiltration swale is a long, gently-sloped, vegetated ditch designed to filter such pollutants from stormwater. Such swales are typically vegetated with grasses or herbaceous wetland plants. This definition has been added to the Draft EIS (see Section III of this Final EIS).

It should be noted that Appendix B of the Draft EIS is a wetland delineation report, and as such does not discuss impacts and mitigation. Wetland impacts and mitigation are discussed in Section 4.4.1 (pages 4-28 and 4-29) of the Draft EIS.

Comment 2

Although the White Center Pond contains substantial cover of native plant species, the White Center Pond cannot be characterized as “pristine.” The wetland has been modified in the past (re-graded) as part of a drainage basin improvement plan prepared by CH2M Hill in 1981. As described in Appendix B of the Draft EIS (Vegetation, page 4) and Section 3.3 of the Draft EIS (page 3-32, last three paragraphs), this wetland also contains substantial cover of a number of invasive species, including reed canarygrass (*Phalaris arundinacea*) and Himalayan blackberry (*Rubus discolor*). Even so, it is acknowledged that the wetland provides a relatively natural habitat area for wildlife, in the context of a highly urbanized setting.

As stated in the Summary Section of this Final EIS (Water Quality, page S-13) and in Section 4.3.1 (Water Quality, Operation), surface-water runoff from the Proposed Master Plan, if untreated, could affect downstream waters. Under existing conditions, runoff from the existing residential development on the project site is discharged, untreated, via pipe into the eastern buffer of the White Center Pond wetland. As stated in the Draft EIS Sections 4.3.1 (Water Quality, Operation, second paragraph, page 4-23), and 4.3.3 (Mitigation Measures, Proposed Master Plan, page 4-26), under the Proposed Master Plan, stormwater in the western portion of the project site (most of the area in the Mallard Lake sub-basin) would be routed through a water quality wetpond to provide water quality treatment. This would be sized to accommodate post-development flows from this sub-basin. Thus, the Proposed Master Plan includes water quality treatment of stormwater runoff prior to discharge to the White Center Pond wetland (or its buffer), where none is currently provided. Consequently, the treatment of runoff may improve water quality to downstream receiving waters, such as the White Center Pond wetland, compared with existing conditions.

With respect to the intended technology of water quality facilities, the wetponds and biofiltration swales would be designed and engineered per the standards and requirements of the King County (1998) SWDM, which outlines the specifications in detail. More detailed discussion of the proposed drainage control and water quality treatment facilities is contained in the preliminary drainage control plan for Greenbridge prepared by Goldsmith & Associates (2003).

Specific designs of the facilities would be developed in coordination with King County staff during final engineering design.

The proposed Master Plan would provide water quality treatment that is not present under current conditions. Additional detailed discussion of impacts to water quality of the White Center Pond wetland, with respect to biofiltration of particular effluents, is not believed to be warranted



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

January 8, 2004

Reply To
Attn Of: ECO-088

Ref: 03-085-HUD

Mr. Greg Borba
King County Department of Development and Environmental Services
900 Oakesdale Avenue S.W.
Renton WA 98055-1219

Dear Mr. Borba:

The Environmental Protection Agency has received the Draft Environmental Impact Statement (EIS) for the proposed **Greenbridge Project** for review in accordance with our responsibilities under the National Environmental Policy Act and Section 309 of the Clean Air Act.

EPA Region 10 has used a screening tool to conduct a limited review of the draft EIS and, based upon the screen, we do not foresee having any environmental objections to the proposed project. Therefore, we will not be conducting a detailed review of the draft EIS.

Should you have any questions, please contact Mike Letourneau of my staff at (206) 553-6382.

Sincerely,

Judith Leckrone Lee, Manager
Geographic Implementation Unit

**Response to Comments From The
United States Environmental Protection Agency Region 10
January 8, 2004, Letter**

Comment 1

Thank you for your review of the Draft EIS.



December 30, 2003

Mr. Stephen J. Norman
Executive Director
King County Housing Authority
600 Andover Park W.
Seattle, WA 98188-3326

**RE: COMMENTS ON GREENBRIDGE REDEVELOPMENT PLAN
DRAFT ENVIRONMENTAL IMPACT STATEMENT**

Dear Mr. Norman:

Sound Transit appreciates the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for the *Greenbridge Redevelopment Master Plan*. We have reviewed the DEIS and offer the following comments:

Section 4, page 108

The sentence "Sound Transit route 570 currently operates between Downtown Seattle and SeaTac airport, via West Seattle, White Center, and Burien" should be changed to "Sound Transit route 570 currently operates between West Seattle and downtown Bellevue, via White Center, Burien, Sea-Tac Airport, and Renton."

Thank you for the opportunity to comment. Please contact me at (206) 689-4931 if you have additional questions regarding these comments.

Sincerely,

Perry Weinberg
Environmental Compliance Manager

C: Jim Moore, Sound Transit

Central Puget Sound
Regional Transit Authority
Union Station
401 S. Jackson St.
Seattle, WA 98104-2826
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Facsimile (206) 398-5499
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1/5/04

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- Brian Phelps
Tacoma Councilmember
- Cynthia Sullivan
Clallam County Council
- Charles Thomas
Lakeland District Mayor
- Executive Director
- John Fari

**Response to Comments From Sound Transit
December 30, 2003, Letter**

Comment 1

Thank you for your comment. The Transportation and Parking Section of the Draft EIS has been revised to state that "Sound Transit Route 570 currently operates between West Seattle and downtown Bellevue, via White Center, Burien, SeaTac Airport, and Renton." Please refer to Section III of this Final EIS.