

FINAL REPORT

EAST SAMMAMISH/244TH CORRIDOR STUDY

NE 8th Street to SE 32nd Street

Prepared For:

CITY OF SAMMAMISH

Prepared By:

H.W. LOCHNER, INC.

In association with

EnviroIssues, Inc.

Shapiro & Associates, Inc.

May 2003

TABLE OF CONTENTS

	<u>Page</u>
INTRODUCTION.....	1
Purpose and Need for the Project.....	1
Purpose of Study.....	2
Purpose of this Report.....	2
Study Area	3
EXISTING AND FUTURE CORRIDOR CONDITIONS.....	5
Land Use Summary.....	5
Roadway System Characteristics.....	6
Roadway Classifications.....	6
Existing Traffic Conditions.....	8
Future Traffic Conditions	8
Existing Environmental Baseline.....	11
Geology, Topography, and Soils	12
Surface Water and Groundwater.....	12
Terrestrial Vegetation	16
Terrestrial Wildlife.....	18
Wetlands	19
Fish.....	21
Noise	22
Cultural, Historic, and Archaeological Resources	23
Land Use	25
Public Services and Utilities	28
PUBLIC INVOLVEMENT PROCESS	34
Outreach Activities	34
Public Comments	34
Bringing the Community into the Process.....	35
Major Concerns.....	35
Public Meetings	36
August 7, 2002 Community Meeting.....	36
September 18, 2002 Community Meeting.....	37
November 13, 2002 Community Meeting	38
January 22, 2003 Community Workshop	40
On-going Public Involvement Activities	41

CORRIDOR ALTERNATIVES	43
Alternative 2.....	48
Alignment Description.....	48
Alternative Features	51
Alternative 3.....	52
Alignment Description.....	52
Alternative Features	52
Alternative 4.....	54
Alignment Description.....	54
Alternative Features	56
Alternative 5.....	57
Alignment Description.....	57
Alternative Features	57
Alternative 6.....	59
Alignment Description.....	59
Alternative Features	59
EVALUATION METHODOLOGY	62
Criteria and Measures of Performance	62
Transportation Category	63
Environmental Category	65
Social/Land Use Category	65
Financial/Economic Category.....	66
Summary	66
Evaluation Procedures	68
ANALYSIS OF CONCEPTUAL ALTERNATIVES	70
Alternative 2 Analysis Summary	77
Alternative 3 Analysis Summary	79
Alternative 4 Analysis Summary	80
Alternative 5 Analysis Summary	82
Alternative 6 Analysis Summary	83
EVALUATION OF CORRIDOR ALTERNATIVES	86
Comparison of Alternatives by Evaluation Category	86
Evaluation Findings	89
NEXT STEPS	92
Environmental Process.....	92
Project Implementation.....	94
BIBLIOGRAPHY	97

LIST OF FIGURES

<u>Figures</u>	<u>Page</u>
1. Project Study Area	4
2. Traffic Analysis Zones within Project Study Area	7
3. Recommended Functional Transportation System	9
4. Existing Average Weekday Traffic	10
5. Preliminary Alignment Concepts.....	44
6. Examples of Right-of-way Typical Sections	46
7. Examples of Intersection Treatments	47
8. Examples of Traffic Calming Features	49
9. Alternative 2 Concept	50
10. Alternative 3 Concept	53
11. Alternative 4 Concept	55
12. Alternative 5 Concept	58
13. Alternative 6 Concept	60
14. Alternative 2 Analysis Summary	71
15. Alternative 3 Analysis Summary	72
16. Alternative 4 Analysis Summary	73
17. Alternative 5 Analysis Summary	74
18. Alternative 6 Analysis Summary	75

LIST OF TABLES

<u>Tables</u>	<u>Page</u>
1. Percentage of Vegetation Cover in Corridor Segments	17
2. Summary of Evaluation Criteria with Measures of Performance	67
3. Ratings for Evaluation Criteria	69
4. Summary of Impacts for the Conceptual Corridor Alternatives.....	87
5. Evaluation Comparison of Conceptual Corridor Alternatives.....	88

INTRODUCTION

The City of Sammamish is working to improve local access throughout the community. To accomplish this goal, one of the City's projects is to improve access in the southeast portion of the City through establishment of an East Sammamish/244th (ES/244th) Corridor. This project is identified as a priority in the City's Six-Year Transportation Improvement Plan as adopted by the City Council in June 2002. The purpose of this transportation corridor is to accommodate the corridor's increasing population, provide increased public safety access, provide transportation system continuity and connectivity, provide local access to area activity centers, such as schools, parks and shopping, and provide non-motorized access for this area of the City.

The East Sammamish/244th (ES/244th) Corridor Project is designed to meet the following priorities:

- Enhance internal connectivity of roadways by improving access to community facilities and neighborhoods.
- Improve traffic flow within the City by providing an alternative route to balance traffic flows.
- Improve quality of life and safety concerns by meeting current standards and separating vehicular and pedestrian traffic.
- Enhance internal connectivity of non-motorized facilities by providing bicycle lanes and sidewalks along the corridor.

PURPOSE AND NEED FOR THE PROJECT

The proposed action for this project is to “Plan, design and construct a north-south tree-lined, two-lane city street located in the vicinity of the East Sammamish/244th Corridor between NE 8th Street and SE 32nd Street.”

The **Purpose** for this proposed action is to establish an alignment that provides:

- An efficient, multi-modal transportation service that accommodates area growth
- A safe, cost-effective and aesthetically pleasing city street
- Alternative routes for emergency access

- Incorporation of roadway design, traffic calming, and safety features to accommodate existing and future traffic volumes
- Access to schools, parks, shopping and neighborhoods

The **Need** for this proposed action is to plan for future growth, improve community access and safety, and establish system continuity by:

- Maintaining concurrency between land use plans and the transportation system
- Providing convenient access to community services and recreational facilities
- Improving access for emergency services
- Improving connections to the city's transportation system
- Accommodating vehicles, bicycles, and pedestrians

PURPOSE OF THIS STUDY

There are several steps in developing and implementing an improvement package for the East Sammamish/244th Corridor. This *East Sammamish/244th (ES/244th) Corridor Study* is the first step.

The purpose of this corridor study is to:

- Identify the most-promising alternative(s) for more detailed engineering and environmental analysis.
- Identify the environmental and engineering process to implement the project.

After the completion of this study, the subsequent step is to conduct a detailed engineering analysis of the most promising alternative(s) combined with the necessary environmental documentation that compares the impacts of the alternatives with the no-build option. The third step is to prepare the final engineering plans for construction. The final step is the actual construction of the recommended project.

PURPOSE OF THIS REPORT

The purpose of this memorandum is to document the analysis, findings and recommendations of this *East Sammamish/244th (ES/244th) Corridor Study*.

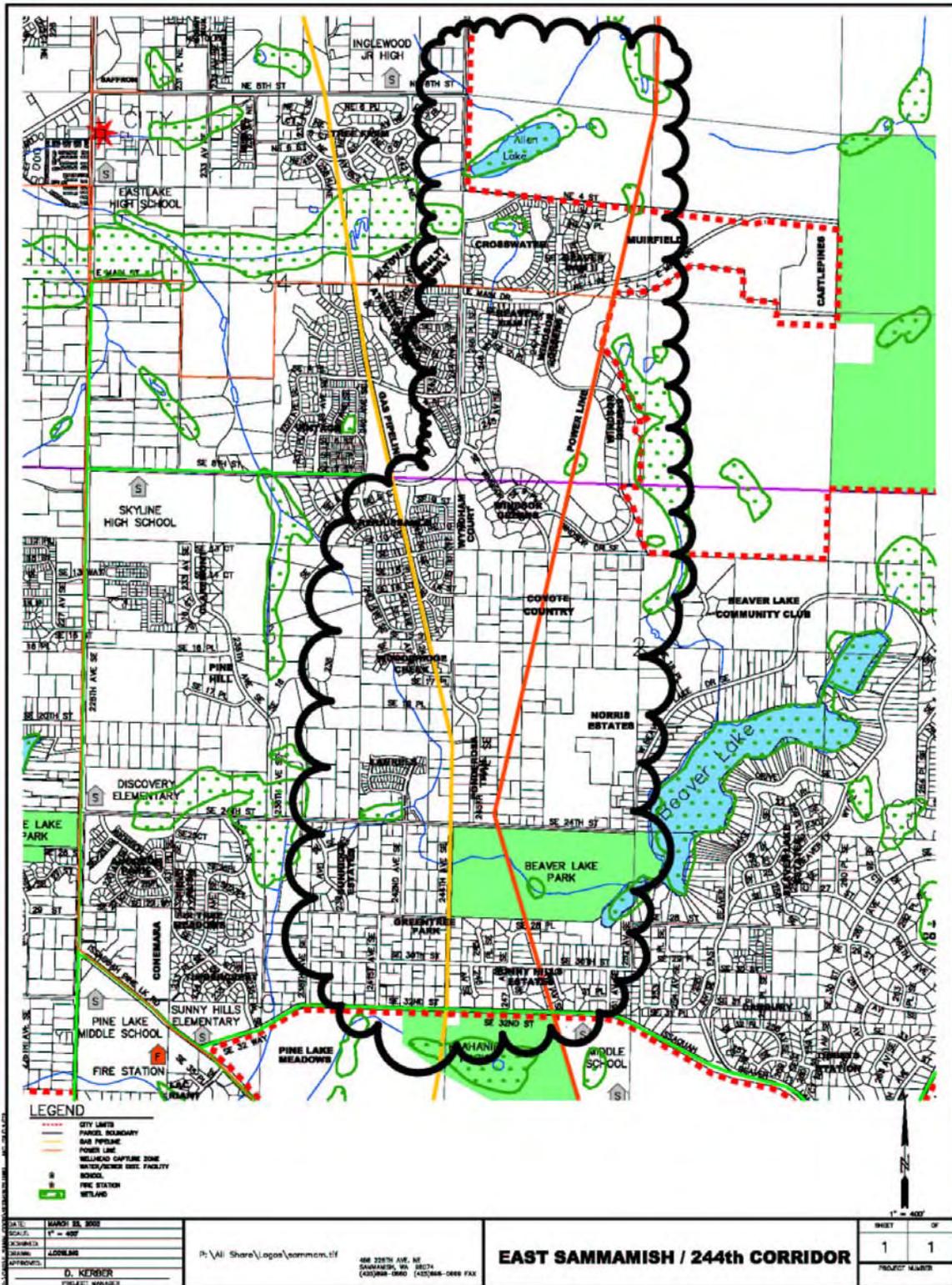
STUDY AREA

The study area for this corridor project extends from NE 8th Street on the north, SE 32nd Street on the south and about 252nd Avenue on the west. From NE 8th Street to SE 8th Street the eastern limit is about 242nd Avenue and from SE 8th Street to SE 32nd Street the eastern limit is about 238th Avenue. The study area is shown on Figure 1.

For analysis purposes, the corridor is subdivided into two segments. These segments are defined as follows:

- Segment 1 (Northern Segment or Phase 1): NE 8th Street to SE 8th Street
- Segment 2 (Southern Segment or Phase 2): SE 8th Street to SE 32nd Street

FIGURE 1: PROJECT STUDY AREA



EXISTING AND FUTURE CORRIDOR CONDITIONS

Currently, 244th Avenue is a non-contiguous roadway with a short section south of NE 8th Street, a section from Main Drive to SE 8th Street and another section from SE 24th Street to SE 32nd Street. A developer recently constructed the section between NE 4th Street and Main Drive. Access to the central area of the study is limited to SE 8th Street. Access to the southern section of Segment 2 is by way of SE 24th Street and SE 32nd Street.

The following report sections summarize the primary land use, transportation features and existing environmental conditions within and around the study area.

LAND USE SUMMARY

The land use information contained in the Draft Comprehensive Plan for the City of Sammamish was reviewed to determine the expected change in development over the coming years. In terms of residential development across the City, the number of dwelling units could increase from approximately 14,350 units to approximately 19,730 units or about a 37 percent increase, in accordance with the land use zoning. This increase is for the “preferred” build-out recommendation for the entire City.

In the study area, land use is primarily comprised of residential neighborhoods and recreational facilities such as Beaver Lake Park. The number of dwelling units within the East Sammamish/244th Corridor study area could increase by 63 percent, based on the allowable zoning and land use, as shown below.

	Existing Number of Dwelling Units	Previously Approved Developments ^a	Vacant or Undeveloped Property ^b	Total Current and Future Dwelling Units	Percentage Increase
Segment 1 ^c	1,060	242	107	1,409	33%
Segment 2 ^d	769	383	426	1,578	105%
Total Corridor	1,829	625	533	2,987	63%

Notes: a: Developments approved by King County before the City was incorporated.
 b: Property that is not fully developed to current zoning limits.
 c: From NE 8th Street to SE 8th Street
 d: From SE 8th Street to SE 32nd Street

This analysis indicates that the rate of increase in the study area could be at a higher rate than the citywide average. This estimate is based on traffic analysis zones (TAZ) from the Draft Comprehensive Plan, as shown in Figure 2.

From a review of these development potentials, the northern segment of the study area is relatively developed according to the land use and zoning policies of the City. The build-out of this area would add about 33 percent more dwelling units to the area to meet the “preferred” land use zoning limits. However, in the southern segment of the study area, the number of dwelling units could double before the “preferred” land use capacity is maximized. Over 800 more dwelling units could be built in the southern segment of the study area before reaching build-out capacities of the “preferred” land use and zoning requirements.

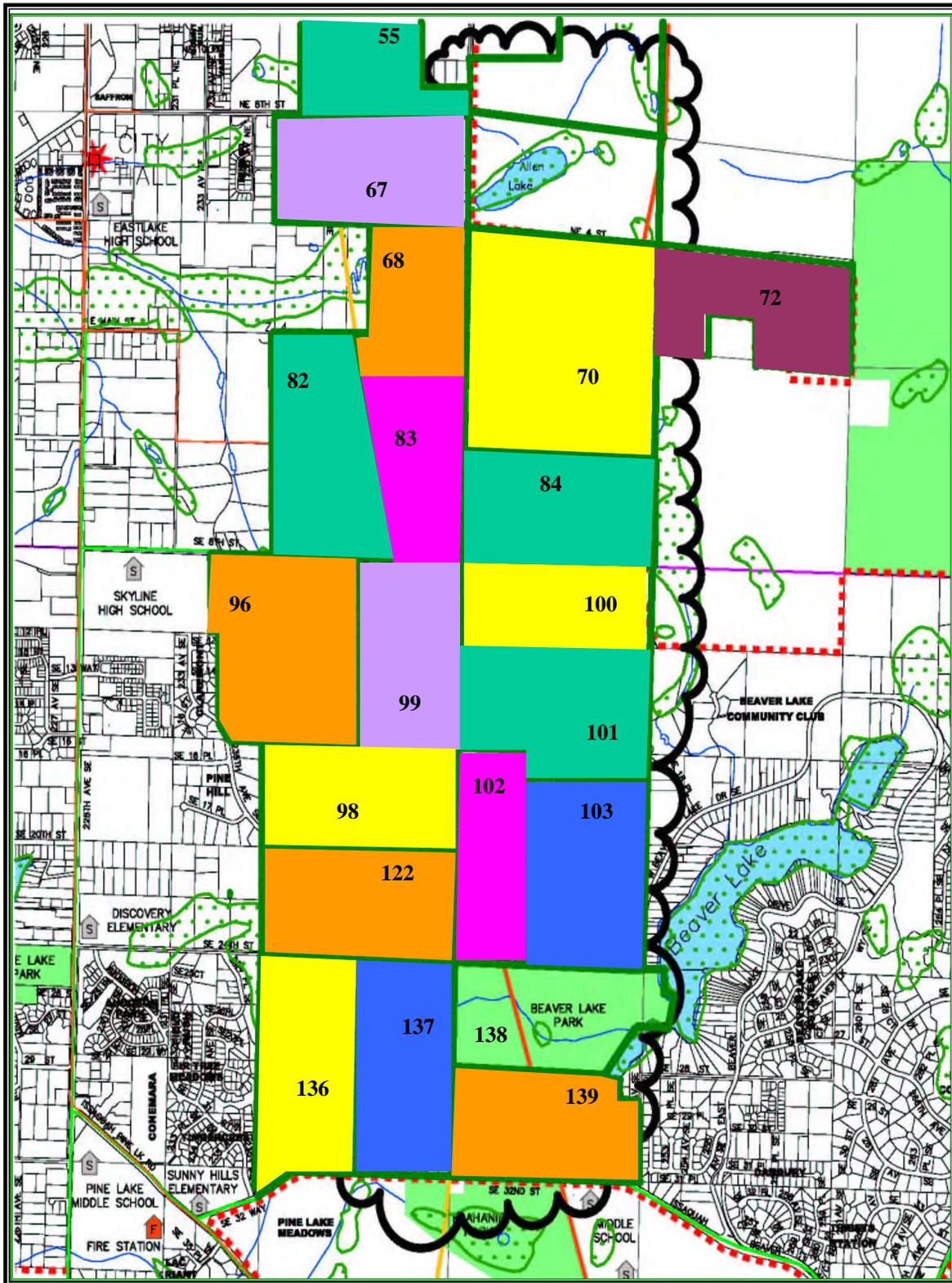
ROADWAY SYSTEM CHARACTERISTICS

The City’s transportation system consists of streets and roadways, transit service and non-motorized facilities. The roadway system includes a hierarchy of streets that provide vehicular movement for cars, trucks and bicycles and provides access to various land uses. The City’s roadway functional classification system includes principal arterials, minor arterials, and collectors, as well as local access streets. The following is a summary of the current and future roadway system.

Roadway Classifications: As documented by the City in its Draft Comprehensive Plan, the existing principal arterials, minor arterials and collector roadways in the vicinity of the study area are:

- Three principal arterials: 228th Avenue, Issaquah-Pine Lake Road, and Issaquah-Fall City Road.
- Four minor arterials: NE 8th Street between 228th Avenue NE and 244th Avenue NE, 244th Avenue NE north of the study area, 244th Avenue SE between SE 32nd Street and SE 24th Street, and SE 32nd Street between Issaquah-Pine Lake Road and Issaquah-Fall City Road.
- Four collector roadways: SE 8th Street between 228th Avenue SE and 244th Avenue SE, E Main Drive west of 244th Avenue NE, SE 24th Street between 228th Avenue SE and 244th Avenue SE north of the study area, and Trossachs Blvd. SE north of SE Duthie Hill Road.

FIGURE 2: TRAFFIC ANALYSIS ZONES WITHIN PROJECT STUDY AREA



100 = TAZ Number

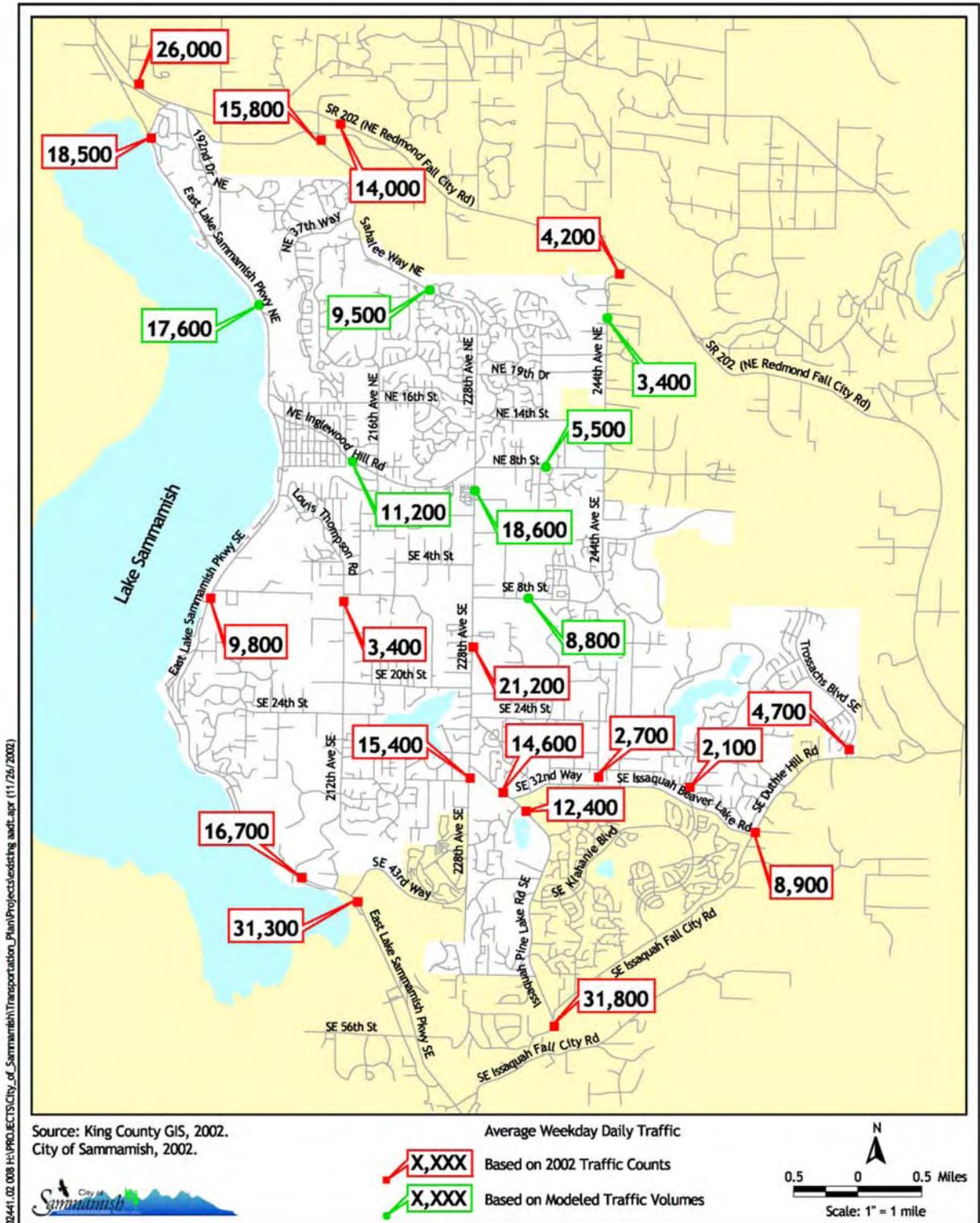
The section of 244th Avenue between NE 8th Street and SE 32nd Street is programmed to be a minor arterial if a connection is constructed through this corridor. The recommended future roadway classification system, as documented by the City in its Draft Comprehensive Plan, is shown on Figure 3.

Existing Traffic Conditions: The existing traffic volumes on various roadways throughout the City, as documented by the City in its Draft Comprehensive Plan, are shown on Figure 4. Since 244th Avenue is a non-contiguous roadway, current traffic volumes are low and many travelers must use 228th Avenue as part of the route to their final destination. SE 8th Street is the only access roadway for the middle section of 244th Avenue. As a result, SE 8th Street had a 2002 traffic volume of approximately 8,800 vehicles per day. Similarly, SE 24th Street and 244th Avenue SE provide access to the lower portion of the study area. The section of 244th Avenue SE south of SE 24th Street had a 2002 volume of about 2,700 vehicles per day.

Future Traffic Conditions: For future year traffic volume estimates, the citywide traffic model was updated for the *East Sammamish/244th Corridor Study* from the comprehensive transportation plan traffic model to add necessary corridor specific details in the study area. The additional details in the East Sammamish/244th corridor model include:

- a. Local roads were more precisely described, including some subdivision access roads developed since the comprehensive plan model was initially constructed (in 1998). Accounting for the layout of actual subdivisions resulted in some relocation of zone connection points for greater realism. In the comprehensive plan study of 2002, such details were not relevant to citywide analyses.
- b. Local zones in the study area were given as many as four connection points to the road system, instead of the usual one connection. This allowed for better realism to account for actual subdivisions where known. Each connection link is assigned a percentage of the zone's total trip generation, corresponding to the dwelling unit counts existing in the base year, or as adjusted for planned growth in the future year.
- c. Two roads were recoded with higher speed and capacity than in the comprehensive plan model, for greater realism in spite of actual classifications to the contrary. SE 8th Street

FIGURE 4: EXISTING AVERAGE WEEKDAY TRAFFIC



Source: Draft Comprehensive Plan, Transportation Element, February 10, 2003

and SE 24th Street are classified as collectors, but function at a higher level in practice and SE 8th Street is actually built to a higher design standard. Operating speeds on both roads are higher than the 25-mph normally assigned to collector roadways. The calibration accuracy of the comprehensive plan model was not affected by the coding issues on SE 8th Street because all traffic in that area must use SE 8th Street as the only way in and out. But traffic counts on SE 24th Street are significantly higher than the comprehensive plan model showed. Raising the speed and capacity to a higher level similar to that of a typical minor arterial resulted in a significant improvement of model accuracy on SE 24th Street for the existing conditions (2001 base year).

These changes resulted in overall better accuracy of 2001 model volumes versus 2001 counts, as compared to the comprehensive plan model case within the corridor. The difference is minor on a citywide basis, but noteworthy in the area of SE 24th Street.

Future year travel volumes were then developed for each alternative using:

- The City's modified travel model, as described above.
- The 2002 Comprehensive Plan "Preferred" Alternative land use assumptions
- The 2002 Comprehensive Plan "Long Range Final" roadway improvements except along the corridor
- ES/244th Corridor Study Alternatives 2 - 6 as described in later sections of this report.

The future volumes for each alternative are summarized in the "Alternative Analysis" section of this report.

EXISTING ENVIRONMENTAL BASELINE

An environmental review of the study area was conducted to identify issues, constraints and problems that may affect the various alternatives. This review included a literature search for materials that document the current conditions of the study area and a field review of the area to discover additional information about the area. The review was divided into ten different areas of interest. These areas of interest included Geology, Topography, and Soils; Surface Water and Groundwater; Terrestrial Vegetation; Terrestrial Wildlife; Wetlands; Fish; Noise; Cultural, Historic, and Archaeological Resources; Land Use; and Public Services and Utilities. The following section summarizes these areas of interest.

Geology, Topography, and Soils: The City of Sammamish Comprehensive Plan defines geologically hazardous areas as “areas that because of their susceptibility to erosion, sliding, earthquakes or other geological events are not suited to the siting of commercial, residential, or industrial development consistent with public health or safety concerns.”

The Comprehensive Plan and basic regulations in the Sensitive Areas Ordinance classify many hillsides within Sammamish as hazards that are either naturally unstable or susceptible to instability when disturbed. These hillsides have slopes greater than 15%, are underlain by impermeable soils, and are subject to seepage. No designated geological hazard or high erosion hazard areas within the City fall within the project corridor.

Various soils have been identified in the Sammamish area as being especially sensitive to erosion, if disturbed. Soils near a roadway project need to be carefully evaluated because their properties affect the load-supporting capacity and stability of the future road. Other factors include the wetness of the soils, ease of excavation, shrink-swell potential, and erosion potential of roadbanks.

Northern Segment - The Soil Conservation Service (SCS) has mapped four soil series in the northern segment of the corridor (Snyder et al. 1973). Ragner fine sandy loam is found at the very north near NE 8th Street. Seattle muck is found near NE 4th Street, and Everett gravelly sandy loam is found near Main Street. Alderwood gravelly sandy loam runs from Main Street to SE 8th Street. The Ragner and Everett soil series are often used for urban development because they are well drained and the erosion hazards are slight to moderate. Seattle muck is a very poorly drained soil with a seasonal high water table at or near the surface. Alderwood gravelly sandy loam is often used in urban development because it is moderately well drained. Runoff is slow to medium and the hazard of erosion is moderate.

Southern Segment - A large area of the southern segment is dominated by Alderwood and Everett soils (Snyder et al. 1973).

Surface Water and Groundwater: The proposed project corridor falls within the Evans, Inglewood, and Laughing Jacobs drainage subbasins. A number of streams, both named and unnamed, flow through the corridor area to nearby lakes. The City has adopted King County stream

regulations on an interim basis with modifications. (For reference see City of Sammamish 2002 in the Bibliography Section at the end of this report).

Surface Water: Various stream courses and lakes are within the project area. The City has characterized the streams and lakes in terms of water quality and habitat, based on King County documents. Stream and lake classifications in this document are taken from the City of Sammamish Draft Comprehensive Plan. The City's regulations for stream buffers are:

- Class 1 streams – 150-foot buffer
- Class 2 streams used by salmonids - 150-foot buffer
- Class 2 streams not used by salmonids - 50-foot buffer
- Class 3 streams - 25-foot buffer
- Unclassified streams - a study is required to determine stream class

Northern Segment - The northern segment of the project lies within the Evans Creek subbasin. The project area contains two stream channels that feed into Allen Lake. One is unclassified by King County, while the other is a Class 2 stream without salmonids. In addition, the expansion of 244th Avenue SE, north of the Vistas and Beaver Dam II neighborhoods, would cross a stream channel that links Allen Lake and its associated wetland system to a large Class 1 wetland on the west side of the ES/244th corridor. This stream channel is unnamed and unclassified by King County and the City (for reference see City of Sammamish 2002 in the Bibliography Section at the end of this report). Allen Lake is situated within King County and classified as a Class 1 water body. According to King County and City stream and wetland buffer requirements for Class 1 systems, this stream channel would require a 150-foot buffer.

Southern Segment - The southern segment lies mainly within the Laughing Jacobs Creek subbasin. The upper reach of Laughing Jacobs Creek originates at Beaver Lake and bisects the southern segment of the project area. This stream is rated as a Class 2 stream with salmonids in the lower reaches outside of the project area, and a Class 3 stream in the upper reaches. An impassible fish barrier is situated downstream and south of the city limits. An unnamed Class 3 tributary, originating in the Woodbridge Creek residential area, is also located in the southern segment and contributes flow to Laughing Jacobs Creek.

Section 303(d) of the federal Clean Water Act requires Washington State to periodically prepare a list of all surface waters in the state for which beneficial uses of the water, such as for drinking, recreation, aquatic habitat, and industrial use, are impaired by pollutants. These are water quality-limited estuaries, lakes, and streams that fall short of state surface water quality standards, and are not expected to improve within the next two years. Laughing Jacobs Creek was included on the 303(d) list of impaired waterways for fecal coliforms (for reference see Washington Department of Ecology 2003 in the Bibliography Section at the end of this report).

Solids, nutrients, high temperatures, and bacteria associated with both urban and rural land uses are threatening water quality in the entire Laughing Jacobs Creek subbasin. Water quality criteria or recommendations were exceeded for fecal coliform, enterococcus, total phosphorus, and total suspended solid concentrations during storm flow and some base flow monitoring (for reference see City of Sammamish 2001 in the Bibliography Section at the end of this report)

Flow increases associated with urbanization result in erosion and subsequent sediment transport, leading to higher concentrations of turbidity and suspended solids. These impacts on water quality in turn affect aquatic habitat by depositing fine sediment that settles into the interstitial cavities of gravels. The intrinsic link between water quality and quantity cannot be ignored because the effects of water quantity are a continual focus of surface water problems in the subbasin (for reference see City of Sammamish 2002 in the Bibliography Section at the end of this report)

Stormwater Facilities: Detention basins are holding ponds or tanks with flow-control devices that regulate discharge to receiving waters. Constructed wetlands, ponds, and swales are commonly used in the Puget Sound basin to pretreat stormwater. A number of retention and detention systems are located within the proposed project boundaries and are identified in each segment discussion. The proposed roadway design would need to consider and mitigate for any changes in the facilities that are currently treating stormwater runoff.

Northern Segment - One retention/detention (R/D) facility is located within the project area on the west side of 244th, north of Allen Lake. Presumably, this system is receiving roadway runoff from 244th and the Tree Farm neighborhood before being discharged to the Allen Lake wetland system. Expansion of 244th is expected to affect this facility.

Southern Segment - Four R/D facilities are located in this section. One R/D system is located within the Woodbridge Creek neighborhood on the west side of 244th Avenue SE. This facility appears to be situated at the headwaters of an unnamed creek that flows south into Laughing Jacobs Creek, which flows to Lake Sammamish. Another R/D facility is located on SE 24th Street at the entrance of the neighborhood identified as Ponderosa Trail. Expansion of 244th may affect this R/D facility. A third R/D facility is located in the Beaver Lake Park and appears to discharge directly into the Class 2 wetland associated with Laughing Jacobs Creek. The fourth R/D facility is located on SE 32nd Street, west of 244th Avenue SE. Discharge from this system is assumed to be via the stream leaving Klahanie Park, south of SE 32nd Street.

The design phase of the East Sammamish/244th Corridor project will have to evaluate any potential impacts to the operation of these R/D facilities.

Groundwater: Groundwater is most readily available within saturated geologic units termed aquifers, which are permeable formations defined as being capable of transmitting a usable quantity of groundwater. Aquifers are valuable sources of drinking water, irrigation water, and base flow for streams, rivers, and lakes. The project area lies within the Puget-Willamette Lowland aquifer, which is composed of unconsolidated deposits of sand and gravel and Miocene basaltic rock. Although usually much less permeable at depth because of compaction, lenses of sand and gravel can yield large volumes of water for wells. Even though well yields vary greatly, yields from sand and gravel aquifers may commonly exceed 2,000 gallons per minute. The primary source of recharge to this aquifer is precipitation that infiltrates and percolates to the water table. Groundwater flow in the glacial-deposit aquifers is primarily from recharge areas near stream valley walls that discharge into the streams.

This type of aquifer system is susceptible to contamination because of its generally high hydraulic conductivity. The Wellhead Protection Program (administered by Washington Department of Health) is designed to prevent the contamination of groundwater that supplies public drinking water wells. The Safe Drinking Water Act authorizes the U.S. Environmental Protection Agency to designate aquifers that are the sole or principal source of drinking water for an area.

There are no designated sole source aquifers in the project area.

Terrestrial Vegetation: Five vegetation communities have been identified within the project area: grassland; mixed deciduous-coniferous forest; residential or commercial development; streams, lakes, and associated riparian corridors; and wetlands. Scientific nomenclature follows Hitchcock and Cronquist (1976).

Grassland communities in the project area include mowed and unmowed grasses associated with playfields, parks, and undeveloped areas. Plant species within the grassland habitat include a variety of native and non-native grass and herbaceous species that are common within western Washington. Grass and herbaceous species include colonial bentgrass (*Agrostis capillaris*), common velvetgrass (*Holcus lanatus*), Kentucky bluegrass (*Poa pratensis*), red fescue (*Festuca rubra*), tall fescue (*Festuca arundinacea*), redtop (*Agrostis gigantea*), common dandelion (*Taraxacum officinale*), English plantain (*Plantago lanceolata*), red clover (*Trifolium pratense*), white clover (*Trifolium repens*), reed canarygrass (*Phalaris arundinacea*), Canadian thistle (*Cirsium arvense*), curly dock (*Rumex crispus*), and common horsetail (*Equisetum arvense*).

Within the project area, mixed deciduous-coniferous forest communities are typically associated with parks, greenbelts, wetlands, and riparian corridors. Deciduous tree species include big-leaf maple (*Acer macrophyllum*), black cottonwood (*Populus trichocarpa*), red alder (*Alnus rubra*), and Pacific willow (*Salix lasiandra*). Coniferous species include Douglas fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), western white pine (*Pinus monticola*), and western red cedar (*Thuja plicata*). Various combinations of these species occur in the mixed deciduous-coniferous forest communities. Salal (*Gaultheria shallon*), Oregon grape (*Berberis nervosa*), vine maple (*Acer circinatum*), evergreen huckleberry (*Vaccinium ovatum*), red elderberry (*Sambucus racemosa*), and sword fern (*Polystichum munitum*) are common in the understory.

Vegetation communities associated with residential and commercial areas contain a fragmented mixture of native, non-native, and ornamental plant species. Dominant features of residential and commercial habitat include buildings, parking lots, sidewalks, and paved roads. Vegetation in the residential and commercial portions of the project area includes managed grassland communities in private yards, gardens, and isolated patches of landscaped vegetation consisting of a mixture of native and ornamental shrubs and trees in a setting typically associated with development. Ornamental species in these areas include Austrian black pine (*Pinus nigra*), American sweetgum (*Liquidambar*

styraciflua), English laurel (*Prunus laurocerasus*), crabapple (*Malus* sp.), azalea (*Rhododendron* sp.), and English ivy (*Hedera helix*), among others typically found in western Washington.

A variety of streams, lakes, and associated riparian corridors are located in the project area. The riparian corridors on the site are a mix of wetland and upland habitat. Vegetation species in these areas include big-leaf maple, red alder, Pacific willow, western hemlock, western red cedar, red-osier dogwood (*Cornus sericea*), salmonberry (*Rubus spectabilis*), lady fern (*Athyrium filix-femina*), red elderberry, and vine maple.

Wetland communities in the project area include forested, scrub-shrub, emergent, and open water systems. Dominant wetland vegetation includes red alder, Pacific willow, Douglas spirea (*Spiraea douglasii*), red-osier dogwood, salmonberry, cattail (*Typha latifolia*), sedges (*Carex* sp.) and rushes (*Juncus* sp.).

Northern Segment - This section was found to contain 35% mixed coniferous-deciduous forest, 35% residential or commercial development, 15% grassland/shrubland, 10% wetlands, and 5% streams, lakes, and riparian zones.

Southern Segment - This section was found to contain 45% residential or commercial development, 40% mixed coniferous-deciduous forest, 5% grassland/shrubland, 5% wetlands, and 5% streams, lakes, and riparian zones.

Table 1 outlines the segments and the percentage of cover.

Table 1: Percentage of Vegetation Cover in Corridor Segments

Vegetation Communities	Northern Segment	Southern Segment
Grassland/shrubland	15%	5%
Mixed coniferous-deciduous forest	35%	40%
Residential or commercial development	35%	45%
Streams, lakes, and riparian zones	5%	5%
Wetlands	10%	5%
Total	100%	100%

Terrestrial Wildlife: The following agencies and references comprise the basis of existing information on fish and wildlife use in the project vicinity:

- Washington Department of Fish and Wildlife (WDFW)
- WDFW's Management Recommendations for Washington's Priority Habitats: Riparian

The mosaic of vegetation communities within the project area provides habitat for a variety of terrestrial and aquatic wildlife. The area provides local wildlife with diverse habitat in which to breed, forage, and rest. Wildlife habitats in the project area range in quality from low in residential or commercial areas, to high in the forested and wetland habitats. Wildlife diversity is generally related to the structure and composition of plant species within vegetative communities. Wetlands and forested areas with well-developed shrub layers are likely to support the greatest number of species and populations of wildlife (Brown 1985).

Several species of songbirds including spotted towhee (*Pipilo erythrophthalmus*), black-capped chickadee (*Parus articapillus*), bushtit (*Psaltriparus minimus*), Bewick's wren (*Thryomanes bewickii*), and Steller's jay (*Cyanocitta stelleri*) likely use the forested habitat for foraging and nesting. Disturbance-sensitive migratory bird species such as black-throated gray warbler (*Dendroica nigrescens*), solitary vireo (*Vireo solitarius*), yellow-rumped warbler (*Dendroica coronata*), and yellow warbler (*Dendroica petechia*) likely use forested habitats for foraging during spring and fall migrations.

Wetland systems and riparian corridors in the project area provide valuable habitat with diverse vegetation and a combination of tree, shrub, and groundcover. A variety of native bird, mammal, reptile, and amphibian species that depend on water for foraging and breeding habitat likely use these areas for foraging and nesting sites, such as red-winged blackbird (*Agelaius phoeniceus*), song sparrow (*Melospiza melodia*), marsh wren (*Cistothorus palustris*), raccoon (*Procyon lotor*), Townsend's vole (*Microtus townsendii*), vagrant shrew (*Sorex vagrans*), red-legged frog (*Rana aurora*), and western red-backed salamander (*Plethodon vehiculum*). Open-water sections of wetlands and lakes in the project area provide habitat for wintering and migratory waterfowl such as American widgeon (*Anas americana*), gadwall (*Anas strepera*), and green-winged teal (*Anas crecca*).

Residential or commercial communities generally offer low-quality upland wildlife habitat because of the limited vegetative species variety of managed grassland communities and isolated tree and shrub

canopy layers. Wildlife use of residential or commercial communities typically includes disturbance-tolerant and non-native wildlife species such as eastern gray squirrel (*Sciurus carolinensis*), American crow (*Corvus brachyrhynchos*), rock dove (*Columba livia*), European starling (*Sturnus vulgaris*), and house sparrow (*Passer domesticus*) that compete with native wildlife for food and resources.

A review of the WDFW Priority Habitats and Species database indicates that no federal or state listed sensitive, threatened, or endangered wildlife species are reported to use or regularly occur within 3,000 feet of the investigated property. A biologist conducted a field reconnaissance of the project area on July 9, 2002. No bald eagles were observed. No quantitative surveys were performed. Information on bald eagles and other sensitive species near or around the Sammamish Plateau was obtained by consulting with agencies and natural resource inventories.

Two bald eagle (*Haliaeetus leucocephalus*) territories and two great blue heron (*Ardea herodias*) nesting sites are located near or around the Sammamish Plateau.

One bald eagle nest territory, identified as the Marymoor Park bald eagle nest territory, and one great blue heron nesting site are located on the shoreline of Lake Sammamish approximately 10 miles northwest of the project area (WDFW 2002).

Another bald eagle nest territory and great blue heron breeding territory are identified at Lake Sammamish State Park, approximately 6 miles southwest of the project area.

Northern Segment - WDFW identifies Allen Lake and the surrounding Class 1 wetland system as a priority habitat. See the Wetland Section for additional information on the Allen Lake wetland system.

Southern Segment - The wetland system located to the southwest of Beaver Lake is identified as a priority wetland habitat. Additional discussion of the Beaver Lake wetland is provided in the Wetland Section of this report.

Wetlands: Wetlands provide a variety of functions and values to the ecosystem of the project area. Wetlands retain water, filter and settle suspended solids, and recharge groundwater supplies. Wetlands moderate floodwaters through storage and conveyance. Wetlands also provide habitat for a

variety of aquatic and terrestrial plant and animal species. The U.S. Army Corps of Engineers (Corps) and Washington State Department of Ecology (Ecology) are the federal and state rule-making and enforcement authorities for wetlands. The City has local jurisdiction over wetland development.

Sammamish has adopted King County's Sensitive Area Regulations on an interim basis with some modifications (increasing buffer widths by 50 feet on Class 1 wetlands). For Classes 1, 2, and 3 wetlands, the following buffer requirements would apply:

- Class 1 - 150-foot buffer
- Class 2 - 50-foot buffer
- Class 3 - 25-foot buffer

The regulations allow for some wetland alteration if certain criteria are met, such as creating, restoring, or enhancing wetlands on another portion of the site or within the same drainage basin.

Any impacts on wetland areas would require mitigation in accordance with the federal, state, and City regulations and guidelines. Wetland mitigation sites would need to be determined by a site-specific investigation. Using specified suitability criteria, general ecological site conditions, and opportunities for wetland mitigation, sites would be evaluated for general suitability, and potential for successful implementation of wetland mitigation. Potential wetland mitigation site evaluation would be based on location, hydrology, adjacent uses, existing vegetation, existing functions and values, presence of fill, habitat potential, size, construction constraints, and contamination. Additional geotechnical and hydrologic studies may be required to verify subsurface soil and hydrologic conditions before final mitigation sites are selected. Opportunities include degraded areas, impassable culverts, eroded streambanks, and reaches of streams without vegetative cover.

Northern Segment - The northern segment of the project area includes a large Class 1 wetland system west of 244th Avenue SE that is hydrologically supported by Allen Lake to the east. Allen Lake, its associated wetland, and the wetland system to the west of 244th Avenue are considered a Class 1 system and identified as a priority habitat. The total size of the wetland is 55 acres. Given the size of the wetland and its variable vegetation, functional values are expected to be high for hydrologic support, stormwater and floodwater storage, groundwater recharge, wildlife habitat, and ability to improve water quality. Following Sammamish regulations, a buffer of 150 feet would be required in

this area. Also included in the northern segment are two wetland systems east of Allen Lake. One 0.7-acre system is located immediately east of Allen Lake and classified as a Class 3 wetland by King County. The second wetland is north of NE 8th and situated in the northeastern corner of the project area. This wetland is 5 acres in size and classified as a Class 2 wetland by King County.

The eastern boundary of the project area includes parts of the Class 1 wetland east of Windsor Greens. This wetland is 31 acres in size and contains small areas of open water at the northern end. Similar to the Allen Lake wetland system, this area is expected to have high functional values. The southern boundary of this wetland is just outside the project area and is connected hydrologically with Beaver Lake via an unnamed, Class 3 stream.

The only other wetland mapped by King County or the City in this area is located to the west of the Windsor Greens neighborhood. This smaller, Class 2 wetland, is one acre in size, is situated under the powerline, and appears to be isolated.

Southern Segment - Three wetlands occur within the southern segment of the project area. A Class 4 wetland of undetermined size is located within the area identified as the Laurels. A second Class 2 wetland, situated centrally in Beaver Lake Park, is associated with Laughing Jacobs Creek that drains to Lake Sammamish. This system is approximately 0.9 acres in size. At the east end of Beaver Lake Park, another Class 2 wetland, approximately four acres in size and associated with Long Lake is included within the project area. Both wetlands are part of a series of wetlands that WDFW designates as a priority habitat.

Based on aerial photo interpretation, a fourth wetland area may occur between the Windsor Greens neighborhood and the Wyndham Court neighborhood. Wetland delineation will need to be performed to determine the presence of a wetland and its size. However, for this study, this area will be evaluated as a possible wetland site.

Fish: In March 1999, the Puget Sound Evolutionarily Significant Unit of chinook salmon (*Oncorhynchus tshawytscha*) was listed as a threatened species under the Endangered Species Act. The Puget Sound Distinct Population Segment of bull trout (*Salvelinus confluentus*) is also listed as threatened. These listings carry with them restrictions on any activities that would significantly affect the aquatic habitat or survival of these species. Activities that alter patterns of runoff or water

quality, or that physically alter streams or riparian corridors will have harmful effects on fish. A review of the WDFW Priority Habitats and Species database indicates that no federal or state listed sensitive, threatened, or endangered fish species are reported to use or regularly occur within the reaches of the project area.

Northern Segment - There are no known freshwater streams that support resident or migratory populations of fish in the northern segment of the project area. Resident populations of trout (*Oncorhynchus* sp.), however, may occur in Allen Lake.

Southern Segment - This area contains the upper reaches of the Laughing Jacobs Creek drainage. Downstream reaches of this creek are considered a Class 2 stream with salmonids. Species identified in this creek are coho salmon (*Oncorhynchus kisutch*), sockeye salmon (*Oncorhynchus nerka*), kokanee (*Oncorhynchus nerka*), cutthroat trout (*Oncorhynchus clarki*), and rainbow trout (*Oncorhynchus mykiss*). Chinook salmon have been sighted only in the lowest 0.2 mile of Laughing Jacobs Creek (downstream of the City limits) between 1995 and 1998 (King County 2002). These sightings were recorded through the County's Volunteer Salmon Watcher Program. There is an impassable fish barrier outside the City limits (south of Trinity Lutheran College and SE 43rd Way). Upstream reaches within the project area are unclassified in the King County Sensitive Areas Folio. Depending on stream conditions, resident populations of trout could occur within these reaches.

Noise: The City recently passed ordinance O2002-105, which finds that inadequately controlled noise adversely affects the health, safety, and welfare of the people, the value of property, and the quality of the environment. It is the express intent of the City to control the level of noise in a manner that promotes commerce; the use, value, and enjoyment of property, sleep, and repose; and the quality of the environment.

Maximum permissible noise levels apply to a single source of noise and depend on the zoning district of both the source of noise and the receiving property. Construction noise is governed under a specific clause of the City ordinance. Most of the noise sources in the project area are exempt from the City standards. Exempt sources include traffic, aircraft, emergency vehicle sirens, and unamplified sounds from public events.

To be considered an impact, noise must interfere with outdoors commercial, residential, or recreational human activity. There are a variety of locations where frequent human use is known to occur and that could be subject to noise impacts. Further studies to collect noise measurements will be necessary in the future to predict noise impacts, if any, of the proposed roadway.

A future noise study will identify sensitive noise receptors such as homes, churches, hospitals, and parks and collect measurements at a number of representative locations. These measurements are used with the Traffic Noise Model to predict future noise levels, and will assist engineers with the design of the roadway to decrease traffic noise.

Northern Segment - Probable locations that would be chosen as receptors for a future noise analysis include locations within the following areas:

- Communities surrounding Allen Lake
- Tree Farm residential neighborhood
- Beaver Dam II residential neighborhood
- Crosswater residential neighborhood
- The Vistas at Beaver Crest residential neighborhood

A future noise study should look at the increase in noise and potential for noise impacts to the residences of these communities. The northeast areas of Windsor Greens should also be evaluated in the expanded project area.

Southern Segment - The north end of the southern segment supports two additional large housing neighborhoods, the Renaissance Ridge and Woodbridge Creek, on the west side of the ES/244th corridor. These residents, along with those at the south end of the southern segment (Sunny Hills Estates and Greentree Park), should be considered in a traffic noise model analysis, depending on the alternative(s) selected. The southern segment also contains Beaver Lake Park, an area of frequent public use.

Cultural, Historic, and Archaeological Resources: The following is a preliminary cultural resources probability assessment of the area around the Sammamish Plateau including the East Sammamish/244th Corridor study area. A background literature search was conducted at the Washington State Office of Archaeology and Historic Preservation in Olympia, WA. Cultural resource personnel reviewed site forms, historic property inventories, National Register of Historic

Places forms, and cultural resources reports. A total of 14 cultural resources have been recorded in near or around the Sammamish Plateau that are classified as prehistoric, historical Euro-American or Native American, and dual component. These sites occur on a variety of landforms similar to those found in the project area such as floodplains, hill slopes, and river and lake terraces. No distributional bias is evident with respect to landform and cultural affiliation; three sites containing both prehistoric and historical occupations were recorded in a variety of environments.

Seven prehistoric resources have been recorded near or around the Sammamish Plateau. These resources consist of early to late Holocene lithic scatters (areas of quarrying or stone tool working), charcoal and fire-cracked rock concentrations, and peeled cedar trees. The presence of culturally modified trees may represent a traditional cultural property or traditional use area. Lithic industries (stone working areas) observed near the project area are dominated, in descending order of frequency, by basalt, cryptocrystalline silicates (i.e. jasper, cherts, or quartz), petrified wood, slate, and other toolstones. Lithic reduction debitage (stone flakes from stone tool-making activities) dominate the prehistoric assemblages, but the sites also include a few formed tools. Temporally diagnostic artifacts consist of at least one basalt, an Olcott-style projectile point with a constricted stem, and one slate projectile point. These provide a chronological bracket for prehistoric occupation around the Sammamish Plateau. Prehistoric sites occur as surficial scatters or buried occupation horizons up to 90 cm below the ground surface.

Seven historical resources have been recorded and include concrete foundations, historical debris scatters, a segment of the Yellowstone Road, a segment of the Seattle Lakeshore and Eastern Railroad, the Pickering Farm, the Gilman Water Company/Old Issaquah Water Works, and an historical Native American burial. The burial is possibly associated with an ethnohistoric trail that crosses the Cascade Range. Historical debris consists of glass fragments, ceramics, stovepipe sections, cans, nails, and other implements associated with historical settlement and industry. Ethnographic work conducted in the 1920s identified ethnohistoric villages and place names associated with the Snoqualmie and Tolt drainages.

The background literature search shows that resources have been recorded in the area immediately surrounding the Sammamish Plateau. This research indicates that the area around the Sammamish Plateau has been occupied from the early prehistoric through the historic period and that landforms

similar to those found in the project area contain archaeological sites, suggesting that the project area has a high probability for containing cultural deposits. A field assessment of the project area is needed during the next phase of the project.

Land Use: The City's land use and zoning plans as well as King County's Transportation Improvement Plan and other ordinances and plans were reviewed. The findings are summarized below.

City of Sammamish Draft Comprehensive Plan: The Draft Comprehensive Plan for the City was reviewed to determine whether the project alternatives would be inconsistent with any of the goals and policies contained in the plan. The alternatives do not appear to present any direct inconsistencies with the plan. In fact, the proposal for a minor arterial connecting neighborhoods and providing for some through traffic would address some of the plan's goals and policies. Specifically, the project alternatives could serve to meet concurrency requirements mandated by the Growth Management Act, which calls for infrastructure to be in place or have funding secured to serve proposed development. Policies that address concurrency include the following:

- Land Use Policy LUP-3.4. The City shall institute a concurrency management system to provide for infrastructure to be in place at the time of development and meeting level of service goals of the Community. The Transportation Element and the Capital Facilities Element shall identify the level of service objectives, and the infrastructure, facilities, and services that must be in place to serve development at the time of development, including, but not limited to roads, storm water facilities, water service, wastewater service, and others. The City shall monitor the effectiveness of concurrency standards.
- Transportation Objective TO-7.3: Concurrency. The City will ensure that concurrency requirements are met in accordance with the following policies: (*Policies TP-7.3.1 through TP-7.3.8*)
- The alternatives would also address goals and policies calling for circulation and access improvements including the following:
 - ◆ Transportation Goal TG-3. Improve local circulation and emergency access throughout the community while addressing the importance of neighborhood quality and safety.

- ◆ Transportation Objective TO-3.1: Circulation. To the greatest extent possible, roadways shall be developed as a connected network to provide a cohesive traffic circulation system throughout the City, in accordance with the following policies: (*Policies TP-3.1.1 through TP-3.1.7*)

The alternatives would be consistent with planned transportation improvements. Both Segment 1 (Northern Segment) and Segment 2 (Southern Segment) of the East Sammamish/244th Corridor project are included in the City's 2003 - 2008 Six-Year Transportation Improvement Program (TIP), which is presented in the transportation element of the draft plan. The TIP calls for Segment 1 to occur between 2003-2005 and for Segment 2 to occur between 2005-2007.

Although the alternatives are not inconsistent with the plan, final design could be required to comply with a number of the plan's goals and policies. The ES/244th Corridor would need to meet the City's roadway standards and design requirements consistent with objective TO-1.4 and policies TP-1.4.1 through TP-1.4.8. These policies establish general guidelines for future physical design requirements. Also, development of the corridor would be required to include pedestrian and bicycle facilities consistent with the Trails, Bikeway and Paths Plan, which has not been completed but will be a non-motorized component of the transportation element.

King County Transportation Improvement Plan: There are no inconsistencies with the King County Comprehensive Plan regarding possible construction of a new roadway in the northern segment of the ES/244th Corridor. The King County Transportation Improvement Plan does not identify any planned projects that would be located in the county part of the study area.

Zoning Code: No inconsistencies or issues related to the zoning code are anticipated under any of the alternatives. As part of its interim code, the City has adopted King County Code Chapter 21A, Zoning (as modified). Until the City adopts its own ordinance, Chapter 21A will apply to any development within the corridor study area. There are no inconsistencies with the King County Code regarding possible construction of a new roadway in the northern segment of the ES/244th Corridor.

Sensitive Areas Ordinance: As part of its interim code, the City has adopted King County Code Chapter 21A.24, Environmentally Sensitive Areas (as modified). Until the City adopts its own ordinance, development of any segment of the ES/244th Corridor that could affect critical areas such

as wetlands, streams, and geologic hazards will need to comply with the buffer setbacks and construction standards set forth in Chapter 21A.24. For wetlands, if the Corps claims jurisdiction of a wetland, federal standards would need to be followed. If applying the chapter prohibits development of the proposal, the City may make an exception under Section 21A.24.070A. Under this section, the City must demonstrate that no practical alternative exists and the impacts to the sensitive area are minimized. No issues have been identified indicating inconsistencies between any of the alternatives and Chapter 21A.24.

Shoreline Master Plan: The study area is not within 200 feet of a “shoreline of the state,” so the City’s Shoreline Master Plan would not apply to this project. Beaver Lake, which is a designated shoreline of the state, is located more than 1,400 feet east of the project site. Even though the project may be within 200 feet of the west shore of Allen Lake, this lake is less than 20 acres in area (approximately 8 acres). The project study area does, however, drain into this lake. The project would need to be consistent with policies in the Draft Comprehensive Plan concerning drainage issues into Beaver Lake.

Section 4(f) Issues: In the U.S. Department of Transportation Act of 1966, a special provision known as Section 4(f) was included to protect parks, recreation areas, wildlife and waterfowl refuges, and historic sites. This provision stipulates that the Federal Highway Administration (FHWA) will not approve a project or proposal that requires the use of any such resource unless no feasible and prudent alternative to the use exists and all possible planning is implemented to minimize harm resulting from such use.

Section 4(f) requires additional scrutiny and rigorous tests before use of park, recreation, refuge, and historic areas in a transportation project can be approved. The statute does not establish specific guidelines for Section 4(f) documents, but FHWA has developed procedures for the preparation, circulation, and coordination of Section 4(f) documents to establish an administrative record of the basis for determining that no feasible and prudent alternative exists.

If any of the alternatives would involve land currently part of Beaver Lake Park and federal funding is involved, evaluation under Section 4(f) would be required.

Public Services and Utilities: Various public utilities were reviewed to determine the general impact of the proposed project. A summary of the findings is presented below.

Electrical Service: Puget Sound Energy (PSE) provides electrical service within the study area. No substations are within the study area. In addition to local power lines, the Sammamish-Maple Valley transmission line, a 230-kV line, runs through the study area. This transmission line runs at a northwest angle from SE 32nd Street to SE 24th Street through Beaver Lake Park in the southern segment of the study area. The line then turns northeast, running to NE 8th Street at the northern border of the study area.

Roadway construction is not expected to significantly affect overhead electrical power lines unless tall cranes are needed to construct retaining walls. If cranes are needed, power lines may need to be moved or relocated; cranes are not allowed to operate within 10 feet of power lines for safety considerations. Underground lines could be affected depending on the location of new water, gas sewer and roadway drainage systems constructed in association with the project (for reference see Olson, pers. comm., 2002 in the Bibliography Section at the end of this report).

If the project would require a portion of the Sammamish-Maple Valley transmission line easement, coordination with Puget Sound Energy's right-of-way department would be required. Coordination with the Bonneville Power Administration (BPA) would also be required since PSE leases the corridor from BPA. A joint consent of use agreement would need to be acquired from PSE and BPA. Engineering, operations, and planning departments would review final plans for the roadway as part of the approval process. Generally, roadway facilities must be located at least 40 feet from transmission lines, and signs or structures cannot be taller than 15 feet. These requirements can be different, however, depending on topography and the power of the transmission lines. Also, PSE staff would review plans to determine if there is potential conflict with possible future PSE use of the easement. (For reference see Mai, pers. comm., 2002 in the Bibliography Section at the end of this report).

Natural Gas Service: Puget Sound Energy (Williams Gas Pipeline) provides natural gas service within the study area. Underground 26-inch and 30-inch high-pressure gas pipelines are located within the study area. This line runs along 244th Avenue SE from the southern border of the study

area at SE 32nd Street to approximately SE 18th Street; it then veers northwest running to the north border of the southern segment along SE 8th Street. Roadway construction across the pipelines must be greater than 45 degrees.

Because of growth on the plateau, the existing system is in need of reinforcement to ensure reliable gas service. PSE is therefore evaluating the feasibility of running a 12-inch high pressure main from the Beaver Lake Gate Station (24400 block of SE 32nd Street) northbound to NE 8th Street with an eventual tie-in to the existing 4-inch intermediate pressure main near the intersection of NE 8th Street and 228th Avenue NE. Depending on the alignment of the project, this main could be constructed along portions of the new roadway. Gas service to local residences could also be extended along portions of the new roadway depending on the demand from local residents.

Existing gas pipelines could be affected by the new project depending on the depth of excavation necessary for the new roadway and the location of associated facilities. Gas lines are generally located 3 feet deep and would need to be moved if excavation to that depth were to occur over them. Generally, for road projects, the associated storm drainage systems require the type of excavation that would entail moving or reconstructing gas pipelines. Also, if new sewer lines were installed, gas lines could need to be relocated or dropped to a greater depth depending on the ability to engineer the systems in specific locations (for reference see Olson, pers. comm., 2002 in the Bibliography Section at the end of this report).

Telecommunications: Both Qwest and Verizon provide telephone service to the City. Qwest has fiber-optic lines located in SE 8th Street and SE 32nd Street in the study area. Neither service provider has a central office located within the study area. No cellular towers are known to be located within the study area.

Comcast provides video and high-speed data cable services within the City. Distribution cables are typically co-located above ground with PSE or Qwest facilities, or are located underground.

Roadway construction would require typical coordination for any relocation of telecommunication lines. No specific concerns have been identified.

Water and Sewer Service: Water and sewer facilities serving the project study area are provided through the Sammamish Plateau Water and Sewer District, a Class A water system, which is hydraulically divided into two parts. The study area is within the Plateau Zone, which consists of the area south of Redmond-Fall City Road. The Plateau Zone has experienced rapid population growth, particularly in the last decade. The district has responded to this growth by seeking additional local groundwater sources rather than relying on the regional water supply system. The Plateau Zone has 14 wells located throughout the zone and five storage tanks. This zone has two interties with Issaquah, one intertie with the Overdale Water Association, and four interties with the Northeast Sammamish Sewer and Water District. Because of escalating water demand caused by rapid development in the Plateau Zone, a water allocation process was implemented in 1998 to randomly select applications for water service based on equivalent residential units.

The Sammamish Plateau Water and Sewer District based its analysis of future need on current zoning at an individual parcel level, including existing development, sensitive areas, topography, and other features. The district is investigating the procurement of new water supplies to meet projected increases in demand resulting from growth in its service areas. One of the district's objectives is to obtain enough water to allow buildout to development saturation, which is anticipated to occur around 2015. As a supply strategy, the district would prefer to remain independent of the regional water system and continue to serve its customers with groundwater; however, the district is also pursuing regional alternatives as a backup strategy.

The Sammamish Plateau Water and Sewer District also supplies sewer service to the project study area. Within the City, the district has sewer service primarily along major roads, including Inglewood Hill Road, NE 8th Street, 228th Avenue, and East Lake Sammamish. Within the study area, the district provides sewer service to residential subdivisions accessing SE 8th Street and has recently expanded sewer service along SE 24th Street. Conceptual plans for sewer service expansion call for additional sewer lines throughout the study area.

Project design and construction would need to account for the following water and sanitary sewer considerations (for reference see Regensteif, pers. comm., 2002 in the Bibliography Section at the end of this report):

- District plans call for extending and connecting the water main along NE 244th Avenue between NE 8th Street and NE Main Drive. The district would also consider connecting sewer service along this corridor depending on resident demand. Design of any structure over wetlands in the area should include provisions for attaching the water and sewer lines to the structure.
- District plans call for a water transmission main to connect the Tolt Pipeline to Section 36 water tanks located east of the study area. Water would not be distributed from the transmission main, but would be distributed after the water reached the tanks. This line would run along 244th Avenue and Main Drive within the study area. Design of the ES/244th Corridor project in that area should include provisions for the water transmission main.
- The area between Main Drive and NE 8th Street is within two different pressure zones. Because of this situation, in some portions of 244th Avenue, two water mains are located in the street. Project construction would need to account for maintenance or replacement of two water mains.
- In the area south of SE 8th Street, the district plans for much of the area to be connected by sewer. During construction of the project, the district would look to expand sewer service along the alignment of the new road, where sewer service does not already exist. Also, where the district has planned for water main replacement, it would attempt to perform this replacement at the same time as road construction. Where water main replacement is not planned, the district would prefer to maintain existing lines, but would replace them if necessary.

Police: The City contracts with the King County Sheriff's Department to provide crime prevention and law enforcement within the City. The Sammamish police station is located outside the study area on 228th Avenue NE. No major capital facility projects are planned within the City or the study area within the next six years.

Construction of a roadway connecting SE 32nd Street to NE 8th Street would improve access and response times for police personnel to local neighborhoods. Currently, police vehicles must use 228th Avenue to travel between different neighborhoods within the study area. If a police unit is patrolling or on a call in one portion of the study area and needs to respond quickly to a situation in an area not

internally connected by a roadway, the travel time to and from 228th Avenue can add four to five minutes to the unit's response time. A connecting roadway in the area would improve response times and officer safety (for reference see Pingrey, pers. comm., 2002 in the Bibliography Section at the end of this report).

Fire and Emergency Medical: The Eastside Fire and Rescue District serves the City with a full range of fire suppression and emergency medical response services. No fire stations are located within the study area. The nearest station is No. 83, located southwest of the study area near the intersection of Issaquah Pine Lake Road and SE 32nd Way. Other stations that provide response services to the study area include Station No. 82, located on 228th Avenue near NE 16th Street, and Station No. 81, located on 212th Avenue near SE 20th Street. The district has no plans to construct a station within the study area; however, it is looking to locate a new station in the Trossachs area to the east, which would also provide response service to the study area in the future. In addition, the district has mutual aid agreements with the Redmond and Issaquah fire districts and receives aid from those districts as circumstances warrant.

Construction of a roadway connecting SE 32nd Street to NE 8th Street would improve access and response time for fire and emergency medical vehicles to local neighborhoods. Currently fire and emergency medical vehicles must use 228th Avenue to travel between different neighborhoods within the study area. Also, some locations have a limited number of access points. If a roadway is blocked, the department may have difficulty responding to a call quickly. A connecting roadway in the area would increase the number of access routes and create more direct access to some areas, improving response times and safety. Currently, residences in the study area do not generate a lot of calls because the population is relatively young and the houses are relatively new. As both the population and the housing ages, calls for services will increase (for reference see Murphy, pers. comm., 2002 in the Bibliography Section at the end of this report).

Schools and School Bus Routes: The City is served by the Lake Washington School District #414 and the Issaquah School District #411. No new school facilities are planned within the study area. New facilities for these school districts are planned for areas outside the City and the study area.

The Lake Washington School District #414 serves the northern segment of the study area between NE 8th Street and SE 8th Street. A connection along the ES/244th Corridor would improve school bus access in the neighborhood, particularly to Inglewood Junior High School. Students living along SE 8th Street could be transported to school directly along the new route rather than along 228th Avenue, reducing the number of school buses required to serve the area. Approximately one school bus trip and an indeterminate number of vehicle trips by parents would be removed from the 228th Avenue corridor (Cole, pers. comm., 2002; Bishop, pers. comm., 2002). In addition, any construction-related blockages at the 244th Avenue NE/NE 8th Street intersection could create temporary delays or require temporary rerouting of district school buses. (for reference see Brock, pers. comm., 2002 in the Bibliography Section at the end of this report).

Issaquah School District #411 serves the southern segment of the study area between SE 8th Street and SE 32nd Street. The district frequently uses SE 24th Street and the existing portion of 244th Avenue SE between SE 24th Street and SE 32nd Street to transport students between Beaver Lake Middle School and Skyline High School. Connecting to SE 8th Street would provide even greater access between the two schools and would allow the school buses to avoid 228th Avenue completely. In addition, if the project created safe sidewalks within one mile of Skyline High School, students living within that area would be encouraged to walk to school, reducing the need for school buses.

During construction of the new roadway, the district would prefer the existing roadways not be completely closed so that bus detours would not be necessary. If complete road closure is required, however, the district can temporarily alter its routes (for reference see Nilsen, pers. comm., 2002 in the Bibliography Section at the end of this report). It is the City's preference not to close any roads/streets but to work under traffic conditions.

PUBLIC INVOLVEMENT PROCESS

The public involvement component of the *East Sammamish / 244th Corridor Study* was designed to help the community and project team understand the full range of community issues and identify key points where substantive involvement and outreach were needed. To accomplish this, a public involvement strategy was developed based on an initial needs assessment, which evaluated key stakeholders, likely community issues, and potential communication methods. This strategy, which was flexible and evolved in response to community concerns, served as the groundwork outlining how to inform the public about meetings and progress during key phases of the project; involve the community and include their input in the decision-making process; and to coordinate communications between the project team and affected stakeholders. The strategy, like most other public involvement documents, was available for viewing on the project's Web site.

OUTREACH ACTIVITIES

A mixture of several types of activities was used to involve the community in the corridor study and the decision-making process. In addition to four public meetings, tools such as flyers, fact sheets, the City's Web site, and local media were used to inform community members and interested parties about project details and impending decisions.

After the second public meeting – once the initial corridor alternatives had been developed – maps and descriptions of the alternatives were posted on the project Web site. These were accompanied by a list of frequently asked questions regarding the project with corresponding responses from the City.

PUBLIC COMMENTS

Throughout the project, community members were encouraged to provide input to the study at public meetings and by e-mail, phone and written communications. The project had a link on the City of Sammamish Web site and the project manager's phone number and e-mail address were publicized in outreach materials.

Comments received at the public meetings, during comment periods, and any other times were transcribed without attributions and then shared with project team members, the City Council, and posted on the project Web site for all to view. City staff and project team members engaged in contact with citizens through e-mails, phone discourse and one-on-one meetings.

BRINGING THE COMMUNITY INTO THE PROCESS

In addition to the project Web site as a repository for information, the four community meetings held on the study were an avenue for communication between the project team and stakeholders affected by the potential alignment. Each meeting was structured to provide ample time for community members to learn about the current status of the project through displays and presentations, interact with City staff and project team members, ask questions, and provide direct input through comment sheets and structured activities. In addition, the corridor alternatives and the evaluation criteria used for this study were compiled from route alternatives and criteria proposed by the public early in the community involvement process.

There were several stages in the study when the community's input directly influenced specific elements of the project. For example, the criteria to be used for evaluation of the alignment alternatives were developed based on community input from the first community meeting. At several meetings, including the community workshop in January 2003, attendees were asked to illustrate on maps where they felt certain traffic calming features should be placed along the alignment alternatives, and to give feedback on what they did or did not like about each proposed alternative.

In addition, major aspects of the study were altered based on strong community response. At the second community meeting, attendees objected to participating in the planned alignment-refinement workshop since, to many people, it was not clear that the need for an alignment had been established. The project team responded by using the meeting as a question and answer period instead. Further, due to strong sentiments not to build the southern segment of the alignment, the study was modified to include an option to phase alignment development – in other words, to start with the northern segment and add the southern segment depending on demand and need as future development occurs. Also, a revised route in the northern segment was developed in response to community concern about the impact of the proposed alignment on an existing wetland.

MAJOR CONCERNS

Some of the recurring major concerns voiced about and throughout this study were:

- Some support for the northern segment of the alignment
- Support for phasing the alignment, starting with the northern segment and adding the southern segment as needed

- Questioning the need for the project – whether growth projections necessitate this corridor
- Strong sentiment not to build the southern segment of the alignment
- The City should focus on getting people OFF the Plateau
- Suggestions to expand the study area to avoid already-populated areas; in particular, expansion into the Duthie Hill/Section 36/Trossachs Boulevard area
- Concern about the potential for this corridor to become an alternative for 228th or become a route for pass-through traffic between Issaquah and Redmond
- Concern about wetlands in the northern segment of the study area
- Importance of preserving existing neighborhoods and quality of life

PUBLIC MEETINGS

During the course of this study, the project team hosted four public meetings:

- a) August 7, 2002 Community Meeting
- b) September 18, 2002 Community Meeting
- c) November 13, 2002 Community Meeting
- d) January 22, 2003 Community Workshop

A brief description of each meeting is below, highlighting the purpose, major topics, and methods in which community input was gathered. Most products from the meetings – summaries, comments, comment forms, handouts, etc. – were posted on the project Web site following each meeting.

August 7, 2002 Community Meeting: The first community meeting of the study was held on a Wednesday evening at Skyline High School. Approximately 115 people attended.

- **Purpose:** To present project information to community members and to seek their input on potential alignments, evaluation criteria and traffic calming features.
- **Meeting promotion:** The meeting was promoted through inclusion in the monthly City public meeting notification flyer mailed to all city residents, a press release issued to local media, and by a posting on the City's Web site.
- **Description:** At this meeting, there were four stations that attendees could visit and talk with members of the project team (city staff and consultants) to ask questions and view the displays. The stations were: 1) Aerial map of the study area and display boards discussing the purpose and need for the project; 2) Roadway and traffic calming concepts depicted on display boards, with a

list of advantages and disadvantages for each; 3) Potential corridor alignment options; and 4) Evaluation criteria for decision-making.

Easels with blank flip charts were posted at each station, as well as by the exit, and attendees were encouraged to write additional thoughts, comments or concerns on these pads. After attendees visited the stations, they were encouraged to complete the criteria worksheet, adding additional evaluation criteria they thought were important to consider; and to complete the alignment exercise, drawing in their suggested alignment on the study area map to indicate where various roadway and traffic calming options should be included. Tables and colored markers were provided for attendees' use.

September 18, 2002 Community Meeting: The second meeting of the study was held on a Wednesday evening at Sammamish Hills Lutheran Church. Approximately 65 people attended.

- **Purpose:** Initially, the purpose of the meeting was to present the results of the August 7 public meeting to the community. The project team also planned to have members of the community provide more detail about traffic calming and intersection and roadway treatment preference on six alternatives developed based on comments from the August 7 meeting. However, in response to the interests of attendees, the meeting ended up as a question and answer period about the need for the project.
- **Meeting promotion:** The meeting was promoted through inclusion in the monthly City public meeting notification flyer mailed to all city residents, a project-specific postcard mailed to residents of the study area, and an announcement on the City's Web site.
- **Description:** The meeting began with time for attendees to review the six alternatives. Subsequently, City staff began a presentation about the alternative refinement process. The planned meeting format was that after the presentation, participants would work in small groups to provide further detail to each of the six alternatives by drawing in more specific roadway, intersection, and traffic calming details on a large board. Once the small groups had added more detail, then individuals were to be given comment cards that asked for specific comments on each alignment.

However, during the presentation, many of the participants indicated a desire to ask questions, get more information regarding the need for the project and were unwilling to move to the

workshop part of the meeting until their questions were aired. As more and more questions were asked, City staff provided more background information and answered broader questions.

In response to the interest of the community in asking questions, the original workshop format for the meeting was abandoned in favor of a question and answer period. When all questions had been answered, meeting attendees were invited to stay and talk with project staff. Participants were informed that the City would be taking their comments and questions under advisement, and that as next steps were determined, community members would be kept informed.

November 13, 2002 Community Meeting: The third community meeting was held on a Wednesday evening at Inglewood Junior High School. Approximately 110 people attended.

- **Purpose:** For the project team to report back to the community and provide the City's response to concerns and questions voiced at the September 18 neighborhood meeting.
- **Meeting promotion:** The meeting was announced in a press release issued to local media, a posting on the City's Web site, and in a postcard mailed to residents of the study area as determined by a zip-code sort.
- **Description:** The meeting began with an open house format during which attendees were given the opportunity to visit five stations to review boards and maps and interact with project staff. The stations were: 1) Land Use, 2) Transportation Projects and Planning, 3) Traffic Volumes, 4) Environmental, and 5) Next Steps.

City staff made a presentation about the following topics:

- ◆ the city's responsibility in planning for the future;
- ◆ what things had changed in the city's plans as a result of community input;
- ◆ projected growth in the city and in the project corridor;
- ◆ area-wide transportation improvements, including what was planned and being undertaken both regionally (on/off the plateau issues) and locally;
- ◆ traffic volumes, including results of select link analysis of traffic on SR 202 west of East Lake Sammamish;
- ◆ environmental concerns, including those of wetlands; the project purpose; and
- ◆ next steps for the project.

Some of the major points made during the presentation are listed below:

- ◆ The City of Sammamish has a responsibility to look into the future and plan now to ensure that the transportation system will support the city's growth.
- ◆ One of the changes the City has made to the project planning, as a result of public feedback, is to phase the project. While it is necessary to identify and preserve the entire alignment now, the City believed there was only a need to pursue the northern segment (NE 8th Street to SE 8th Street) for design and construction. The southern segment of the alignment (SE 8th Street to SE 32nd Street) would be designed and constructed only when (and if) future growth demonstrated a need for it.
- ◆ However, to provide future residents, developers and decision-makers with the tools to plan for growth, the entire alignment needs to be identified now, as it would only be more difficult to select an alignment in the future when more development has occurred.
- ◆ Other changes the City made were to expand the study area in the northern segment, to allow for more possible alignments, and to have options to possibly avoid crossing the existing Class 1 wetland.

City staff also discussed the current land use planning assumptions and growth numbers, current and proposed transportation improvement projects, average daily traffic volume projections with and without the East Sammamish/244th Corridor, environmental concerns and the next steps for the project. City staff responded to many participants' questions about the traffic modeling being done; about the projected growth numbers provided by the city; about the city's budget and transportation priorities; and about the composite alignments that were presented at the September 18, 2002 Community Meeting.

The planned next steps for the study were presented and summarized below:

- ◆ Return to the community in January with the composite alignments and ask community members to help refine the alternatives so they could be screened.
- ◆ The purpose of the current study is to develop most promising alternative(s) in order for a future study to undertake more detailed engineering and environmental analyses.
- ◆ The City Council will be the body that determines which alternative(s) will be carried forward into the detailed evaluation study.
- ◆ In the revised schedule, the alternatives will be further refined and screened in early 2003, with the City Council making a decision in May/June for the next study.

At the meeting, a representative from the Planning Advisory Board (PAB) presented his interpretation of the PAB's thoughts on the project. The PAB believed the highest transportation priority for the City – and the area where budgeting priority should be made –

was access on and off the plateau, not internal circulation. The PAB felt that if any portion of this project was considered, it should be the northern segment (NE 8th Street to SE 8th Street).

January 22, 2003 Community Workshop: A workshop for the community was held at Beaver Lake Middle School on a Wednesday evening. Approximately 63 people attended the meeting.

- **Purpose:** Hands-on workshop for community members to work with each other to refine the alignment alternatives for the East Sammamish/244th Corridor.
- **Meeting promotion:** The meeting was announced in a press release issued to local media, a posting on the City's Web site, and in a postcard mailed to residents of the study area as determined by a zip-code sort.
- **Description:** The meeting began with an open house in which each draft corridor alternative was displayed on a board. Meeting attendees visited the stations to review boards and maps and interact with project staff.

The following changes in the project since the previous public meeting in November 2002 were announced:

- ◆ Alternatives #1 and #7 were eliminated from consideration because they did not meet the project's purpose and need.
 - ◆ Construction of the corridor will be approached in a phased manner. The northern segment between NE 8th Street and SE 8th Street will be improved first. The southern segment, between SE 8th Street and SE 32nd Street, will be developed if and when new development and traffic loads demand it.
- **Workshop Format and Process:** The workshop portion of the meeting started with an introduction by the workshop facilitator, outlining the intent of the workshop and defining the processes to be followed. Attendees were grouped at tables and each table was presented with a large board illustrating one of the alignment alternatives. Working with the other community members at their table, attendees added specific traffic calming features to the alternative they had been assigned. (Note: By working on the alternative, attendees were in no way endorsing that particular alternative, they were simply showing what traffic features they would recommend IF that one was the selected alternative.) The roadway features included such items as right-of-way width options (standard or modified), intersection options (raised or roundabouts), and other traffic calming features (chicanes or speed tables). The

purpose of the exercise was to work with the community to bring the alternatives to a more defined level to facilitate the analysis and evaluation work elements of this study.

- **Workshop Results:** After attendees at the tables completed their refinements, a representative from each group spent two minutes summarizing the traffic features their group had added to their alternative. This allowed all meeting participants to hear what refinements had been suggested for each alternative. A couple of table groups did not add refinements to the alternative at their table, and they reported out to the bigger group that they did not wish to see the project pursued. Subsequently, all meeting participants were provided with an alternative-specific comment form and asked to comment on each of the refined alternatives.

The workshop activity concluded at 8:30 p.m., and City of Sammamish staff remained to answer questions individually from community members.

Two comment forms were provided at the meeting – one was a general comment form; the second was an alternative-specific comment form.

ON-GOING PUBLIC INVOLVEMENT ACTIVITIES

The public is being encouraged to continue to be involved with the study. The following process will be used for decision making by the Sammamish City Council and explains how the public can be involved in this process.

- The Draft Corridor Report will be presented to the Public Works subcommittee and the City Council in early May 2003.
- All public comments received to date will be submitted to the Council along with the draft report.
- Following the meeting, City Council comments will be reviewed and appropriate revisions will be incorporated into the draft study document, if needed.
- The Draft Corridor Report will then be made available on the City Web site for public review and comment in early May 2003. Citizens will be notified about the availability of the document via project e-mail list, post cards if no e-mail address is on record, newspaper meeting notice and the City Web site.
- All comments from the public will be due by the end of May 2003.

- The final corridor report along with any additional public comments received will be presented to the Council in early June 2003.
- The council will review the final corridor report and additional public comments. The Council's decision on selected alternative(s) and next steps will be made in June/July 2003.
- If the project moves forward, the public will have additional opportunity for community involvement during the formal environmental process.

CORRIDOR ALTERNATIVES

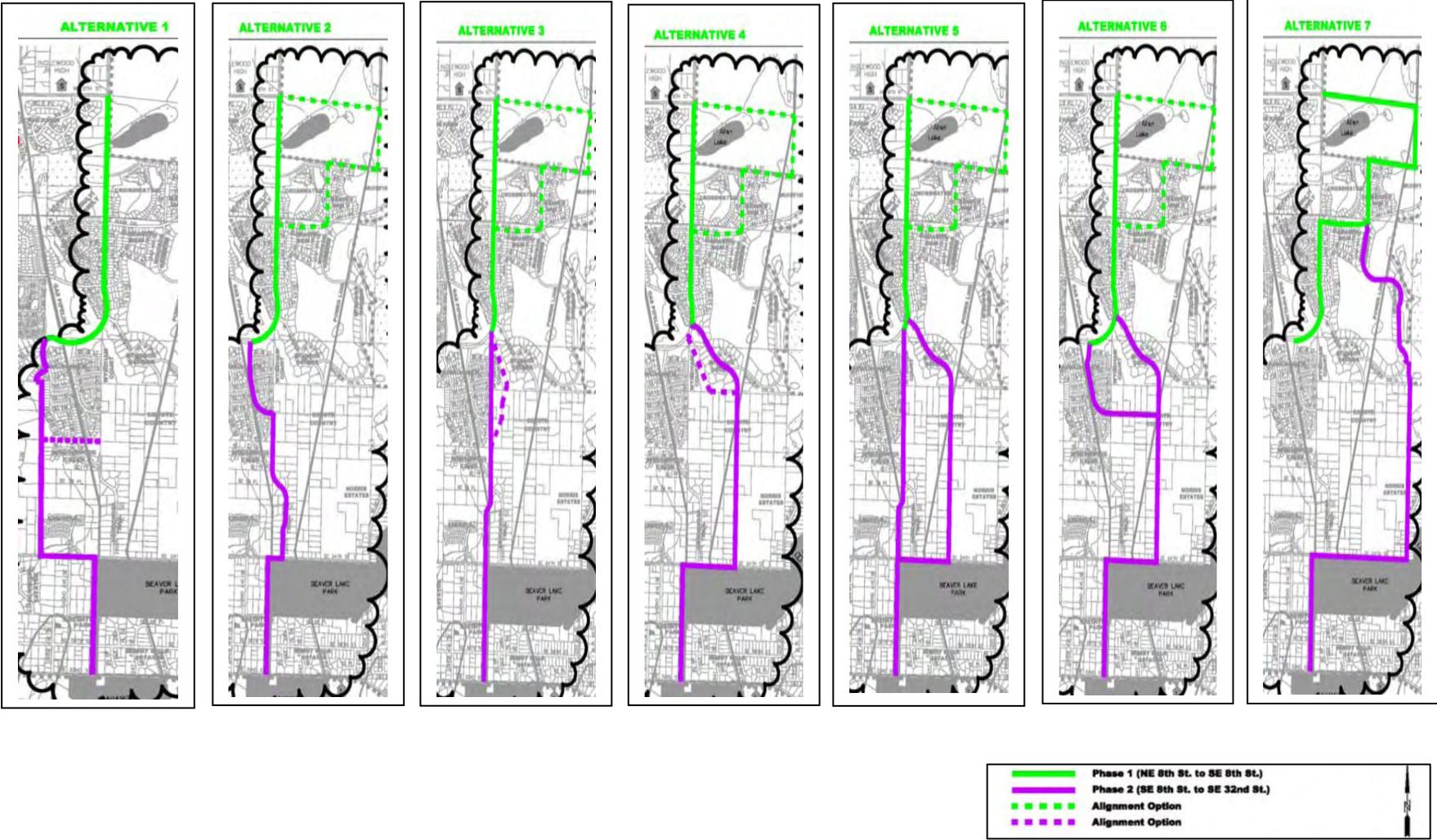
The proposed action for this project is to implement a north-south tree-lined, two-lane city street located within the East Sammamish/244th Corridor between NE 8th Street and SE 32nd Street. To help develop possible alternatives, the community was asked at the August 7, 2002 Community Meeting that if a new through north-south street was to be implemented within the corridor, where should the new facility be located. The study team received 30 maps and many additional written suggestions that ranged from “no new roadway is needed” to “build it as soon as possible”. The suggested alternatives ranged from various north-south optional alignments to east-west alignments. From a review of the various community-suggested routes, the study team developed seven optional alignments that represented the various north-south routes suggested by the community. These seven alignments are illustrated in Figure 5.

The City and the study team reviewed these seven optional alignments and decided to eliminate Alternative 1 and Alternative 7 from further consideration, as they did not meet the purpose and need of the East Sammamish/244th Corridor project. These alternatives did not meet the need to plan for transportation access for future growth and improve community access and system continuity within the study area for the following reasons:

- These alternatives are located outside the section of the corridor area that has the greatest concentration of vacant and underdeveloped land and pipeline projects (thus the greatest potential for future development).
- These alternatives would not be able to provide as convenient access to community services (i.e. parks, shopping, and schools) for future development as the other alternatives.
- These alternatives would not be able to provide as significant improvement to the City's transportation system as the other alternatives due to their location outside the potential development areas and the lack of associated feeder routes.

Community members at the January 22, 2003 Community Meeting were asked to review Alternatives 2 through 6 and suggest possible roadway concepts and features they would like to add to refine the alignments if a new connected roadway was to be built in the East Sammamish/244th Corridor. The roadway concepts and features presented at the meeting included travel lanes, medians, bicycle lanes,

FIGURE 5: PRELIMINARY ALIGNMENT CONCEPTS



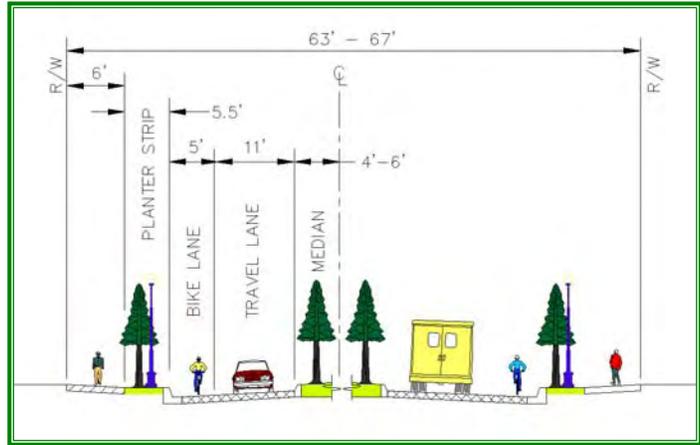
planter strips and sidewalks to complete the roadway cross section, intersection options, such as traffic signals, roundabouts and raised intersections, and traffic calming features such as raised crosswalks and chicanes. At the meeting, the community members present were divided into groups and each group was given one alignment option and asked to suggest various improvements.

Using the various community suggestions and alignments, the City staff and the study team developed five alternative concepts. These final alternatives have the following general features:

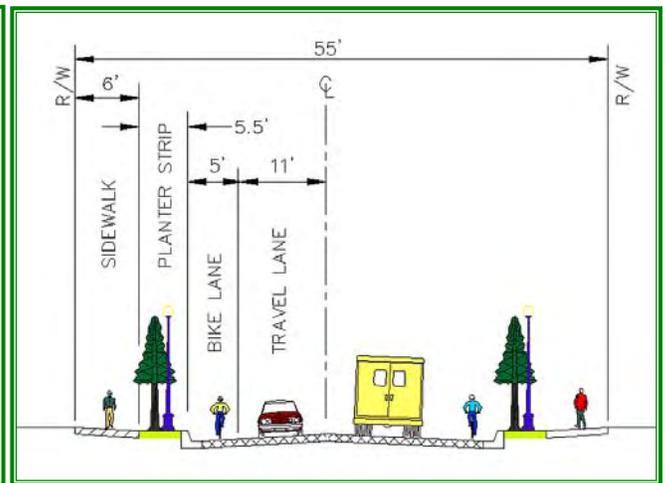
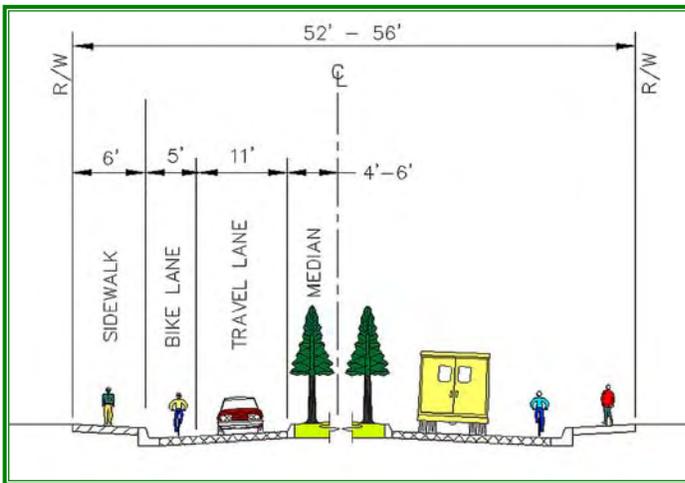
- **Right-of-way:** Three typical cross sections were developed for the corridor, as shown on Figure 6 and described below. Minimum right-of-way requirements are shown on the concept examples at this time. These requirements can change because of lane width changes, as well as specific retaining wall, illumination and other requirements. The actual traffic calming features and roadway sections used for the ultimate design will be revisited as part of the final design work for the selected corridor project.
 1. A standard 67-foot right-of-way that generally includes two 11-foot travel lanes, a median, and bicycle lanes, planter strips and sidewalks on both sides.
 2. A reduced 57-foot right-of-way was developed to minimize property impacts by removing the median or the planter strips through developed areas.
 3. A minimum 50-foot right-of-way was developed for use in narrow corridors by removing both the median and planter strips.
- **Speeds:** The general design speed for a minor arterial was assumed to be 35 mph for this study. However, along the winding sections through the Renaissance Ridge, Ponderosa Trail and Windsor Greens neighborhoods, the design speed is reduced to 25 mph. Similarly, a 25-mph design speed was assumed for chicanes. A 15-mph design speed was assumed for roundabouts and traffic circles and a 10-mph design speed was assumed for raised intersections and raised crosswalks. All of these speed restrictions and traffic calming features reduced the average travel speeds along the various alternatives to 21 to 23 mph.
- **Intersection Treatments:** A traffic signal is assumed to be located at the NE 8th Street/244th Avenue NE intersection for all alternatives. Other intersection treatments assumed in the various alternatives include roundabouts, raised intersections and traffic circles. Examples of these intersection treatments are shown on Figure 7.

FIGURE 6 EXAMPLES OF TYPICAL RIGHT-OF-WAY SECTIONS

**City's Standard for Minor Arterial
67-foot Right-of-Way**



Reduced 57-foot Right-of-Way Option (without planter strips or without median)



**Reduced 50-foot Right-of-Way Option
without both planter strips and median**

Note: Concept examples show minimum right-of-way requirements. These requirements can change because of lane width changes, as well as specific retaining wall, illumination and other requirements.

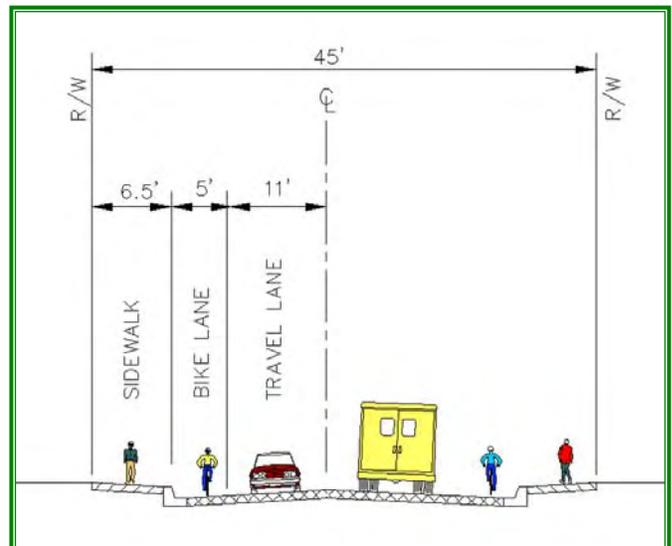


FIGURE 7 EXAMPLES OF INTERSECTION TREATMENTS

Examples of a Raised Intersection



Example of a Roundabout

Example of a Traffic Circle



- **Traffic Calming Features:** Traffic calming features assumed in the various alternatives include chicanes, reduced speed curvatures and speed tables/raised crosswalks. Examples of these traffic calming features are shown on Figure 8.

These final conceptual alternatives are briefly described below. Please note that Alternative 1 and Alternative 7 were previously dropped from further analysis but the numbering of the alternatives was not changed to maintain continuity.

ALTERNATIVE 2

Alternative 2 is conceptualized to maximize the use of the existing street system, as shown in Figure 9. A description of this alternative and various features are summarized below.

Alignment Description: Beginning at NE 8th Street, the conceptual alignment follows along the existing 244th Avenue NE and crosses the wetland area along Allen Lake on a new stabilized roadway with culverts to allow water to cross under the roadway. The new roadway will connect to the 244th Avenue NE extension recently constructed as part of the Crosswater development. The conceptual alignment continues south along the existing 244th Avenue to 242nd Drive SE. It passes through the Renaissance Ridge neighborhood along 242nd Drive SE and SE 14th Street to the east side of the Renaissance Ridge neighborhood. The existing SE 14th Street currently ends with a barrier across the right-of-way. The conceptual alignment turns south on a new roadway section that connects an existing section of 244th Avenue SE near SE 17th Street and passes through the Ponderosa Trail neighborhood along 245th Avenue SE to SE 24th Street. The conceptual alignment then follows along SE 24th Street to 244th Avenue SE and turns south past the Beaver Lake Park and proceeds to its terminus at SE 32nd Street.

An alternative alignment option is proposed at the north end of the corridor to avoid crossing the wetland near Allen Lake, as shown on Figure 9. This optional alignment would proceed east along NE 8th Street from 244th Avenue NE to the west side of the power line easement and turn south on a new alignment. The optional alignment would then follow along the powerline easement to about NE 4th Street, and turns west along a new curving alignment to allow for a 35-mph design speed. At the narrow corridor between the Beaver Dam II neighborhood and the new Crosswater development, the optional alignment would turn south to East Main Drive, then turn west, and proceed to 244th

FIGURE 8 EXAMPLES OF TRAFFIC CALMING FEATURES

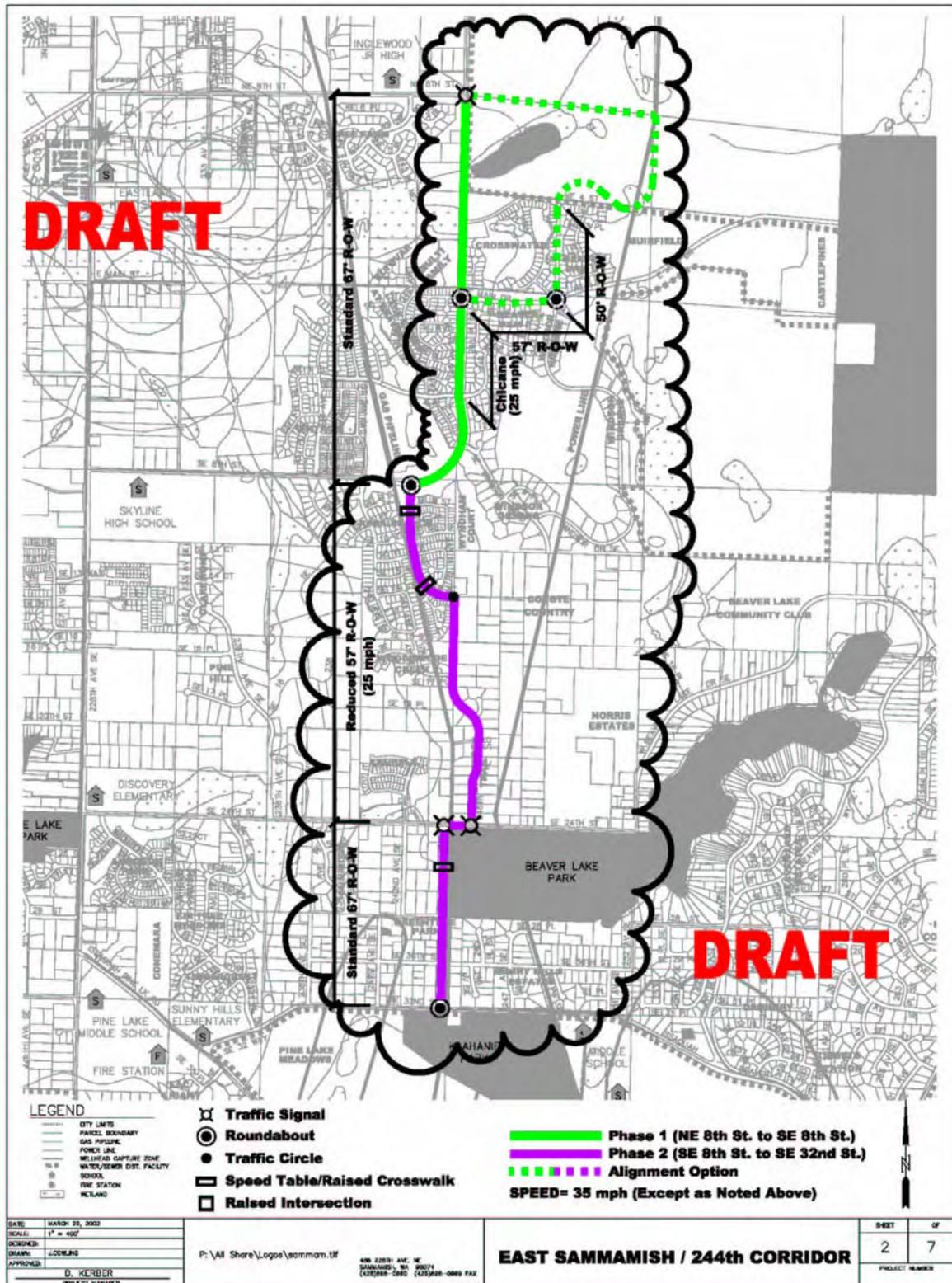


Example of a Chicane

Examples of a Raised Crosswalk /
Speed Table



FIGURE 9: ALTERNATIVE 2 CONCEPT



Avenue. The optional alignment would then follow the original conceptual alignment described above.

Alternative Features: Based on suggestions received from the community, the following features are incorporated into this alternative:

- **Right-of-way:** The standard 67-foot right-of-way is proposed along the majority of the corridor. Through the Renaissance Ridge and Ponderosa Trail neighborhoods and along East Main Drive for the optional alignment, the right-of-way is reduced to 57-feet to minimize property impacts. Along the optional alignment between the Beaver Dam II neighborhood and the Crosswater development, the right-of way is further reduced to 50-feet by removing both the median and planter strips.
- **Speeds:** Through the use of roundabouts, a chicane along 244th Avenue SE south of East Main Drive, speed tables/raised crosswalks at the play fields in the Renaissance Ridge neighborhood and at Beaver Lake Park, the average travel speed is estimated at about 21.3 mph.
- **Intersection Treatments:** Traffic signals are assumed to be located along the corridor at the following intersection: NE 8th Street/244th Avenue NE, SE 24th Street/245th Avenue SE, SE 24th Street/244th Avenue SE. Roundabouts are assumed at the East Main Drive/244th Avenue intersection, the SE 8th Street/242nd Drive SE intersection and the SE 32nd Street/244nd Avenue SE intersection. Along the optional alignment another roundabout is assumed at East Main Drive/Windsor Drive SE intersection. A traffic circle is assumed for the future intersection of SE 14th Street and 244th Avenue SE.
- **Traffic Calming Features:** A chicane designed for a 25 mph speed limit is assumed for the section of 244th Avenue SE between East Main Drive and SE 4th Place. Speed tables/raised crosswalks are assumed to be located near the two playgrounds in the Renaissance Ridge neighborhood and near the Beaver Lake Park ball fields.

ALTERNATIVE 3

Alternative 3 is conceptualized to maintain as straight an alignment as possible given the existing developments and other existing physical constraints, such as the gas pipeline. This alternative concept is illustrated in Figure 10. A description of this alternative and various features are summarized below.

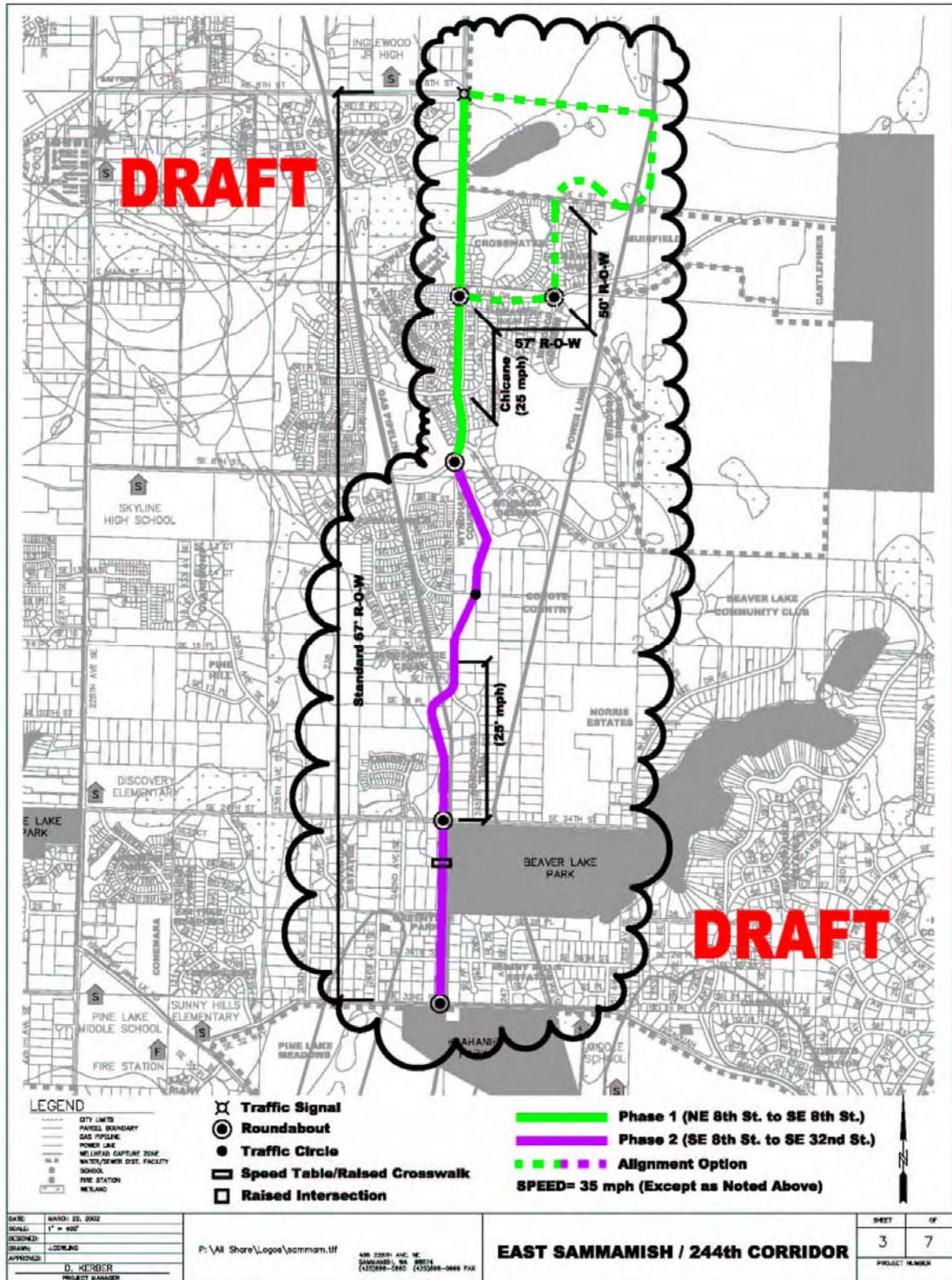
Alignment Description: The beginning of Alternative 3 follows the same alignment as Alternative 2, previously described. Just south of the intersection of SE Windsor Boulevard and 244th Avenue SE, the Alternative 3 alignment turns and passes between Windsor Greens and Wyndham Court neighborhoods on a new alignment. This conceptual alignment follows south along the new Wyndham Court neighborhood and continues in a southwesterly direction crossing a proposed extension on SE 14th Street and joining the 244th Avenue at the south end of the Renaissance Ridge neighborhood. South of SE 17th Place the alignment curves west to cross the pipeline at approximately a 70-degree angle using 25-mph curves. Once on the west side of the pipeline, the alignment curves south and parallels the pipeline and proceeds south to the SE 24th Street/ 244th Avenue SE intersection. It then follows the existing 244th Avenue SE alignment past Beaver Lake Park to its terminus at SE 32nd Street.

The same alternative alignment option is proposed at the north end of the corridor to avoid crossing the wetland near Allen Lake, as described for Alternative 2.

Alternative Features: Based on suggestions received from the community, the following features are incorporated into this alternative:

- **Right-of-way:** The standard 67-foot right-of-way is proposed along the majority of the corridor. For the optional alignment along East Main Drive, the right-of-way is reduced to 57-feet to minimize property impacts by removing either the median or the planter strips. In addition, along the narrow alignment between the Beaver Dam II neighborhood and the Crosswater development, the right-of way is further reduced to 50-feet by removing both the median and planter strips.

FIGURE 10: ALTERNATIVE 3 CONCEPT



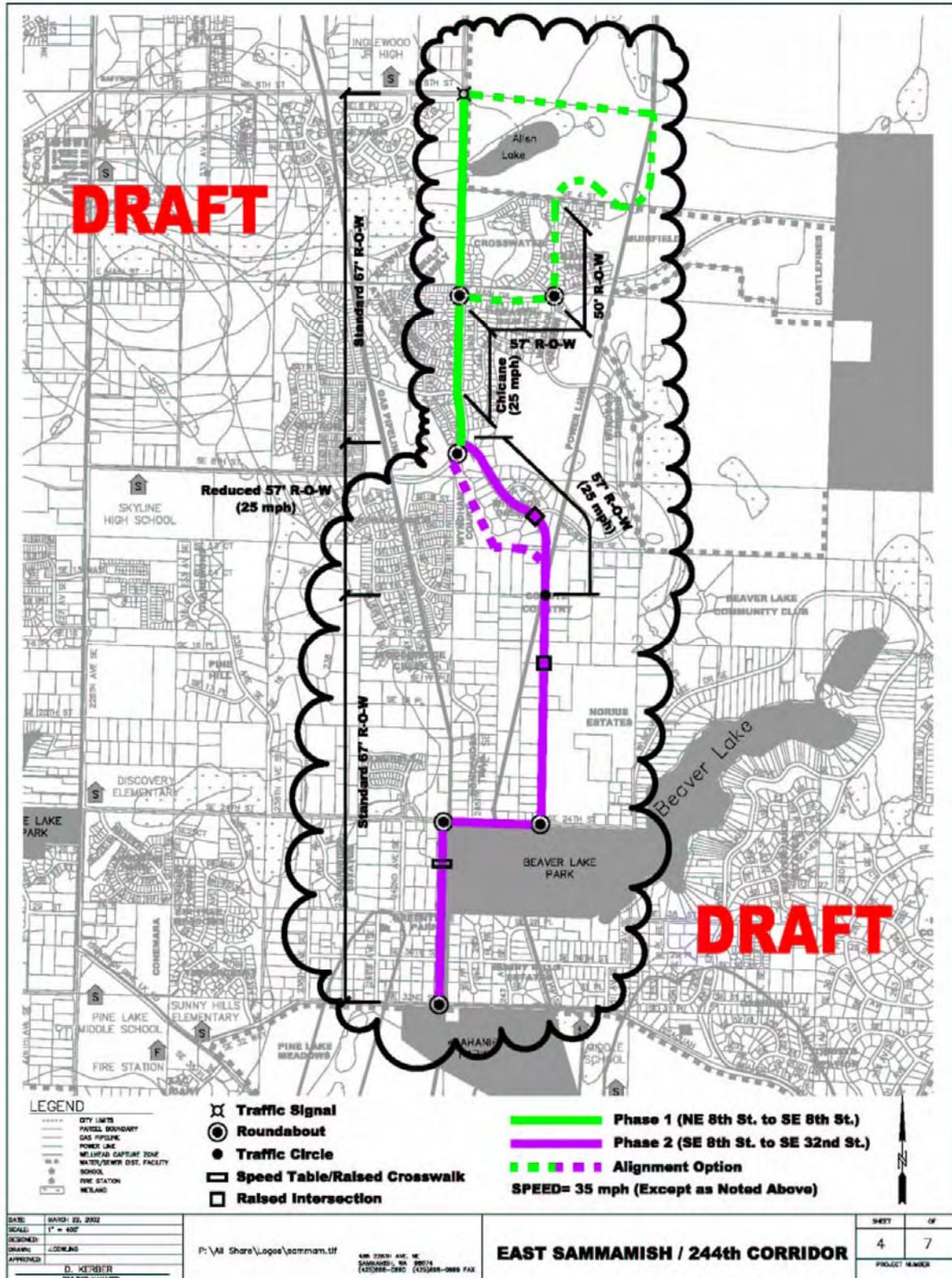
- **Speeds:** Through the use of roundabouts, a chicane along 244th Avenue SE south of East Main Drive, speed tables/raised crosswalks at Beaver Lake Park, and the reduced speed areas, the average travel speed is estimated at about 21.5 mph.
- **Intersection Treatments:** A traffic signal is assumed to be located at the beginning of the corridor at the NE 8th Street/244th Avenue NE intersection. Roundabouts are assumed at the following intersections: East Main Drive/244th Avenue, SE 8th Street/new 244th Avenue SE, SE 24th Street/244th Avenue SE and SE 32nd Street/244th Avenue SE. Along the optional alignment another roundabout is assumed at the East Main Drive/Windsor Drive SE intersection. A traffic circle is assumed for the future intersection of SE 14th Street and 244th Avenue SE.
- **Traffic Calming Features:** A chicane designed for a 25 mph speed limit is assumed for the section of 244th Avenue SE between East Main Drive and SE 4th Place. A speed table/raised crosswalk is assumed to be located near the Beaver Lake Park ball fields.

ALTERNATIVE 4

Alternative 4 is conceptualized to pass through more of the vacant and undeveloped areas of the study area south of SE 8th Street. This alternative concept is illustrated in Figure 11. A description of this alternative and various features are summarized below.

Alignment Description: The beginning of Alternative 4 follows the same alignment as Alternative 2, previously described. At the intersection of SE Windsor Boulevard and 244th Avenue SE, this conceptual alignment turns and follows SE Windsor Boulevard through the Windsor Greens neighborhood. The existing traffic barrier at the south end of the Windsor Greens neighborhood is removed and the conceptual alignment proceeds south along the line for 248th Avenue SE to SE 14th Street. From this point the alignment follows a private road portion of 248th Avenue SE through the Coyote Country neighborhood and then passes along the west side of the Norris Estates development, currently under construction, and extends to SE 24th Street. At SE 24th Street, the conceptual alignment turns west along the northern edge of Beaver Lake Park to 244th Avenue SE, turns south past Beaver Lake Park and proceeds to its terminus at SE 32nd Street.

FIGURE 11: ALTERNATIVE 4 CONCEPT



The same alternative alignment option is proposed at the northern end of the corridor to avoid crossing the wetland near Allen Lake, as described for Alternative 2. A second optional alignment is proposed to bypass SE Windsor Boulevard by turning just south of the intersection and constructing a new alignment through the open area between the Windsor Greens and the Wyndham Court neighborhoods and connecting to the conceptual 248th Avenue SE alignment in the vicinity of SE 11th Street.

Alternative Features: Based on suggestions received from the community, the following features are incorporated into Alternative 4:

- **Right-of-way:** The standard 67-foot right-of-way is assumed along the majority of the corridor. Along SE Windsor Boulevard, the right-of-way is reduced to 57-feet to minimize property impacts by removing the median or the planter strips. For the optional alignment along East Main Drive, the right-of-way is also reduced to 57-feet and along the narrow alignment between the Beaver Dam II neighborhood and the Crosswater development, the right-of way is further reduced to 50-feet by removing both the median and planter strips.
- **Speeds:** Through the use of roundabouts, a chicane along 244th Avenue SE south of East Main Drive, speed tables/raised crosswalks at Beaver Lake Park, and raised intersections, the average travel speed is estimated at about 22.3 mph.
- **Intersection Treatments:** A traffic signal is assumed to be located at the beginning of the corridor at the NE 8th Street/244th Avenue NE intersection. Roundabouts are assumed at the following intersections: East Main Drive/244th Avenue, SE Windsor Boulevard/244th Avenue SE, SE 8th Street/244th Avenue SE, SE 24th Street/248th Avenue SE, SE 24th Street/244th Avenue SE and SE 32nd Street/244nd Avenue SE. Along the optional alignment another roundabout is assumed at the East Main Drive/Windsor Drive SE intersection. Raised intersections are assumed for the SE Windsor Boulevard/Windsor Drive SE intersection and at 248th Avenue SE and SE 17th Street. A traffic circle is assumed for the future intersection of SE 14th Street and 248th Avenue SE.
- **Traffic Calming Features:** A chicane designed for a 25 mph speed limit is assumed for the section of 244th Avenue SE between East Main Drive and SE 4th Place. A speed table/raised crosswalk is assumed to be located near the Beaver Lake Park ball fields.

ALTERNATIVE 5

Alternative 5 is combination of Alternatives 3 and 4. The purpose of this alternative is to minimize traffic on any one street through the southern segment of the study area. This alternative concept is illustrated in Figure 12. A description of this alternative and various features are summarized below.

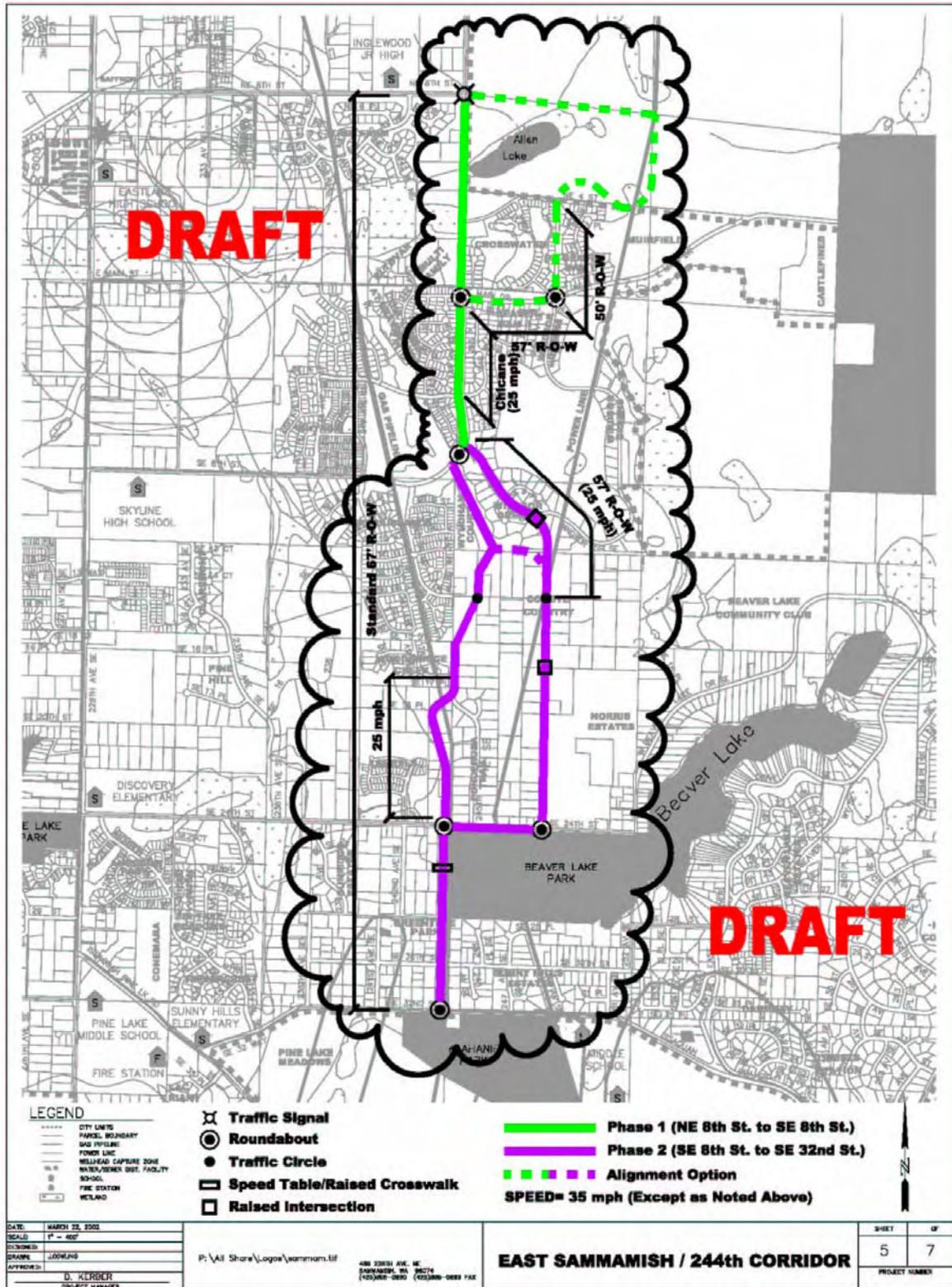
Alignment Description: The beginning of Alternative 5 follows the same alignment as Alternative 2, previously described. South of the intersection of SE Windsor Boulevard and 244th Avenue SE, the western leg of this conceptual alignment follows the alignment previously described for Alternative 3. The eastern leg of the alignment follows the alignment previously described for Alternative 4.

The same optional alignments are included for this alternative, as described for Alternative 4

Alternative Features: Based on suggestions received from the community, the following features are incorporated into this alternative:

- **Right-of-way:** The standard 67-foot right-of-way is assumed along the majority of the corridor. Along SE Windsor Boulevard SE from 244th Avenue SE to SE 14th Street, the right-of-way is reduced to 57-feet to minimize property impacts by removing the median or the planter strips. For the optional alignment along East Main Drive, the right-of-way is also reduced to 57-feet and along the narrow alignment between the Beaver Dam II neighborhood and the Crosswater development, the right-of way is further reduced to 50-feet by removing both the median and planter strips.
- **Speeds:** Through the use of roundabouts, a chicane along 244th Avenue SE south of East Main Drive, speed tables/raised crosswalks at Beaver Lake Park, and raised intersections, the average travel speed is estimated at about 22.4 mph.
- **Intersection Treatments:** A traffic signal is assumed to be located at the beginning of the corridor at the NE 8th Street/244th Avenue NE intersection. Roundabouts are assumed at the following intersections: East Main Drive/244th Avenue, SE Windsor Boulevard/244th Avenue SE, SE 8th Street/244th Avenue SE, SE 24th Street/248th Avenue SE, SE 24th Street/244th Avenue SE and SE 32nd Street/244nd Avenue SE. Along the optional alignment another

FIGURE 12: ALTERNATIVE 5 CONCEPT



roundabout is assumed at the East Main Drive/Windsor Drive SE intersection. Traffic circles are assumed for the future intersection of SE 14th Street and 244th Avenue SE and at SE 14th Street and 248th Avenue SE. Raised intersections are assumed for the SE Windsor Boulevard/Windsor Drive SE intersection and at 248th Avenue SE and SE 17th Street.

- **Traffic Calming Features:** A chicane designed for a 25 mph speed limit is assumed for the section of 244th Avenue SE between East Main Drive and SE 4th Place. A speed table/raised crosswalk is assumed to be located near the Beaver Lake Park ball fields.

ALTERNATIVE 6

Alternative 6 is a modification to Alternative 5 that reduces the amount of new roadway through the study area. This alternative concept is illustrated in Figure 13. A description of this alternative and various features are summarized below.

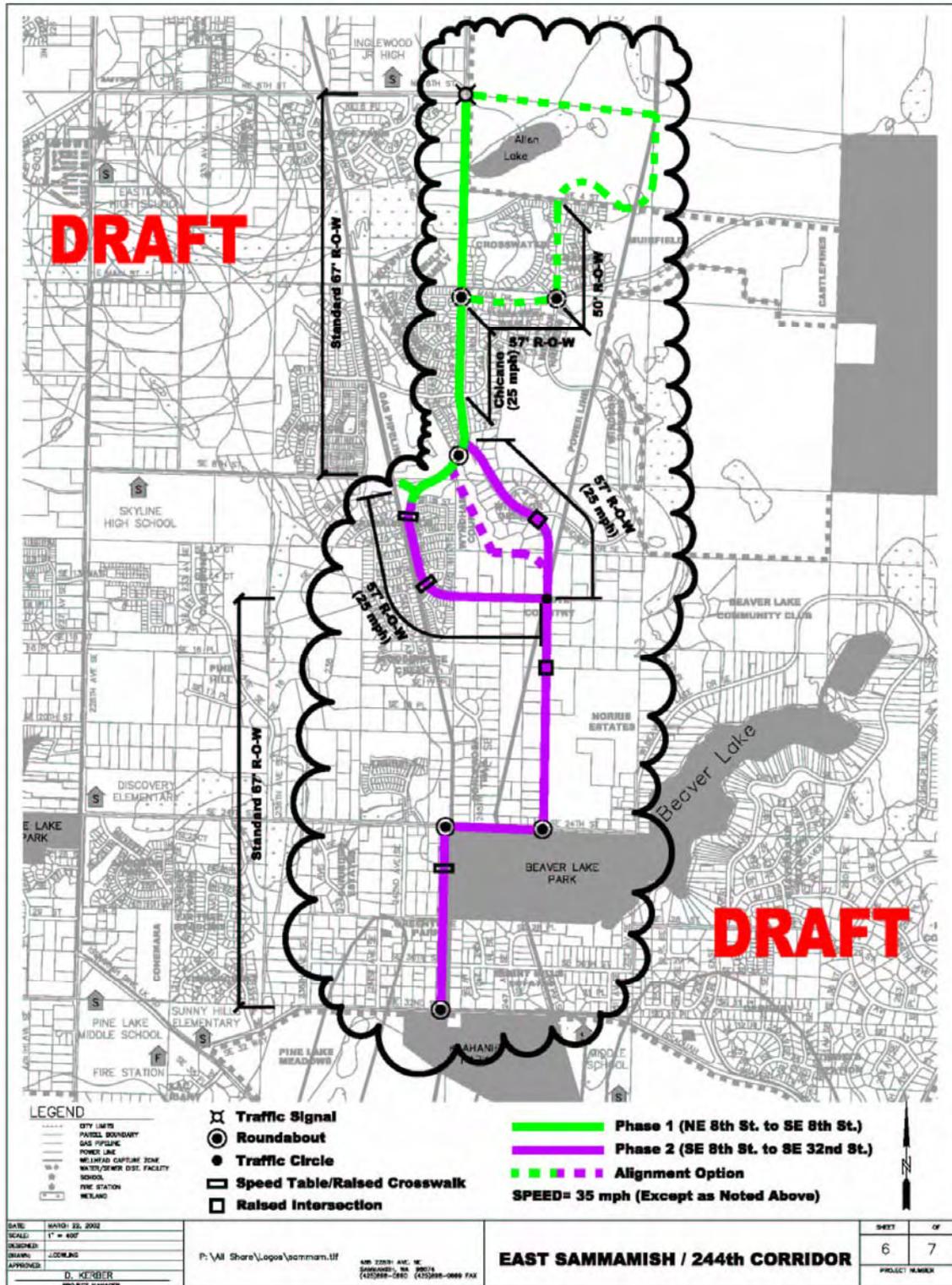
Alignment Description: The beginning of Alternative 6 follows the same alignment as Alternative 2, previously described. South of the intersection of SE Windsor Boulevard and 244th Avenue SE, a circular roadway is formed using sections of 244th Avenue SE, 242nd Drive SE, a new section of SE 14th Street and SE Windsor Boulevard extended to SE 14th Street. South of the 248th SE/SE 14th Street intersection, this conceptual alignment follows Alternative 4 to its terminus at the 244th Avenue SE/SE 32nd Street intersection.

The same optional alignments are included for this alternative as described for Alternative 4.

Alternative Features: Based on suggestions received from the community, the following features are incorporated into this alternative:

- **Right-of-way:** The standard 67-foot right-of-way is assumed along the majority of the corridor. Along 242nd Drive SE, SE 14th Street and SE Windsor Boulevard SE, the right-of-way is reduced to 57-feet to minimize property impacts by removing the median or the planter strips. For the optional alignment along East Main Drive, the right-of-way is also reduced to 57-feet and along the narrow alignment between the Beaver Dam II neighborhood and the Crosswater development, the right-of way is further reduced to 50-feet by removing both the median and planter strips.

FIGURE 13: ALTERNATIVE 6 CONCEPT



- **Speeds:** Through the use of roundabouts, a chicane along 244th Avenue SE south of East Main Drive, speed tables/raised crosswalks at the play fields in the Renaissance Ridge neighborhood and at Beaver Lake Park, the reduced speed areas and raised intersections, the average travel speed is estimated at about 23 mph.
- **Intersection Treatments:** A traffic signal is assumed to be located at the beginning of the corridor at the NE 8th Street/244th Avenue NE intersection. Roundabouts are assumed at the following intersections: East Main Drive/244th Avenue, SE Windsor Boulevard/244th Avenue SE, SE 24th Street/248th Avenue SE, SE 24th Street/244th Avenue SE and SE 32nd Street/244nd Avenue SE. Along the optional alignment another roundabout is assumed at the East Main Drive/Windsor Drive SE intersection. Raised intersections are assumed for the SE Windsor Boulevard/Windsor Drive SE intersection and at 248th Avenue SE and SE 17th Street. A traffic circle is assumed for the future intersection of SE 14th Street and 248th Avenue SE.
- **Traffic Calming Features:** A chicane designed for a 25 mph speed limit is assumed for the section of 244th Avenue SE between East Main Drive and SE 4th Place. Speed tables/raised crosswalks are assumed to be located near the two playgrounds in the Renaissance Ridge neighborhood and near the Beaver Lake Park ball fields across 244th Avenue SE.

EVALUATION METHODOLOGY

The evaluation process of the various alternatives for this *East Sammamish/244th Corridor Study* will use a two step process. Step 1 will be an individual evaluation of each corridor alternative concept to determine if there are any fatal flaws that would eliminate it from further analysis. Step 2 will consist of a comparative evaluation in the form of a “Balance Sheet” to compare all of the remaining corridor alternatives against each other using the selected evaluation criteria. This method displays data and criteria in the form of a comparative matrix that indicates the relative order of magnitude of the impacts resulting from the alternatives. The “Balance Sheet” method can be used to highlight the key issues of concern relative to various interest groups, can provide information that differentiates one alternative plan from the others, ensure consistency with federal, state and local requirements, and be a useful tool for decision makers.

CRITERIA AND MEASURES OF PERFORMANCE

Input from the general public was sought to determine which criteria are most important and meaningful to them and should be used in the *East Sammamish/244th Corridor Study* to evaluate the various corridor improvement alternatives. A list of evaluation categories with sample criteria were presented to the public at the August 7, 2002 Community Meeting. At this community meeting, the public was asked to review the categories and criteria, add any additional criteria they thought would be applicable for this study and then to select the five criteria they felt were most important for evaluating the various corridor route alternatives. The list of criteria by category is presented below. The highlighted criteria were the sample criteria presented at the community meeting. The non-highlighted criteria are those new criteria proposed by the public.

➤ **Transportation Category**

- ◆ Travel time/delays/congestion (Mobility)
- ◆ Local circulation and access
- ◆ Number of vehicles using the corridor
- ◆ Bike and pedestrian facilities
- ◆ Congestion, including getting on/off the plateau
- ◆ Speed through the neighborhoods
- ◆ Not creating too many traffic corridors
- ◆ Emergency access

- ◆ Impact of 244th Avenue NE/SR 202 intersection
- ◆ Impact on 244th Avenue NE north of NE 8th Street
- ◆ Capacity of existing arterials and impact
- **Environmental Category**
 - ◆ Noise
 - ◆ Wetlands/streams
 - ◆ Wildlife
 - ◆ Visual/landscaping/green space
 - ◆ Low impact lighting
 - ◆ Watch power/gas lines
 - ◆ Preserve Beaver Lake Park
- **Social Category**
 - ◆ Number of parcels affected
 - ◆ Accessibility to community/recreational services
 - ◆ Safety
 - ◆ Preserve existing neighborhoods
 - ◆ Don't encourage population growth
- **Financial/Economic Category**
 - ◆ Construction costs
 - ◆ Total costs
 - ◆ Property values
 - ◆ Place burden of land loss on public lands
 - ◆ Area desirability (overbuilding ruins the reason we came to Sammamish)

Based on the public's comments and preferences, 10 of these criteria received five or more votes as being the most important to consider in the evaluation of the corridor alternatives and were thus carried forward as evaluation criteria for this study. Two criteria were added to reflect a combination of some of the criteria suggested by individual community members. These additional criteria are general environmental impacts and potential for developer funded. The selected evaluation criteria with their corresponding measure of effectiveness are summarized below by evaluation category.

Transportation Category: The following four transportation performance criteria were selected by the public as indicators of degree of transportation impacts related to the build alternatives:

- **Corridor Mobility (travel time/delay/congestion)** - This measure is used to determine if the various conceptual corridor alternatives would generally improve or worsen the travel conditions along the corridor in terms of travel time. For this corridor study, the average

afternoon peak hour travel time for travel from the intersections of NE 8th Street/244th Avenue NE to SE 32nd Street/244th Avenue SE will be used to measure corridor mobility.

- **Connectivity/Access** - This measure is used to determine how the various corridor alternative concepts would improve local connectivity to schools, parks, shopping, etc. and access/response time for emergency vehicles, etc. For analysis purposes, average, afternoon peak hour, zone to zone travel time to the Discovery Elementary School and the Inglewood Junior High School from the intersection of SE 8th Street and 244th Avenue SE will be used for community access. In addition, average, afternoon peak hour, zone to zone travel time from the intersection of SE 8th Street and 244th Avenue SE with Fire Station #83 near the Issaquah Pine Lake Road/SE 32nd Street intersection and Fire Station #82 near the 228th Avenue NE/NE 18th Street will be used for emergency access.
- **Corridor and Local Travel in terms of Average Daily Traffic (ADT)** - This measure combined several criteria suggested by the community. It is used to determine if the various corridor alternatives would generally improve or worsen the travel conditions along the corridor and other regional roads. For this corridor study, the ADT along corridor segments and selected regional facilities on the Sammamish Plateau in the vicinity of the ES/244th corridor based on the City's travel demand model will be estimated. ADT as measured by number of daily vehicles will be estimated for the following roadway segments:
 - ◆ 244th Avenue SE (SE 8th Street to SE 32nd Street; NE 8th Street to SE 8th Street; and SR 202 to NE 8th Street)
 - ◆ 228th Avenue (NE 25th Street to NE 8th Street; NE 8th Street to SE 8th Street; and SE 8th Street to Issaquah Pine Lake Road)
 - ◆ Issaquah Pine Lake Road (228th Avenue SE to SE 32nd Street)
 - ◆ SR 202 (244th Avenue NE to Sahalee Way)
- **Bike and Pedestrian Facilities** - This measure is used to determine the amount of non-motorized facilities that are to be incorporated into the ES/244th Corridor. The measures for this criterion will be the amount of separate bike and pedestrian facilities. The following estimates will be:
 - ◆ Percentage of the ES/244th Corridor with bicycle lanes.
 - ◆ Percentage of the ES/244th Corridor with sidewalks or other pedestrian facilities.

Environmental Category: The following three performance criteria were selected as indicators of degree of environmental impacts related to the build alternatives. A more detailed environmental analysis will need to be conducted in the next phase of the study.

- **Noise** - This measure is used to determine the impact of the various build alternatives on adjacent properties in the study area. For this corridor study, a set of noise sensitive sites, as defined in the environmental baseline report, will be used to assess the noise impact. The number of noise sensitive sites lying within 100 feet from the edge of the proposed roadway for each conceptual alternative will be counted.
- **Wetlands/Streams** - This measure is used to determine the impact of the various build alternatives on sensitive wetlands in the study area. For this criterion, a rough estimate of the number of acres of wetland areas impacted by the various conceptual alternatives will be estimated based on the typical sections and existing wetland data identified in the environmental baseline report. Impacts by class of wetland will be recorded.
- **General Environmental Impact** - This measure combines several criteria suggested by the community. It is intended to determine the impact of the various build alternatives on general environmental impacts to the study area. This will be a subjective assessment by environmental professionals considering physical, geotechnical, historical, cultural, land use, and wildlife habitat impacts not estimated in the other measures.

Social/Land Use Category: For the social/land use category, the following two performance criteria were selected as indicators of degree of social/land use impacts associated with the conceptual alternatives:

- **Number of Parcels Impacted** - This measure is used to determine the impact of the various conceptual build alternatives on the residential sections in the study area. For this criterion, an estimate of the right-of-way impacts will be determined by the total number of parcels impacted by the conceptual alternatives, as well as the number of parcels impacted by 15 percent or more based on the typical sections, parcel maps and a field review of the area.
- **Safety** - This measure is used to determine the relative safety of the various alternatives. In general terms, more severe accidents occur with higher speeds. In addition, in urban and residential areas, accidents are more likely to occur at intersections. For this criterion,

vehicular safety will be measured in terms of average travel speed and the number of intersections along the corridor. In terms of pedestrian safety, the percentage of the alternative length with sidewalks will be used.

Financial/Economic Category: The following three performance criteria were selected as indicators of degree of financial and economic impacts resulting from the build alternatives:

- **Total Costs** - This measure is used to determine the overall financial viability of the various build alternatives. For this study, planning level costs will be developed that include construction, engineering, right-of-way, preliminary environmental mitigation of known impacts and contract administration. These costs will be developed based on previous construction contracts for the City of Sammamish.
- **Property Values** - This measure is used to determine the impact of the various alternative concepts on the overall property values in the study area. For this study, general aspects that affect property values will be reviewed by the project team to estimate the relative impact to property values in the study area. No detailed appraisal will be prepared for individual properties as part of this study. Consideration will be given to overall community access, emergency access, circulation to community facilities, schools and recreational facilities, traffic, and non-motorized facilities.
- **Potential for Developer Funded** - This measure is used to determine the amount of the various build alternatives that could be constructed through frontage improvements by adjacent developer projects. For this study, the percentage of the corridor alternative that is adjacent to vacant or underdeveloped parcels will be estimated.

Summary: Overall, 12 measures of performance criteria in four categories have been selected for use in the evaluation process for this *East Sammamish/244th Corridor Study*. Four measures are used in the transportation category. There are three measures in both the environmental and financial/economics categories. There are two measures are in the social/land use category. In general, these measures are useful in differentiating the impacts of the conceptual alternatives and address different aspects of the alternatives. The rating schedule used to indicate the degree of impact for each alternative will be as follows:

- best
- better
- good
- fair
- lowest

A summary of these criteria and measures are presented on the following table.

Table 2: Summary of Evaluation Criteria with Measure of Performance

CRITERIA	MEASURE OF PERFORMANCE
Transportation	
Mobility (travel time/delay/congestion)	Average afternoon peak hour travel time along corridor from NE 8 th Street to SE 32 nd Street
Connectivity/Access	Average afternoon peak hour travel time from SE 8 th St./244 th Ave. SE intersection to: <ul style="list-style-type: none"> ➤ Discovery Elementary School ➤ Inglewood Junior High School ➤ Fire Station #83 near Issaquah Pine Lake Rd/SE 32nd St. ➤ Fire Station #82 near 228th Ave. NE/NE 18th St.
Bike and Pedestrian Facilities	Percentage of corridor with bike and pedestrian facilities <ul style="list-style-type: none"> ➤ Percentage of the corridor with bike lanes ➤ Percentage of the corridor with pedestrian facilities
Corridor & Local Travel (ADT)	2022 Average Daily Traffic (ADT): <ul style="list-style-type: none"> ➤ 244th Avenue SE (SE 8th St. to SE 32nd St.; NE 8th St. to SE 8th St.; and SR 202 to NE 8th St.) ➤ 228th Avenue (NE 25th St. to NE 8th St.; NE 8th St. to SE 8th St.; and SE 8th St. to Issaquah Pine Lake Rd.) ➤ Issaquah Pine Lake Road (228th Ave. SE to SE 32nd St.) ➤ SR 202 (244th Ave. NE to Sahalee Way)
Environmental Impacts	
Noise and Proximity Effects	Number of identified noise sensitive receptors within 100 feet of the edge of the roadway for each conceptual alternative
Wetland Areas	Number of acres needed to replace the amount of wetlands impacted
General Environmental Assessment	A subjective assessment considering physical, geotechnical, historical, cultural, land use and wildlife habitat impacts not measured by other criteria
Social / Land Use Impacts	
Number of parcels impacted	Number of parcels impacted Number of parcel impacted by more than 15%
Safety	Safety measured by: <ul style="list-style-type: none"> ➤ Average speed along corridor ➤ Number of intersections along alignment ➤ Percentage of the corridor with pedestrian facilities
Financial/Economic	
Total Costs	Planning level cost that includes construction, engineering, right-of-way, known environmental mitigation and contract administration. (Based on recent roadway construction contracts in Sammamish)
Property Values	Consideration of overall community access, emergency access, circulation to community facilities, schools and recreational facilities, traffic, and non-motorized facilities.
Potential for Developer Funded	Percentage of corridor that could be constructed along vacant and/or undeveloped parcels

EVALUATION PROCEDURES

As stated previously, the evaluation procedure to be used for this *East Sammamish/244th Corridor Study* will use a two step process. Step 1 will be an analysis of each corridor alternative concept to determine if there are any fatal flaws that would eliminate it from further analysis and to identify significant findings using the selected evaluation criteria. For this evaluation, it is important to remember that the data is based on the conceptual design of the alternatives. Since it is not practical to design all alternatives in detail at this phase of the project, the magnitude of the impacts for the selected alternatives may be refined during subsequent engineering and environmental project phases.

Step 2 will consist of a comparative evaluation of the corridor alternatives against each other using the twelve selected evaluation criteria. This evaluation is used to display data in the form of a comparative matrix that indicates the relative order of magnitude of the impacts resulting from the alternatives when compared to each other. The rating schedule used to indicate the degree of impact for each alternative will be as follows:

- best
- ◐ better
- ◑ good
- ◒ fair
- lowest

For the transportation related criteria, ratings for each criterion were estimated based on the impacts measured. The ranges for each rating were developed based on traffic standards, combined with engineering judgement, to differentiate between alternatives.

For the non-transportation related criteria, the alternative with the least impact was generally assigned a rating of best (●), while the alternative with the most impact for each criterion was assigned a rating of lowest (○). Based on these two observations, the range for each rating was established for each various non-transportation related criteria. The scores of better (◐), good (◑) and fair (◒) were then assigned to the alternatives with increasing impacts. The only exceptions to these ratings are for the general environmental assessment and the property value impact criteria. The ratings for these criteria are based on professional judgement of the study team.

The ratings used to score the evaluation criteria are shown on Table 3.

Table 3 Ratings for Evaluation Criteria

<p>Travel Times</p> <ul style="list-style-type: none"> <input type="radio"/> < 6 minutes <input type="radio"/> 6 to 8 minutes <input type="radio"/> 8.1 to 10 minutes <input type="radio"/> 10.1 to 15 minutes <input type="radio"/> >15 minutes 	<p>Average Speed</p> <ul style="list-style-type: none"> <input type="radio"/> <20 mph <input type="radio"/> 20.1 to 25 mph <input type="radio"/> 25.1 to 30 mph <input type="radio"/> 30.1 to 35 mph <input type="radio"/> >35mph
<p>Volumes (number of daily vehicles)</p> <p>3 lanes sections</p> <ul style="list-style-type: none"> <input type="radio"/> <5,300 <input type="radio"/> 5,301 to 8,800 <input type="radio"/> 8,801 to 12,400 <input type="radio"/> 12,401 to 14,900 <input type="radio"/> > 14,900 	<p>Principal / Minor Arterials</p> <p>5 lanes sections</p> <ul style="list-style-type: none"> <input type="radio"/> < 10,500 <input type="radio"/> 10,501 to 17,500 <input type="radio"/> 17,501 to 24,500 <input type="radio"/> 24,501 to 29,700 <input type="radio"/> > 29,700
<p>Sidewalks/Bike Lanes</p> <ul style="list-style-type: none"> <input type="radio"/> <80% <input type="radio"/> 60.1% to 80% <input type="radio"/> 40.1% to 60% <input type="radio"/> 20% to 40% <input type="radio"/> <20% 	<p>Intersections</p> <ul style="list-style-type: none"> <input type="radio"/> <10 intersections <input type="radio"/> 11 to 15 intersections <input type="radio"/> 16 to 20 intersections <input type="radio"/> 21 to 25 intersections <input type="radio"/> >25 intersections
<p>Noise Impacts (Receptors within 100 feet)</p> <ul style="list-style-type: none"> <input type="radio"/> 0 to 30 <input type="radio"/> 31 to 45 <input type="radio"/> 46 to 60 <input type="radio"/> 61 to 75 <input type="radio"/> > 75 	<p>Wetland Impacts (Replacement Acres Required)</p> <ul style="list-style-type: none"> <input type="radio"/> <2 acres <input type="radio"/> 2 to 4.0 acres <input type="radio"/> 4.1 to 6.0 acres <input type="radio"/> 6.1 to 8 acres <input type="radio"/> >8
<p>Number of Parcels Impacted</p> <ul style="list-style-type: none"> <input type="radio"/> < 20 <input type="radio"/> 20 to 40 <input type="radio"/> 41 to 60 <input type="radio"/> 61 to 80 <input type="radio"/> > 80 	<p>Number of Parcels Impacted by more than 15%</p> <ul style="list-style-type: none"> <input type="radio"/> 0 to 8 <input type="radio"/> 9 to 12 <input type="radio"/> 13 to 16 <input type="radio"/> 17 to 20 <input type="radio"/> > 20
<p>Project Costs</p> <ul style="list-style-type: none"> <input type="radio"/> < \$20 million <input type="radio"/> \$20 to \$25 million <input type="radio"/> \$25.1 to \$30 million <input type="radio"/> \$30.1 to \$35 million <input type="radio"/> > \$35 million 	<p>Percent of Corridor along Undeveloped Land</p> <ul style="list-style-type: none"> <input type="radio"/> >40% <input type="radio"/> 30.1% to 40% <input type="radio"/> 20.1% to 30% <input type="radio"/> 10.0% to 20% <input type="radio"/> <10%

best
 better
 good
 fair
 lowest

ANALYSIS OF CONCEPTUAL ALTERNATIVES

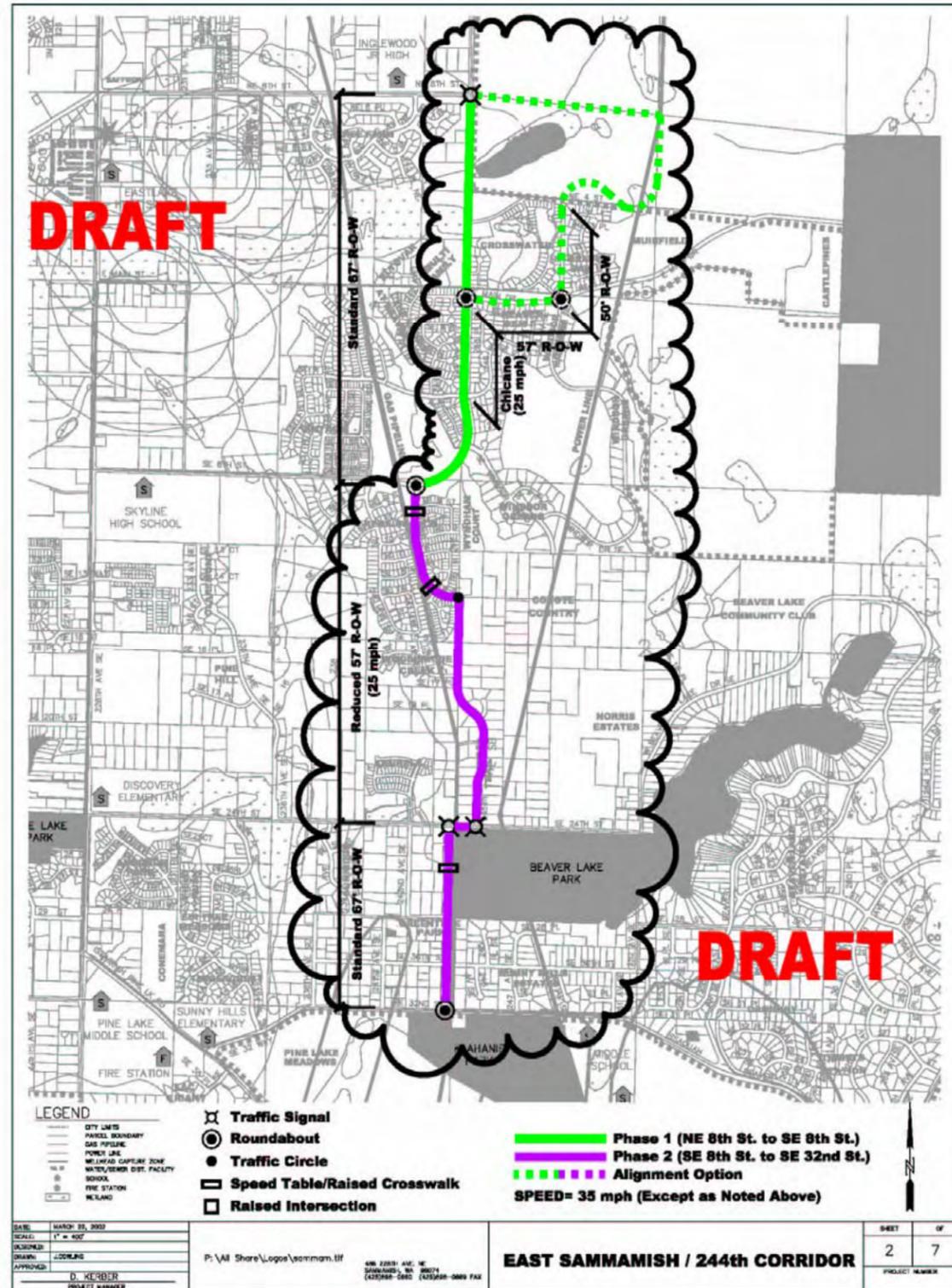
This analysis of alternatives is the first step in the evaluation process to determine, using conceptual level data, which alternative(s) are the most promising and should be carried forward for more detailed environmental and engineering investigation. The purpose of this first step is to determine if any of the alternatives have any fatal flaws that would prevent its implementation. The alternatives are analyzed in terms of transportation, environmental, social/land use and financial/economic categories. The results of this initial analysis show that Alternatives 2 through 6 do not have any fatal transportation, environmental and social flaws. The planning-level cost estimates are substantial for all conceptual alternatives; however, through more detailed engineering and environmental analyses and some right-of-way reductions, the costs can be lowered.

The results of these analyses for the individual alternatives are presented in Figures 14 through 18. The following discussions present some of the similar findings for all alternatives followed by more detailed summaries of each alternative concept. The original alternative numbering system is maintained for consistency throughout this report. As previously discussed, Alternatives 1 and 7 were eliminated because they did not meet the purpose and need of the project.

Some of the similar findings for Alternatives 2 through 6 are:

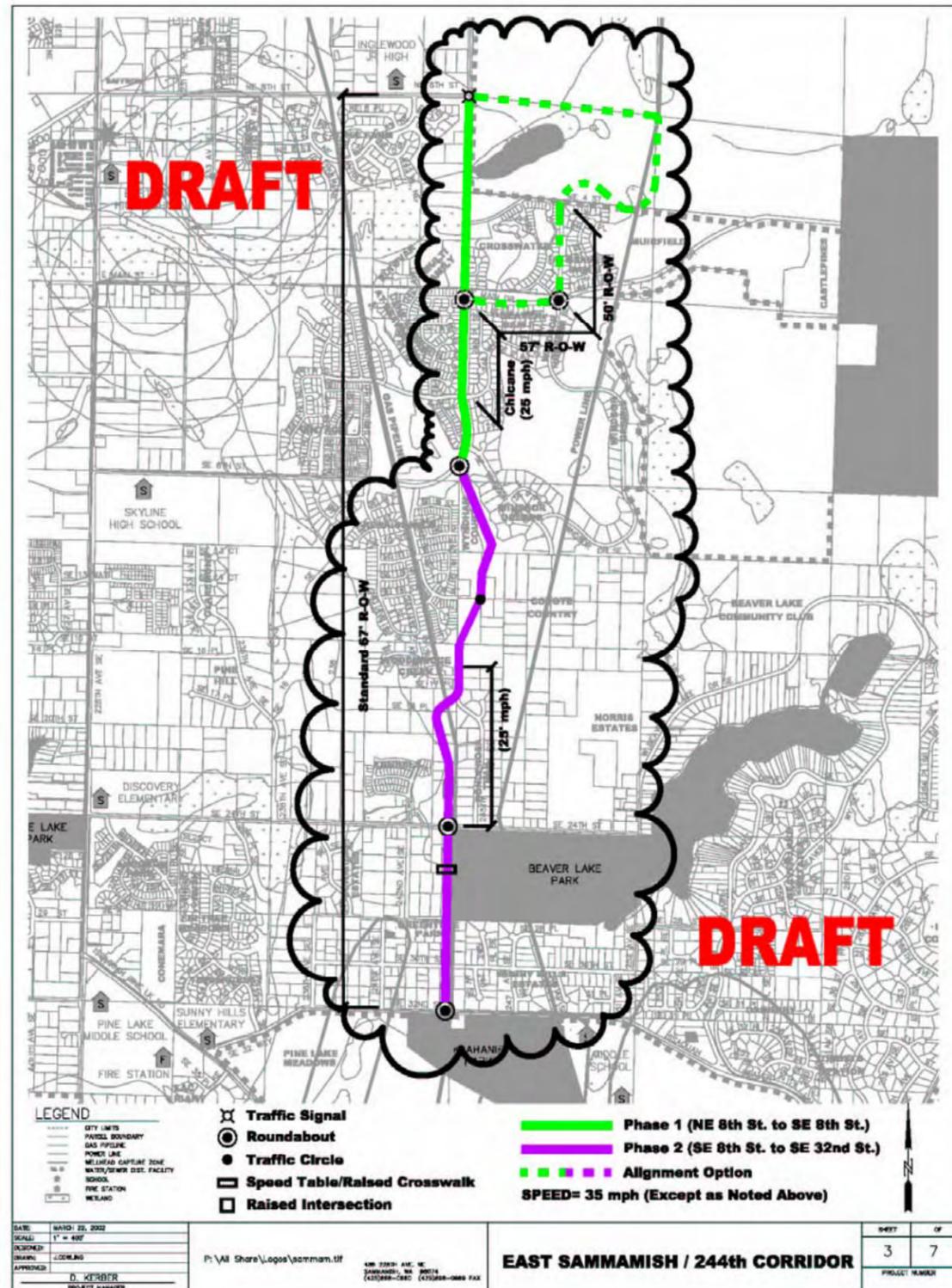
- Transportation Findings
 - ◆ Travel times were calculated based on the afternoon (PM) peak hour.
 - ◆ If the northern optional alignment were used, it would avoid the Class 1 wetland along 244th Avenue NE but impact a smaller Class 2 wetland. This would increase the corridor length by about one mile. Similarly, travel time would increase by about 1.9 minutes for all alternatives during the PM peak hour.
 - ◆ Bicycle lanes and sidewalks are assumed along the entire corridor.
 - ◆ By following the northern optional alignment, the average daily traffic volumes along the two study area segments for all alternatives are expected to be reduced by about 34 to 66 percent because of the longer corridor length of about one mile and resulting longer travel time. Conversely, the traffic volumes along 228th Avenue between NE 8th Street and SE 8th Street would be expected to increase by about 28 percent.
 - ◆ Six intersections were analyzed as part of this analysis. These intersections were:
 - 244th Avenue NE and NE 8th Street
 - 244th Avenue and East Main Drive

FIGURE 14 ALTERNATIVE 2 ANALYSIS SUMMARY



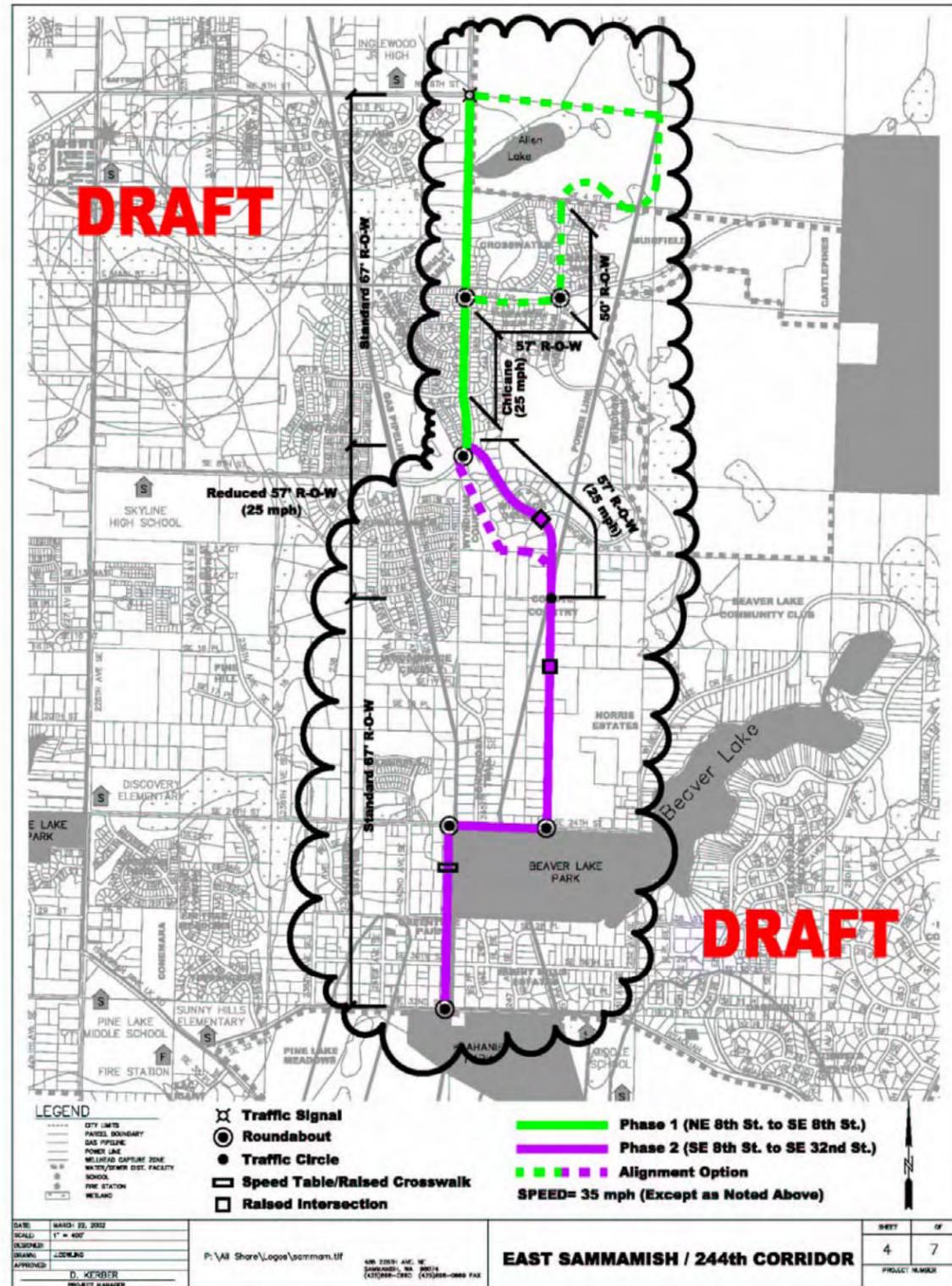
CRITERIA / MEASURE OF PERFORMANCE	ALTERNATIVE 2 ASSESSMENT
TRANSPORTATION	
Mobility (travel time/delay/congestion)	
Average travel time between NE 8 th St. to SE 32 nd St.	7.6 minutes
Connectivity/Access	
Average travel time between SE 8 th St./244 th Ave. SE &: Discovery Elementary School	4.2 minutes
Inglewood Junior High School	6.1 minutes
Fire Station #83 near Iss. Pine Lake Rd/SE 32 nd St.	8.6 minutes
Fire Station #82 near 228 th Ave. NE/NE 18 th St.	9.0 minutes
Bike and Pedestrian Facilities	
Percentage of corridor with bike and pedestrian facilities	
Percentage of the corridor with bike lanes	The entire corridor will have bike lanes on both sides.
Percentage of the corridor with pedestrian facilities	The entire corridor will have sidewalks on both sides.
Corridor & Local Travel (ADT)	
2022 Average Daily Traffic (ADT):	
244 th Avenue SE (SE 8 th St. to SE 32 nd St.)	8,200 vehicles
244 th Avenue SE (NE 8 th St. to SE 8 th St.)	11,300 vehicles
244 th Avenue SE (SR 202 to NE 8 th St.)	12,400 vehicles
228 th Avenue (NE 25 th St. to NE 8 th St.)	20,100 vehicles
228 th Avenue (NE 8 th St. to SE 8 th St.)	23,500 vehicles
228 th Avenue (SE 8 th St. to Issaquah Pine Lake Rd.)	26,900 vehicles
Issaquah Pine Lake Rd (228 th Ave. SE to SE 32 nd St.)	16,200 vehicles
SR 202 (244 th Ave. NE to Sahalee Way)	13,500 vehicles
ENVIRONMENTAL	
Noise and Proximity Effects	
Number of identified noise receptors within 100 feet	77 houses are within 100 feet of the new roadway. (77 houses with options)
Wetland Areas	
Number of acres needed to replace wetlands impacted	6.2 acres of wetlands are needed for replacement (0.5 acres needed with options)
General Environmental Assessment	
Assessment of other environmental considerations	Corridor and options crosses stream to Allen Lake, crosses Laughing Jacobs Creek, parallels gas pipeline from SE24th St. to SE 32 nd St.
SOCIAL / LAND USE	
Number of parcels impacted	
Number of parcels impacted	30 parcels are impacted by corridor (34 parcels impacted with options)
Number of parcels impacted by more than 15%	5 parcels impacted by 15% or more (7 parcels impacted by 15% or more with options)
Safety	
Average speed along corridor	The average speed along alignment is 21.3 mph.
Number of intersections along alignment	There will be about 23 intersections along the corridor. (22 with options)
Percentage of the corridor with pedestrian facilities	The entire corridor will have sidewalks on both sides.
FINANCIAL/ECONOMIC	
Total Costs	
Planning level cost	\$19.7 million (\$24.2 million with options)
Property Values	
Assessment of factors affecting area property values	The change in the nature of the roadway facility will affect the rate of increase of property values depending on such variables as location, orientation, access, proximity and etc.
Potential for Developer Funded (Parcels in the City)	
Percentage along vacancy and/or undeveloped parcels	16% of corridor is adjacent to vacant or underdeveloped parcels (9% with options)

FIGURE 15 ALTERNATIVE 3 ANALYSIS SUMMARY



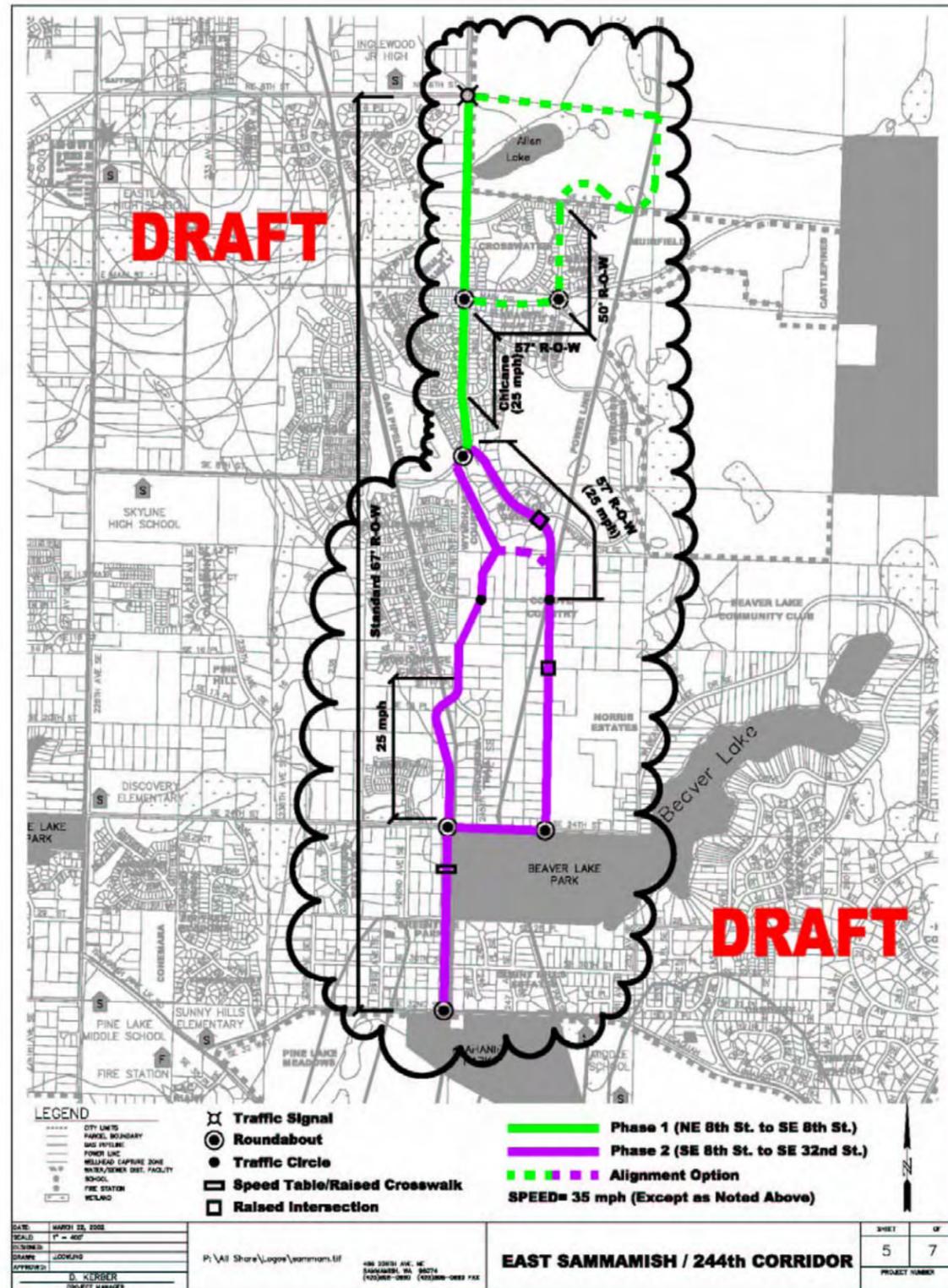
CRITERIA / MEASURE OF PERFORMANCE	ALTERNATIVE 3 ASSESSMENT
TRANSPORTATION	
Mobility (travel time/delay/congestion)	
Average travel time between NE 8 th St. to SE 32 nd St.	7.2 minutes
Connectivity/Access	
Average travel time between SE 8 th St./244 th Ave. SE &:	
Discovery Elementary School	3.8 minutes
Inglewood Junior High School	5.6 minutes
Fire Station #83 near Iss. Pine Lake Rd/SE 32 nd St.	9.0 minutes
Fire Station #82 near 228 th Ave. NE/NE 18 th St.	8.9 minutes
Bike and Pedestrian Facilities	
Percentage of corridor with bike and pedestrian facilities	
Percentage of the corridor with bike lanes	The entire corridor will have bike lanes on both sides.
Percentage of the corridor with pedestrian facilities	The entire corridor will have sidewalks on both sides.
Corridor & Local Travel (ADT)	
2022 Average Daily Traffic (ADT):	
244 th Avenue SE (SE 8 th St. to SE 32 nd St.)	9,100 vehicles
244 th Avenue SE (NE 8 th St. to SE 8 th St.)	12,400 vehicles
244 th Avenue SE (SR 202 to NE 8 th St.)	12,800 vehicles
228 th Avenue (NE 25 th St. to NE 8 th St.)	19,900 vehicles
228 th Avenue (NE 8 th St. to SE 8 th St.)	22,600 vehicles
228 th Avenue (SE 8 th St. to Issaquah Pine Lake Rd.)	26,100 vehicles
Issaquah Pine Lake Rd (228 th Ave. SE to SE 32 nd St.)	15,800 vehicles
SR 202 (244 th Ave. NE to Sahalee Way)	13,700 vehicles
ENVIRONMENTAL	
Noise and Proximity Effects	
Number of identified noise receptors within 100 feet	33 houses are within 100 feet of the new roadway. (33 houses with options)
Wetland Areas	
Number of acres of wetlands impacted	8.5 acres of wetlands are needed for replacement (2.8 acres needed with options)
General Environmental Assessment	
Assessment of other environmental considerations	Corridor and option crosses stream to Allen Lake, extends along Woodbridge Creek, crosses Laughing Jacobs Creek, crosses gas pipeline at 70° angle, parallels gas pipeline
SOCIAL / LAND USE	
Number of parcels impacted	
Number of parcels impacted	51 parcels are impacted by corridor (55 parcels impacted with options)
Number of parcels impacted by more than 15%	14 parcels impacted by 15% or more (16 parcels impacted by 15% or more with options)
Safety	
Average speed along corridor	The average speed along alignment is 21.5 mph.
Number of intersections along alignment	There will be about 17 intersections along the corridor. (16 with options)
Percentage of the corridor with pedestrian facilities	The entire corridor will have sidewalks on both sides.
FINANCIAL/ECONOMIC	
Total Costs	
Planning level cost	\$23.4 million (\$27.7 million with options)
Property Values	
Assessment of factors affecting area property values	The change in the nature of the roadway facility will affect the rate of increase of property values depending on such variables as location, orientation, access, proximity and etc.
Potential for Developer Funded (Parcels in the City)	
Percentage along vacancy and/or undeveloped parcels	24% of corridor is adjacent to vacant or underdeveloped parcels (15% with options)

FIGURE 16 ALTERNATIVE 4 ANALYSIS SUMMARY



CRITERIA / MEASURE OF PERFORMANCE	ALTERNATIVE 4 ASSESSMENT
TRANSPORTATION	
Mobility (travel time/delay/congestion)	
Average travel time between NE 8 th St. to SE 32 nd St.	7.8 minutes
Connectivity/Access	
Average travel time between SE 8 th St./244 th Ave. SE &: Discovery Elementary School	5.9 minutes
Ingleswood Junior High School	5.4 minutes
Fire Station #83 near Iss. Pine Lake Rd/SE 32 nd St.	9.7 minutes
Fire Station #82 near 228 th Ave. NE/NE 18 th St.	9.0 minutes
Bike and Pedestrian Facilities	
Percentage of corridor with bike and pedestrian facilities	
Percentage of the corridor with bike lanes	The entire corridor will have bike lanes on both sides.
Percentage of the corridor with pedestrian facilities	The entire corridor will have sidewalks on both sides.
Corridor & Local Travel (ADT)	
2022 Average Daily Traffic (ADT):	
244 th Avenue SE (SE 8 th St. to SE 32 nd St.)	5,700 vehicles
244 th Avenue SE (NE 8 th St. to SE 8 th St.)	11,300 vehicles
244 th Avenue SE (SR 202 to NE 8 th St.)	12,100 vehicles
228 th Avenue (NE 25 th St. to NE 8 th St.)	20,000 vehicles
228 th Avenue (NE 8 th St. to SE 8 th St.)	22,800 vehicles
228 th Avenue (SE 8 th St. to Issaquah Pine Lake Rd.)	28,400 vehicles
Issaquah Pine Lake Rd (228 th Ave. SE to SE 32 nd St.)	17,300 vehicles
SR 202 (244 th Ave. NE to Sahalee Way)	13,500 vehicles
ENVIRONMENTAL	
Noise and Proximity Effects	
Number of identified noise receptors within 100 feet	35 houses are within 100 feet of the new roadway. (22 houses with options)
Wetland Areas	
Number of acres of wetlands impacted	6.2 acres of wetlands are needed for replacement (2.8 acres needed for options)
General Environmental Assessment	
Assessment of other environmental considerations	Corridor and option crosses stream to Allen Lake, crosses Laughing Jacobs Creek, parallels gas pipeline from SE24th St. to SE 32 nd St.
SOCIAL / LAND USE	
Number of parcels impacted	
Number of parcels impacted	55 parcels are impacted by corridor (62 parcels impacted with options)
Number of parcels impacted by more than 15%	9 parcels impacted by 15% or more (13 parcels impacted by 15% or more with options)
Safety	
Average speed along corridor	The average speed along alignment is 22.3 mph.
Number of intersections along alignment	There will be about 20 intersections along the corridor. (17 with options)
Percentage of the corridor with pedestrian facilities	The entire corridor will have sidewalks on both sides.
FINANCIAL/ECONOMIC	
Total Costs	
Planning level cost	\$22.2 million (\$29.8 million with options)
Property Values	
Assessment of factors affecting area property values	The change in the nature of the roadway facility will affect the rate of increase of property values depending on such variables as location, orientation, access, proximity and etc.
Potential for Developer Funded (Parcels in the City)	
Percentage along vacancy and/or undeveloped parcels	34% of corridor is adjacent to vacant or underdeveloped parcels (22% with options)

FIGURE 17 ALTERNATIVE 5 ANALYSIS SUMMARY



CRITERIA / MEASURE OF PERFORMANCE	ALTERNATIVE 5 ASSESSMENT
TRANSPORTATION	
Mobility (travel time/delay/congestion) Average travel time between NE 8 th St. to SE 32 nd St.	7.2 to 7.8 minutes depending on roadway used through southern segment of corridor
Connectivity/Access Average travel time between SE 8 th St./244 th Ave. SE &: Discovery Elementary School Inglewood Junior High School Fire Station #83 near Iss. Pine Lake Rd/SE 32 nd St. Fire Station #82 near 228 th Ave. NE/NE 18 th St.	3.8 minutes 5.4 minutes 8.8 minutes 8.9 minutes
Bike and Pedestrian Facilities Percentage of corridor with bike and pedestrian facilities Percentage of the corridor with bike lanes Percentage of the corridor with pedestrian facilities	The entire corridor will have bike lanes on both sides. The entire corridor will have sidewalks on both sides.
Corridor & Local Travel (ADT) 2022 Average Daily Traffic (ADT): 244 th Avenue SE (SE 8 th St. to SE 32 nd St.) 244 th Avenue SE (NE 8 th St. to SE 8 th St.) 244 th Avenue SE (SR 202 to NE 8 th St.) 228 th Avenue (NE 25 th St. to NE 8 th St.) 228 th Avenue (NE 8 th St. to SE 8 th St.) 228 th Avenue (SE 8 th St. to Issaquah Pine Lake Rd.) Issaquah Pine Lake Rd (228 th Ave. SE to SE 32 nd St.) SR 202 (244 th Ave. NE to Sahalee Way)	10,000 vehicles 12,100 vehicles 12,800 vehicles 20,000 vehicles 23,000 vehicles 25,800 vehicles 15,700 vehicles 13,700 vehicles
ENVIRONMENTAL	
Noise and Proximity Effects Number of identified noise receptors within 100 feet	39 houses are within 100 feet of the new roadway. (33 houses with options)
Wetland Areas Number of acres of wetlands impacted	8.5 acres of wetlands are needed for replacement (2.8 acres needed with options)
General Environmental Assessment Assessment of other environmental considerations	Corridor and option crosses stream to Allen Lake, extends along Woodbridge Creek, crosses laughing Jacobs Creek, crosses gas pipeline at 70° angle, parallels gas pipeline
SOCIAL / LAND USE	
Number of parcels impacted Number of parcels impacted Number of parcels impacted by more than 15%	83 parcels are impacted by corridor (87 parcels impacted with options) 19 parcels impacted by 15% or more (23 parcels impacted by 15% or more with options)
Safety Average speed along corridor Number of intersections along alignment Percentage of the corridor with pedestrian facilities	The average speed along alignment is 22.4 mph. There will be about 25 intersections along the corridor. (21 with options) The entire corridor will have sidewalks on both sides.
FINANCIAL/ECONOMIC	
Total Costs Planning level cost	\$32.2 million (\$36.3 million with options)
Property Values Assessment of factors affecting area property values	The change in the nature of the roadway facility will affect the rate of increase of property values depending on such variables as location, orientation, access, proximity and etc.
Potential for Developer Funded (Parcels in the City) Percentage along vacancy and/or undeveloped parcels	33% of corridor is adjacent to vacant or underdeveloped parcels (25% with options)

THIS PAGE LEFT BLANK

- 244th Avenue SE and SE Windsor Greens Boulevard
- SE 8th Street and 242nd Drive SE
- 244th Avenue SE and SE 24th Street
- 244th Avenue SE and SE 32nd Street

The results of this analysis indicated that all of these intersections are expected to operate at level of service “C” or better with afternoon (PM) peak hour traffic forecasted to the year 2022 for all of the alternatives.

➤ Environmental Findings

- ◆ Other environmental impacts that were considered in this conceptual analysis include stream crossings and utility impacts such as crossing the natural gas pipeline. No other identified sensitive environmental sites are affected by the alternatives. No known cultural or archaeological sites are within the corridor.

➤ Social / Land Use Findings

- ◆ The overall average speed along the various alternatives is very similar, ranging for 21.3 to 23.0 mph during the afternoon (PM) peak hour. This lower speed was due to the use of roundabouts, raised intersections, traffic circles, chicane, raised crosswalks/speed tables and other speed restrictions included in all alternatives.
- ◆ Sidewalks will be provided along both sides of the entire alignment for all alternatives to improve pedestrian safety.

➤ Financial / Economic Findings

- ◆ The conceptual level cost estimates for the various alternatives includes construction of the complete alternative with traffic calming features, construction engineering and inspection, right-of-way costs, estimates of identified environmental mitigation costs, engineering design and environmental analysis and documentation.
- ◆ For property values, the change in the nature of the roadway facility will affect the rate of increase of property values depending on such variables as location, orientation, access, proximity, etc.

The original alternative numbering system is maintained for consistency throughout this report. As previously discussed, Alternatives 1 and 7 were eliminated because they did not meet the purpose and need of the project.

ALTERNATIVE 2 ANALYSIS SUMMARY

Alternative 2 extends from NE 8th Street to SE 32nd Street along 244th Avenue and passes through the Renaissance Ridge and Ponderosa Trail neighborhoods. An illustration of this alternative and a summary of its impacts are shown on Figure 14 and discussed below:

- Transportation Findings
 - ◆ Travel along the new 2.7-mile corridor is expected to take about 7.6 minutes with an average speed of about 21.3 mph during the PM peak hour. Access to area schools, such as either Discovery Elementary School or Inglewood Junior High School, from the center of the corridor near SE 8th Street is expected to take about 4 to 6 minutes during the PM peak hour.
 - ◆ Access from area fire stations to the center of the corridor near SE 8th Street is expected to take about 8.6 to 9 minutes using average travel speeds during the PM peak hour.
 - ◆ Average 2022 traffic along the corridor would range from about 8,200 to 11,300 vehicles per day.
- Environmental Findings
 - ◆ As a measure of noise/proximity effects of this alternative's alignment, there are about 77 existing houses within 100 feet of the new roadway for the main and optional alignments. There are about 2.07 acres of identified Class 1 wetlands near Allen Lake that would be impacted by this alternative's alignment. To mitigate this area of Class 1 wetland, about 6.2 acres of new wetlands would be required in the same drainage area. The optional alignment would reduce these impacts to about 0.25 acres of identified Class 2 wetlands. To mitigate this area of Class 2 wetland, about 0.5 acres of new wetlands would be required in the same drainage area.
 - ◆ Other environmental impacts that need to be considered include a crossing of a stream channel to Allen Lake by both the main and optional alignments. This alternative would also require a wider crossing of Laughing Jacobs Creek near Beaver Lake Park and parallel the natural gas pipeline along 244th Avenue south of SE 24th Street.
- Social / Land Use Findings
 - ◆ At this conceptual level of detail, new right-of-way would be required from about 30 parcels along this alternative alignment. Using the optional alignment, the number of parcels impacted would increase to 34 parcels.
 - ◆ Of these parcels affected, 5 parcels would be impacted by 15 percent or more of their total area for this alternative. For the optional alignment, 7 parcels would be impacted by 15 percent or more.
 - ◆ The average speed along this alternative alignment would be slowed to about 21.3 mph because of the roundabouts, chicane, raised crosswalks/speed tables and other speed restrictions. This slower average speed than the design speed should improve safety.
 - ◆ About 23 cross streets are expected to interconnect with this alternative alignment. If the optional alignment was used, the number of cross streets would be reduced to 22.
- Financial / Economic Findings
 - ◆ The planning-level cost for this alternative is estimated at about \$19.7 million. The conceptual cost of the complete alternative using the optional alignment is about \$24.2 million.

- ◆ About 16 percent of the entire alternative is adjacent to vacant or underdeveloped parcels within the City limits, as documented in the City's Draft Comprehensive Plan. Only about 9 percent of the corridor is adjacent to vacant or underdeveloped parcels within the City limits with the optional alignment.

ALTERNATIVE 3 ANALYSIS SUMMARY

This alternative extends from NE 8th Street to SE 32nd Street along 244th Avenue in a general north/south alignment that bypasses the Windsor Greens, Wyndham Court, Renaissance Ridge and Ponderosa Trail neighborhoods. An illustration of this alternative and a summary of its impacts are shown on Figure 15 and discussed below:

- Transportation Findings
 - ◆ Travel along the new 2.6-mile corridor is expected to take about 7.2 minutes with an average speed of about 21.5 mph during the PM peak hour.
 - ◆ Access to area schools, such as either Discovery Elementary School or Inglewood Junior High School, from the center of the corridor near SE 8th Street is expected to take about 4 to 6 minutes using average travel speeds during the PM peak hour.
 - ◆ Access from area fire stations to the center of the corridor near SE 8th Street is expected to take about 9 minutes using average travel speeds during the PM peak hour.
 - ◆ Average 2022 traffic along the corridor would range from about 9,100 to 12,400 vehicles per day.
- Environmental Findings
 - ◆ As a measure of noise/proximity effects of this alternative's alignment, there are about 33 existing houses within 100 feet of the edge of the new roadway for both the main and optional alignments.
 - ◆ There are about 2.07 acres of identified Class 1 wetlands near Allen Lake and about 2.3 acres of potential wetlands between the Windsor Greens and Wyndham Court neighborhoods that would be impacted by this alternative's alignment. To mitigate these wetland areas, about 8.5 acres of new wetlands would be required in the same drainage area. The optional alignment would reduce these impacts to about 0.25 acres of identified Class 2 wetlands and about 2.3 acres of potential wetlands between the Windsor Greens and Wyndham Court neighborhoods. To mitigate these areas, about 2.8 acres of new wetlands would be required in the same drainage area.
 - ◆ Other environmental impacts that need to be considered include a crossing of a stream channel to Allen Lake by both the main and optional alignments. This alternative may impact the buffer area of Woodbridge Creek south of SE 20th Street, and would also require a wider crossing of Laughing Jacobs Creek near Beaver Lake Park. This alternative would cross the natural gas pipeline at about a 70-degree angle near SE 18th Street and parallel the gas pipeline along 244th Avenue south of SE 22nd Street. No other

identified sensitive environmental sites are affected by this alternative. No known cultural or archaeological sites are within the corridor.

➤ Social / Land Use Findings

- ◆ At this conceptual level of detail, new right-of-way would be required from about 51 parcels along this alternative alignment. Using the optional alignment, the number of parcels impacted would increase to 55 parcels.
- ◆ Of these parcels affected, 14 parcels would be impacted by 15 percent or more of their total area for this alternative. For the optional alignment, 16 parcels would be impacted by 15 percent or more.
- ◆ The average speed along this alternative alignment would be slowed to about 21.5 mph because of the roundabouts, chicane, raised crosswalks/speed tables and other speed restrictions. This slower average speed than the design speed should improve safety.
- ◆ About 17 cross streets are expected to interconnect with this alternative alignment. If the optional alignment was used, the number of cross streets would be reduced to 16.

➤ Financial / Economic Findings

- ◆ The planning-level cost for this alternative is estimated at about \$23.4 million. The conceptual cost of the complete alternative using the optional alignment is about \$27.7 million.
- ◆ About 24 percent of the entire alternative is adjacent to vacant or underdeveloped parcels within the City limits, as documented in the City's Draft Comprehensive Plan. Only about 15 percent of the corridor is adjacent to vacant or underdeveloped parcels within the City limits with the optional alignment.

ALTERNATIVE 4 ANALYSIS SUMMARY

This alternative extends from NE 8th Street to SE 32nd Street along 244th Avenue NE/SE and 248th Avenue SE and passes through the Windsor Greens neighborhood, the Coyote Country neighborhood and along the new Norris Estates development. An illustration of this alternative and a summary of its impacts are shown on Figure 16 and discussed below:

➤ Transportation Findings

- ◆ Travel along the new 2.9-mile corridor is expected to take about 7.8 minutes with an average speed of about 22.3 mph during the PM peak hour.
- ◆ Access to area schools, such as either Discovery Elementary School or Inglewood Junior High School, from the center of the corridor near SE 8th Street is expected to take about 6 minutes using average travel speeds during the PM peak hour.
- ◆ Access from area fire stations to the center of the corridor near SE 8th Street is expected to take about 9 to 10 minutes using average travel speeds during the PM peak hour.

- ◆ Average 2022 traffic along the corridor would range from about 5,700 to 11,300 vehicles per day.
- Environmental Findings
 - ◆ As a measure of noise/proximity effects of this alternative's alignment, there are about 35 existing houses within 100 feet of the edge of the new roadway. Along the corridor alignment with both optional segments, the number of existing houses within 100 feet of the edge of the new roadway would be reduced to 22 houses.
 - ◆ There are about 2.07 acres of identified Class 1 wetlands near Allen Lake. To mitigate these wetland areas, about 6.2 acres of new wetlands would be required in the same drainage area. The optional alignments would reduce these impacts to about 0.25 acres of identified Class 2 wetlands and about 2.3 acres of potential wetlands between the Windsor Greens and Wyndham Court neighborhoods. To mitigate these areas, about 2.8 acres of new wetlands would be required in the same drainage area.
 - ◆ Other environmental impacts that need to be considered include a crossing of a stream channel to Allen Lake by the main and optional alignment. This alternative would also require a wider crossing of Laughing Jacobs Creek near Beaver Lake Park. This alternative would parallel the gas pipeline along 244th Avenue south of SE 24th Street. No other identified sensitive environmental sites are affected by this alternative. No known cultural or archaeological sites are within the corridor.
- Social / Land Use Findings
 - ◆ At this conceptual level of detail, new right-of-way would be required from about 54 parcels along this alternative alignment. Using the optional alignments, the number of parcels impacted would increase to 61 parcels.
 - ◆ Of these parcels affected, 8 parcels would be impacted by 15 percent or more of their total area for this alternative. For the optional alignments, 12 parcels would be impacted by 15 percent or more.
 - ◆ The average speed along this alternative alignment would be slowed to about 22.3 mph because of the roundabouts, raised intersections, traffic circles, chicane, raised crosswalks/speed tables and other speed restrictions. This slower average speed than the design speed should improve safety.
 - ◆ About 20 cross streets are expected to interconnect with this alternative alignment. If the optional alignments were used, the number of cross streets would be reduced to 17.
- Financial / Economic Findings
 - ◆ The conceptual level cost for this alternative is estimated at about \$22.2 million. The conceptual cost of the complete alternative using both optional alignments is about \$29.8 million.
 - ◆ About 34 percent of the entire alternative is adjacent to vacant or underdeveloped parcels within the City limits, as documented in the City's Draft Comprehensive Plan. Only about 22 percent of the corridor is adjacent to vacant or underdeveloped parcels within the City limits with the optional alignments.

ALTERNATIVE 5 ANALYSIS SUMMARY

This alternative extends from NE 8th Street to SE 32nd Street and combines Alternatives 3 and 4 together. It provides two roadway legs between SE 8th Street and SE 24th Street with one leg following the 248th Avenue alignment through Windsor Greens neighborhood and along the Norris Estate development. The other roadway leg would follow a general 244th Avenue SE alignment around the west side of the Wyndham Court and east side of the Ponderosa Trail neighborhoods. An illustration of this alternative and a summary of its impacts are shown on Figure 17 and discussed below:

- Transportation Findings
 - ◆ Travel along the new 4-mile corridor is expected to take about 7.2 to 7.8 minutes depending on which leg is used.
 - ◆ Access to area schools, such as either Discovery Elementary School or Inglewood Junior High School, from the center of the corridor near SE 8th Street is expected to take about 4 to 5.6 minutes using average travel speeds during the PM peak hour.
 - ◆ Access from area fire stations to the center of the corridor near SE 8th Street is expected to take about 9 minutes using average travel speeds during the PM peak hour.
 - ◆ Average 2022 traffic along the corridor would range from about 10,000 to 12,100 vehicles per day with about 1,400 vehicles per day on the 248th Avenue SE leg and about 8,600 vehicles per day on the 244th Avenue SE leg.
- Environmental Findings
 - ◆ As a measure of noise/proximity effects of this alternative's alignment, there are about 39 existing houses within 100 feet of the edge of the new roadway. Along the optional corridor alignment, the number of existing houses within 100 feet of the edge of the new roadway would be reduced to 33 houses.
 - ◆ There are about 2.07 acres of identified Class 1 wetlands near Allen Lake and about 2.3 acres of potential wetlands between the Windsor Greens and Wyndham Court neighborhoods that would be impacted by this alternative's alignment. To mitigate these wetland areas, about 8.5 acres of new wetlands would be required in the same drainage area. The optional alignments would reduce these impacts to about 0.25 acres of identified Class 2 wetlands and about 2.3 acres of potential wetlands between the Windsor Greens and Wyndham Court neighborhoods. To mitigate these areas, about 2.8 acres of new wetlands would be required in the same drainage area.
 - ◆ Other environmental impacts that need to be considered include a crossing of a stream channel to Allen Lake by the main and optional alignment. This alternative may impact the buffer area of Woodbridge Creek south of SE 20th Street, and would also require a wider crossing of Laughing Jacobs Creek near Beaver Lake Park. The 244th Avenue leg of this alternative would cross the natural gas pipeline at about a 70 degree angle near SE 18th Street and parallel the gas pipeline along 244th Avenue south of SE 22nd Street. No

other identified sensitive environmental sites are affected by this alternative. No known cultural or archaeological sites are within the corridor.

- Social / Land Use Findings
 - ◆ At this conceptual level of detail, new right-of-way would be required from about 82 parcels along this alternative alignment. Using the optional alignments, the number of parcels impacted would increase to 86 parcels.
 - ◆ Of these parcels affected, 18 parcels would be impacted by 15 percent or more of their total area for this alternative. For the optional alignments, 22 parcels would be impacted by 15 percent or more.
 - ◆ The overall average speed along this alternative alignment would be slowed to about 22.4 mph because of the roundabouts, raised intersections, traffic circles, chicane, raised crosswalks/speed tables and other speed restrictions. This slower average speed than the design speed should improve safety.
 - ◆ About 26 cross streets are expected to interconnect with this alternative alignment. If the optional alignments were used, the number of cross streets would be reduced to 22.
- Financial / Economic Findings
 - ◆ The conceptual level cost for this alternative is estimated at about \$32.2 million. The conceptual cost of the complete alternative using both optional alignments is about \$36.3 million.
 - ◆ About 33 percent of the entire alternative is adjacent to vacant or underdeveloped parcels within the City limits, as documented in the City's Draft Comprehensive Plan. Only about 25 percent of the corridor is adjacent to vacant or underdeveloped parcels within the City limits with the optional alignments.

ALTERNATIVE 6 ANALYSIS SUMMARY

This alternative extends from NE 8th Street to SE 32nd Street along 244th Avenue and 248th Avenue SE with a loop roadway in the center of the corridor near SE 8th Street. The loop roadway connects Windsor Greens, Wyndham Court, and Renaissance Ridge neighborhoods with the Coyote County neighborhood. An illustration of this alternative and a summary of its impacts are shown on Figure 18 and discussed below:

- Transportation Findings
 - ◆ Travel along the new 3.7-mile corridor is expected to take about 7.8 to 8.2 minutes depending on which direction of the loop is used. The overall average speed of the entire alignment is about 23 mph during the PM peak hour.
 - ◆ Access to area schools, such as either Discovery Elementary School or Inglewood Junior High School, from the center of the corridor near SE 8th Street is expected to take about 5.5 minutes using average travel speeds during the PM peak hour.

- ◆ Access from area fire stations to the center of the corridor near SE 8th Street is expected to take about 8.8 to 9.4 minutes using average travel speeds during the PM peak hour.
- ◆ Average 2022 traffic along the corridor would range from about 6,400 to 10,000 vehicles per day. About 25 percent of the traffic through the central portion of the corridor would use the loop to 242nd Drive SE and about 75 percent of the traffic would use the Windsor Greens Boulevard direction.
- Environmental Findings
 - ◆ As a measure of noise/proximity effects of this alternative's alignment, there are about 64 existing houses within 100 feet of the edge of the new roadway. Along the optional corridor alignments, the number of existing houses within 100 feet of the edge of the new roadway would be reduced to 51 houses.
 - ◆ There are about 2.07 acres of identified Class 1 wetlands near Allen Lake that would be impacted by this alternative's alignment. To mitigate these wetland areas, about 6.2 acres of new wetlands would be required in the same drainage area. The optional alignments would reduce these impacts to about 0.25 acres of identified Class 2 wetlands and about 2.3 acres of potential wetlands between the Windsor Greens and Wyndham Court neighborhoods. To mitigate these areas, about 2.8 acres of new wetlands would be required in the same drainage area.
 - ◆ Other environmental impacts that need to be considered include a crossing of a stream channel to Allen Lake by the main and optional alignment. This alternative would also require a wider crossing of Laughing Jacobs Creek near Beaver Lake Park. This alternative would parallel the natural gas pipeline along 244th Avenue south of SE 24th Street. No other identified sensitive environmental sites are affected by this alternative. No cultural or archaeological known sites are within the corridor.
- Social / Land Use Findings
 - ◆ At this conceptual level of detail, new right-of-way would be required from about 66 parcels along this alternative alignment. Using the optional alignments, the number of parcels impacted would increase to 71 parcels.
 - ◆ Of these parcels affected, 10 parcels would be impacted by 15 percent or more of their total area for this alternative. For the optional alignments, 14 parcels would be impacted by 15 percent or more.
 - ◆ The average speed along this alternative alignment would be slowed to about 23 mph because of the roundabouts, raised intersections, traffic circles, chicane, raised crosswalks/speed tables and other speed restrictions. This slower average speed should improve safety.
 - ◆ About 26 cross streets are expected to interconnect with this alternative alignment. If the optional alignments were used, the number of cross streets would be reduced to 22.
- Financial / Economic Findings
 - ◆ The conceptual level cost for this alternative is estimated at about \$25.5 million. The conceptual cost of the complete alternative using both optional alignments is about \$31.4 million.

- ◆ About 41 percent of the entire alternative is adjacent to vacant or underdeveloped parcels within the City limits, as documented in the City's Draft Comprehensive Plan. About 30 percent of the entire corridor is adjacent to vacant or underdeveloped parcels within the City limits with the optional alignments.

EVALUATION OF CONCEPTUAL CORRIDOR ALTERNATIVES

No fatal flaws were identified in the preceding analysis of alternatives, thus all five conceptual alternatives were carried forward into the second evaluation step. This evaluation step involves the comparison of the various conceptual alternatives against each other to identify the most promising alternative(s) for more detailed engineering and environmental analysis and documentation. The information contained in Figures 14 through 18 is briefly summarized in Table 4 to more easily compare the impacts of the build alternatives.

The evaluation system previously outlined in this report was then used to rate each alternative. The results of this rating evaluation are summarized in Table 5. For those criteria where two ratings (●/●) are shown, the first rating is for the corridor alternative without options and the second rating is for the corridor alternative with the options. The ratings presented in Table 5 reflect the following ratings:

- best ● better ● good ○ fair ○ lowest

COMPARISON OF ALTERNATIVES BY EVALUATION CATEGORY

The following observations by evaluation category are made for the various alternatives without the options unless otherwise indicated. These observations are derived from a review of the information displayed in Tables 4 and 5 and previously in Figures 14 through 18:

- Transportation Category
 - ◆ All of the alternatives have very similar transportation impacts and are rated essentially the same.
 - ◆ Alternative 4 may have a slight edge because of its lower average daily traffic volume between SE 8th Street and SE 32nd Street.
 - ◆ Alternatives 2 and 6 are rated slightly better than Alternatives 3 and 5 due to their lower average daily traffic volume between SE 8th Street and SE 32nd Street.
- Environmental Category
 - ◆ Alternative 4 is best in this category because it has a relatively low potential noise impact, similar wetland impacts as compared to the other alternatives and good overall environmental impacts.
 - ◆ Alternative 2 is rated next because it has the least general environmental impact potential and similar wetland impacts as compared to the other alternatives. However, it has the highest potential noise impact.

Table 4: Summary of Impacts for the Conceptual Corridor Alternatives

CRITERIA / MEASURE OF PERFORMANCE	ALTERNATIVES				
	2	3	4	5	6
TRANSPORTATION					
Mobility (travel time/delay/congestion) in minutes					
Average travel time between NE 8 th St. to SE 32 nd St.	7.6	7.2	7.8	7.2-7.8	7.8-8.2
Connectivity/Access (expressed in minutes)					
Average travel time between SE 8 th St./244 th Ave. SE &:					
Discovery Elementary School	4.2	3.8	5.9	3.8	5.6
Inglewood Junior High School	6.1	5.6	5.4	5.4	5.4
Fire Station #83 near Iss. Pine Lake Rd/SE 32 nd St.	8.6	9.0	9.7	8.8	9.4
Fire Station #82 near 228 th Ave. NE/NE 18 th St.	9.0	8.9	9.0	8.9	8.8
Bike and Pedestrian Facilities					
Percentage of corridor with bike and pedestrian facilities					
Percentage of the corridor with bike lanes	100%	100%	100%	100%	100%
Percentage of the corridor with pedestrian facilities	100%	100%	100%	100%	100%
Corridor & Local Travel (daily traffic volume)					
2022 Average Daily Traffic (ADT):					
244 th Avenue SE (SE 8 th St. to SE 32 nd St.)	8,200	9,100	5,700	10,000	6,400
244 th Avenue SE (NE 8 th St. to SE 8 th St.)	11,300	12,400	11,300	12,100	10,000
244 th Avenue SE (SR 202 to NE 8 th St.)	12,400	12,800	12,100	12,800	12,000
228 th Avenue (NE 25 th St. to NE 8 th St.)	20,100	19,900	20,000	20,000	20,000
228 th Avenue (NE 8 th St. to SE 8 th St.)	23,500	22,600	22,800	23,000	23,900
228 th Avenue (SE 8 th St. to Issaquah Pine Lake Rd.)	26,900	26,100	28,400	25,800	27,900
Issaquah Pine Lake Rd (228 th Ave. SE to SE 32 nd St.)	16,200	15,800	17,300	15,700	16,900
SR 202 (244 th Ave. NE to Sahalee Way)	13,500	13,700	13,500	13,700	13,600
ENVIRONMENTAL					
Noise and Proximity Effects					
Number of identified noise receptors within 100 feet	77/77	33/33	35/22	39/33	64/51
Wetland Areas					
Number of acres of wetlands impacted	6.2/0.5	8.5/2.8	6.2/2.8	8.5/2.8	6.2/2.8
General Environmental Assessment					
Assessment of other environmental considerations	1 st	4 th	2 nd	5 th	3 rd
SOCIAL / LAND USE					
Number of parcels impacted					
Number of parcels impacted	30/34	51/55	54/61	82/86	66/71
Number of parcels impacted by more than 15%	5/7	14/16	8/12	18/22	10/14
Safety					
Average speed along corridor	21.3	21.5	22.3	22.4	23.0
Number of intersections along alignment	23/22	17/16	20/17	25/21	26/22
Percentage of the corridor with pedestrian facilities	100%	100%	100%	100%	100%
FINANCIAL/ECONOMIC					
Total Costs					
Planning level cost (expressed in millions of dollars)	19.7/24.2	23.4/27.7	22.2/29.8	32.2/36.3	25.5/31.4
Property Values					
Assessment of factors affecting area property values	good	good	good	good	good
Potential for Developer Funded (Parcels in the City)					
Percentage along vacancy and/or undeveloped parcels	16/9	24/15	34/22	33/25	41/30

Table 5: Evaluation Comparison of Conceptual Corridor Alternatives

CRITERIA / MEASURE OF PERFORMANCE	ALTERNATIVES				
	2	3	4	5	6
TRANSPORTATION					
Mobility (travel time/delay/congestion)					
Average travel time between NE 8 th St. to SE 32 nd St.	●	●	●	●	●
Connectivity/Access					
Average travel time between SE 8 th St./244 th Ave. SE &:					
Discovery Elementary School	●	●	●	●	●
Inglewood Junior High School	●	●	●	●	●
Fire Station #83 near Iss. Pine Lake Rd/SE 32 nd St.	●	●	●	●	●
Fire Station #82 near 228 th Ave. NE/NE 18 th St.	●	●	●	●	●
Bike and Pedestrian Facilities					
Percentage of corridor with bike and pedestrian facilities					
Percentage of the corridor with bike lanes	●/●	●/●	●/●	●/●	●/●
Percentage of the corridor with pedestrian facilities	●/●	●/●	●/●	●/●	●/●
Corridor & Local Travel					
2022 Average Daily Traffic (ADT):					
244 th Avenue SE (SE 8 th St. to SE 32 nd St.)	●	●	●	●	●
244 th Avenue SE (NE 8 th St. to SE 8 th St.)	●	●	●	●	●
244 th Avenue SE (SR 202 to NE 8 th St.)	●	●	●	●	●
228 th Avenue (NE 25 th St. to NE 8 th St.)	●	●	●	●	●
228 th Avenue (NE 8 th St. to SE 8 th St.)	●	●	●	●	●
228 th Avenue (SE 8 th St. to Issaquah Pine Lake Rd.)	●	●	●	●	●
Issaquah Pine Lake Rd (228 th Ave. SE to SE 32 nd St.)	●	●	●	●	●
SR 202 (244 th Ave. NE to Sahalee Way)	●	●	●	●	●
ENVIRONMENTAL					
Noise and Proximity Effects					
Number of identified noise receptors within 100 feet	○/○	●/●	●/●	●/●	○/○
Wetland Areas					
Number of acres of wetlands impacted	○/●	○/●	○/●	○/●	○/●
General Environmental Assessment					
Assessment of other environmental considerations	●	○	●	○	○
SOCIAL / LAND USE					
Number of parcels impacted					
Number of parcels impacted	●/●	○/○	○/○	○/○	○/○
Number of parcels impacted by more than 15%	●/●	○/○	●/●	○/○	●/●
Safety					
Average speed along corridor	●	●	●	●	●
Number of intersections along alignment	○/○	●/●	○/○	○/○	○/○
Percentage of the corridor with pedestrian facilities	●/●	●/●	●/●	●/●	●/●
FINANCIAL/ECONOMIC					
Total Costs					
Planning level cost	●/●	●/○	●/○	○/○	○/○
Property Values					
Assessment of factors affecting area property values	●	●	●	●	●
Potential for Developer Funded (Parcels in the City)					
Percentage along vacancy and/or undeveloped parcels	○/○	○/○	●/○	●/○	●/○

- ◆ Alternatives 3 and 6 are rated after Alternative 2 and slightly ahead of Alternative 5. Alternative 6 has better general environmental rating but Alternative 3 has a lower noise impact potential.
- ◆ If the optional alignments were considered, the rankings described above would be the same, with Alternative 4 being best and Alternative 2 being the second best.
- Social/Land Use Category
 - ◆ Alternative 2 is rated best in this category because of its lower property impacts and average safety potential.
 - ◆ Alternative 4 is rated next and slightly ahead of Alternative 3 because of its overall lower impact on adjacent property. Alternatives 3 and 4 have comparable safety impacts.
 - ◆ Alternative 6 is rated after Alternative 3 and better than Alternative 5 because of its lower impact on adjacent property.
- Financial/Economic Category
 - ◆ Alternatives 4 and 6 are rated best in this category because of their relatively modest costs and high development funding potential. Alternative 4 has the second lowest cost but the second highest developer funding potential; whereas, Alternative 6 has a higher cost with the best developer funding potential.
 - ◆ Alternatives 2 and 3 are rated next in this category because of their relatively lower costs with low developer funding potential. Alternative 2 has the lowest cost but it also has the lowest development funding potential. Alternative 3 has a slightly higher cost with only a slightly better developer funding potential.
 - ◆ Alternative 5 is rated last because it has the highest costs and similar developer funding potential as compared to Alternative 4.

EVALUATION FINDINGS

The following evaluation findings by alternative are summarized from a review of the information displayed in Table 4 and previously in Figures 14 through 18:

- General Findings
 - ◆ All alternatives have similar transportation impacts, particularly for the mobility, connectivity/access and bike/pedestrian criteria.
 - ◆ All alternatives provide reasonable safety because of relatively low average travel speeds and the inclusion of separate pedestrian and bicycle facilities and traffic calming features.
 - ◆ Consideration should be given to changing the roadway classification along Segment 2 from SE 8th Street to SE 32nd Street from a minor arterial to a collector roadway because of the relatively low average travel speeds and the type of traffic calming features.
 - ◆ All alternatives are assumed to have the same impact with regard to the rate of property value growth.

- ◆ The alternatives with all optional alignments will cost 24 to 85 percent more than the lowest cost alternative.
- Alternative 2
 - ◆ Has the same general transportation impacts as the other alternatives with the third lowest daily traffic volume between SE 8th Street and SE 32nd Street.
 - ◆ Has the highest potential noise impact, similar wetland impact as Alternatives 4 and 6 and the best potential to minimize other environmental impacts. The wetland impact could be reduced to be similar to the other alternatives by using the northern optional alignment.
 - ◆ Potentially requires right-of-way from the fewest number of parcels. It has a relatively lower average travel speed and a lower safety potential because of the relatively higher number of existing intersections.
 - ◆ Has the lowest estimated capital cost and the lowest potential to fund the construction with development fees.
- Alternative 3
 - ◆ Has the same general transportation impacts as the other alternatives with a higher daily traffic volume between SE 8th Street and SE 32nd Street than Alternatives 2, 4 and 6.
 - ◆ Has the lowest potential noise impact, the highest potential wetland impact (along with Alternative 5) and the second highest potential for other environmental impacts. The wetland impact could be reduced to be similar to the other alternatives by using the northern optional alignment.
 - ◆ Potentially requires right-of-way from the second lowest number of parcels but potentially requires significant right-of-way takes from the second highest number of parcels. It has a relatively lower average travel speed, and the best safety potential.
 - ◆ Has the third lowest cost of the main alternative concepts (about 19 percent higher than Alternative 2) and the second lowest potential to fund the construction with development fees.
- Alternative 4
 - ◆ Has the same general transportation impacts as the other alternatives with the lowest daily traffic volume between SE 8th Street and SE 32nd Street than Alternatives 2, 4 and 6.
 - ◆ Has similar potential noise impact as Alternative 3, similar wetland impact as Alternatives 2 and 6 and the second lowest potential for other environmental impacts. With the northern optional alignment, the wetland impact could be reduced to be similar to the other alternatives.
 - ◆ Potentially requires right-of-way from slightly more parcels than Alternative 3, but has potentially significant right-of-way takes from the second lowest number of parcels. It has a relatively low average travel speed, and a good safety potential.

- ◆ Has the second lowest cost of the main alternative concepts (about 13 percent higher than Alternative 2) and the second highest potential to fund the construction with development fees.
- Alternative 5
 - ◆ Has the same general transportation impacts as the other alternatives with the highest daily traffic volume between SE 8th Street and SE 32nd Street, however some of the traffic is separated on the two roadways between SE 24th Street and SE 8th Street.
 - ◆ Has slightly higher potential noise impact than Alternatives 3 and 4, the highest potential wetland impact along with Alternative 3 and the highest potential for other environmental impacts. With the northern optional alignment, the wetland impact could be reduced to be similar to the other alternatives.
 - ◆ Potentially requires right-of-way from the highest number of parcels and includes the highest number of significant right-of-way takes. It has a relatively low average travel speed, and a slightly lower safety potential than Alternatives 2, 3 and 4 because of the higher number of existing cross streets along the alignment.
 - ◆ Has the highest estimated capital cost of the main alternative concepts (about 63 percent higher than Alternative 2) with similar potential to fund the construction with development fees as compared to Alternative 4.
- Alternative 6
 - ◆ Has the same general transportation impacts as the other alternatives with the second lowest daily traffic volume between SE 8th Street and SE 32nd Street.
 - ◆ Has the second highest potential noise impact, similar wetland impact as Alternatives 2 and 4 and the third lowest potential for other environmental impacts. With the northern optional alignment, the wetland impact can be reduced to be similar to the other alternatives.
 - ◆ Potentially requires right-of-way from the second highest number of parcels and includes the third lowest number of significant right-of-way takes. It has a relatively low average travel speed, and the lowest safety potential because of the highest number of existing cross streets along the alignment.
 - ◆ Has the second highest cost of the main alternative concepts (about 29 percent higher than Alternative 2) with the best potential to fund the construction with development fees.

Based on these evaluation findings and other information presented in this report, as well as community comments previously posted on the City's Web site, and comments sent directly to City staff and individual council members, the City Council will select the most promising alternative(s) for more detailed engineering and environmental analysis.

PROJECT NEXT STEPS

After the Sammamish City Council has selected the most promising corridor alternative(s), there are two questions that need to be answered:

- What environmental process should be followed in the next step of the project?
- Does the entire corridor from NE 8th Street to SE 32nd Street need to be analyzed as part of the environmental requirements or can it be developed as independent projects?

ENVIRONMENTAL PROCESS

The National Environmental Protection Act (NEPA) and the State Environmental Protection Act (SEPA) processes and regulations were reviewed. Based on these reviews, a list of pros and cons associated with both the NEPA and SEPA environmental documentation options as they relate to the East Sammamish/244th Corridor project was developed.

- **NEPA Environmental Assessment (EA) or Environmental Impact Statement (EIS)**
 - ◆ Pros
 - NEPA positions the City for possible FHWA funds.
 - The EA is complete for the U.S. Army Corps of Engineers (Corps) 404 permit (wetlands).
 - ◆ Cons
 - NEPA entails a longer, more expensive process than SEPA alone.
 - The coordination is more complex.
 - There is no guarantee of FHWA funding.
 - Possible corridor study for FHWA may be needed.
 - FHWA/WSDOT coordination will be required.
- **SEPA EIS**
 - ◆ Pros
 - SEPA is a shorter process; potentially a faster schedule to the design of the project.
 - The process is easier to understand and has potentially less complex coordination issues.
 - A feasibility analysis is not required as a separate activity or report. (There is still a need to demonstrate that reasonable alternatives were considered in the EIS.)
 - The environmental analysis is project-specific.
 - A corridor analysis is not required; there would be no corridor hearing.
 - Technical appendices are only required for major elements of the environment that could be significantly affected.
 - No FHWA/WSDOT coordination is required.

◆ Cons

- Does not fulfill requirements for federal funding
- If federal funds were needed later, a NEPA document would need to be prepared.
- If a Corps individual permit for wetlands impact is required for Clean Water Act Section 404 compliance, a NEPA EA will be necessary.

The decision on which course of action to take ultimately falls to the City of Sammamish. If no federal funding is needed or anticipated, a NEPA document will not be required at this time, and the City can prepare SEPA documentation. If federal funding is planned, the City must coordinate with FHWA/WSDOT or any other funding agency to prepare a NEPA or combination NEPA/SEPA document. (If a Corps individual permit for wetlands impact is required for Clean Water Act Section 404 compliance, a NEPA EA will be necessary, but that could be prepared by the Corps and would not have the FHWA/WSDOT as the lead agency.)

The principal reason to pursue the NEPA approach (EA) is to position the City for FHWA funding. This approach is more complex and expensive than SEPA. NEPA complexity is due to frequent and multiple agency contacts and coordination.

In either environmental approach, work would be required to secure a Corps 404 permit because of wetland impacts. Since the Corps requires alternative alignments that consider costs, logistics, and technology to reduce impacts on wetlands, a feasibility analysis would be the logical place to address the East Sammamish/244th Corridor alternatives. If produced, we recommend calling it a feasibility study. The Corps has a specific understanding and definition of an alternatives analysis for a 404 permit.

Under NEPA, WSDOT's involvement would occur as the local representative of FHWA. Under SEPA, WSDOT's involvement would most likely be limited to agency review status (if that; if no state involvement is needed, then WSDOT would not be involved).

Under SEPA, a federal nexus would still occur because of wetland impacts. To streamline the process and hopefully gain Corps support, we recommend meeting with the Corps early in the development of the EIS. The Corps would prepare a separate NEPA EA for wetland impacts. (The City could prepare it with the Corps guidance to expedite the process.)

In conclusion, the SEPA process is simpler overall than NEPA and generally faster. The City's decision comes down to one point: does the City want or anticipate some federal funding or not? As long as the City does not need federal funding, there is no reason to move through the NEPA process at this time.

PROJECT IMPLEMENTATION

The corridor can be implemented as separate projects or in phases of a single project. The primary difference in the way NEPA looks at the project implementation has to do with timing and project interdependence. If the entire project does not need to be constructed to justify the various pieces of the project and the timing of the construction is not closely spaced, then they can be considered separate projects. If the corridor segments are closely linked and will be constructed sequentially as one large project, then they will be considered phases.

Separate Projects: Implementation of a segment can be a separate project under SEPA. The proposal must demonstrate it could proceed independent from other segment(s) in terms of timing (i.e. it would not need to be implemented simultaneously with other segments or projects). It also cannot be an interdependent part of a larger proposal and does not depend on the larger proposal for its justification or implementation. (See WAC 197-11-060 (3) (b) for more information.)

From a NEPA perspective, the City may define any piece or segment of the corridor as an independent project, as long as that piece or segment satisfies the following three FHWA criteria and has a strong Purpose & Need statement.

1. Connect logical termini - be of sufficient length to address environmental matters on a broad scope.
2. Have independent utility or independent significance - be useful even if no other projects are built.
3. Not restrict consideration of alternatives for other reasonable transportation improvements.

As long as a project meets these three criteria, then FHWA funding is possible under NEPA.

Project Phasing: The project can be phased using either SEPA or NEPA. However, both processes require the identification and definition of the entire corridor.

The SEPA Rules allow a proposal to be phased so that SEPA compliance can be done for each phase. Phased review allows agencies and the public to focus on issues that are ready for decision and excludes from consideration issues already decided or not yet read. (see WAC 197-11-060(5)(b) for more information)

The sequence of phased review of a project must be from a broad scope to a narrow scope. Phased review is not appropriate when it would merely divide a project to avoid consideration of cumulative impacts or alternatives. The “broad to narrow” restriction of phased environmental review does not apply to planning proposals done under the Growth Management Act.

Whenever phased review is used, the SEPA document must clearly state that the proposal is being phased. Future environmental documents should identify previous documents and should focus on those issues not adequately addressed in the previous documents.

In other words, the entire corridor would have a SEPA EIS prepared at a programmatic level. Project specific information would be provided only for the part of the project that is going to be built initially. Obviously, there is a time limit on the usefulness and accuracy of the data prepared. So, if the next phase of a project is delayed, the environmental process may be required to begin anew.

Phasing a project under NEPA requires the identification of logical termini as well as a strong purpose and need statement. NEPA also addresses additional areas of the environment that SEPA does not; environmental justice, 4(f) impacts, Historic/Archaeological, ESA, etc.

Again, the entire corridor would need to be addressed under a NEPA EA, even though only one segment of the corridor would be built. The EA could be packaged similarly to the SEPA EIS, but with additional elements required plus additional review/production activities.

Whether the City chooses to prepare a SEPA or NEPA document for the corridor and alternatives which have been studied, the entire corridor would need to be addressed in the environmental analysis – programmatic or project specific if the project is constructed in phases.

Summary: In summation, the project can be constructed as one large project or phases of one project or can be considered as separate projects. Since the construction of the northern or southern segment is not dependent of each other and the timing between the construction of the segments is undetermined, the City should consider them as separate project and follow the appropriate environmental procedure.

BIBLIOGRAPHY

- Bishop, Tom. November 5, 2002. Routing Director, Lake Washington School District Number 414. Personal communication.
- Brock, Beth. October 30, 2002. Dispatch/Routing. Lake Washington School District Number 414. Personal communication.
- Brown, E. R. 1985. *Management of Wildlife and Fish Habitats in Forests of Western Oregon and Washington*. USDA Forest Service, PNW Region, Publication No. R6-F&WL-192-1985. Portland, Oregon.
- Cole, Steve. Facility Planner, Lake Washington School District Number 414, pers. comm., October 30, 2002
- Hitchcock, C. L., and A. Cronquist. 1976. *Flora of the Pacific Northwest*. University of Washington Press, Seattle, Washington.
- King County 2002. Known Freshwater Distribution of Chinook Salmon for Water Resource Inventory Area (WRIA) 8. URL: <http://dnr.metrokc.gov/WRIAS/8/chindist/distmap.htm>. (Visited October 2002).
- Mai, Jennifer. November 7, 2002. Right-of-Way Specialist, Puget Sound Energy. Personal communication.
- Murphy, John. November 6, 2002. Deputy Chief, Eastside Fire and Rescue. Personal communication.
- Nilsen, Cathy. November 5, 2002 Routing Specialist. Issaquah School District Number 411 Personal communication
- Olson, Casey. November 6, 2002. Municipal Engineer, Puget Sound Energy. Personal communication.
- Pingrey, Dan. October 31, 2002. Assistant Chief, King County Sheriff's Department. Personal communication.
- Regenstreif, Jay. November 5, 2002. Planning Engineer, Sammamish Plateau Water and Sewer District. Personal communication.
- Sammamish, City of. 2001. *Stormwater Management Plan*. Prepared by CH2M Hill, Sammamish, Wash.
- Sammamish, City of. 2002. *Draft Comprehensive Plan*. City Planning Advisory Board, Sammamish, Wash.
- Snyder, D. E., P. S. Gale, and R. F. Pringle. 1973. *Soil Survey King County Area, Washington*. United States Dept. of Agriculture, Soil Conservation Service.
- Washington Department of Ecology. 2003. *The 303(d) List of Impaired and Threatened Waterbodies*. Water Quality Program. <http://www.ecy.wa.gov/programs/wq/303d/1998/1998-index.html> (visited February 2003).