SAMMAMISH TOWN CENTER SUB-AREA PLAN

Final Environmental Impact Statement

October 2, 2007

City of Sammamish
801 228th Ave SE
Sammamish, WA 98075

City of Sammamish Washington
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October 2, 2007

Dear Reader:

I'm pleased to issue this Final Environmental Impact Statement (FEIS) for the Sammamish Town Center Plan in accordance with the Washington State Environmental Policy Act (SEPA).

In January 2007, we published the Draft Environmental Impact Statement (DEIS) that analyzed the potential environmental impacts of four Town Center alternatives (three action alternatives and a No-Action Alternative). After publication, comments on the DEIS were accepted during a 60-day comment period. In April, 2007 the Sammamish City Council adopted a "hybrid" Preferred Alternative for the Town Center incorporating selected elements of the three action alternatives considered in the DEIS.

The Preferred Alternative resolution included a conceptual land use plan for the Town Center and directed the further development of a Draft Town Center Plan. The Town Center is proposed to accommodate up to 2,000 new housing units and up to 400,000 square feet of office and retail space in a pedestrian-oriented, mixed-use neighborhood featuring a network of parks, open space, and trails.

The DEIS and FEIS provide a non-project, programmatic level of analysis of potential impacts likely to result from the proposed land use plan, policies, and action items included in the Preferred Alternative and Draft Town Center Plan. The FEIS does not reprint the text of the DEIS, but includes the following elements: (1) An updated Summary (Chapter 1); (2) A description of the Preferred Alternative (Chapter 2); (3) An evaluation of potential impacts of the Preferred Alternative (Chapter 3); and (4) Responses to comments on the DEIS (Chapter 4).

The City has used an integrated SEPA/GMA process that is encouraged by SEPA guidelines and allows mitigation to be incorporated into the Plan on a system-wide basis. The result is a Draft Town Center Plan that comprehensively identifies needed mitigation and infrastructure improvements and preserves natural resources as key plan features.

Thank you for your continued involvement in the planning process. We encourage you to participate during the review and adoption of the Town Center Sub-area Plan.

Sincerely,

Kamuron Gurol
Director of Community Development

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Project Title

City of Sammamish Town Center Sub-Area Plan

Proposed Action and Alternatives

Proposed Action

The proposed action (or proposal) is the adoption of a sub-area plan for the Sammamish Town Center (Draft Town Center Plan). The Sammamish Draft Town Center Plan is the articulation of the City's vision for the Town Center. It incorporates elements such as land use, environmental management, open space, transportation, capital facilities, urban design, and implementation.

The sub-area plan will be incorporated into the City of Sammamish Comprehensive Plan. Other subsequent actions may include amendments to the City's Transportation Improvement Plan and Capital Improvement Program and adoption of land use regulations and development guidelines.

Location

The Town Center planning area is located on the Sammamish Plateau in the center of the City of Sammamish. It is generally bounded on the north by E Main Street; on the east by 232nd Avenue SE; on the south by SE 8th Street; and on the west by 222nd Place SE.

Alternatives

A Draft Environmental Impact Statement (EIS), published January 31, 2007, considered four programmatic alternative development scenarios for the Town Center, three action alternatives and a no-action alternative. The three action alternatives each had a specific focus based on land use emphasis:

- Alternative 1 - Commercial Focus
- Alternative 2 - Low-intensity
- Alternative 3 - Civic Focus

The No-Action Alternative assumed that the Town Center would develop according to the current Comprehensive Plan land use designations. This would result in a town center area land use pattern featuring existing institutional uses and low-density single-family development.

A Preferred Alternative was developed as a "hybrid" of the three Draft EIS action alternatives, and was approved by the City Council on April 17, 2007. The Council further directed staff to develop a Draft Town Center Plan based on the Preferred Alternative's development assumptions, conceptual site plan, and guiding policies. This programmatic Final Environmental

Impact Statement evaluates the Preferred Alternative as it is reflected in the Draft Town Center Plan.

Proponent

City of Sammamish

Date of Implementation

Spring 2008, Adoption by City Council.

Lead Agency

City of Sammamish
801 228th Ave SE
Sammamish, WA 98075

Responsible Official/Contact Person

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This programmatic Final Environmental Impact Statement for the City of Sammamish Town Center Sub-area Plan has been prepared under the direction of the City of Sammamish Community Development Department. Research, analysis, and document preparation were provided by the following firms:

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Permits and Approvals Required

- City Council adoption of the Sub-Area Plan by way of ordinance or resolution, as appropriate.
- Review by the Washington State Department of Community Trade and Economic Development (CTED).

Date of Final EIS Issuance

October 2, 2007

Cost/Availability of Final EIS

This Final EIS and Draft EIS are available for viewing at Sammamish City Hall, located at 801 228th Ave SE and the Sammamish Library, located at 825 228th Avenue NE. Both Final and Draft EIS is posted on the City's website at: www.ci.sammamish.wa.us. Copies are available for purchase at City Hall in hard copy or CD (pdf format). For more information please contact Asea Sandine at (425) 295-0557.

Previous Environmental Documents

- Draft EIS prepared for the Sammamish Town Center Sub-area Plan (2007).
- Final Supplemental EIS for the City of Sammamish Final Comprehensive Plan (2003).

Location of Background Information

City of Sammamish, Department of Community Development. See lead agency above.

Chapter 1 Summary

1.1 Introduction

The City of Sammamish proposes to amend its comprehensive plan to include a sub-area plan for the City's Town Center in accordance with State laws, regional policies, the City's Comprehensive Plan, and Council and community vision. The purpose of the programmatic Final EIS is to:

1. Provide a programmatic evaluation of potential impacts likely to result from adoption of the Town Center Plan as a sub-area plan in the Comprehensive Plan; and to

2. Consider and respond to comments on the Draft EIS issued January 31, 2007.

After consideration of four Town Center Plan alternatives in the Draft EIS, the Sammamish City Council adopted a Preferred Alternative by resolution (No. R2007-271). The resolution guides the further development of the Town Center Plan. The Council provided a more detailed vision, recommended policies, and included a conceptual map for the Town Center. Based on the guidance in the resolution, a Draft Town Center Plan was developed. The substantive components of the Draft Town Center Plan include recommended policies, a conceptual land use plan, and implementing strategies. The Final EIS evaluates the Preferred Alternative as described in the Draft Town Center Plan.

The City Council will consider the Final EIS conclusions, along with other sources of information and public input, in making its final decision on adoption of a Town Center plan as a sub-area plan of the City's Comprehensive Plan.

1.2 Organization of Document

Chapter 1 of this programmatic Final EIS summarizes the Sammamish Town Center proposal, purpose, objectives, and SEPA process. It also contains a brief summary of the Town Center Plan alternatives; including the four Draft EIS alternatives and the Preferred Alternative. Lastly, Chapter 1 provides a matrix-level overview of the impacts and mitigation measures included in the analysis of the Preferred Alternative.

Chapter 2 provides a description of the Preferred Alternative as expressed in the Draft Town Center Plan. Chapter 3 contains an analysis of potential environmental impacts and mitigation measures associated with the Preferred Alternative. The Final EIS evaluation of the Preferred Alternative relies heavily on information gathered and presented in the Draft EIS and for that reason the Final EIS should be accompanied by the Draft EIS.

Chapter 4 includes comment letters received during the Draft EIS comment period. The comment letters are reprinted with reference to corresponding responses. The comments cover a range of topics. The responses to these comments provide corrections to the Draft EIS, reference

new material in the Final EIS, or reference other Town Center planning documents. Several documents related to the evaluation of the Preferred Alternative and corrections to the Draft EIS are also provided as appendices.

The Final EIS does not include a separate reference chapter. For references cited in the Final EIS that were also cited in the Draft EIS refer to Draft EIS Reference Chapter (DEIS Chapter 11). References that are cited in the Final EIS that were not included in the Draft EIS are provided as footnotes in the Final EIS.

1.3 Proposed Action and Site Location

1.3.1 Proposed Action

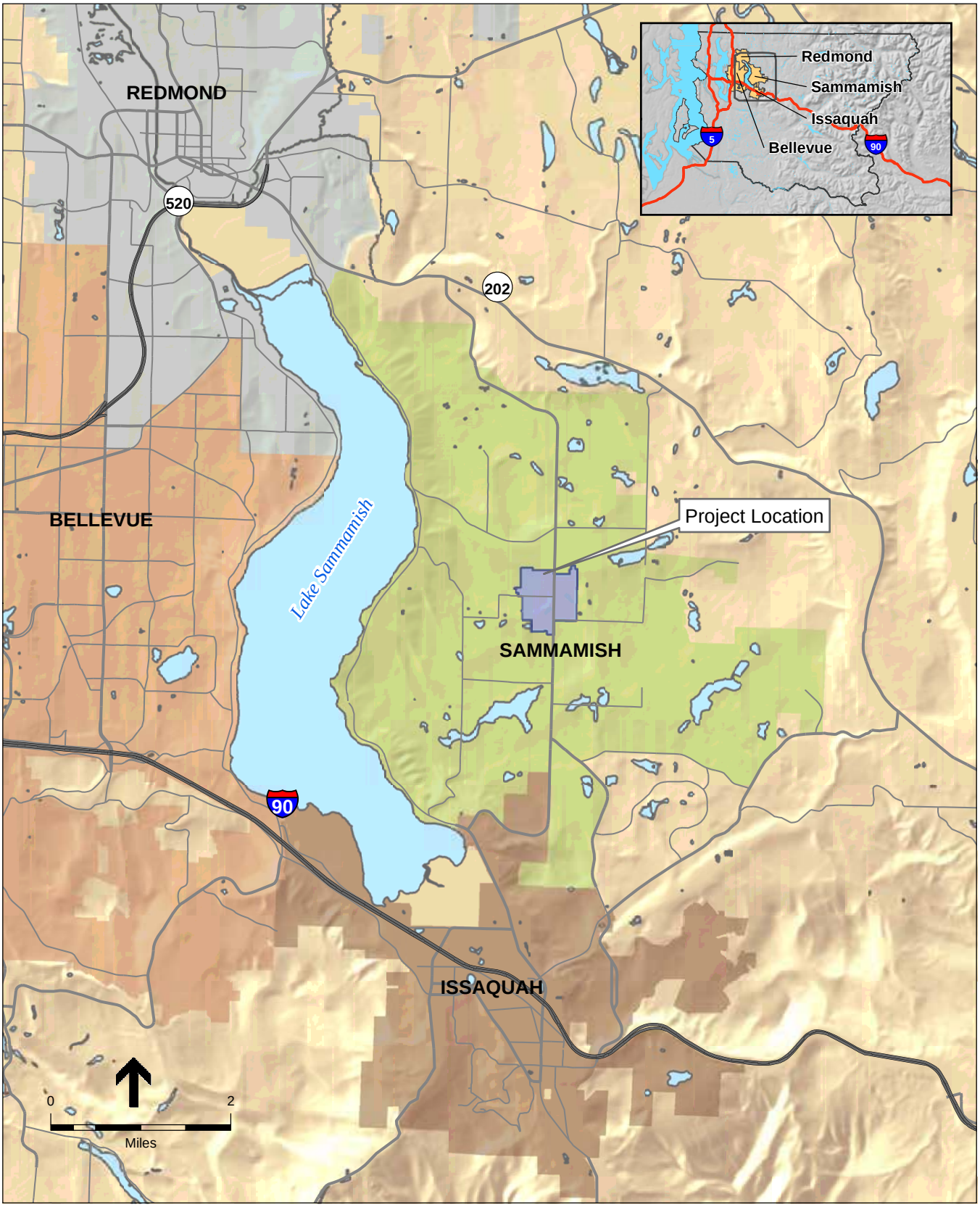
The proposed action (or proposal) is the adoption of a sub-area plan for the Sammamish Town Center (Town Center Plan). The Sammamish Town Center Plan is the articulation of the City's vision for the Town Center. It incorporates elements such as land use, environmental management, open space, transportation, capital facilities, urban design, and implementation.

The Town Center Sub-area plan will be incorporated into the City of Sammamish Comprehensive Plan. Other subsequent actions may include amendments to the City's Transportation Improvement Plan and Capital Improvement Program and adoption of land use regulations and development guidelines.

1.3.2 Site Location

The Town Center planning area is located on the Sammamish Plateau in the center of the city of Sammamish (Figure 1-1). The planning area is approximately 243 acres in size, bordered roughly on the north by E Main Street; on the east by 232nd Avenue SE; on the south by SE 8th Street; and on the west by 222nd Place SE. The intersection of SE 4th Street and 228th Avenue SE is likely to be the central node of the Town Center (Figure 1-2). Approximately 60 acres of the site has been identified as wetlands, wetland buffers, or stream buffers as defined by the City's Critical Areas Ordinance (Sammamish Municipal Code [SMC] 21A.50). In addition, approximately 30 acres of the site is currently being developed as the Sammamish Commons. This leaves approximately 160 acres of developable land (including current institutional uses that are unlikely to redevelop into other uses).

For the purpose of this analysis the Town Center planning area has been divided into four smaller areas which are referred to as the Northwest (NW), Northeast (NE), Southwest (SW), and Southeast (SE) quadrants. The four quadrants are defined roughly by 228th Avenue SE and SE 4th Street (Figure 1-2).



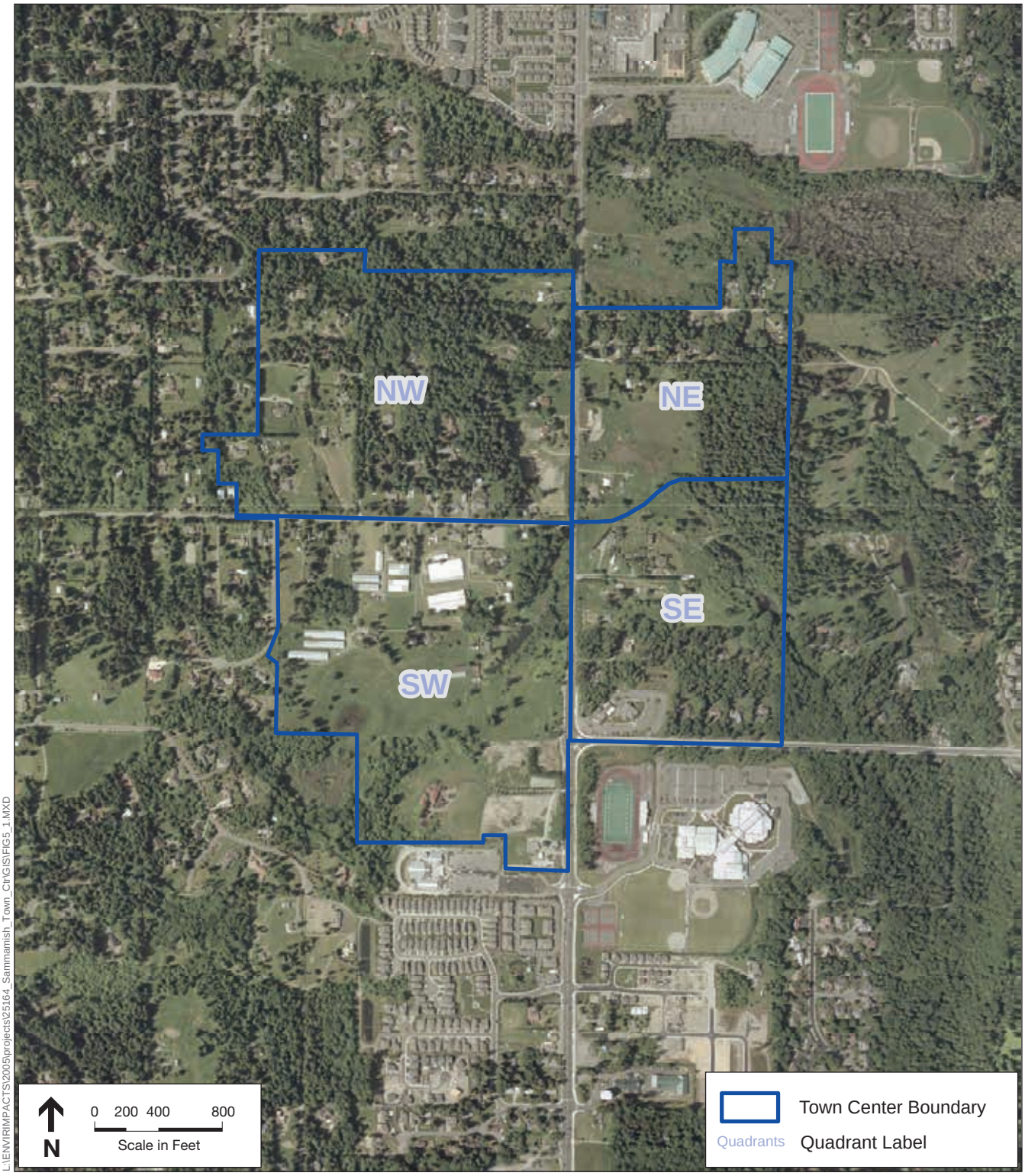
SOURCE: ESA Adolfson

Sammamish Town Center Sub-Area Plan FEIS . 205164

Figure 1-1

Project Location Map

Sammamish, Washington



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Sammamish Town Center Sub-Area Plan FEIS . 205164

Figure 1-2

Town Center Vicinity Map

Sammamish, Washington

1.4 Purpose and Objectives

1.4.1 Purpose of the Proposal

The purpose of the proposed Town Center Sub-area Plan is to implement the directives contained in the City's Comprehensive Plan (adopted by the City Council in 2003 [Ordinance No. 2003-130]). The Comprehensive Plan set forth a goal to "establish three designated community centers, including the existing centers at Inglewood Center, Pine Lake Village, and the planned City Hall/Park project, to host a diversity of high quality places to live, work, shop, and recreate" (LUG-2).

The City's Comprehensive Plan further provides that "following adoption of the Sammamish Commons Master Plan, the City shall initiate a sub-area planning process for properties in the vicinity of 228th Avenue that may be affected by the Sammamish Commons. This sub-area plan may include potential zoning changes and other recommendations to promote more compatible land uses and to minimize potential adverse impacts on adjoining properties" (LUP 2.2(d)).

1.4.2 Objectives of the Proposal

In accordance with the goals and policies established in the Comprehensive Plan, the City Council's Vision Statement, and the Preferred Alternative, the Town Center Sub-area Plan will emphasize four major objectives:

1. Accommodate an appropriate share of urban growth;
2. Preserve open spaces and habitat areas;
3. Provide employment and commercial opportunities in proximity to new housing; and
4. Provide adequate public facilities and services.

1.5 SEPA Process and Environmental Review

The State Environmental Policy Act (SEPA) (RCW 43.21C) requires that governments consider the environmental consequences of actions they take and, where possible, attempt to find alternative means to accomplish their goals with lower environmental impacts. A Draft EIS was published on January 31, 2007 that considered four Town Center land use scenarios and provided comparisons to help decision makers and the community understand the potential environmental impacts that would likely result from each of those alternatives. This Final EIS adds to that analysis by evaluating the potential environmental impacts of the Preferred Alternative. This environmental assessment is one of many considerations that will be used to develop a Final Sammamish Town Center Plan.

The adoption of a sub-area plan is classified by SEPA as a non-project (or programmatic) action. Non-project actions are actions, such as plans, policies, and programs, which are different or broader than single site-specific projects (WAC 197-11-774). An EIS for a non-project action does not require site-specific analyses. Rather, the EIS discusses impacts and alternatives

appropriate to the scope of the non-project proposal and the level of planning for the proposal (WAC 197-11-442). Projects constructed or expanded under this plan will be subject to project-level environmental review under SEPA prior to final design, permit approval, and construction.

1.6 Description of the Alternatives

Four land use alternatives were identified and evaluated in the Town Center Sub-area Plan Draft EIS. The alternatives included three action alternatives and a no action alternative. After consideration of public comments on the Draft EIS, a Preferred Alternative was developed and adopted by the City Council. The Preferred Alternative was developed as a "hybrid" of the original three action alternatives. This Final EIS provides environmental analysis of the Preferred Alternative. It is meant to aid decision-making and the development of a Final Town Center Plan.

As with the Draft EIS alternatives, the Preferred Alternative includes the 30-acre Sammamish Commons. It avoids development of approximately 60 acres of streams, wetlands, and buffers, and provides for open spaces, public parking, low-impact development techniques, quality design, and a network of non-motorized trails connecting the various elements of the Town Center. The following are brief descriptions of the alternatives. For more detailed descriptions of Alternatives 1 through 4, refer to Chapter 2 of the Draft EIS. For a complete description of the Preferred Alternative, refer to Chapter 2 of this Final EIS and the Draft Town Center Plan.

1.6.1 Alternative 1 – Commercial Focus

Alternative 1, the Commercial Focus Alternative, envisioned the Town Center as a sub-regional destination with unique character, retail activities, family entertainment, employment, and services. Under this alternative, the Town Center included a walkable central retail area west of 228th Avenue SE, in the vicinity of SE 4th Street and 224th Place SE. The core area would be surrounded by a variety of housing types. This alternative was estimated to include approximately 3,000 to 4,000 new housing units; approximately 90,000 to 110,000 square feet of civic amenities; approximately 385,000 to 415,000 square feet of retail space; and approximately 65,000 to 85,000 square feet of office space in the Town Center.

1.6.2 Alternative 2 – Low Intensity

Alternative 2, the Low Intensity Alternative, envisioned the Town Center as a local neighborhood with a small commercial village and limited services. Alternative 2 would include a commercial core surrounded by a limited area of mid-rise housing development. The remaining area would comprise a neighborhood of detached single-family residences and town houses. As in Alternative 1, the Town Center core would be centered immediately south of the intersection of SE 4th Street and 224th Place SE. The commercial core would be much smaller in scale, comprising approximately 150,000 to 175,000 square feet of retail development. This alternative included 1,000 to 1,500 new housing units spread throughout the Town Center area.

1.6.3 Alternative 3 – Civic Focus

Alternative 3, the Civic Focus Alternative, envisioned a civic, cultural, and recreational center surrounded by housing of various densities. This alternative would have created a central plaza north of an expanded Sammamish Commons. The plaza would be lined by public facilities that could have included a library, community center, aquatic center, performing arts center, senior center, youth center, or other civic amenity. This alternative included 2,500 to 3,000 new housing units; approximately 180,000 to 200,000 square feet of civic amenities; 185,000 to 215,000 square feet of retail space; and 115,000 to 130,000 square feet of office space.

1.6.4 Alternative 4 – No-Action

Under the No-Action Alternative, the existing Comprehensive Plan land use map would remain as adopted in the City's Comprehensive Plan. The existing Comprehensive Plan land use designations in the project area include primarily low-density single-family residential and some park use for the Sammamish Commons.

Current zoning does allow institutional development under conditional use permits. There are several institutional developments in the project area now, including the Sammamish Hills Lutheran Church, the Eastside Catholic High School, the Arbor School, and the Sammamish Children's School. These existing institutional uses are likely to remain in the area, but no commercial uses would be allowed.

1.6.5 Preferred Alternative

The Preferred Alternative envisions the Town Center as a sub-regional destination with unique character, retail activities, family entertainment, employment, and services. Under this alternative, the Town Center would provide a walkable central retail area west of 228th Avenue SE, in the vicinity of SE 4th Street and 224th Place SE. The core area would be surrounded by a variety of housing types. This alternative is estimated to include approximately 1,300 to 2,000 new housing units; a variety of civic amenities; and up to 400,000 square feet of retail and office space.

1.7 Development of the Preferred Alternative

The following section briefly describes the process used to develop the Preferred Alternative. For a more complete history of the Town Center planning process and descriptions of City plans and policies related to Town Center planning, refer to the Draft EIS and Draft Town Center Plan.

1.7.1 Comprehensive Plan

Planning for a City Town Center began with adoption of the City's Comprehensive Plan (DEIS; City of Sammamish, 2003a). The Comprehensive Plan includes policies directing the initiation of a "sub-area planning process for properties in the vicinity of 228th Avenue that may be affected by the Sammamish Commons. This sub-area plan may include potential zoning changes or other recommendations to promote more compatible land uses and to minimize potential adverse impacts on adjoining properties" (LUP – 2.2).

1.7.2 Special Study Area Task Force

In response to the directives in the City's Comprehensive Plan for a sub-area planning process, the City Council appointed a Special Study Area Task Force in July 2004 (Resolution No. R2004-176). The Task Force was charged with assisting in the development of a community vision for the properties in the vicinity of the Sammamish Commons as described in the Comprehensive Plan (DEIS; City of Sammamish, 2003a). In January 2005, the Task Force delivered a vision and recommendations to the City Council in a document titled *Special Study Area Vision* (DEIS; City of Sammamish, 2005a).

The Task Force report envisioned the Town Center as a well-connected hub of public and private community services, a place to live, and a place for neighborhood activities. It would contain a "synergistic mix of civic, residential, and retail services." The vision included a move away from single-family development in the Town Center toward increased development density and intensity of uses and heights, while preserving and protecting open spaces, wetlands, and streams.

1.7.3 City Council Town Center Vision Statement

Following the Task Force report, the City Council developed and adopted the *City Council Vision Statement* in March 2006 (Resolution No. R2006-229). The vision statement describes the Town Center as a "vibrant, urban, family friendly gathering place in a healthy natural setting." The vision focuses on both the urban and natural aspects of the Town Center.

1.7.4 Council Adopted Town Center Alternatives

Based on the Council Vision Statement, Town Center land use alternatives were developed for analysis in an EIS. The process to develop the alternatives included several public open houses, input from a property owners' forum, comments from the general public, the Town Center Committee, the Planning Commission, and the City Council. A design charette was held to solicit more details on the community's vision for the Town Center. Four alternatives (three action and a no-action alternative) were defined by varying the amounts, types, mixes, and intensities of land uses within the Town Center area. The City Council approved the four Town Center land use alternatives for analysis in a Draft EIS on July 25, 2006.

1.7.5 Council Adopted Preferred Alternative

A Draft EIS was prepared and published January 31, 2007. The Draft EIS analyzed the potential environmental impacts of four alternatives. As required by SEPA, public comment was solicited during a 60-day comment period from January 31, 2007 to March 2, 2007. The comment period was extended until March 26, 2007. Based on the results of the Draft EIS analysis, comments, and recommendations from the Town Center Committee and Planning Commission, the City Council adopted a Preferred Alternative on April 17, 2007 (Resolution no. R2007-271).

The Preferred Alternative represents a "hybrid" of the three action alternatives analyzed in the Draft EIS. It was developed by incorporating elements from the Draft EIS action alternatives. The Preferred Alternative is also reflective of previous Council actions on the Town Center, including the Council's 2006 Vision Statement. Therefore, the parameters of the Preferred

Alternative (land use pattern; housing units; amounts of retail, commercial, and civic space; and open space) fall within the range of parameters analyzed in the Draft EIS.

In general the land use and development parameters proposed under the Preferred Alternative falls between Draft EIS Alternative 1, Commercial Focus and Alternative 2, Low Intensity Focus. Land use and development intensity would be greater under the Preferred Alternative than under the No-Action Alternative. Table 1-1 compares the parameters of Draft EIS alternatives and the Preferred Alternative. Complete descriptions and impact evaluations of Alternatives 1 through 4 are provided in the Draft EIS.

Table 1-1. Comparison of Proposed Land Use Alternatives

Land Use	Draft EIS Alternatives				Final EIS Preferred Alternative
	No-Action	Alt 1 Commercial Focus	Alt 2 Low Intensity	Alt 3 Civic Focus	
Building Areas (1000 square feet)					
Commercial/Retail	0	385 – 415	150 – 175	185 – 215	260 – 280
Commercial/Office	0	65 – 85	0	115 – 130	115 – 130
Civic/Institutional[1]	20 -30	90 – 110	50 – 70	180 – 200	150 - 175
Open Space (acres)					
Public Parks	30	31	42	38	36
Streams, Wetlands & Buffers	60	60	60	60	60
Housing Units					
Low Intensity					
Detached Single-Family	300 – 350	15 – 25	230 – 250	30 – 40	50 - 75
Townhouses, Cottages, ADUs	0	160 - 175	515 – 530	115 - 130	275 - 325
Medium Intensity					
Mid-rise Multi-family and Mixed-use (3 - 6-stories)	0	2,500 – 3,000	315 – 330	2,500 – 3,000	1,100 - 1600
High Intensity					
High-rise Multi-family (12-stories)	0	485 – 515	0	0	0
Total Housing Units	300 - 350	3,000 – 4,000	1,000 – 1,500	2,500 – 3,000	1,300 – 2,000
Parking (1000 square feet)					
Surface Parking	0	275 – 325	200 – 250	400 – 450	100 - 125
Structured Parking	0	325 – 375	0	75 – 100	275 - 320
Total Public Parking	0	600 – 700	200 – 250	475 - 525	375 - 445

[1] Civic/institutional includes City Hall for all alternatives.

These figures are not meant as forecasts of future land uses. These are assumptions developed for the purposes of comparing the potential impacts of distinctively different development scenarios to assist in public discussion and City decisions. Ultimately, the land use patterns in the Town Center area will be determined by several factors including City actions, demographic changes, and private investment choices.

1.8 Summary of Potential Impacts and Mitigation Measures

As stated above, the Preferred Alternative was developed by adapting elements from the three action alternatives in the Draft EIS. As a combination or "hybrid" of the three Draft EIS action alternatives, the parameters (types, patterns, and intensities of planned land uses and housing) of the Preferred Alternative generally fall within the range of parameters represented in the Draft EIS action alternatives. Because of this, the potential impacts resulting from implementation of the Preferred Alternative are likely to fall within the range of impacts identified in the Draft EIS for the action alternatives.

Similar to the Draft EIS action alternatives, the Preferred Alternative would accommodate an increase in population and an increase in land use intensity (greater commercial, civic, residential, and transportation development). Implementation of the Preferred Alternative would change the Town Center planning area from its current suburban/rural character to a more developed urban/suburban character during the planning horizon of approximately 25 years.

The following matrix (Table 1-2) summarizes the potential impacts and mitigation measures for the Preferred Alternative that have been identified in the Final EIS. Refer to the Draft EIS for a summary of impacts and mitigation measures for Draft EIS Alternatives 1 through 4. Complete discussions of impacts and mitigation for each element of the environment associated with the Preferred Alternative are located in Chapter 3 of this Final EIS.

Table 1-2. Summary of Preferred Alternative Potential Impacts and Mitigation

Element of the Environment	Summary of Impacts	Draft Town Center Plan Elements that mitigate impacts	Other Mitigation Measures
Earth	The Preferred Alternative would allow development of some residential projects within designated erosion hazard areas.	Town Center development proposals in erosion hazard areas would have to comply with City codes and applicable provisions in the Town Center Plan.	No further mitigation measures are proposed.
Water	Preferred Alternative would result in an estimated 107 acres of impervious surface, about 44 percent of the overall Town Center area. Greater vehicular traffic and road surfaces would have the potential to build up pollutants, which are transported downstream to aquatic resources during storm events. The addition of impervious surfaces and stormwater ponds has the potential to increase surface water temperatures. Development under the Preferred Alternative has the potential to change groundwater flow patterns in both the till (Qvt) and outwash and alluvial (Qvr/Qal) geologic deposits. Higher intensity land use in the Town Center area has the potential to mobilize and transport greater amounts of sediment that could limit infiltration in the alluvial valley of George Davis Creek. The same process could occur in the wetlands in both the Inglewood and Thompson Basins, impacting aquifer recharge functions of those wetlands. If development negatively affects the quality of surface water, permeable deposits could provide a vector to contaminate deeper aquifers.	Draft Plan polices (NS-1.1, NS -1.3, NS -2.1, NS -2.3, and NS -3.1) are considered programmatic mitigation for impacts to water resources. Prepare a sub-basin plan for the Thompson Sub-basin (Ebright Creek). Prepare a storm water management master plan for the Town Center to allow for the use of a comprehensive stormwater system(s). As part of the storm water master plan, evaluate the feasibility of using the "green spine" open space as a component of a stormwater management system. Require neighborhood-wide storm water facilities to be a part of mixed-use Town Center master plans. Evaluate adoption of standards for the use of LID techniques to minimize potential stormwater quantity and quality impacts. Update landscape standards for the Town Center to emphasize ecological functions. Establish roadway design standards for the Town Center that minimize runoff. Reduce footprint per dwelling unit with the intent of reducing the amount of land coverage and storm water runoff.	Implement stormwater retention / detention and treatment facilities consistent with the KCSWDM, as required by Sammamish Code. Implement a stormwater district for the Town Center with the ability to collect funds, develop, install, and maintain stormwater systems. Implement water quantity and quality monitoring in George Davis and Ebright Creeks to monitor the effectiveness of LID techniques. Remove barriers to fish passage within Ebright Creek, as proposed in the East Lake Sammamish Basin Plan. Restore the mouth of George Davis Creek, as proposed in the Inglewood Basin Plan (Entranco, 2005).

Element of the Environment	Summary of Impacts	Draft Town Center Plan Elements that mitigate impacts	Other Mitigation Measures
Wetlands, Streams, Wildlife and Vegetation	Proposed new major arterial roads would cross wetland, stream, and buffers in only one location. Proposed changes in land use will result in impacts to vegetation communities and wildlife habitat functions similar to those described for the Draft EIS action alternatives. Development would occur in undeveloped (or underdeveloped) forests and unprotected natural areas in the Town Center within the range of intensities discussed in the Draft EIS.	Draft Plan polices (NS-2.2, NS-3.1, NS-3.2) are considered programmatic mitigation for impacts. Maintain existing vegetated corridors and enhance and restore degraded corridors through vegetation planting. Continue to enforce existing significant tree regulations and open space requirements for developments in the Town Center. Create landscape standards for commercial and residential development that emphasize ecological functions. Consider replacing landscaping standards with a "green area factor" that allows developers flexibility with the type of landscaping, but ensures a standard of ecological function.	Consider a realignment of the wildlife corridor in the Town Center to better connect through wetland and buffer areas. Designate wildlife corridors by split-rail fencing and signage to ensure preservation of habitats. Require the use of native plants in landscaping guidelines and stream and wetland enhancement or restoration projects.
Land Use	Land in the Town Center would become more intensively used; existing uses would be displaced or redeveloped; and building height and bulk would be increased in a manner consistent with City plans and policies. Transformation of the Town Center from a largely low-density suburban residential area to an urbanized neighborhood. Short term internal land use conflicts may occur for current residents who would experience construction noise and increased activity levels associated with the higher intensity uses allowed under the Preferred Alternative.	Draft Plan polices (LU-1.1, LU-1.5, LU-1.6, LU-2.1, LU-2.2, LU-2.4, LU-5.3, LU-5.4, and LU-5.6) are considered programmatic mitigation for land use impacts. Direct development intensity into mixed use centers; taper land use intensities down to low-rise development at the perimeter of the Town Center. Implement a review process to ensure new developments are consistent with City and Town Center policies and regulations and integrate appropriately in to the Town Center. Adopt design guidelines that regulate architectural scale and building mass; physically and visually integrate parking garages with other uses; and establish landscaping and screening requirements that physically and visually separate potentially conflicting uses.	**Long-term impacts:** No further long-term mitigation measures are proposed. **Short-term impacts:** Phase City financed infrastructure to assist in controlling development in areas adjacent to existing sensitive land uses. Monitor transition areas to maintain long-term functional transitions that do not create land use compatibility impacts. Include a requirement that developers provide transition assistance for neighboring properties.

Element of the Environment	Summary of Impacts	Draft Town Center Plan Elements that mitigate impacts	Other Mitigation Measures
Land Use (continued)	Approximately 80 percent of new housing units are expected to be in multi-family (3 – 4 stories) or mixed-use (3 – 6 story) buildings; 15 percent in town houses, cottages or ADUs; and 5 percent in single-family homes. The preferred Alternative is estimated to include a population of 3,300 in the Town Center; approximately 2,300 more than expected under the No-Action Alternative.	Avoid excessive light, noise, and safety hazards through guidelines that require placement of building elements, such as driveways and garage service entrances.	
Transportation	The Preferred Alternative is estimated to generate approximately 5,000 gross PM peak hour trips by 2030. The corridors immediately surrounding the Town Center area would have the highest levels of traffic volume growth. One study intersection within the City of Sammamish is forecast to operate below the City's LOS standard (LOS F). Three intersections outside of the City limits would operate at LOS E or F: 1. Issaquah-Pine Lake Rd SE/SE Issaquah-Fall City Rd. 2. E Lake Sammamish Parkway/SR 202. 3. E Lake Sammamish Parkway/SE 56th Street. One corridor and three roadway segments are forecast to exceed the established City LOS standards by 5 percent or less: 1. SE 4th Street west of 228th Avenue NE. 2. 228th Avenue SE South Corridor. 3. SE Duthie Hill Road east of SE Issaquah Beaver Lake Road.	Improve SE 4th Street to include a raised median/center turn lane, bike lanes, curb, gutter, sidewalk, and landscaping. Accommodate traffic control, such as a roundabout or traffic signal, at the main access point(s) to the northwest quadrant. Widening SE 4th Street would also require improvements at the SE 4th Street/228th Avenue SE and SE 4th Street/218th Avenue SE intersections. Convert Eastside Catholic High School's access road from 228th Avenue to a public extension of SE 4th Street. Develop connector roads and local access roads to serve the northeast, southeast, and southwest quadrants of the Town Center.	**Intersection Mitigation Measures:** Impacts at the 212th Avenue SE/SE 8th Street intersection could be mitigated through the following measures: 1. Creating separated turn lanes for the south and east approaches of the intersection with the SE 8th Street approach being stop controlled. 2. Installing a roundabout or making the intersection all-way stop-controlled. **Roadway Mitigation Measures:** SE 4th Street segment west of 228th Avenue SE could be mitigated through the planned improvements identified above. The Comprehensive Plan has identified widening projects that would mitigate impacts for both segments of SE Duthie Hill Road.

Element of the Environment	Summary of Impacts	Draft Town Center Plan Elements that mitigate impacts	Other Mitigation Measures
Transportation (continued)	4. SE Duthie Hill Road west of Trossachs Boulevard.		Impacts to the 228th Avenue South corridor could be mitigated through the following means: • Implementing TDM measures • Adding a 5-foot bike lane. • Adding an additional southbound through lane on 228th Avenue SE through the intersection of Issaquah Pine Lake Road. Impacts to the 218th Avenue SE/SE 8th Street corridor could be mitigated through the following means: • Providing paved shoulders, sidewalks or pedestrian paths, and bike lanes. Alternative mitigation measures could also include: • Adoption of new LOS standards for higher levels of congestion. • Widening or adding capacity to alternate routes. • Completing new roadway connections through the City. • Reducing or changing the mix and level of development in the Town Center. Proposed mitigation measures in adjacent jurisdictions could include: • Jointly conducting additional analysis of specific corridors outside of the City. • Establishing interlocal agreements identifying how transportation impacts would be mitigated.

Element of the Environment	Summary of Impacts	Draft Town Center Plan Elements that mitigate impacts	Other Mitigation Measures
Air and Sound	**Sound:** Community sound levels are expected to increase from levels typical of suburban areas to those typical of more urban areas. Noise impacts associated with events at new civic facilities would be anticipated. Noise from automobiles would be expected to increase commensurate with the expected increase in vehicular traffic. Noise levels are not expected to exceed state regulations or City codes. **Air Quality:** Increase levels of vehicular traffic are expected to increase ambient levels of emissions. Air Quality impacts are not expected to exceed local, state, and national air quality regulations.	All infrastructure, civic, and private development proposals would be required to comply with local and state noise and air quality regulations.	No further mitigation measures are proposed.
Utilities and Public Services	**Fire and EMS:** Demand for fire protection and EMS services would incrementally increase and potentially lower the fire and EMS LOS. **Law Enforcement:** Development in the Town Center would require the addition of approximately two officers to maintain acceptable LOS. **Public Schools:** Town Center development would not affect enrollment at the ISD. Town Center development would add approximately 280 new students to the LWSD.	**Parks and Open Space** Draft Plan polices (OS-1.1, OS-1.2, OS-1.3, OS-1.4, OS-2.1, and OS-2.2) are considered programmatic mitigation for impacts to parks and open space Additional Plan elements include: • Refining the proposed trail system plan. • Planning for the green spine. • Acquiring easement or land for enhancement of environmentally sensitive areas for trails and consistent long-tern stewardship.	**Fire and EMS** Failure to meet the LOS standards could be mitigated by: • Adjustments in staffing and/or shifts. • Development of EMS facilities. • Making transportation improvements. • Automatic response agreements with other service providers (including Sammamish Police). **Law Enforcement:** Law enforcement services are anticipated to be provided at existing levels of service. No mitigation is required.

Element of the Environment	Summary of Impacts	Draft Town Center Plan Elements that mitigate impacts	Other Mitigation Measures
Utilities and Public Services (continued)	LWSD currently does not have the capacity to serve the student population projected to be enrolled by the year 2012. **Parks and Open Space:** The Preferred Alternative could result in a population increase of approximately 3,300 people, which would increase the demand on existing facilities. **Water:** The Sammamish Plateau Water and Sewer District indicates that there is currently adequate water supply to serve the Town Center under the Preferred Alternative. **Sewer:** The Sammamish Plateau Water and Sewer District does not anticipate any problems with connecting new development in the Town Center to the wastewater system. **Electricity and Natural Gas:** PSE indicates that additional electrical and natural gas infrastructure improvements would be required in the Town Center by 2030 under any of the alternatives. PSE anticipates a significant service-area wide shortfall in energy resources by 2025 regardless of Town Center alternative. The shortfall is due to regional growth. **Solid Waste:** The Preferred Alternative would not exceed the provider's ability to service the planning area.		**Schools:** Impact fees paid by developers would reduce the impacts of the Preferred Alternative on LWSD by providing a portion of the funding necessary to expand school facilities. Additional funding sources for new and expanded facilities would have to be identified over the 25-year planning horizon. **Parks and Open Space** Impact fees collected from development under the Preferred Alternative would mitigate the impacts to parks and open space from the incremental increase in population. **Water:** Water services will be provided at existing levels of service. No mitigation is proposed. **Sewer:** Sewer service will be made available as needed. No mitigation is proposed. **Electricity and Natural Gas** Mitigation for impacts of the Preferred Alternative would be the same as those proposed for the action alternatives in the Draft EIS **Solid Waste:** Solid waste service will be made available as needed. No mitigation is required.

Element of the Environment	Summary of Impacts	Draft Town Center Plan Elements that mitigate impacts	Other Mitigation Measures
Aesthetics	The Preferred Alternative would substantially change the area's character from a generally suburban character to a more urban character. The height, bulk and scale of development would change in the Town Center. Current views will be altered to included new commercial, civic, and residential buildings. Enhancement of wetland and buffer areas as open space with native vegetation will change the visual character of the Town Center, particularly in the NE and SE quadrant. The design of new roads proposed in the Town Center Plan would represent a strong visual element that differs from current conditions.	Plan elements described for Land Use would largely mitigate aesthetics impacts in the Town Center. Draft Plan polices (D-1.2, D-1.4, D-1.6, D-2.1) are considered programmatic mitigation for aesthetic impacts. Additional Plan elements include: • Adopt master planning principles for each mixed-use node. • Adopt design guidelines and a design review process to guide the form and character of the buildings, quality and quantity of landscaping, treatment of parking lots, setbacks and open space, and environmental restoration. • Develop a set of roadway standards with streetscape elements that make streets in the Town Center attractive to travel and optimal settings for new development.	No additional mitigation measures are proposed.

1.9 Significant Unavoidable Adverse Impacts

Under the Preferred Alternative, as under all of the Draft EIS alternatives, the existing character of the Town Center area will change over the next 25 years from a largely low-density residential area to an urban area featuring a range of housing densities and land use intensities. This change will represent a significant impact. However, the change would be consistent with the City's Comprehensive Plan and Council Vision Statement for the Town Center. As such, the impact would not be considered adverse.

Additionally, the planning process was designed to develop a Preferred Alternative from elements of the Draft EIS alternatives. The planned increase in population growth and development intensity (as expressed by the number of housing units and amount of commercial and civic uses allowed) assumed under the Preferred Alternative falls within a range that, for the most part, was discussed in the Draft EIS. The Draft Town Center Plan was developed to incorporate elements that avoid or mitigate potential adverse impacts identified in the Draft EIS. Significant unavoidable adverse impacts that persist are identified in each section of the analysis of the Preferred Alternative in Chapter 3.

Chapter 2 Description of Preferred Alternative

2.1 Introduction

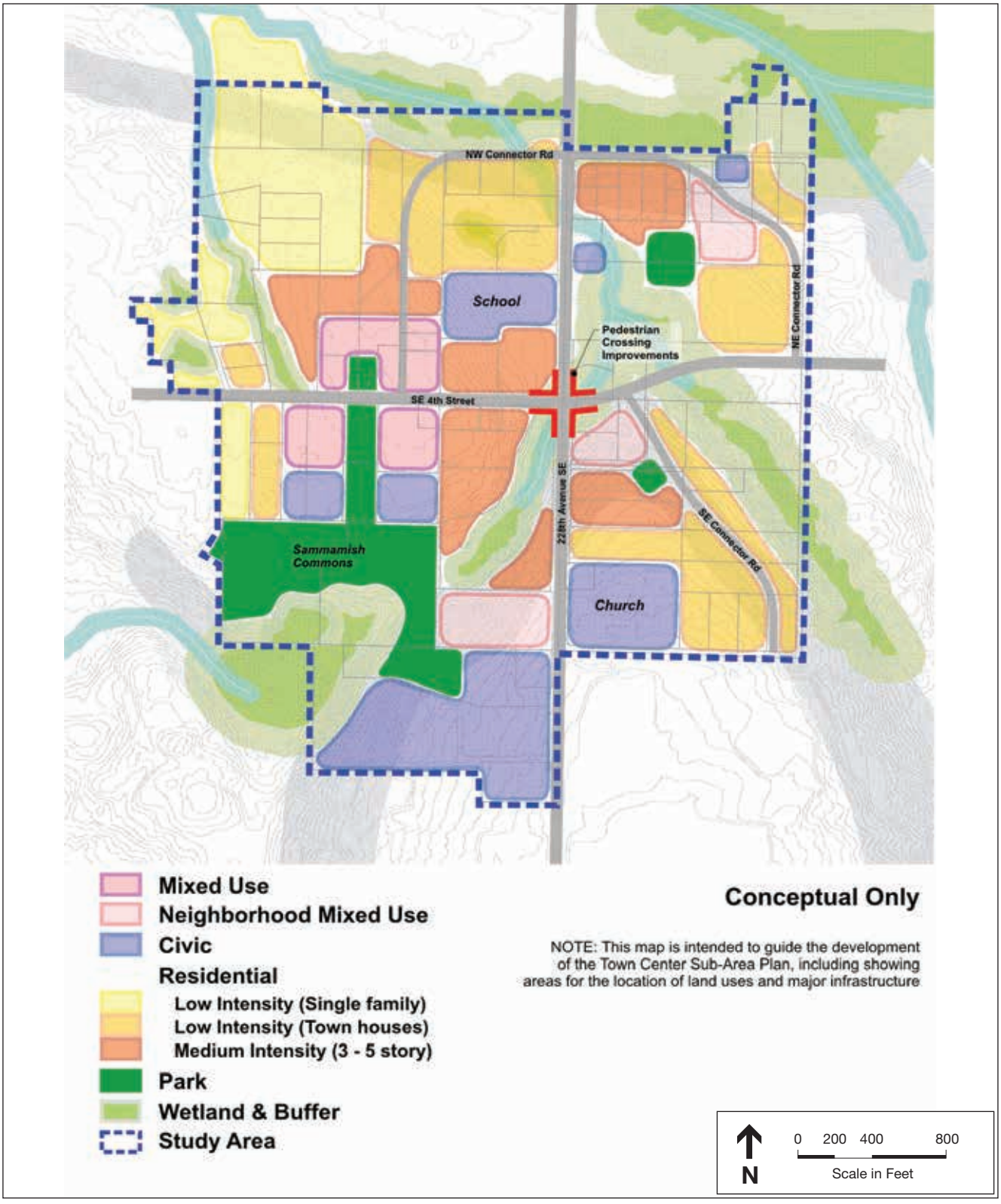
This chapter of the programmatic Sammamish Town Center Sub-area Plan Final EIS provides a more detailed description of the Preferred Alternative as adopted by the City Council and further developed in the Draft Town Center Plan. This chapter outlines, in specific terms the land use assumptions and proposed actions that are the subject of this evaluation. Refer to the Draft Town Center Plan for complete Plan details.

The Preferred Alternative as adopted by Resolution No. R2007-271 includes a generalized conceptual land use map of the Town Center area (Figure 2-1) along with ranges of housing units, commercial (retail and office) space, and a list of possible civic facilities. Based on the generalized land use map and use parameters, a more detailed conceptual land use scenario (including transportation infrastructure and conceptual open spaces) was developed for the purposes of analysis in this Final EIS (Figure 2-2). In order to capture a conservative range of potential environmental impacts, the more detailed concept was developed using the upper limits of the parameters established by the City Council.

Figure 2-2 illustrates a reasonable development scenario for the Town Center that allows for a programmatic evaluation of impacts. It is not meant as a final land use plan. Ultimately, the land use pattern in the Town Center will be determined by future City investments, council actions, and private development decisions.

2.1.1 Land Use Pattern

Under the Preferred Alternative, as adopted by the City Council, the Town Center would include a variety of civic and community elements (recreational, cultural and educational activities), retail and office opportunities, and residential choices (3-6 story mixed-use and multi-family, town houses, cottages, and low-intensity single family). Development under the Preferred Alternative (directed by implementing regulations) would be required to maintain and, where possible, improve environmental functions and values of the area's natural resources (through habitat protection and enhancement, comprehensive stormwater management, and low impact development techniques).



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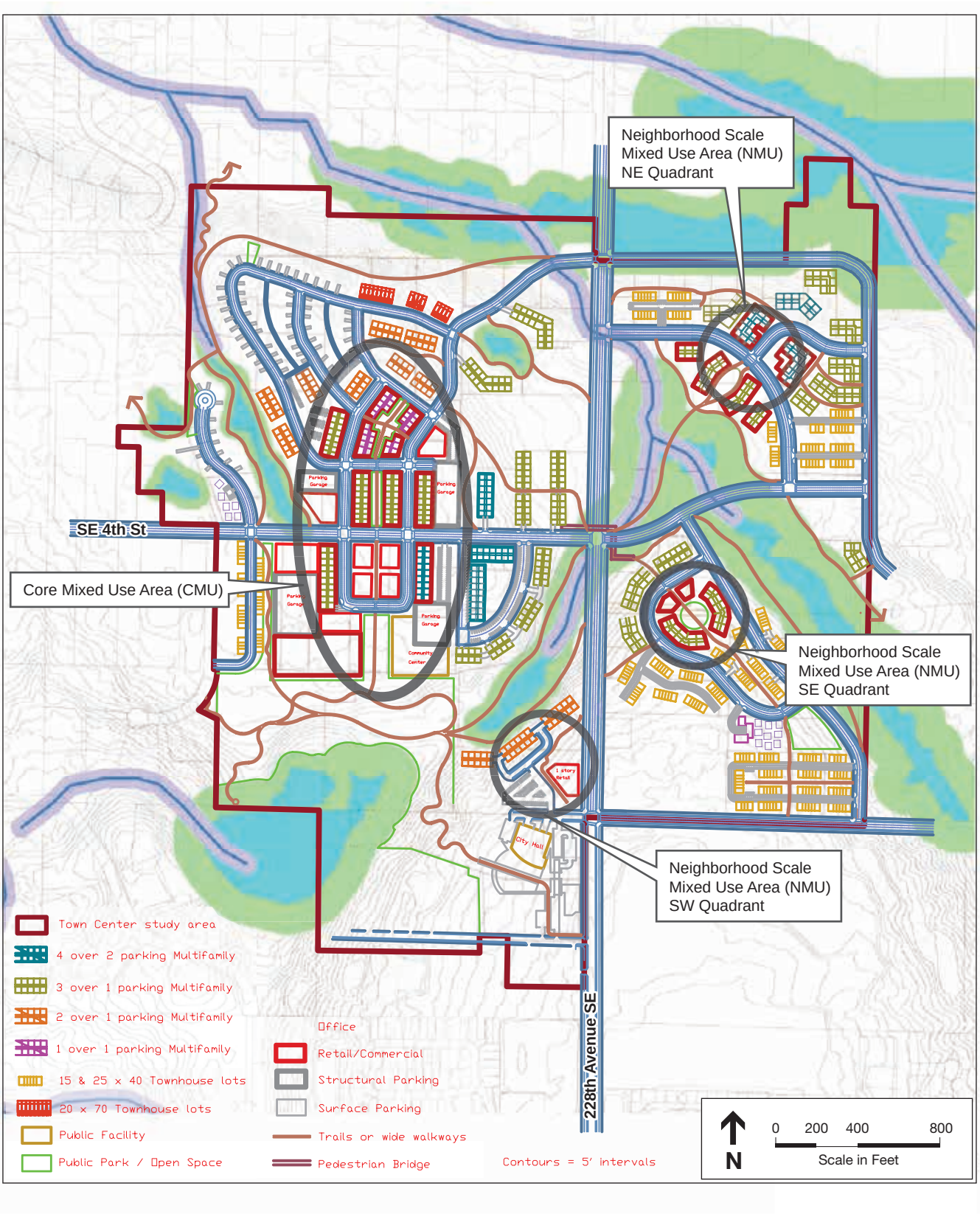
SOURCE: MAKERS architecture + urban design, 2007.

Figure 2-1
Town Center Preferred Alternative Planning Concept
Sammamish, Washington



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SOURCE: MAKERS architecture + urban design, 2007.

Figure 2-2

Town Center Preferred Alternative Development Concept

Sammamish, Washington

As shown in Figure 2-2, the Preferred Alternative would create a core mixed-use area (CMU) on the west side of 228th Avenue SE, north of the Sammamish Commons, with development intensities gradually decreasing towards the Town Center boundary and surrounding neighborhoods. The Plan map follows a "wedding cake" approach with civic and mixed-use buildings concentrated around a centralized plaza or green space, low and medium intensity multi-family uses ringing the core area, and townhouses and cottages transitioning to nearby single-family neighborhoods.

The Draft Town Center Plan also includes three neighborhood-scale mixed use areas (NMU); one north of City Hall in the SW quadrant and one in both the NE and SE quadrants (Figure 2-2). Residential units would be planned around these neighborhood core areas and transition outward following the same "wedding cake" approach described for the CMU.

In total, the Preferred Alternative is estimated to add up to 164,000 square feet of civic amenities; 272,500 square feet of retail space; and 127,500 square feet of office space in the Town Center. The Preferred Alternative would include up to 2,000 new housing units spread throughout the Town Center area. New housing would be a mix of housing types that could include detached single-family homes, town houses, cottages, accessory dwelling units (ADUs), and mid-rise mixed-use and multi-family buildings (3–6 stories depending on location). A summary of potential land uses by quadrant is shown in Table 2-1.

Table 2-1 Draft Town Center Plan Development Assumptions

	NW	NE	SW	SE	Total
Land Uses					
Retail (sq. ft.)	115,000	20,000	117,500	20,000	272,500
Office (sq. ft.)	35,000	30,000	32,500	30,000	127,500
Total Commercial (sq. ft.)	**150,000**	**50,000**	**150,000**	**50,000**	**400,000**
Civic (sq. ft.)	0	0	164,000	0	164,000
Public Parking					
Public Parking (sq. ft.)	170,000	0	275,000	0	445,000
Parks and Open Space					
Public Parks (acres)	0.70	0.25	33	1.3	36
Housing (dwelling units)					
Low Intensity					
Single-family	67	0	11	0	78
Town houses, cottages, ADUs	22	90	40	166	318
Medium Intensity					
Mid-rise Multi-family and Mixed-use Multifamily	611	404	392	196	1,603
Total Housing Units	**700**	**482**	**455**	**362**	**1,999**

2.1.2 Transportation and Parking

2.1.2.1 Circulation

A range of new roads would be needed to serve new development and mitigate congestion. The Preferred Alternative would include both improvements to existing roads (including widening and grading) and creation of new roads. The road network proposed for the Preferred Alternative is similar to the alignment proposed under Draft EIS Alternative 1. Primary access from 228th Avenue SE to the CMU would be provided by SE 4th Street. A new road would intersect with SE 4th Street at approximately 222nd Place SE and form a loop connecting 228th Avenue SE at E Main Street. East Main Street would then continue east and turn south, connecting with SE 4th Street. A second new road would head southeast from SE 4th Street and travel to SE 8th Street. The Preferred Alternative would also include a system of non-motorized trails connecting all areas of the Town Center and connecting the Town Center to surrounding neighborhoods.

Figure 2-3 shows the conceptual Town Center street layout including proposed roadway widths. Figure 2-4 shows the conceptual street cross-sections of the proposed roadways. While the exact location and configuration of Town Center roads may vary from the conceptual layouts and cross-sections presented in the Draft Plan, they were designed to fit with the topography of the area and provide appropriate connections to arterial and connector streets. The transportation implementation actions proposed for the Preferred Alternative are listed below:

1. Improve SE 4th Street by increasing the right-of-way and substantially grading the slopes between 228th Avenue and the core area to enhance access, visibility, and safety.
2. Convert Eastside Catholic's access road from 228th Avenue to a public street (extension of SE 4th Street). This action would require acquisition of a 72 foot right-of-way, lane configuration changes, a bicycle lane, planting strips, and sidewalk improvements.
3. Develop "connector roads" serving the northeast, southeast, and southwest quadrants of the Town Center. These roads would likely be built in phases coinciding with development activity in the Town Center.
4. Extend 232nd Avenue SE. This connection would provide access to other development sites just to the east of the Town Center and provide more circulation options.
5. Develop local access roads. The addition of public and private streets would be necessary to facilitate the planned Town Center development.

2.1.2.2 Parking

Under the Preferred Alternative, parking would be accommodated by a combination of off- and on-street parking spaces and lots. Mixed-use developments in the CMU and NMUs would provide shared parking facilities. Such facilities may be shared between public and private uses and between different private uses. Most of the required off-street parking would be underground or within structures. See Figure 2-2 for conceptual parking structure locations in the CMU.

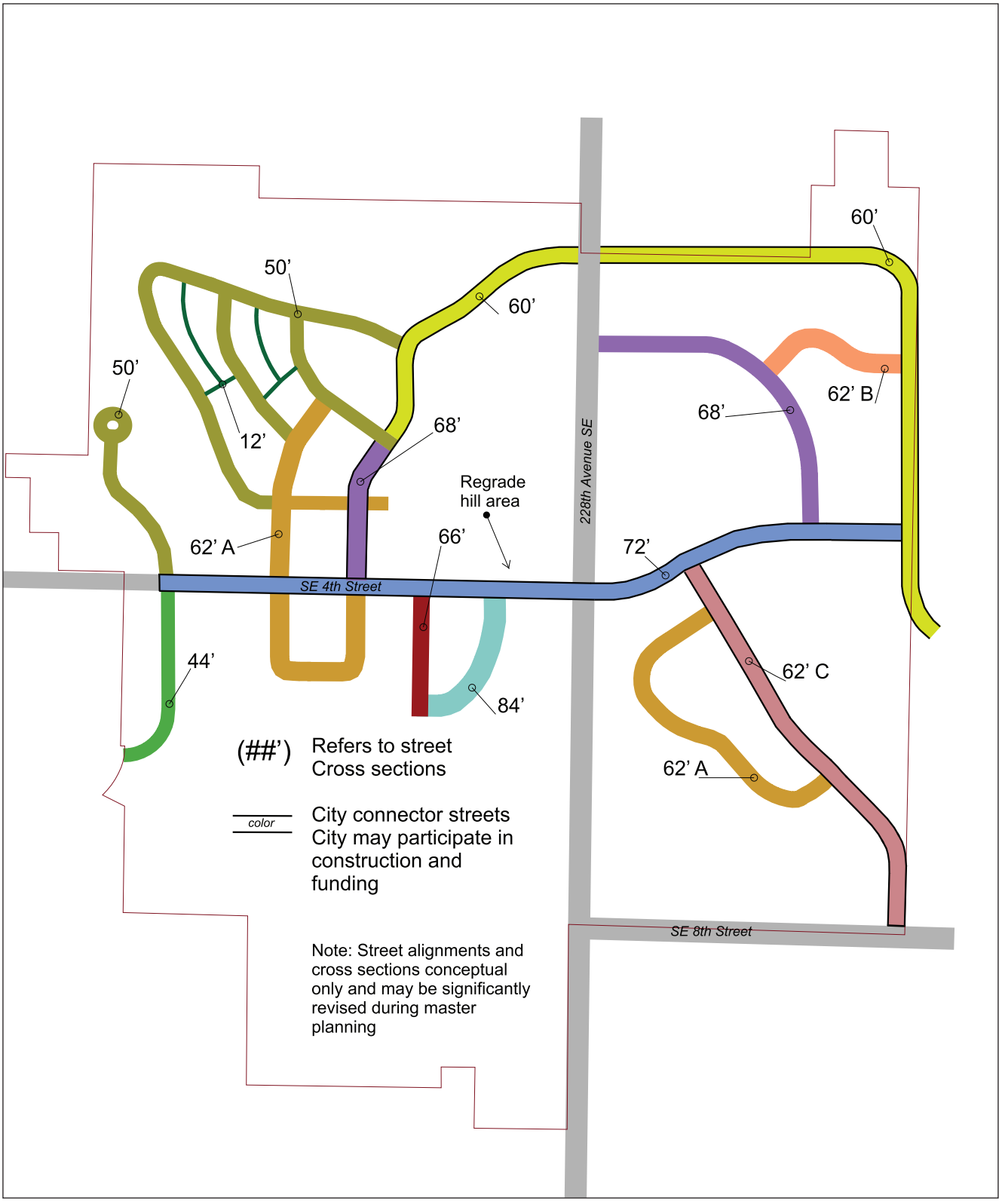

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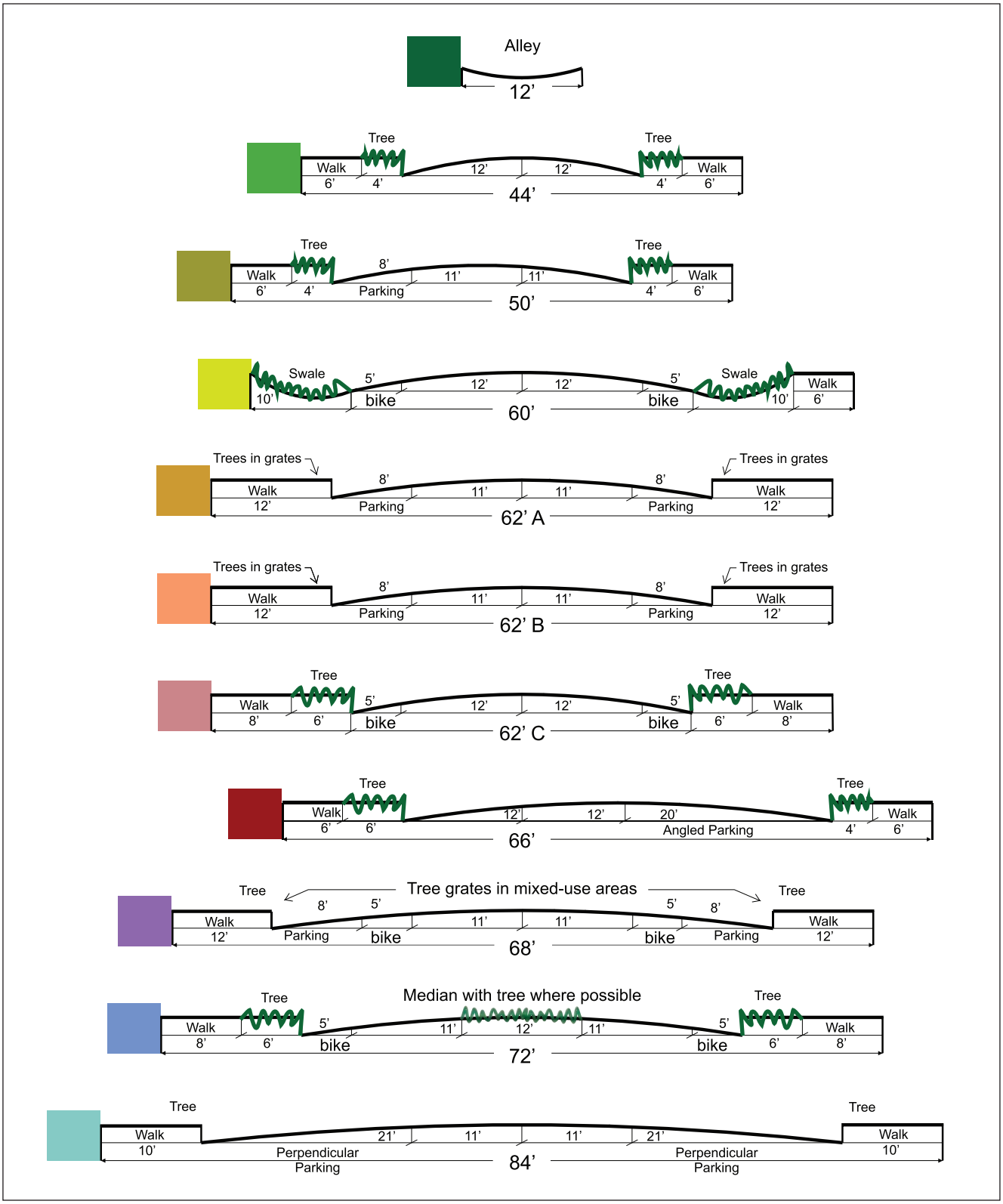
Figure 2-3
Town Center Conceptual Roadway Network
Sammamish, Washington



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SOURCE: MAKERS architecture + urban design, 2007.

Figure 2-4
Conceptual Street Cross Sections
Sammamish, Washington

2.1.3 Parks, Trails and Open Space

The Preferred Alternative proposes a system of park, trail and open spaces throughout the Town Center with the intent of providing multiple benefits including recreation opportunities, ecological enhancement, and aesthetic improvements. As planned, the Town Center's open spaces would include, approximately 30 - 40 acres of public parks, 1.7 acres of privately developed public open space, five miles of trails, and approximately 60 acres of streams, wetlands, buffers, or other undeveloped forested area.

The elements of the park, trail, and open space system are described briefly below and shown in Figure 2-5. Refer to the Draft Town Center Plan for complete details. The proposed system elements include the following:

1. **Sammamish Commons.** The Plan recommends possible enhancements to the complex that could include additional storm water treatment facilities, enhancements to the City Hall plaza with "active edges" such as heavily frequented retail shops or cafes, or creation of terraces that enhance the visual and pedestrian connection between the plaza and the panoramic views to the west.

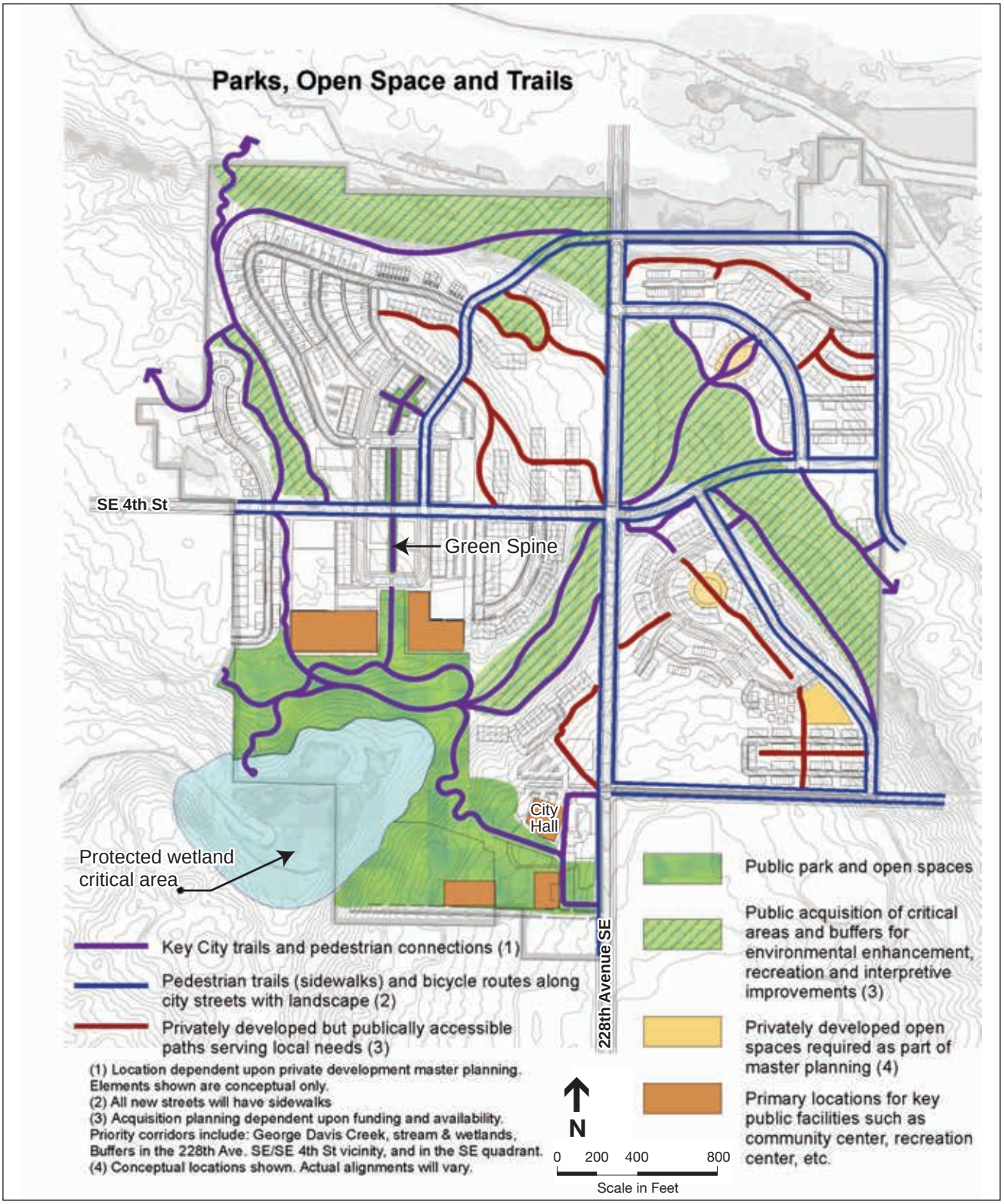
2. **"Green Spine" Northern Extension of the Commons.** The Preferred Alternative recommends creation of a linear open space—or spine—about 60 feet to 120 feet wide extending north of the Commons for at least two blocks north of SE 4th Street. The purpose of this feature would be to provide an organizing structure for new development, add a visual and recreational amenity, and treat storm water runoff. The green spine could also serve as a public gathering space or setting for fairs, markets, and celebrations.

3. **Plazas and Open Spaces in the Northeast and Southeast Sectors.** The preferred Alternative includes smaller plazas, greens, or squares to serve the NMUs in the NE and SE quadrants (see Figure 2-5). These would be privately developed and maintained as part of the mixed-use centers and could range from one-third to one acre in size.

4. **Residential Courts, Greens, and Gardens.** Under the Preferred Alternative, the multi-family and townhouse developments in the Town Center would include common open space (directed by Town Center design guidelines). These open spaces may be a combination of active recreation, passive recreation, and natural areas and would ideally provide storm water management and other ecological functions.

5. **Trails and Pedestrian Walkways.** A network of pedestrian and bicycle trails are proposed throughout the Town Center. The conceptual trail network is shown in Figure 2-5.

6. **Natural Areas.** The Town Center site includes large vegetated corridors along streams and wetlands. Like all of the Draft EIS action alternatives, the Preferred Alternative directs development away from these areas. The Preferred Alternative also considers purchase of at least some of these areas for trail construction, storm water management facilities, and environmental enhancement. Details of such acquisitions would be developed at a later stage of the planning process.



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SOURCE: MAKERS architecture + urban design, 2007.

Figure 2-5

Town Center Parks, Open Space and Trails Conceptual Map

Sammamish, Washington

Chapter 3 Analysis of the Preferred Alternative

This chapter analyzes the potential environmental impacts of the Preferred Alternative. Potential impacts are discussed for each element of the environment. The analysis in this Chapter is based on the baseline information identified in the Affected Environment sections of Chapters 3 through 10 in the Draft EIS.

As stated earlier, the Preferred Alternative was developed as a hybrid alternative, drawing from elements of the Draft EIS alternatives. As such, the defining parameters of the Preferred Alternative (number of residential units and intensity and location of proposed new development) are generally within the range of growth assumptions described and analyzed in the Draft EIS. Therefore, most of the potential impacts of the Preferred Alternative have already been identified. This chapter notes if potential impacts of the Preferred Alternative have been discussed in the Draft EIS and highlights impacts that differ from those already discussed in that document.

As described in Chapter 1, the City of Sammamish has employed an integrated GMA/SEPA planning process for developing the Town Center Sub-area Plan. The purpose of this process is to integrate environmental information into the planning process as the plan is being developed. As a result of the integrated nature of the plan's development, many of the measures proposed to mitigate impacts identified in the Draft EIS have been incorporated into the Preferred Alternative and Draft Town Center Plan.

Plan elements, including strategies, policies, and proposed actions, that have been incorporated to avoid, minimize, or mitigate potential impacts in a direct or programmatic fashion are noted. Additional mitigation measures are proposed where relevant.

3.1 Earth

3.1.1 Impacts of the Preferred Alternative

The Preferred Alternative would promote urbanization of the Town Center similar to that analyzed under the three Draft EIS action alternatives. Likewise, potential impacts associated with the Preferred Alternative would be similar to those identified for the Draft EIS alternatives.

The magnitude of potential impacts resulting from the Preferred Alternative would depend on the scale, pace, and location of development as well as compliance with the City's code provisions for clearing and grading activities and erosion hazard areas. Because commercial and residential development in the Town Center would largely be determined by private entities, the pace of development under this alternative is not known. The scale and location of development under the Draft Town Center Plan is better understood.

The location of development is an important determinant of impacts to earth resources because some areas are more susceptible than others. The City has identified these areas as erosion, landslide, or seismic hazard areas. There are several locations within the Town Center planning

area designated as erosion hazard areas (see DEIS Figure 3-3). There are no designated landslide or seismic hazard areas within the Town Center planning area.

The amount of land disturbance resulting from construction of town houses and single-family development could be less than that for commercial and multi-family developments, because the building footprints of the structures themselves result in less actual land cover. However, piecemeal or uncoordinated development may not afford the same opportunity for effective mitigation as coordinated development.

The Preferred Alternative would allow development of some residential projects within designated erosion hazard areas (see DEIS Figure 3-3). Individual development projects in designated erosion hazard areas would be required to undergo a project-level evaluation to identify erosion hazard impacts.

3.1.2 Mitigation Measures

The mitigation measures proposed for earth resources in the Draft EIS are directly applicable to the Preferred Alternative. Projects that comply with City codes and applicable provisions in the Draft Town Center Plan are not expected to result in adverse impacts to earth resources. Therefore, no new mitigation is proposed for the Preferred Alternative.

3.1.3 Significant Unavoidable Adverse Impacts

If the proposed mitigation measures are implemented, significant unavoidable adverse impacts are not anticipated to result from the Preferred Alternative.

3.2 Water Resources

3.2.1 Impacts of the Preferred Alternative

As noted above, the Preferred Alternative was developed as a hybrid of the Draft EIS action alternatives. Therefore, the potential impacts on water resources resulting from the Preferred Alternative are generally similar to the impacts identified in the Draft EIS (Chapter 4). These impacts include:

1. Sedimentation due to construction;
2. Altered rainfall-runoff relations;
3. Degradation of water quality; and
4. Altered groundwater recharge patterns.

3.2.1.1 Construction Sedimentation

The Preferred Alternative includes a significant area that will likely require clearing and some grading to allow for the distribution of roads and structures proposed as part of the Draft Town Center Plan. Disturbance to the ground surface during construction has the potential to result in sedimentation in downstream aquatic systems. This sedimentation could result in flooding and

an overall reduction in ecosystem function. Sedimentation in George Davis Creek has the potential to clog and/or cap the highly porous glacial outwash materials located downstream of the Town Center site. If the surface hydrologic connection to these materials is broken, significantly more water would remain in the stream channel likely resulting in flooding and erosion.

3.2.1.2 Altered Rainfall-Runoff Relationships

Changing the Town Center area from its current low-density suburban land use pattern to the higher density urban center envisioned under the Preferred Alternative would change the way that rainfall is translated into runoff. The increase in impervious surfaces including rooftops and pavement would have the following likely effects:

1. Increase the volume of water being directed to streams and wetlands;
2. Decrease the time between rainfall and peak flows in drainages and waterways; and
3. Reduce the amount of water being infiltrated.

To assess the relative magnitude of the potential changes to runoff, the Town Center area was classified into general land use categories based on the Draft Town Center Plan development concept shown in Figure 2-2. An estimated percentage of impervious surface was applied to each land use classification. These estimates were derived from the limits of impervious surfaces provided in the Draft Town Center Plan (See the Table 2, Zone Specific Regulations in the Draft Town Center Plan), the 2005 King County Surface Water Design Manual (KCSWDM), and the Draft EIS. The results of the analysis are summarized below in Table 3-1.

Table 3-1. Impervious Surface Estimates for the Preferred Alternative

Land Use Category	Approximate Area (acres)	Percent Impervious Estimate	Area of Impervious surface (acres)
Park	30	10[1]	3.0
Roads	40	95[1]	38
Multi Family	33	50[2]	16.5
Townhouses	21	50[2]	10.5
Parking	9	95[1]	8.5
Retail	17	90[2]	15.3
Institutional (schools/churches/municipal)	16	70[3]	11.2
Single Family	9	45[2]	4.0
Streams, wetlands, buffer and Undeveloped lands	68	0[1]	0
Total	**243**	--	**107 (44 percent)**

Sources of impervious surface multipliers:
[1] Draft EIS (NRCS 210-VI-TR-55 (1986))
[2] Draft Town Center Plan; maximum allowed impervious surface (Chapter IV, Table 2: Zone Specific Regulations)
[3] These areas include existing institutional uses (such as schools and churches) that are unlikely to redevelop. Impervious surface were estimated through readily available review of aerial photographs.

This analysis indicates that the Preferred Alternative would result in approximately 107 acres of impervious surface, about 44 percent of the overall Town Center area. This result considers all impervious surfaces, and does not differentiate between ineffective and effective impervious surfaces. Examples of ineffective impervious surfaces would be an impervious surface that discharges on to a vegetated area, or permeable pavement (installed at the Sammamish City Hall).

This level of impervious surface is typically associated with significant degradation of aquatic ecosystems (DEIS; Booth et al., 2002). These changes would be partially mitigated through existing Sammamish drainage regulations that require level 3 flow control measures included in the KCSWDM. Level 3 flow control measures consist of maintaining the durations of high flows at their predevelopment levels for all flows greater than one-half of the 2-year flow up to the 50-year flow and holding the 100-year peak flow rate at its predevelopment level. Level 3 is the most stringent of the measures included in the most recent KCSWDM. However, even if Level 3 protections are achieved, hydrologic patterns on the site will be modified from predisturbance and existing conditions.

3.2.1.3 Water Quality

Development of the Town Center area under the Preferred Alternative has the potential to negatively affect water quality in both George Davis and Ebright Creeks. In general, greater vehicular traffic resulting from higher density development, roads, and parking areas has the potential to build up pollutants (e.g., metals, nutrients, pathogens) on impervious surfaces. These pollutants are then transported downstream to aquatic resources during storm events. The addition of impervious surfaces and stormwater ponds also has the potential to increase surface water temperatures.

The proposed changes in land use under the Preferred Alternative have the potential to improve water quality in both creeks for some water quality parameters. The proposed allowed land uses would eliminate agriculture in and near headwater streams and wetlands. Direct access of livestock to streams and wetlands is a likely source of fecal coliform bacteria to each system (DEIS; King County, 1994). Therefore, eliminating this land use could reduce bacteria loading to the stream and ultimately Lake Sammamish. Similarly, the Preferred Alternative would result in connection to a regional wastewater treatment system. The abandonment and/or decommissioning of existing septic systems has the potential to reduce bacteria loading to both streams.

3.2.1.4 Groundwater Recharge

Development under the Preferred Alternative has the potential to change groundwater flow patterns in both the till (Qvt) and outwash and alluvial (Qvr/Qal) geologic deposits. The change in land use intensity could also impact groundwater quality.

Within the portions of the Town Center area underlain by Qvt materials, limited impacts to groundwater flow patterns are anticipated due to the low permeability of the till material, which limits recharge to deeper aquifers. The increase in impervious surface would reduce the amount

of shallow subsurface flow within the soil. Water that had traveled in the shallow subsurface would be replaced by flow discharging from the stormwater system. The storage provided in the till soils is typically greater and more distributed than storage in the stormwater system. Therefore, while the stormwater system would be designed to match peak flows discharging from the site, the system would likely result in longer duration, lower magnitude flows to downstream receiving waters. This change in timing is not anticipated to have significant impacts on the geometry of downstream receiving waters. The change in pathway (i.e. no longer stored in subsurface till) could result in adverse water quality impacts including elevated temperatures and increased pollutant loading.

Development in the Town Center area under the Preferred Alternative has the potential to impact the groundwater recharge area that exists within the Qvr materials north of the planning area. As discussed above, higher intensity land use in the Town Center has the potential to mobilize and transport greater amounts of sediment. This sediment could be deposited on top of the coarse sediments in the alluvial valley of George Davis Creek, thereby limiting infiltration. This same process could occur in the wetlands in both the Inglewood and Thompson Basins, impacting aquifer recharge functions of those wetlands.

Of primary concern is the quality of the water being recharged into the deeper aquifers in the Qva deposits that feed some of the Sammamish Plateau Sewer and Water District's (District) supply wells. As discussed above, the District utilizes groundwater for most of the domestic water supply throughout the vicinity of the Town Center. While there does not appear to be sufficient information to directly link surface streamflow and hyporheic flow in George Davis Creek to these deeper aquifers (DEIS; Herrera, 2004), there is a potential for surface waters to be conveyed downstream to permeable deposits. If development negatively affects the quality of surface water, the permeable deposits could provide a vector to contaminate deeper aquifers.

3.2.2 Mitigation Measures

There are several potential mitigation opportunities for the Preferred Alternative in and around the Sammamish Town Center area. Most of these measures are similar to the items proposed in the Draft EIS.

3.2.2.1 Incorporated Plan Elements

The Draft Town Center Plan includes many elements that would mitigate potential impacts to water resources in a programmatic manner. The following policies are considered programmatic mitigation as they are intended to guide the City in implementing plan provisions related to water resources:

NS-1.1 Planning and development in the Town Center should take special note of sensitive drainage basin issues for Ebright Creek and George Davis Creek.

NS -1.3 Regional storm water management systems should be designed and constructed as part of the master planning and development of mixed use nodes.

NS -2.1 The city should encourage green building techniques, low impact development techniques and other mechanisms to minimize environmental impacts.

NS -2.3 A program of environmental monitoring and adaptive management should be established for the Town Center

NS -3.1 New development should be focused away from natural resources and critical areas with adequate mitigation

The following strategies and recommended implementation actions have also been included in the plan and could mitigate potential impacts to water resources:

- Prepare a basin plan for the Thompson Sub-basin (Ebright Creek) identifying and quantifying problem areas and recommending capital improvement projects.
- Prepare a storm water management master plan for the Town Center that establishes a comprehensive stormwater system that would allow for more efficient placement of detention/retention ponds and other stormwater facilities.
- Require neighborhood-wide storm water facilities to be a part of mixed-use Town Center master plans.
- As part of the storm water master plan, evaluate the feasibility of a green spine open space with water quality benefits. If feasible, take public action to construct the facility.
- Evaluate adoption of standards for the use of low impact development techniques for single-family, multi-family, mixed-use, and commercial development to minimize potential stormwater quantity and quality impacts.
- Update landscape standards for the Town Center to emphasize ecological functions. Continue to implement the preservation ordinance.
- Establish roadway design standards for the Town Center that minimize runoff.
- Reduce footprint per dwelling unit with the intent of reducing the amount of land coverage and storm water runoff and providing a greater amount of vegetated open space

3.2.2.2 Other Recommended Mitigation Measures

- Implement stormwater retention/detention and treatment facilities consistent with the KCSWDM, as required by Sammamish Municipal Code.
- Develop and implement a Stormwater District specifically for the Town Center planning area. The district would have the authority to collect funds to develop, install, and maintain the planning area's stormwater system.
- Implement water quantity and quality monitoring in George Davis and Ebright Creeks, focusing on the upper watershed. This monitoring could include baseline monitoring before the project begins to better understand the effectiveness of LID techniques, if applied.
- Remove barriers to fish passage within Ebright Creek, as proposed in the East Lake Sammamish Basin Plan (DEIS; King County, 1994).
- Restore the mouth of George Davis Creek, as proposed in the Inglewood Basin Plan (DEIS; Entranco, 2005).

3.2.3 Significant Unavoidable Adverse Impacts

If the relevant plan elements and proposed mitigation measures are implemented as part of the Town Center development, significant unavoidable adverse impacts are not anticipated to result from the Preferred Alternative.

3.3 Streams, Fish, Wetlands, and Wildlife

3.3.1 Impacts of the Preferred Alternative

The Sammamish Town Center Sub-area Plan Draft EIS, provided a programmatic analysis of potential impacts to streams, fish, wetlands, wildlife, and vegetation that would likely result from the Draft EIS alternatives. As discussed in the Draft EIS (Chapter 5), the differences in impacts between the alternatives involved the amount and location of new roads proposed through streams and wetlands; forest and vegetation removal; intensity of land use; and area remaining as open space or parks.

This section of the Final EIS presents a similar programmatic analysis of the potential impacts likely to result from the Preferred Alternative. The parameters of the Preferred Alternative (number of residential units and intensity and location of proposed new development) are within the range analyzed in the Draft EIS. Thus, the overall conclusions regarding impacts to streams, fish, wetlands and wildlife generally apply to the Preferred Alternative as well.

There are approximately 60 acres (25 percent) in the Town Center area that are currently classified as wetlands[1], streams, or buffers. All of the Draft EIS action alternatives (1 through 3) and the Preferred Alternative were designed to comply with the City's Comprehensive Plan and adopted City Council Town Center vision by planning development outside of sensitive natural features (wetlands, streams, and buffers). Because of this, the differences in impacts to streams, fish, wetlands, and wildlife between the Draft EIS action alternatives and the Preferred Alternative is minimal.

Under the Preferred Alternative, the construction of new major arterial roads would cross wetland, stream, and buffers in only one location, the same as Draft EIS Alternative 3. The new loop road connecting 228th Avenue SE and SE 4th Street would cross a seasonal reach of George Davis Creek just west of 228th Avenue SE (DEIS Figure 2-1 and FEIS Figure 2-2). The Preferred Alternative would result in an estimated 40 acres of new road right of way, which is similar to Draft EIS Alternative 1 (42 acres).

The amount of area (assumed for this analysis) to be designated as public parks under the Preferred Alternative is approximately 36 acres, similar to the Draft EIS action alternatives

[1] As part of a re-zone application for a property adjacent to the Town Center, the classification of wetland 1511 is currently being reviewed. A preliminary wetland classification performed by the City in 2006 concluded that the wetland was a Type I wetland, which would require a 150 foot buffer. The maps shown in the EIS and Draft Town Center Plan reflect this classification and show the 150 foot buffer. If the ongoing review of wetland 1511 concludes that the wetland is a Type II wetland, the buffer requirement would likely be 100 feet.

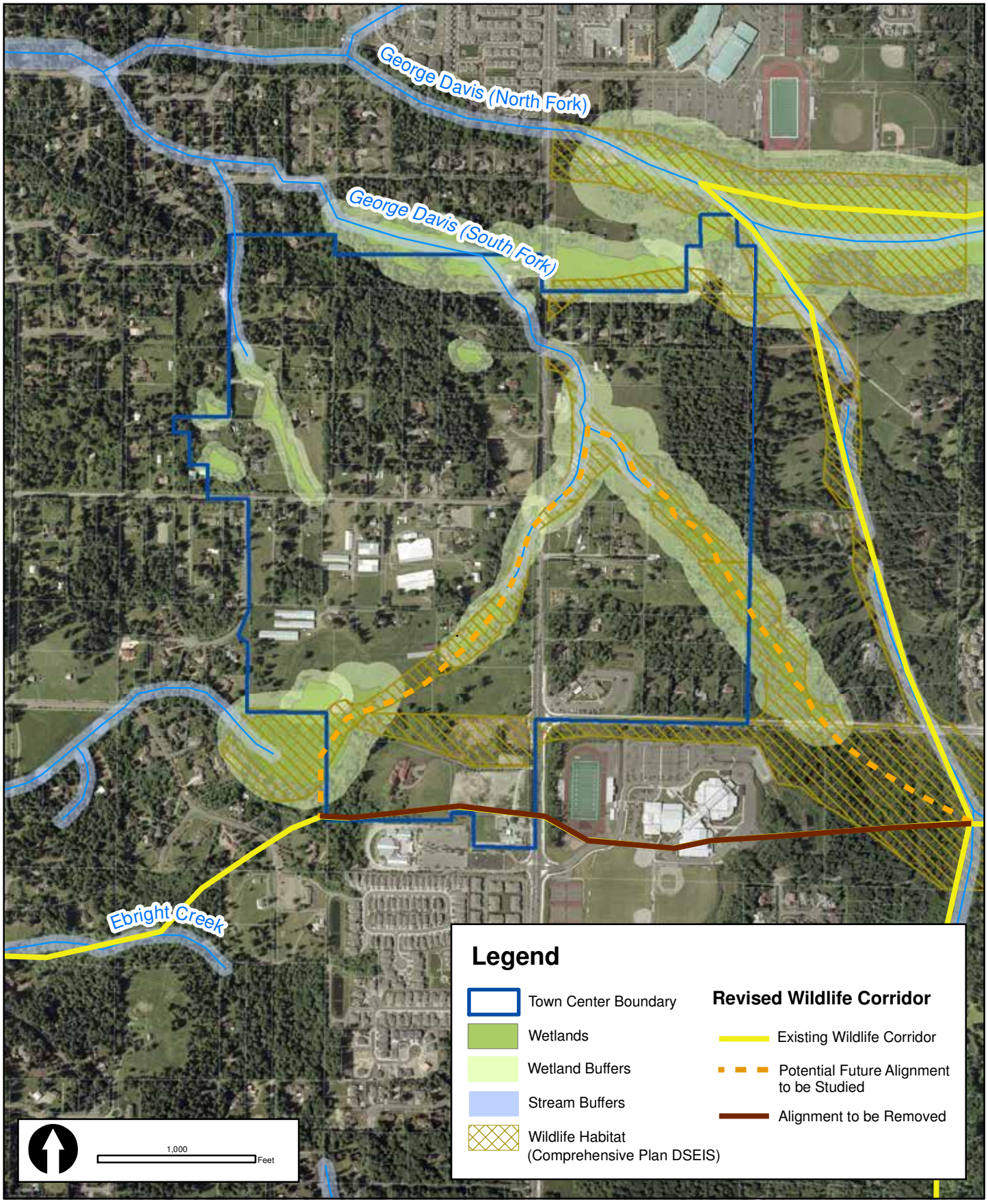
(Table 2-1). As in Alternatives 1 through 3, the Preferred Alternative proposes a trail system of interconnected private and public open spaces.

The intensity of residential development proposed under the Preferred Alternative is between Alternatives 2 and 3, with up to 2,000 housing units proposed (Table 2-2). The proposed changes in land use would result in impacts to vegetation communities and wildlife habitat functions similar to those described for the Draft EIS action alternatives. Under the Preferred Alternative, undeveloped (or underdeveloped) forested and unprotected natural areas in the Town Center would be developed within the range of intensities discussed for the action alternatives.

The City of Sammamish development code defines and regulates Fish and Wildlife Habitat Conservation Areas (HCAs) (SMC 21A.50.325). HCAs are those areas "that are essential for the preservation of critical habitat and species" and are comprised of four different categories (SMC 21A.15.468). One of the four categories is wildlife habitat corridors, which are regulated to preserve connections between habitats along the designated wildlife habitat network. The wildlife habitat network, originally designated on the King County Comprehensive Plan Wildlife Habitat Network and Public Ownership 2004 Map, is comprised of natural vegetation linking wildlife habitat with critical areas, their buffers, priority habitats, trails, parks or open spaces (DEIS; King County, 2004). Protection of the network is meant to provide for wildlife movement and alleviate the effects of habitat fragmentation.

A portion of the designated wildlife habitat network extends east to west through the southern portion of the Town Center (Figure 3-1). The construction of Skyline High School and the Sammamish City Hall, combined with increased road traffic on 228th Avenue SE, has altered the suitability of this corridor for use by wildlife. As shown in Figure 3-1, the Draft Plan proposes to study realignment of this portion of the habitat network using the original criteria developed by King County to map these networks. This current corridor segment is not well aligned with existing wetland and stream corridors (which are known preferred wildlife use areas). The new corridor alignment would be composed mostly of natural vegetation and would link critical areas and their buffers. It would eventually link trails, parks or open space planned as part of the Sammamish Town Center.

Wildlife habitat mapped during development of the Draft Supplemental EIS (2003) of the City's Comprehensive Plan is also shown on Figure 3-1. The Draft SEIS consultant team conducted a field reconnaissance of the mapped wildlife habitat network and assessed its effectiveness. The team concluded that wildlife likely utilize other stream corridors and associated wetlands and mapped these areas as wildlife habitat. The proposed realigned wildlife corridor would be consistent with these field identified wildlife habitats.



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SOURCE: City of Sammamish, 2005; King County, 2003

Sammamish Town Center Sub-Area Plan FEIS.205164

Figure 3-1

Proposed Wildlife Corridor Re-Alignment

Sammamish, Washington

3.3.2 Mitigation Measures

The mitigation proposed for streams, fish, wetlands and wildlife resources in the Draft EIS would directly apply to the Preferred Alternative. In addition, the Draft Town Center Plan includes policies, strategies, and recommended implementation actions that would avoid or mitigate impacts to streams, fish, wetlands, and wildlife.

3.3.2.1 Incorporated Plan Elements

The following Plan policies are considered programmatic mitigation because they would guide the City in implementing the Plan's measures to protect the area's biological resources:

NS -2.2 Design guidelines and other development regulations should emphasize native vegetation protection and enhancement.

NS -3.1 New development should be focused away from natural resources and critical areas with adequate mitigation

NS -3.2 The City should consider acquiring easements or land in key portions of wetlands, wetland buffers and other ecologically valuable and undevelopable lands for environmental enhancement, appropriate construction of trails, and/or consistent long-term stewardship.

The following Plan strategies and recommended implementation actions have also been included in the plan and could mitigate potential impacts to the area biological resources:

- Maintain existing vegetated corridors and enhance and restore degraded corridors. These corridors include wetland and stream buffers as well as designated wildlife corridors. Enhance these areas, primarily through vegetation planting, to increase water quality and habitat functions.
- Continue to enforce existing significant tree regulations and open space requirements for developments in the Town Center to protect water quality, maintain hydrologic functions, and habitats for special-status species.
- Create landscape standards for commercial and residential development that emphasize ecological functions of landscaped areas. One possibility is to replace landscaping standards with a green area factor that allows developers flexibility with the type of landscaping incorporated into development, but ensures a standard of ecological function.

3.3.2.2 Other Recommended Mitigation Measures

- Designate wildlife corridors by split-rail fencing and signage, where appropriate, to ensure preservation of habitats for special-status and other wildlife species. Fencing and signage should be placed so as to discourage human activities in high value habitats, but not disrupt wildlife movement patterns.
- Require the use of native plants in landscaping guidelines and where restoration of streams and wetlands is required.

3.3.3 Significant Unavoidable Adverse Impacts

Significant unavoidable adverse impacts would be similar to those identified in the Draft EIS. The Town Center area has remained relatively undeveloped, in part, because a recently lifted development moratorium has been in place since 1999. Under any of the Draft EIS alternatives or the Preferred Alternative, a significant amount of development is expected to occur in the Town Center over the next 25 years. This development is likely to result in loss of upland forest habitat. While this loss can be minimized by City ordinances and Plan elements, loss of undeveloped areas that currently serve as habitat would occur.

Also, due to the increase in population, commercial, and civic development, the area would transform from a rural or suburban environment to an urban environment. Over time, undeveloped forests and unprotected natural areas are likely to be cleared or significantly reduced and replaced with impervious surfaces, buildings, and ornamental landscaping. Wildlife associated with rural areas, such as deer and coyote, and some species of birds, amphibians, and reptiles, would be displaced.

3.4 Land Use

3.4.1 Impacts of the Preferred Alternative

This section highlights the differences between the Preferred Alternative, the Draft EIS alternatives, and current conditions as they relate to land use, housing, and population changes in the Town Center.

3.4.1.1 Land Use Pattern

Direct or indirect changes in land uses over a large area resulting from a proposal represent impacts to land use patterns. Similar to the Draft EIS action alternatives, future development in the Sammamish Town Center under the Preferred Alternative would be of higher density and intensity than currently exists or that would be allowed under the No-Action Alternative. Implementation of the Preferred Alternative would result in large scale conversion of existing land uses. The Town Center area would transform from a largely low-density suburban residential area to an urbanized neighborhood containing a variety of residential densities, retail and office uses, civic facilities, and a network of open spaces and trails. The conversion of land uses and the change in land use intensity in the Town Center would represent a significant impact to the land use pattern. However, because the change would be consistent with the City's Comprehensive Plan and Council Vision Statement for the Town Center, the impact would not be considered adverse.

As shown in Figure 2-2, the general land use pattern proposed by the Preferred Alternative is similar to that identified for the Draft EIS action alternatives. Growth in retail, mixed-use, and high-density multi-family would be focused in a core mixed-use area (CMU) on the west side of 228th Avenue, north of the Sammamish Commons, with development intensities gradually decreasing towards the surrounding neighborhoods. The plan would concentrate civic and mixed-use buildings around a centralized plaza with low and medium intensity multi-family

residential uses ringing the core area. Town houses and cottages would transition to nearby neighborhoods.

The Town Center would also include three neighborhood-scale mixed use areas (NMU): one north of City Hall in the SW quadrant and one in both the NE and SE quadrants. Residential units would be planned around the neighborhood core and transition outward (Figure 2-2).

As expressed by the number of housing units and amount of retail and office space, development intensity would be within the range analyzed in the Draft EIS. As shown on Table 1-1, the Preferred Alternative would have more housing units than Alternative 2 and less than Alternatives 1 and 3. Retail and office development would be greater than Alternatives 2 and 3, but less than Alternative 1. The amount of civic facilities would be greater than Alternatives 1 and 2, but less than Alternative 3.

3.4.1.2 Land Use Compatibility

The analysis of land use compatibility evaluates potential conflicts between adjacent or nearby land uses. These conflicts could occur between land uses within the Town Center (internal) and between land uses in the Town Center and adjacent uses outside the Town Center (external). Under the Preferred Alternative, land would become more intensively used; existing uses would be displaced and redeveloped; and building height and bulk would be increased in a manner described for the action alternatives in the Draft EIS.

As with the action alternatives, short term internal land use conflicts may occur for current residents who would experience construction noise and increased activity levels associated with the higher intensity uses allowed under the Preferred Alternative. The Draft Town Center Plan has been developed to avoid these conflicts through appropriate setbacks, landscaping, buffers and screening, and design review. These plan elements will ensure a high level of compatibility between uses within the Town Center. Once the Town Center Plan is fully implemented, land use conflicts would not be expected to persist.

External land use conflicts are not expected to result from the Preferred Alternative. As described for the action alternatives in the Draft EIS, building heights and densities would transition downward as they approach the Town Center boundary. The Draft Town Center Plan will direct land uses along the edges of the Town Center to be compatible with adjacent land uses.

3.4.1.3 Housing and Population

The majority of new Town Center housing units under the Preferred Alternative are expected to be in the medium density multi-family (3 – 4 story) or mixed-use (3 – 6 story) buildings (approximately 80 percent), with smaller percentages in town houses, cottages or ADUs (approximately 15 percent). Detached single-family homes (5 percent) will be included primarily in transition zones.

For this analysis, population estimates were generated based on the residential development assumptions of the Preferred Alternative. This is the same methodology employed in the Draft EIS. Table 3-2 shows a new residential population estimated to be up to approximately 3,300,

which is approximately 2,300 above what would be expected under the No-Action Alternative (see DEIS Table 6-6).

Table 3-2. Estimated Town Center Planning Area Population by Quadrant, 2030

	HH size	Occupancy	NW		NE		SW		SE		Total	
			Units	Pop.	Units	Pop.	Units	Pop.	Units	Pop.	Units	Pop.
Preferred Alternative												
Single-Family	3.0	100%	67	201	0	0	11	33	0	0	**78**	**234**
Townhouse	2.0	100%	22	44	90	180	40	80	166	332	**318**	**636**
Mid-rise	1.6	95%	611	929	392	596	404	614	196	298	**1,603**	**2,437**
Total			**700**	**1,174**	**482**	**866**	**455**	**767**	**362**	**796**	**1,999**	**3,307**

In comparison to existing conditions and the No-Action Alternative, adoption and implementation of the Draft Town Center Plan would result in significant change in the number and diversity of housing types and population. Although significant, the expected changes in housing and population are consistent with the City's Comprehensive Plan policies and the City Council's Town Center vision. Given this consistency, the Preferred Alternative would not result in adverse land use impacts.

3.4.2 Mitigation Measures

3.4.2.1 Incorporated Plan Elements

Potential land use impacts would largely be mitigated through elements in the Draft Town Center Plan. Features incorporated in the Plan would help in avoiding long-term internal and external land use conflicts described above. The following plan policies are considered programmatic mitigation for potential land use impacts:

LU-1.1 New development should be located and designed to reduce impacts to residential neighborhoods adjacent to the Town Center.

LU-1.5 Design guidelines should ensure that new development is characterized by human scale, integration with the surrounding landscape and, quality design.

LU-1.6 Landscaping and natural area retention should be an essential part of new development.

LU-2.1 Mixed-use activities and development should be focused in a core area north of the Sammamish Commons and in neighborhood scale mixed-use nodes in the southwest, northeast, and southeast quadrants.

LU-2.2 Development intensity in the Town Center should emphasize the "wedding cake" approach, with multi-story mixed-use in the core area and transitioning towards surrounding uses at the Town Center perimeter. Each Master Plan should be

developed and refined in coordination with affected landowners to maximize compatibility.

LU-2.4 All of the mixed-use nodes should be interconnected with a well-planned system of sidewalks, trails and pathways.

LU-5.3 The implementation strategy should address transition strategies such as landscape buffers and setbacks to mitigate impacts for noise and light on current residents and landowners within the planning area.

LU-5.4 The regulatory system for directing new development should include a master planning process for the mixed-use nodes that encourages property owners and the City to work together for mutual benefit.

LU-5.6 Design guidelines should be established to direct new development in a way that is consistent with the Town Center Plan and the Council's Vision.

Plan strategies and proposed actions that would mitigate potential land use impacts include the following:

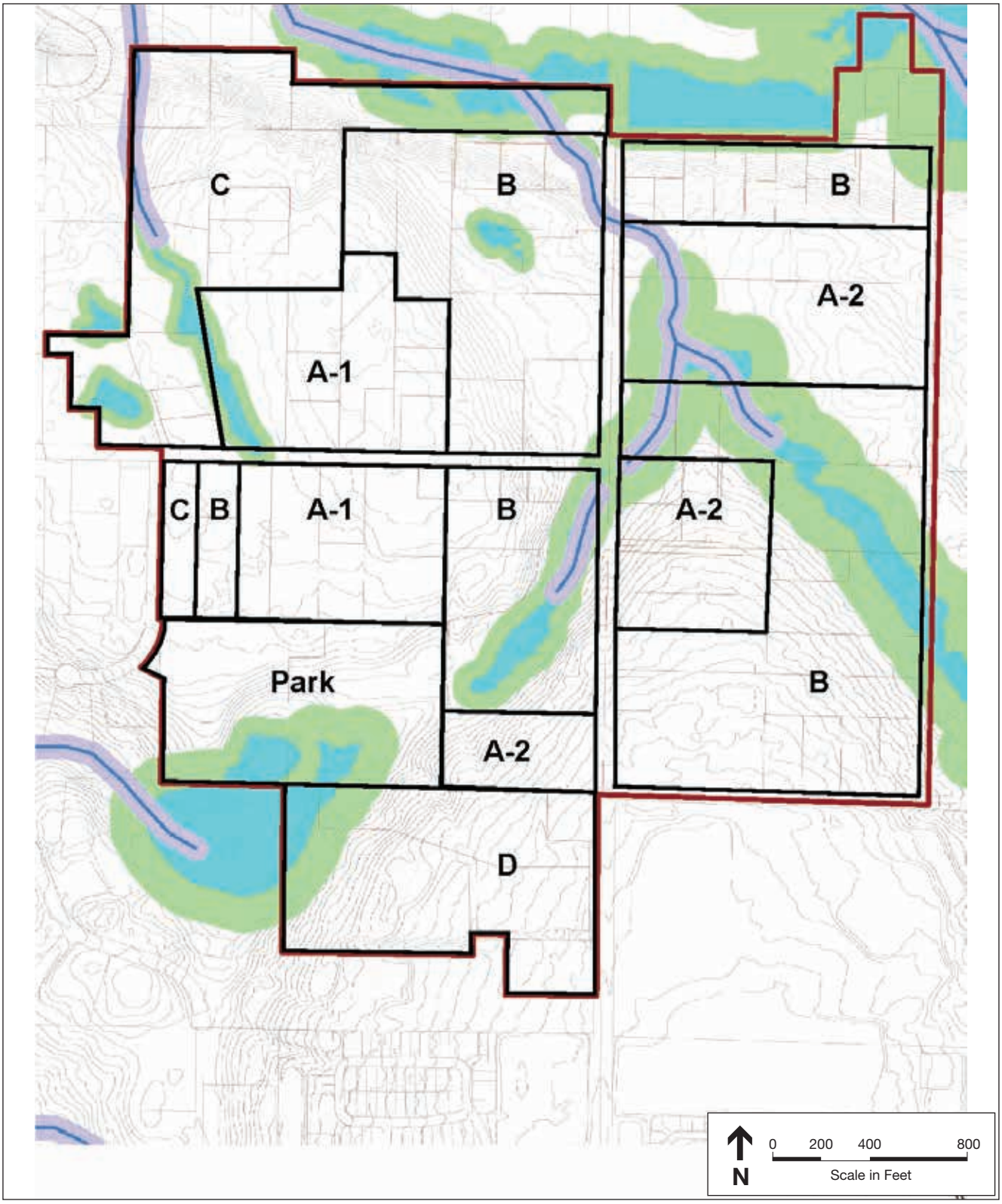
- A review process that ensures new developments integrate appropriately into the Town Center and are consistent with City and Town Center policies and development regulation.
- Design guidelines that regulate architectural scale and building mass; physically and visually integrate parking garages with other uses; and establish landscaping and screening requirements that physically and visually separate potentially conflicting uses.
- Design guidelines that require placement of building elements, such as driveways and garage service entrances to avoid excessive light, noise, and safety hazards.

In order to assure that development in the Town Center complies with City policies and is sufficiently coordinated to provide use compatibility and design consistency along with efficient circulation and infrastructure, the Draft Plan will require master planning in each of the Town Center's three mixed use areas.

The Draft Plan includes a zoning overlay that would determine where master planning is required as well as other development requirements (Figure 3-2). Development in each zone would be required to comply with a set of regulations specific for that zone (refer to the Draft Town Center Plan for details). The master plans would serve as binding site plans in development agreements in which the City and property owners agree to a general layout indicating:

- General amounts and locations of proposed land uses.
- Roads and connections to activities.
- Open space and pedestrian connections.
- Surface water management facilities and practices.

- Maximum height and bulk of buildings.
- Landscape concept or guidelines.
- Architectural concept or guidelines.



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SOURCE: MAKERS architecture + urban design, 2007.

Figure 3-2
Town Center Zoning Overlay
Sammamish, Washington

3.4.2.2 Other Recommended Mitigation Measures

Short-term land use conflicts that are created during the planning period (through 2030) by construction and conversion of uses could be mitigated through the measures identified in the Draft EIS. These could include the following:

- Phase implementation to protect areas where single-family uses are likely to remain.
- Phase City financed infrastructure to assist in controlling where development is prioritized and postpone development in areas adjacent to existing sensitive land uses.
- Monitor transition areas to maintain long-term functional transitions that do not create land use compatibility impacts.
- Require that developers provide transition assistance (as described in the Draft EIS) for neighboring properties that would be adversely impacted by the development proposal.

3.4.3 Significant Unavoidable Adverse Impacts

Similar to the Draft EIS action alternatives, under the Preferred Alternative, land use in the Town Center would significantly change over the next 25 years. The current low-density suburban landscape would be replaced with an urbanized neighborhood featuring higher intensity commercial and higher density residential land uses, as well as a change in the height, bulk, and scale of development.

While these changes would be significant relative to existing conditions and the No-Action Alternative, they would be consistent with the policies and goals established by the City Council in the City's Comprehensive Plan and Town Center Vision Statement. Given this consistency, the changes resulting from the proposed action would not be considered adverse from a land use perspective.

3.5 Transportation

As with the other elements of the environment, the analysis of transportation impacts under the Preferred Alternative is based on the baseline information identified in the Affected Environment section of the Transportation Chapter in the Draft EIS (Chapter7). This Final EIS includes an update to the traffic safety discussion. Otherwise the Affected Environment information contained in the Draft EIS remains unchanged.

3.5.1 Traffic Safety

This section identifies existing traffic safety parameters that may be affected by future Town Center development. Since the publishing of the Draft EIS, more recent collision data has become available at each of the study intersections. Table 3-3 provides a summary of the collisions that have been reported at each of the study intersections within Sammamish for the past three years.

Table 3-3. Intersection Collision Summary (2004 - 2006)

Comp Plan No.	Intersections Within the City of Sammamish	Number of Accidents				Accidents per MEV[1]
		2004	2005	2006	3-year Average	
1	228th Ave NE/NE 12th St	2	4	1	2.3	0.31
2	Sahalee Way NE/NE 37th St	1	1	1	1.0	0.15
4	228th Ave SE/SE 4th St	2	3	3	2.7	0.27
5	228th Ave SE/SE 8th St	7	6	7	6.7	0.59
6	228th Ave SE/SE 20th St	4	1	5	3.3	0.28
7	228th Ave SE/SE 24th St	3	3	4	3.3	0.26
8	228th Ave SE/Issaquah-Pine Lake Rd SE	6	3	3	4.0	0.32
9	Issaquah-Pine Lake Rd/SE Klahanie Blvd	0	0	0	0.0	0.00
10	E Lake Sammamish Pkwy/NE Inglewood Hill Rd	4	11	4	6.3	0.67
11	E Lake Sammamish Pkwy/212th Way SE	1	0	1	0.7	0.13
13	228th Ave NE/NE 8th St	2	5	3	3.3	0.23
14	192nd Dr NE/SR 202	0	0	0	0.0	0.00
17	E Lake Sammamish Pkwy/Louis Thompson Rd NE	1	0	2	1.0	0.18
18	212th Ave SE/SE 20th St	0	0	0	0.0	0.00
19	SE Duthie Hill Rd/SE Issaquah-Beaver Lake Rd	0	1	2	1.0	0.17
20	Trossachs Blvd SE/SE Duthie Hill Rd	1	6	6	4.3	0.94
21	E Lake Sammamish Pkwy/SE 24th Way	1	1	0	0.7	0.15
22	244th Ave NE/NE 8th St	0	0	0	0.0	0.00
N/A1	212th Ave SE/SE 8th St	1	0	0	0.3	0.16
N/A1	228th Ave NE/NE 25th Way	0	1	0	0.3	0.05
N/A1	228th Ave SE/E Main St	0	2	0	0.7	0.07

1. MEV = million entering vehicles

Typically locations with accident rates higher than one accident per million entering vehicles (MEV) are considered a concern. As shown in table 3-3, none of the study intersections exceeds this threshold. The highest accident rate is at Trossachs Boulevard SE/SE Duthie Hill Road (0.94 acc/mev), but is less than one acc/mev. The predominant accident type at this location involves vehicles either failing to stop or yielding the right-of-way to vehicles traveling on SE Duthie Hill Road. The next highest three-year average accident locations are at the 228th Avenue SE/SE 8th Street (6.7 accidents per year) and the East Lake Sammamish Parkway/NE Inglewood Hill Road intersections (6.3 accidents per year). At both intersections the predominant accident type due to left-turning vehicles failing to yield the right-of-way to oncoming traffic. However, the accident rate at both locations is well below the threshold for concern.

3.5.2 Impacts of the No-Action Alternative

This section provides an update to the No-Action Alternative (Alternative 4) (DEIS Chapter 7). The updated analysis accounts for an increase in background traffic growth that was not provided in the Draft EIS, but that is consistent with the background growth for the Draft EIS action alternatives and the Preferred Alternative. This change produced an increase of approximately 200 PM peak hour vehicle trips on most of the major corridors.

3.5.2.1 PM Peak Hour Trip Generation & Travel Patterns

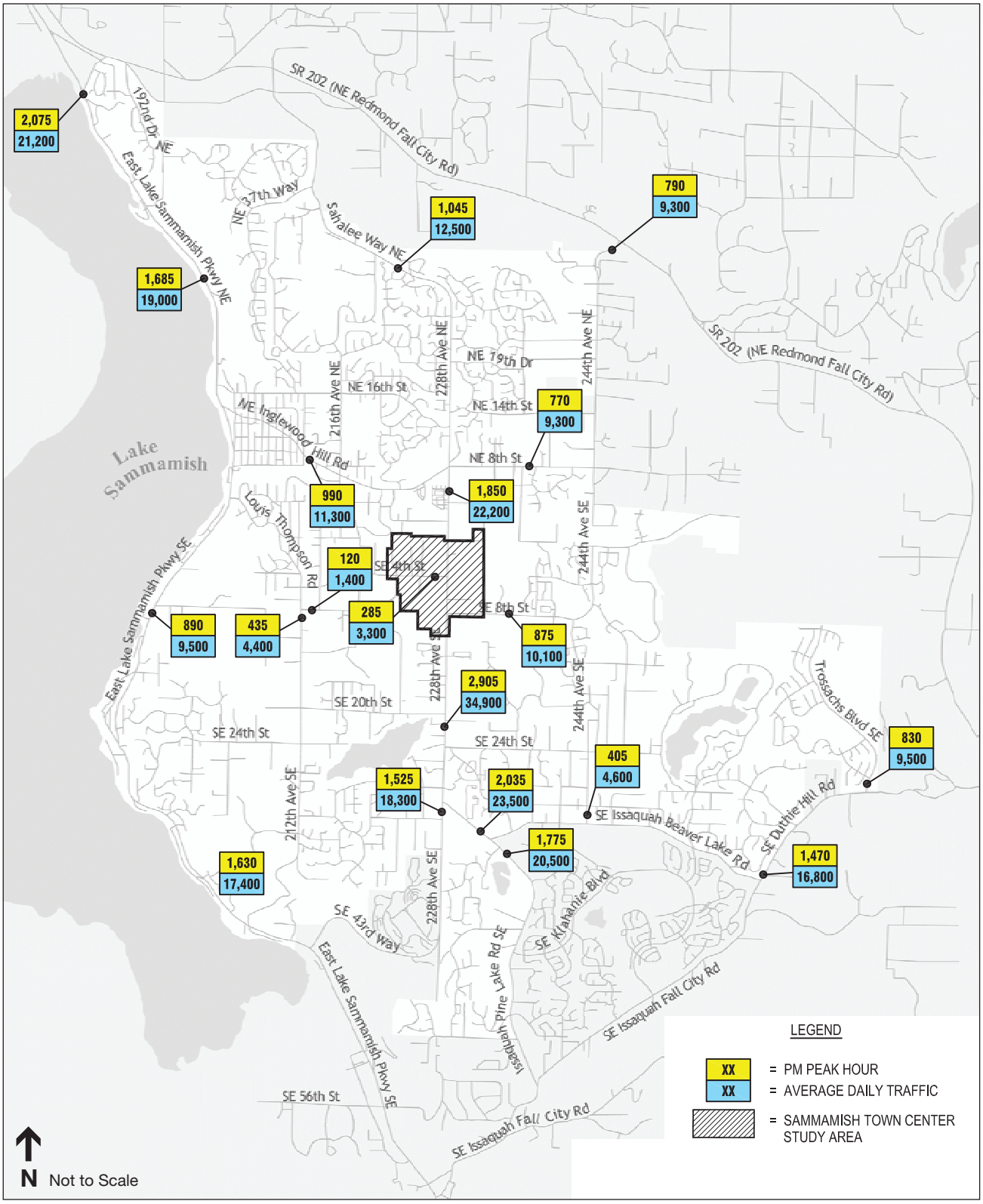
The No-Action Alternative includes the land use designations assumed in the Comprehensive Plan, which is primarily single-family (R-4). Due to the lack of retail and office components that foster the internalization of trips, single-family residential areas have very little internally captured trips. The No-Action Alternative generates just over 400 PM peak hour trips with most of the impact remaining within the city of Sammamish. Table 3-4 summarizes the trip generation under the No-Action Alternative.

Table 3-4. Sammamish Town Center 2030 No-Action PM Peak Hour Trip Generation Summary

Trip Type	Trip Generation Area	No-Action Alternative	
		Trips	Percent
1.	Connects within Town Center	10	2%
2.	Connects within Sammamish	320	78%
3.	Connects External to City	80	20%
Total Gross Trips		410	100%

3.5.2.2 Traffic Volumes

Traffic volume forecasts for the No-Action Alternative were provided through use of the City's travel demand forecast model. The traffic volumes derived from the forecasting model for the No-Action Alternative are shown in Figure 3-3.



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SOURCE: The Transpo Group, 2007.

Figure 3-3
2030 No-Action Traffic Volumes - Updated
Sammamish, Washington

The greatest increase in traffic would occur along SE 4th Street, 218th Avenue SE, and SE 8th Street west of the project site. This corridor is projected to carry approximately 1,400 daily trips under the No-Action Alternative.

The 212th Avenue SE corridor is currently projected to carry approximately 4,400 daily trips under the No-Action scenario. The 228th Avenue SE corridor just south of SE 20th Street is projected to carry approximately 30,200 daily trips under the No-Action Alternative. The SE 8th Street corridor east of 228th Avenue SE is projected to carry approximately 10,100 daily trips under the No-Action Alternative.

3.5.2.3 Traffic Operations

Traffic operations for all of the alternatives were compared through evaluation of the impacts to both intersections and roadway segments. The methodologies for evaluating both intersections and roadways are consistent with current concurrency requirements adopted by the City in January 2007. With a long-range planning horizon (2030) and traffic volume forecasts that are significantly different from current conditions, signal timings were optimized for the No-Action Alternative.

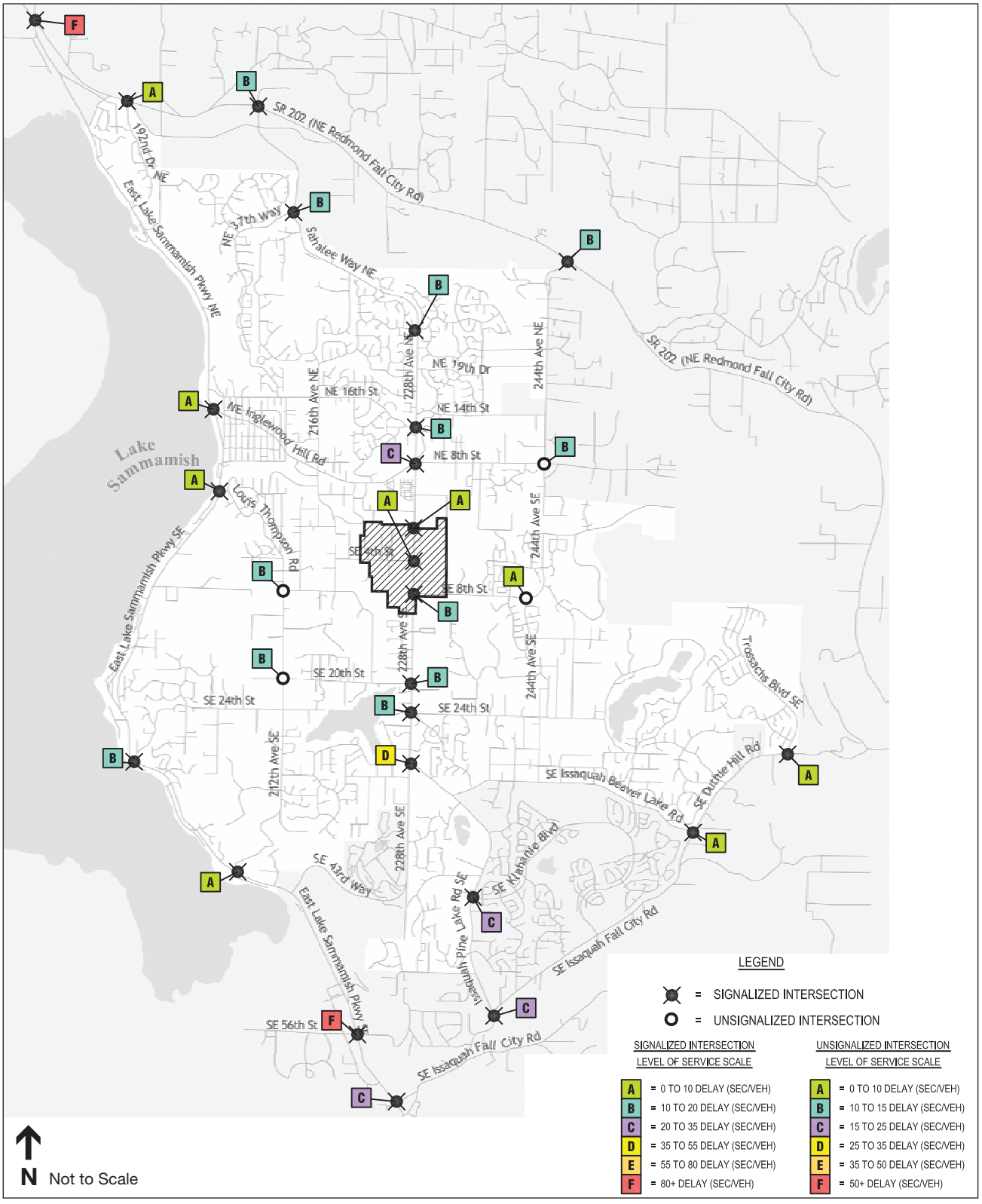
The intersection analysis focuses on evaluating the PM peak hour operations based on estimated delays, while the roadway segments were evaluated based on comparing the daily volumes to the City's planned roadway capacities. The City has established and adopted mitigation criteria for both the intersection levels of service and roadway capacities.

The intersection criteria is based on the level of service criteria established for each individual intersection. The roadway criteria is based on the average segment capacity along a roadway corridor. The future intersection operations and roadway capacities account for improvements that are funded and planned for in the City's 18-year Capital Facilities Plan. It is important to note that individual roadway segments are allowed to operate below the segment capacity as long as the average capacity along the corridor is not exceeded by the average corridor volume.

Intersection Operations

PM peak hour intersection traffic operations for the No-Action Alternative are summarized in Table 3-5 and illustrated in Figure 3-4. The City's adopted level of service (LOS) standards are shown along with the forecasted LOS operations to provide a comparison for identifying locations where potential future improvements would be needed. The City of Sammamish LOS standards are determined based on intersection control and roadway classification as described within the Comprehensive Plan. The detailed LOS worksheets are included in Appendix B.

Several intersections that are located outside of the City limits were included in this analysis. These locations were included because they have been identified as important intersections for accessing the City. Since these locations are outside of the City limits, coordination with adjacent jurisdictions would be required to implement any potential improvements. The City of Sammamish and the City of Issaquah are currently coordinating and evaluating the best approach for determining and mitigating traffic impacts from future developments in each jurisdiction.



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SOURCE: The Transpo Group, 2007.

Figure 3-4

2030 No-Action Intersection Levels of Service - Updated

Sammamish, Washington

As shown in Table 3-5 and in Figure 3-4, none of the study intersections located within the city of Sammamish are anticipated to operate below the City's LOS standard under the No-Action Alternative. There are two intersections located outside of the City limits (E Lake Sammamish Parkway/SR 202, and E Lake Sammamish Parkway/SE 56th Street) that are projected to operate at LOS F.

Table 3-5. Sammamish Town Center PM Peak Hour No-Action Intersection LOS Summary (2030)

Comp Plan No.	Intersections within the City of Sammamish	LOS Standard	Traffic Control	No-Action Alternative		
				Delay	LOS	Exceeds Standard
1	228th Ave NE/NE 12th St	D	Signalized	9.9	A	
2	Sahalee Way NE/NE 37th St	D	Signalized	9.0	A	
4	228th Ave SE/SE 4th St	D	Signalized	14.8	B	
5	228th Ave SE/SE 8th St	D	Signalized	12.4	B	
6	228th Ave SE/SE 20th St	D	Signalized	12.8	B	
7	228th Ave SE/SE 24th St	D	Signalized	16.0	B	
8	228th Ave SE/Issaquah-Pine Lake Rd SE	D	Signalized	27.2	C	
9	Issaquah-Pine Lake Rd/SE Klahanie Blvd	D	Signalized	25.7	C	
10	E Lake Sammamish Pkwy/NE Inglewood Hill Rd	C	Signalized	13.6	B	
11	E Lake Sammamish Pkwy/212th Way SE	C	Signalized	9.4	A	
13	228th Ave NE/NE 8th St	D	Signalized	32.7	C	
14	192nd Dr NE/SR 202	D	Signalized	9.8	A	
17	E Lake Sammamish Pkwy/Louis Thompson Rd NE	C	Signalized	4.8	A	
18	212th Ave SE/SE 20th St	C	AWSC	8.8	A	
19	SE Duthie Hill Rd/SE Issaquah-Beaver Lake Rd	D	Signalized	7.5	A	
20	Trossachs Blvd SE/SE Duthie Hill Rd	D	Signalized	9.9	A	
21	E Lake Sammamish Pkwy/SE 24th Way	D	Signalized	11.8	B	
22	244th Ave NE/NE 8th St	C	AWSC	13.9	B	
N/A[1]	228th Ave NE/NE 25th Way	D	Signalized	13.1	B	
N/A[1]	228th Ave SE/E Main St	D	Signalized	5.4	A	
N/A[1]	212th Ave SE/SE 8th St	C	TWSC	10.8	B	

Comp Plan No.	Intersections outside the City of Sammamish	Traffic Control	Delay	LOS
3	Sahalee Way NE/SR 202	Signalized	34.7	C
12	Issaquah-Pine Lake Rd SE/SE Issaquah-Fall City Rd	Signalized	52.0	D
15	244th Ave NE/SR 202	Signalized	31.4	C
23	E Lake Sammamish Pkwy/SR 202	Signalized	103.7	F
24	E Lake Sammamish Pkwy/SE 56th St	Signalized	137.1	F
25	E Lake Sammamish Pkwy/SE Issaquah-Fall City Rd	Signalized	31.7	C

1. N/A = Not Applicable as these intersection were not evaluated in the 2003 Comprehensive Plan.

Roadway Capacity

All of the corridors within the city would meet the City's concurrency policy as the capacity would accommodate the average volume as shown in Table 3-6. Only one individual roadway segment, SE Duthie Hill Road east of SE Issaquah Beaver Lake Road, is anticipated to exceed its individual capacity by only 10 daily trips.

Table 3-6. Sammamish Town Center Average Weekday Daily Traffic Summary (2030)

Comp Plan No.	Route Name	Segment Location	Capacity	No-Action Alternative	
				Volume	Exceeds Capacity
1-3	**East Lake Sammamish Parkway North Corridor**		**22,010**	**19,733**	
1	E Lake Sammamish Pkwy NE	s/o 187th	22,010	21,200	
2	E Lake Sammamish Pkwy NE	about NE 30th St	22,010	19,000	
3	E Lake Sammamish Pkwy NE	n/o Inglewood Hill Rd	22,010	19,000	
5-6	**East Lake Sammamish Parkway Central Corridor**		**17,370**	**9,600**	
5	E Lake Sammamish Pkwy NE	s/o Thomson Hill Rd	17,370	9,700	
6	E Lake Sammamish Pkwy NE	n/o SE 25th St	17,370	9,500	
7-8	**East Lake Sammamish Parkway South Corridor**		**20,270**	**15,250**	
7	E Lake Sammamish Pkwy NE	s/o 24th Way SE	17,370	13,100	
8	E Lake Sammamish Pkwy NE	s/o 212th Way SE	23,170	17,400	
11-14	**Louis-Thompson Road – 212th Corridor**		**10,930**	**3,875**	
11	NE Thompson Hill Rd	s/o E Lake Sammamish Pkwy	9,820	4,000	
12	212th Ave SE	s/o SE 8th St	11,425	4,400	
13	212th Ave SE	s/o SE 20th St	11,350	3,700	
14	212th Ave SE	s/o SE 32nd St	10,550	3,400	
21-23	**Sahalee Way – 228th Avenue North Corridor**		**17,950**	**15,300**	
21	Sahalee Way NE	s/o NE 37th	16,790	15,300	
22	Sahalee Way NE	n/o NE 25th	16,790	12,500	
23	228th Avenue NE	n/o NE 12th St	20,270	18,100	
24-25	**228th Avenue Central Corridor**		**34,950**	**26,200**	
24	228th Avenue NE	s/o NE 8th St	34,950	22,200	
25	228th Avenue SE	s/o SE 8th St	34,950	30,200	
26-27	**228th Avenue South Corridor**		**28,190**	**26,600**	
26	228th Avenue SE	s/o SE 20th St	34,950	34,900	
27	228th Avenue SE	s/o Issaquah Pine Lake Rd	21,430	18,300	
32-34	**Issaquah-Pine Lake Road Corridor**		**30,987**	**24,200**	
32	Issaquah-Pine Lake Rd SE	s/o 228th Ave SE	31,480	23,500	
33	Issaquah-Pine Lake Rd SE	s/o 32nd Way	23,170	20,500	
34	Issaquah-Pine Lake Rd SE	n/o SE 48th St	38,310	28,600	
35-37	**244th Avenue North Corridor**		**17,370**	**9,000**	
35	244th Ave NE	uninc, s/o SR 202	15,050	9,300	
36	244th Ave NE	n/o NE 8th	15,050	8,900	
37	244th Ave NE	s/o NE 8th St	22,010	8,800	
4	E Lake Sammamish Pkwy NE	s/o Inglewood Hill Rd	17,370	12,800	
9	SE 24th Way	e/o E Lake Sammamish Pkwy	9,420	2,600	
10	SE 24th St	w/o 212th Ave SE	9,420	1,800	
15	NE Inglewood Hill Rd	e/o E Lake Sammamish Pkwy	16,790	11,300	
16	NE Inglewood Hill Rd	w/o 228th	17,370	12,200	

Table 3-6 continued

Comp Plan No.	Route Name	Segment Location	Capacity	No-Action Alternative	
				Volume	Exceeds Capacity
17	SE 8th St	e/o 212th Ave SE	9,420	1,400	
17	218th Ave SE	n/o SE 8th St	9,420	1,400	
18	SE 4th St	w/o 228th Ave SE	16,250	3,300	
19	SE 20th St	e/o 212th Ave SE	10,950	4,700	
20	SE 20th St	w/o 228th Ave SE	11,350	5,700	
28	NE 8th St	e/o 228th Ave NE	21,430	9,300	
29	SE 8th St	e/o 228th Ave SE	20,730	10,100	
30	SE 24th St	e/o 228th Ave SE	10,550	4,900	
31	SE 24th St	w/o 244th Ave SE	10,550	5,300	
38	242nd Ave NE	n/o SE 24th	na	100	
39	244th Ave NE	s/o SE 24th	15,630	4,600	
40	SE 32nd Way	e/o Issaquah Pine Lake Rd	16,790	8,900	
41	SE 32nd St	e/o 244th Ave SE	16,790	6,400	
42	SE Issaquah-Beaver Lake Rd	w/o Duthie Hill Rd	17,950	4,200	
43	SE Duthie Hill Rd	e/o SE Issaquah Beaver Lk Rd	16,790	16,800	○
44	SE Duthie Hill Rd	w/o Trossachs Blvd	16,790	16,300	
45	Trossachs Blvd SE	n/o Duthie Hill Rd	13,680	9,500	

Corridors in bold are those that are evaluated based on the average of the individual segments.
○ Indicate roadway segments that exceed individual capacity.

3.5.3 Impacts of the Preferred Alternative

This section identifies projected transportation impacts resulting from implementation of the Preferred Alternative in the planning horizon year of 2030. Comparing the results from this section with those found in the No-Action section will identify the transportation impacts attributed to the Preferred Alternative.

Since the publication of the Draft EIS, updates to the channelization were incorporated into the intersections of SE 4th Street/228th Avenue SE and Issaquah Pine-Lake Road/SE Klahanie Boulevard to reflect planned transportation improvements. This includes correcting the channelization for the east leg of the SE 4th Street/228th Avenue SE intersection where the East Side Catholic High School access road is being built and adding the widening project along Issaquah-Pine Lake Road that was not accounted for in the Draft EIS analysis.

3.5.3.1 PM Peak Hour Trip Generation & Travel Patterns

The assessment of the amount of vehicular traffic that the Preferred Alternative would generate was based on land use quantities estimated from the Town Center Preferred Alternative conceptual land use scenario described in Chapter 2, The Description of the Alternative, and shown in Figure 2-2.

The trip generation estimates were derived from the City's travel demand forecasting model and are consistent with the trip rates and methodology used in preparing the Transportation Element

of the City's Comprehensive Plan. Table 3-7 outlines the Town Center trip generation by land use category. The residential category includes single-family and multi-family dwellings. The retail category includes everything from gas stations and fast food restaurants to specialty stores, drug stores, and supermarkets. Office land use accounts for all types of non-retail employment. Open space is a general category used in the traffic model to represent parks, playgrounds, etc.

Table 3-7. Sammamish Town Center 2030 Preferred Alternative PM Peak Hour Trip Generation Summary by Land Use

Land Use	Trips			Share	Out- bound	In- bound
	Out- bound	In- bound	Total			
Residential	420	713	1,133	23%	37%	63%
Retail/Institutional	1,572	1,423	2,995	60%	52%	48%
Office	179	45	224	4.5%	80%	20%
Open Space	329	297	626	12.5%	52%	48%
Total Trips	**2,500**	**2,478**	**4,978**	**100%**	**48%**	**52%**

The model also accounts for the production and attraction of trips between land uses. This is broken down into three types of trips as identified below:

1. Vehicular trips that would travel between uses within the Town Center planning area,
2. Vehicular trips that would occur between the Town Center and other areas within the city of Sammamish, and
3. Vehicular trips that would occur between the Town Center and locations outside of the city of Sammamish limits.

Table 3-8 shows the PM peak hour trip generation estimates for the Preferred Alternative. This includes a summary of the three trip types described above.

Table 3-8. Sammamish Town Center PM Peak Hour Trip Generation Summary

Trip Type	Trip Generation Area	Preferred Alternative	
		Trips	Percent
1.	Connects Within Town Center	1,468	30%
2.	Connects Within Sammamish	2,394	48%
3.	Connects External to City	1,116	22%
Total Gross Trips		**4,978**	**100%**

As shown in Tables 3-7 and 3-8, the Town Center planning area is estimated to generate approximately 5,000 gross PM peak hour trips under the Preferred Alternative. This falls just

below Alternative 1. These trip generation estimates are conservatively high as they do not account for any reductions due to added transit service or other Transportation Demand Management (TDM) strategies that could potentially reduce travel demand.

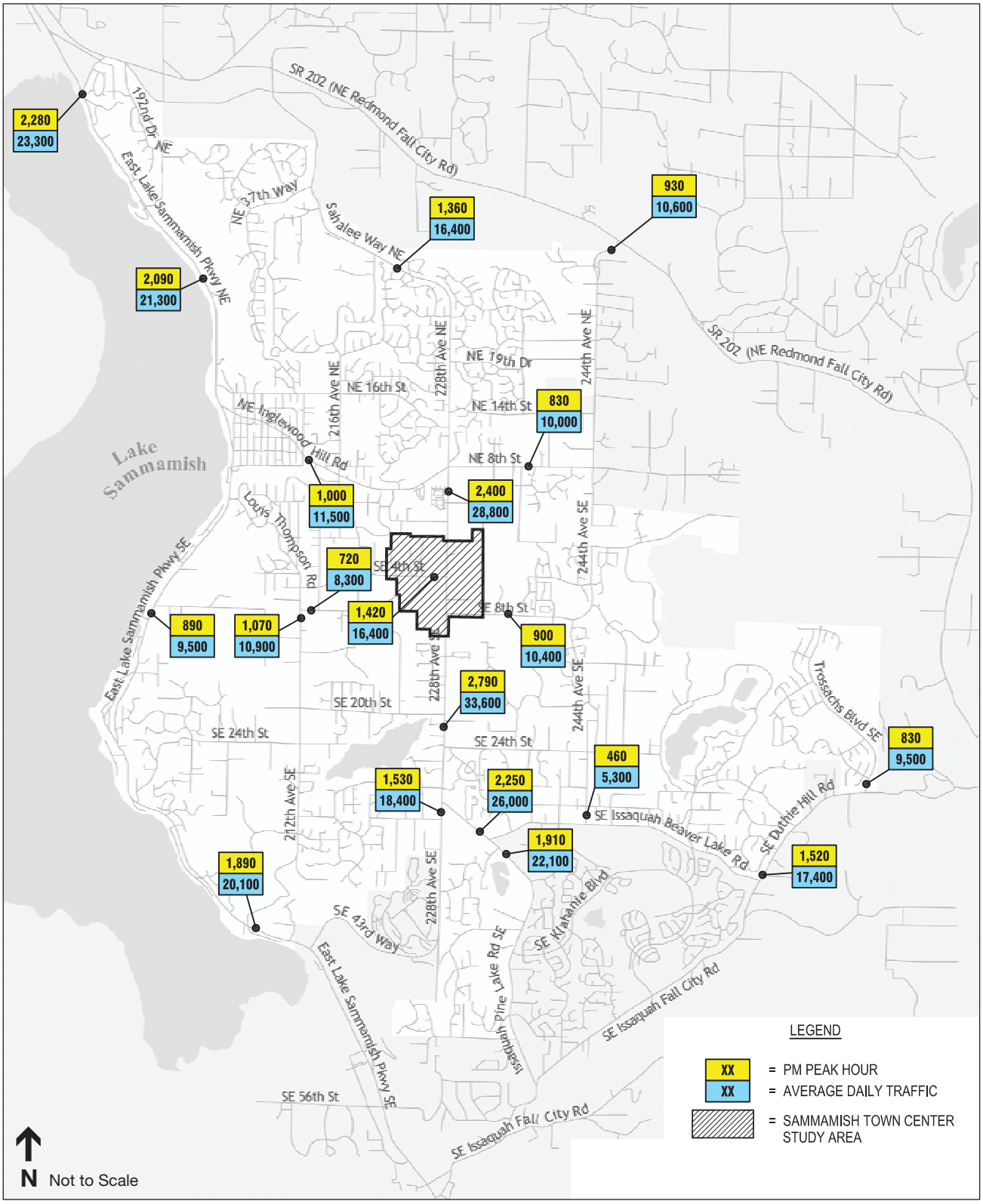
The majority of traffic traveling to/from outside the Town Center under the Preferred Alternative would travel along 228th Avenue SE with approximately the same number traveling north (30 percent) as south (30 percent). The remaining external trips would travel to/from the west along SE 4th Street and east along SE 8th Street. A greater amount of the non-228th Avenue SE traffic would travel to/from the west on SE 4th Street (30 percent). Of the traffic heading west on SE 4th Street, approximately half would ultimately be coming to/from the north and half to/from the south.

3.5.3.2 Traffic Volumes

Traffic volume forecasts for the year 2030 with the development of the Preferred Alternative were generated through use of the City's travel demand forecast model and are shown in Figure 3-5. The specific assignment and distribution of traffic from the preferred alternative can be seen in the model plots included in Appendix C.

In general the corridors immediately surrounding the Town Center area would have the highest levels of traffic volume growth. The greatest increase in traffic would occur along SE 4th Street, 218th Avenue SE, and SE 8th Street west of the project site. This corridor is projected to carry a total of approximately 8,300 daily trips under the Preferred Alternative. This includes both background and Town Center traffic. The 212th Avenue SE corridor is currently projected to carry approximately 10,900 daily trips under the Preferred Alternative. This indicates that vehicular traffic to/from the Town Center area would be utilizing the corridors to the west as relief from the congested areas along 228th Avenue SE.

The 228th Avenue SE corridor just south of SE 20th Street is projected to carry approximately 33,600 daily trips under the Preferred Alternative. The SE 8th Street corridor east of 228th Avenue SE is projected to carry a total of approximately 10,400 daily trips under the Preferred Alternative. Town Center traffic that would otherwise travel along 228th Avenue SE and SE 8th Street is diverted to 234th Avenue SE and then onto SE 8th Street by the addition of the roadway connection from the Town Center.



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SOURCE: The Transpo Group, 2007; DEA Inc, 2007.

Figure 3-5
2030 Preferred Alternative Traffic Volumes
Sammamish, Washington

3.5.3.3 Traffic Operations

Traffic operations under the Preferred Alternative were evaluated for their impact to both intersections and roadway segments. The intersection analysis focused on evaluating the PM peak hour operations based on estimated delays. The roadway segments were evaluated based on comparing the daily volumes to the City's planned roadway capacities. The future capacities are based on those improvements that are funded and planned for in the City's 18-year Capital Facilities Plan. The methodologies for evaluating both intersections and roadways were consistent with those used in the Transportation Element of the City's Comprehensive Plan and the Town Center Draft EIS. With a long-range planning horizon (2030) and traffic volume forecasts that are significantly different from current conditions, signal timings were optimized for the Preferred Alternative.

Intersection Operations

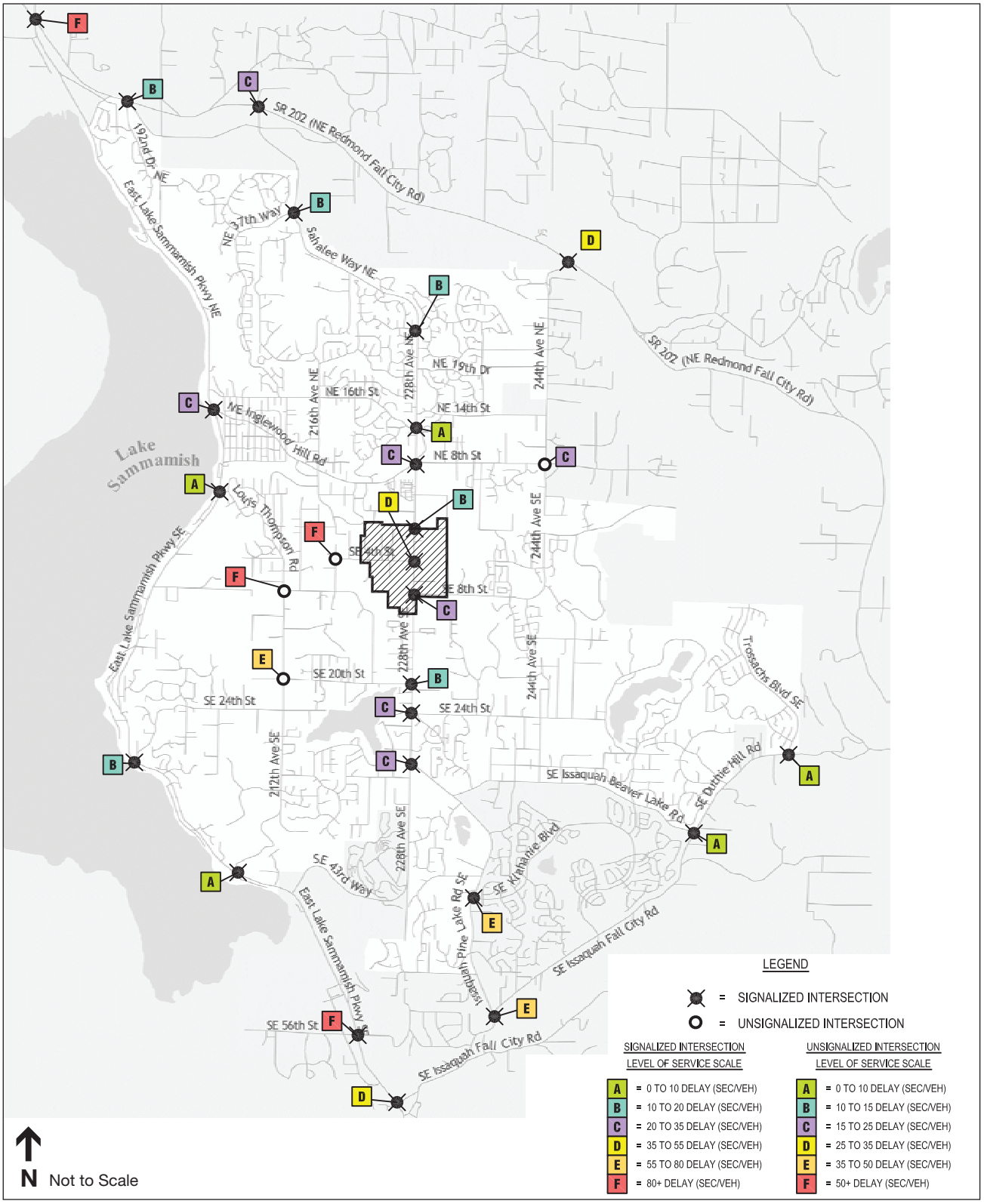
PM peak hour intersection traffic operations for the Preferred Alternative are summarized in Table 3-9 and illustrated in Figure 3-6. The City's adopted LOS standards are shown along with the forecasted LOS operations to provide a comparison for identifying locations where potential future improvements would be needed. The City of Sammamish LOS standards are determined based on intersection control and roadway classification as described within the Comprehensive Plan. The detailed LOS worksheets are included in Appendix B.

Several intersections that are located outside of the City limits were included in this analysis. These locations were included since they have been identified as important intersections for accessing the City. Since these locations are outside of the City limits, coordination with adjacent jurisdictions would be required to implement any potential improvements. The City of Sammamish and the City of Issaquah are currently coordinating and evaluating the best approach for determining and mitigating traffic impacts from future developments in each jurisdiction.

In general, under the Preferred Alternative, traffic operations at many key individual intersections within the City would degrade slightly. Most of the intersections would operate at acceptable standards when timing plans are optimized. The LOS at two city intersections would degrade below City standards. These locations are indicated in Table 3-9.

Intersection operations along 228th Avenue SE would generally operate at acceptable levels but some areas would have significant queuing and would potentially have long delays on some of the minor street approaches.

Under the Preferred Alternative, one study intersection within the city of Sammamish is forecast to operate below the City's LOS standards: 212th Avenue SE/SE 8th Street (LOS F).



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SOURCE: The Transpo Group, 2007.

Figure 3-6

2030 Preferred Alternative Intersection Levels of Service

Sammamish, Washington

Table 3-9. Sammamish Town Center 2030 Preferred Alternative PM Peak Hour Intersection LOS Summary

Comp Plan No.	Intersections within the City of Sammamish	LOS Standard	Traffic Control	Preferred Alternative		
				Delay	LOS	Exceeds Standard
1	228th Ave NE/NE 12th St	D	Signalized	9.2	A	
2	Sahalee Way NE/NE 37th St	D	Signalized	10.5	B	
4	228th Ave SE/SE 4th St	D	Signalized	41.1	D	
5	228th Ave SE/SE 8th St	D	Signalized	27.6	C	
6	228th Ave SE/SE 20th St	D	Signalized	15.7	B	
7	228th Ave SE/SE 24th St	D	Signalized	21.8	C	
8	228th Ave SE/Issaquah-Pine Lake Rd SE	D	Signalized	27.1	C	
9	Issaquah-Pine Lake Rd/SE Klahanie Blvd	D	Signalized	23.3	C	
10	E Lake Sammamish Pkwy/NE Inglewood Hill Rd	C	Signalized	21.2	C	
11	E Lake Sammamish Pkwy/212th Way SE	C	Signalized	9.9	A	
13	228th Ave NE/NE 8th St	D	Signalized	32.2	C	
14	192nd Dr NE/SR 202	D	Signalized	10.5	B	
17	E Lake Sammamish Pkwy/Louis Thompson Rd NE	C	Signalized	6.2	A	
18	212th Ave SE/SE 20th St	C	AWSC	22.6	C	
19	SE Duthie Hill Rd/SE Issaquah-Beaver Lake Rd	D	Signalized	8.3	A	
20	Trossachs Blvd SE/SE Duthie Hill Rd	D	Signalized	9.6	A	
21	E Lake Sammamish Pkwy/SE 24th Way	D	Signalized	11.9	B	
22	244th Ave NE/NE 8th St	C	AWSC	15.6	C	
N/A[1]	228th Ave NE/NE 25th Way	D	Signalized	14.3	B	
N/A	228th Ave SE/E Main St	D	Signalized	16.0	B	
N/A	212th Ave SE/SE 8th St	C	TWSC	68.5	F	●
N/A	218th Ave SE/SE 4th St	C	TWSC	>80.0	F	●

Comp Plan No.	Intersections outside the City of Sammamish	Traffic Control	Delay	LOS
3	Sahalee Way NE/SR 202	Signalized	31.7	C
12	Issaquah-Pine Lake Rd SE/SE Issaquah-Fall City Rd	Signalized	63.1	E
15	244th Ave NE/SR 202	Signalized	43.1	D
23	E Lake Sammamish Pkwy/SR 202	Signalized	121.3	F
24	E Lake Sammamish Pkwy/SE 56th St	Signalized	95.5	F
25	E Lake Sammamish Pkwy/SE Issaquah-Fall City Rd	Signalized	37.5	D

1. N/A = Not Applicable as these intersection were not evaluated in the 2003 Comprehensive Plan.

● Indicates intersections that exceed the LOS standard.

AWSC – All-way stop-controlled

TWSC – Two-way stop-controlled

The stop-controlled intersections of 212th Avenue SE at SE 8th Street and 218th Avenue SE at SE 4th Street would operate below the LOS standard with the increased demand from traffic to and from the area west of the Town Center. These corridors would become more heavily used to access the Town Center as congestion on 228th Avenue SE increases. The locations of these intersections are identified in Figures 3-6 and 3-7 with potential channelization improvements described in the mitigation section (FEIS section 3.5.4).

The Preferred Alternative also affects three intersections located outside of the city limits (Issaquah-Pine Lake Rd SE/SE Issaquah-Fall City Rd, E Lake Sammamish Parkway/SR 202, and E Lake Sammamish Parkway/SE 56th Street) which would operate at LOS E or F. Ongoing coordination between the City of Sammamish and the adjacent jurisdictions is recommended to identify the ultimate needs and mechanisms for funding potential improvements at those locations.

Roadway Capacity

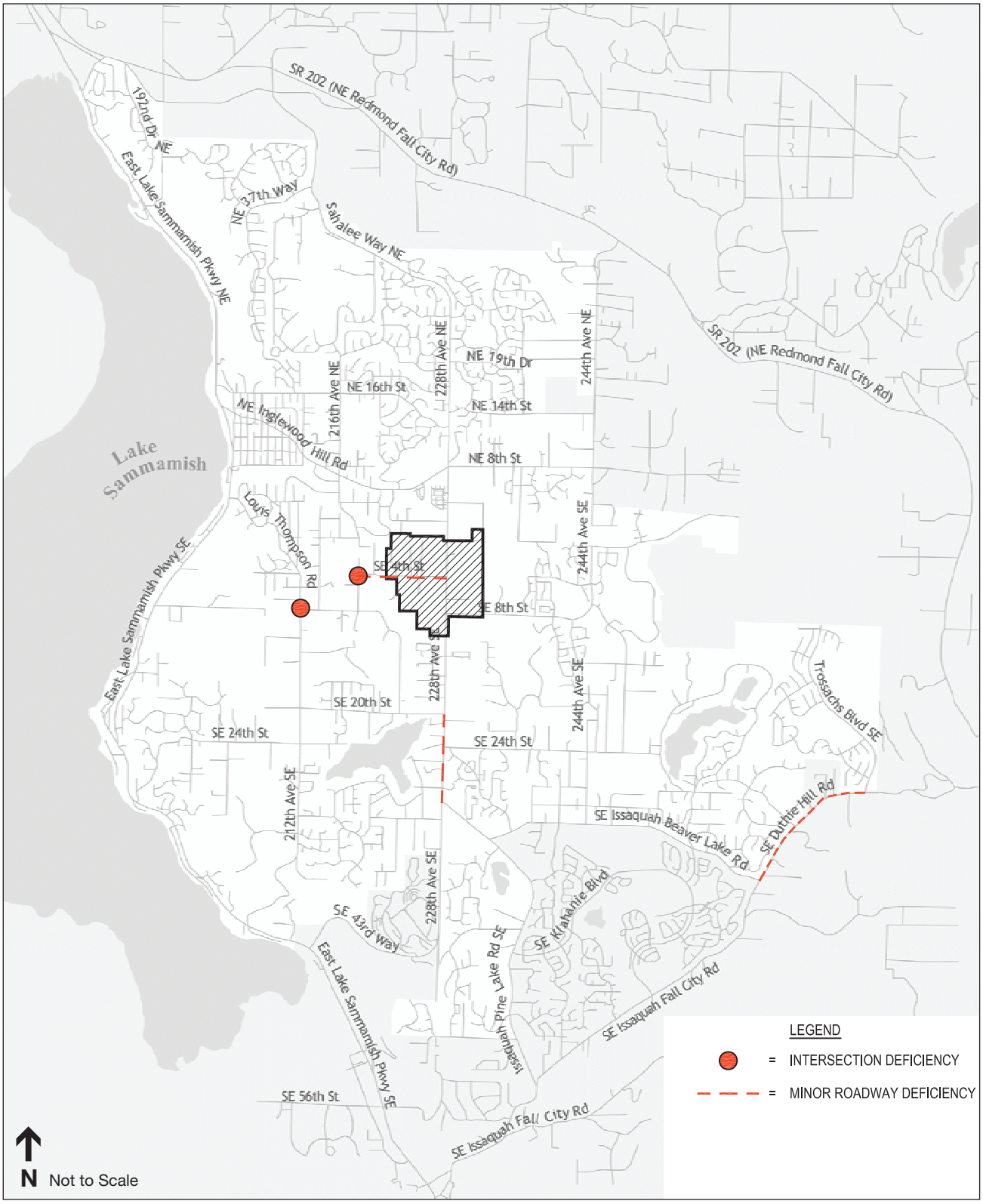
The average weekday traffic volumes for all of the roadway segments are summarized in Table 3-10 along with their future planned capacities. The future capacities are based on those improvements that are funded and planned for in the City's 18-year Capital Facilities Plan. Long-range improvements identified in the comprehensive plan that are not certain of being completed or funded were not accounted for. In Table 3-10 the locations that exceed capacity are further identified as being minor (0 to 5 percent over capacity), moderate (5 to 10 percent over capacity), or significant (10 to 15 percent over capacity).

In general, the Preferred Alternative would have impacts that would exceed the capacity of six roadway segments. The potential need for roadway improvements (beyond what is identified in the Capital Facilities Plan) are described in the mitigation section (section 3.5.4).

When evaluating the roadway capacity thresholds established by the City, one corridor and three roadway segments are forecast to exceed the established thresholds (Table 3-10). The roadway segments exceeding the City's capacity thresholds are listed below and identified in Figure 3-7:

- SE 4th Street west of 228th Avenue NE;
- 228th Avenue SE South Corridor;
- SE Duthie Hill Road east of SE Issaquah Beaver Lake Road; and
- SE Duthie Hill Road west of Trossachs Boulevard.

All of the failing roadway corridors have only minor deficiencies, with the demand only exceeding the planned capacity by less than five percent. Corridors with minor deficiencies can be more easily mitigated through Transportation Demand Management (TDM) strategies. Specific approaches to mitigating the impacts are discussed in more detail in the Mitigation section of this document (Section 3.5.4).



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SOURCE: The Transpo Group, 2007.

Figure 3-7

2030 Preferred Alternative Intersection and Roadway Deficiencies

Sammamish, Washington

Table 3-10. Sammamish Town Center Average Weekday Daily Traffic Summary (2030)

Comp Plan No.	Route Name	Segment Location	Capacity	Preferred Alternative	
				Volume	Exceeds Capacity
1-3	**East Lake Sammamish Parkway North Corridor**		**22,010**	**21,967**	
1	E Lake Sammamish Pkwy NE	s/o 187th	22,010	23,300	
2	E Lake Sammamish Pkwy NE	about NE 30th St	22,010	21,300	
3	E Lake Sammamish Pkwy NE	n/o Inglewood Hill Rd	22,010	21,300	
5-6	**East Lake Sammamish Parkway Central Corridor**		**17,370**	**9,150**	
5	E Lake Sammamish Pkwy NE	s/o Thomson Hill Rd	17,370	9,500	
6	E Lake Sammamish Pkwy NE	n/o SE 25th St	17,370	8,800	
7-8	**East Lake Sammamish Parkway South Corridor**		**20,270**	**16,000**	
7	E Lake Sammamish Pkwy NE	s/o 24th Way SE	17,370	11,900	
8	E Lake Sammamish Pkwy NE	s/o 212th Way SE	23,170	20,100	
11-14	**Louis Thomson Road – 212th Corridor**		**10,930**	**8,175**	
11	NE Thompson Hill Rd	s/o E Lake Sammamish Pkwy	9,820	6,000	
12	212th Ave SE	s/o SE 8th St	11,425	10,900	
13	212th Ave SE	s/o SE 20th St	11,350	8,300	
14	212th Ave SE	s/o SE 32nd St	10,550	7,500	
21-23	**Sahalee Way – 228th Avenue North Corridor**		**17,950**	**17,000**	
21	Sahalee Way NE	s/o NE 37th	16,790	16,400	
22	Sahalee Way NE	n/o NE 25th	16,790	14,000	
23	228th Avenue NE	n/o NE 12th St	20,270	20,600	
24-25	**228th Avenue Central Corridor**		**34,950**	**31,200**	
24	228th Avenue NE	s/o NE 8th St	34,950	28,800	
25	228th Avenue SE	s/o SE 8th St	34,950	33,600	
26-27	**228th Avenue South Corridor**		**28,190**	**28,500**	○
26	228th Avenue SE	s/o SE 20th St	34,950	38,600	
27	228th Avenue SE	s/o Issaquah Pine Lake Rd	21,430	18,400	
32-34	**Issaquah-Pine Lake Road Corridor**		**30,987**	**26,067**	
32	Issaquah-Pine Lake Rd SE	s/o 228th Ave SE	31,480	26,000	
33	Issaquah-Pine Lake Rd SE	s/o 32nd Way	23,170	22,100	
34	Issaquah-Pine Lake Rd SE	n/o SE 48th St	38,310	30,100	
35-37	**244th Avenue North Corridor**		**17,370**	**10,033**	
35	244th Ave NE	Uninc, s/o SR 202	15,050	10,600	
36	244th Ave NE	n/o NE 8th	15,050	10,400	
37	244th Ave NE	s/o NE 8th St	22,010	9,100	
4	E Lake Sammamish Pkwy NE	s/o Inglewood Hill Rd	17,370	13,800	
9	SE 24th Way	e/o E Lake Sammamish Pkwy	9,420	1,900	
10	SE 24th St	w/o 212th Ave SE	9,420	2,400	
15	NE Inglewood Hill Rd	e/o E Lake Sammamish Pkwy	16,790	11,500	
16	NE Inglewood Hill Rd	w/o 228th	17,370	11,100	
17	SE 8th St	e/o 212th Ave SE	9,420	8,300	
17	218th Ave SE	n/o SE 8th St	9,420	8,200	
18	SE 4th St	w/o 228th Ave SE	16,250	16,400	○
19	SE 20th St	e/o 212th Ave SE	10,950	5,900	
20	SE 20th St	w/o 228th Ave SE	11,350	6,700	
28	NE 8th St	e/o 228th Ave NE	21,430	10,000	
29	SE 8th St	e/o 228th Ave SE	20,730	10,400	
30	SE 24th St	e/o 228th Ave SE	10,550	5,300	

Table 3-10 continued

Comp Plan No.	Route Name	Segment Location	Capacity	Preferred Alternative	
				Volume	Exceeds Capacity
31	SE 24th St	w/o 244th Ave SE	10,550	5,700	
38	242nd Ave NE	n/o SE 24th	na	100	
39	244th Ave NE	s/o SE 24th	15,630	5,300	
40	SE 32nd Way	e/o Issaquah Pine Lake Rd	16,790	8,700	
41	SE 32nd St	e/o 244th Ave SE	16,790	7,500	
42	SE Issaquah-Beaver Lake Rd	w/o Duthie Hill Rd	17,950	5,000	
43	SE Duthie Hill Rd	e/o SE Issaquah Beaver Lk Rd	16,790	17,400	○
44	SE Duthie Hill Rd	w/o Trossachs Blvd	16,790	16,800	○
45	Trossachs Blvd SE	n/o Duthie Hill Rd	13,680	9,500	

○ Minor: Exceeds capacity by less than 5 percent

⊙ Moderate: Exceeds capacity by 5-10 percent

● Significant: Exceeds capacity by more than 10 percent

3.5.3.4 Site Access & Town Center Circulation Roadways

Under the Preferred Alternative, four primary roadways would provide access for the Town Center planning area. These include 228th Avenue SE, E Main Street, SE 4th Street, and SE 8th Street. Access from these primary roadways would be provided via a new roadway network as illustrated in Figure 2-3. The cross-sections of the roadways identified in Figure 2-3 are illustrated in Figure 2-4.

The majority of traffic coming to and from the Town Center would utilize 228th Avenue SE as it is the primary arterial traveling north/south through the Town Center area and through the entire City. Primary access points along 228th Avenue SE would be limited to the major signalized intersections at E Main Street, SE 4th Street and SE 8th Street. From the signalized intersection at E Main Street, access and circulation through the northwest quadrant to the west would be provided via a new connector road to SE 4th Street. This would require modifications to the E Main Street/228th Avenue SE signal to accommodate a forth leg on the west approach. Improving Main Street to the east of 228th Avenue SE would provide access and circulation to the northeast quadrant. In addition, converting East Side Catholic High School's private roadway into a public city street would provide access and circulation for the eastern half of the Town Center. Secondary access points along 228th Avenue SE would be limited and are likely to be restricted to right-in/right-out only operations.

Access and local circulation would also be provided via the east-west streets of E Main Street, SE 4th Street, and SE 8th Street. These streets would provide more direct access to the local internal roadway network and have lower volumes of traffic than 228th Avenue SE. Full turning movement access from these streets can occur through proper location and design of intersections. This would require that access locations meet City intersection spacing and sight distance standards. It is also desirable that intersections on each side of the roadway be aligned to prevent turning conflicts and other potential safety problems. It is anticipated that most locations along these roadways could be adequately controlled with stop controlled cross streets with the exception of the two central main access points on SE 4th Street, which would serve the majority of development west of 228th Avenue SE and the main access point to SE 8th Street.

One, if not both, of the central access points on SE 4th Street west of 228th Avenue SE would benefit from either a traffic signal or roundabout for traffic control. The traffic volumes on SE 4th Street are forecast to be high enough to meet signal warrants and left turning vehicles would have difficulty finding acceptable gaps to enter the flow of traffic with stop-controlled operations. Installing a traffic signal or roundabout would provide the developable areas west of 228th Avenue SE with safe and efficient access to SE 4th Street and allow for safer pedestrian crossings. The main access point to SE 8th Street would also meet signal warrants and benefit from the installation of a traffic signal. This access point is located on the slope of SE 8th Street and future consideration should be given to improving sight distances along this corridor. If a traffic signal is installed, special design considerations would be needed to accommodate adequate sight distances and intersection design. A roundabout at this location is less than ideal given the existing grades along SE 8th Street.

The Preferred Alternative would provide a high level of connectivity in the northwest and east quadrants with new roadways providing through connections to the surrounding arterials and collector streets. The northwest and northeast quadrants include connections between SE 4th Street and 228th Avenue SE at the Main Street intersection. These connections provide for added circulation options reducing impacts to the intersection of SE 4th Street/228th Avenue SE, which is located within the heart of the Town Center and would be heavily utilized. Providing the connections through the northeast and northwest quadrants would be more difficult than a typical road due to the significant topography challenges and potential impacts to wetlands. The southeast quadrant includes a through connection between SE 4th Street and SE 8th Street, which provides for adequate circulation and access through this quadrant.

Access points should be located where adequate sight distance is available. This may require significant grading or improvement to the existing roadway profile along SE 4th Street or SE 8th Street to minimize the sight restrictions created by the vertical curves. Any future widening or improvements to these roadways would need to account for improving sight distance. Turning restrictions and other access management practices would also need to be incorporated at locations where sight distances, spacing, or other safety standards are not able to be met.

3.5.3.5 Parking

Specific quantities for parking demand and supply are not identified at this level of planning analysis. Those quantities will be determined through project level environmental review as individual projects within the Town Center are developed. Parking supply requirements for new developments are detailed in Chapter 21A.40 of the Sammamish Municipal Code.

Much of the parking for the Preferred Alternative would be provided through a combination of surface parking lots and parking garages. Because of the dense levels of mixed-use development envisioned under the Preferred Alterative, parking garages could be more easily accommodated and feasible for developers to build. Accommodating parking in garages, either as part of development or as stand alone structures would provide for a more efficient use of land, allow for more developable area, foster a more pedestrian oriented environment, and require less impervious surface. The Preferred Alternative would also provide a mix of land use options, which could increase opportunities for shared parking. This is desirable given that the topography will likely limit the ability to accommodate large surface parking lots.

3.5.3.6 Non-Motorized Facilities

In general, the Preferred Alternative provides a comprehensive network of non-motorized facilities that would include bike lanes, recreation trails, sidewalks, and connections between developments (see Figure 2-5).

All new streets would be designed to meet City standards and include sidewalks, bike lanes (where appropriate), crosswalks or walkway structures at critical areas, and landscaping to enhance the non-motorized system. There are also many opportunities to provide recreational trails and other pedestrian connections along some of the environmentally sensitive areas, which could provide key connections among the various developable areas.

The more dense and urban the development scenario, the more non-motorized facilities are likely to be used and needed. With higher density development proposals, a pedestrian friendly environment with amenities to encourage the use of non-motorized travel could provide some relief from vehicular congestion.

Consideration will need to be given to the location and design of pedestrian crossings for the Preferred Alternative. Enhanced pedestrian crossing areas are already provided along 228th Avenue SE, but crossings of SE 4th Street and SE 8th Street would need to be enhanced with development. These roadways are anticipated to have a significant level of crossings, which would require special treatment to provide for safe and controlled pedestrian mobility.

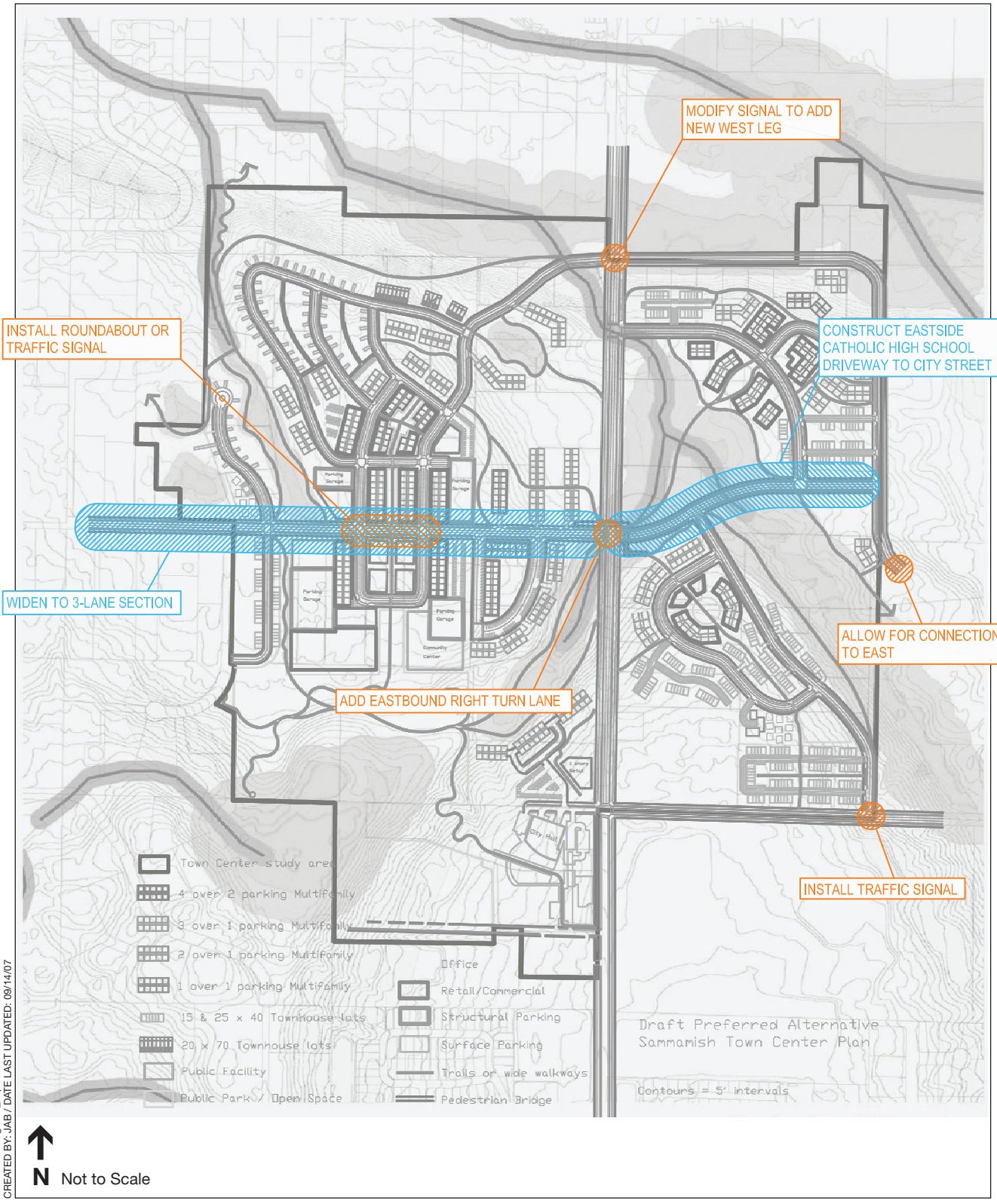
Pedestrian and bicycle facilities west of the Town Center are very limited. With the increase in traffic to the west of the Town Center along SE 4th Street, 218th Avenue SE, and SE 8th Street, consideration should be given to providing additional pedestrian and bicycle facilities. This may include providing paved shoulders, a pedestrian path, sidewalks, and possibly bike lanes.

3.5.3.7 Transit Impacts

Transit service within the City of Sammamish is limited to the north-south corridor of 228th Avenue SE. Additional transit service could be supported through the Town Center planning area for the Preferred Alternative. The Preferred Alternative would likely provide enough development to justify increased transit access, frequency, and service. This is more easily accommodated with internal roadway networks that provide enhanced roadway connectivity between developable areas. The design of the internal roadways should consider their potential use for transit through evaluating turning radii, grades, and locations of bus stops and pedestrian crossings. Providing more transit service in addition to providing amenities and enhancements that will foster the use of transit will help reduce the vehicular impacts to area roadways.

3.5.4 Mitigation Measures

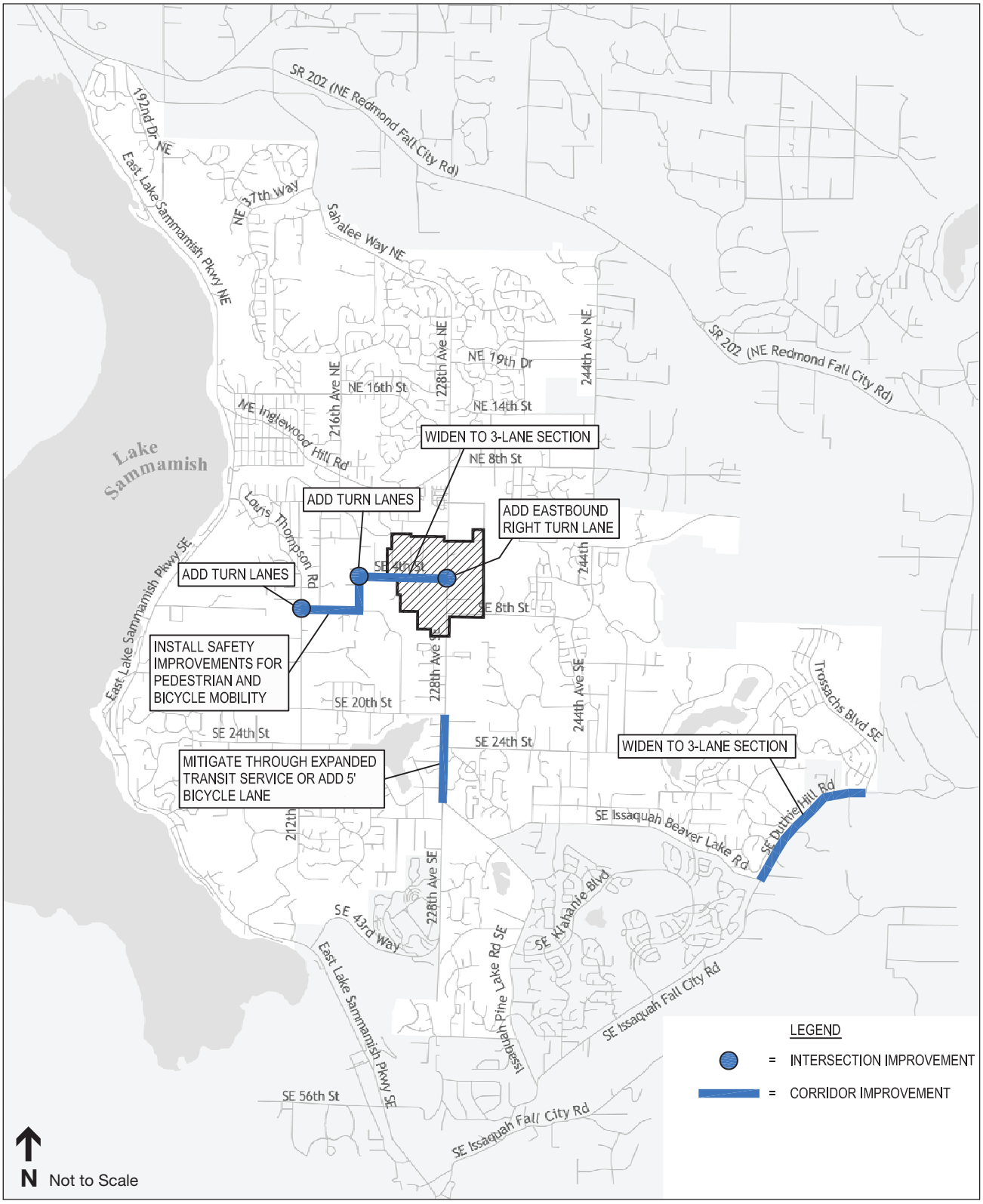
This section identifies the transportation improvements that have been incorporated in to the proposed Draft Town Center Plan as well as additional measures that would be needed to mitigate off-site impacts within the City. In addition, general strategies are identified to mitigate impacts beyond the city limits. Figures 3-8 and 3-9 show locations where planned improvements and mitigation measures are proposed.



FILE NAME: Fig03-8_improvements.ai
CREATED BY: JAB / DATE LAST UPDATED: 09/14/07

SOURCE: The Transpo Group, 2007.

Figure 3-8
Planned Improvements in the Town Center Vicinity
Sammamish, Washington



FILE NAME: Fig03-9_mitigation.ai
CREATED BY: JAB / DATE LAST UPDATED: 09/14/07

SOURCE: The Transpo Group, 2007.

Sammamish Town Center Sub-Area Plan FEIS . 205164

Figure 3-9

Transportation Mitigation Improvements

Sammamish, Washington

3.5.4.1 Planned Improvements

The following transportation improvements have been included as part of the Draft Town Center Plan. These primarily relate to the development of a roadway network within the Town Center as previously discussed in the Access and Circulation section (3.5.3.4).

Improve SE 4th Street. This will be the primary access for most residents and visitors to the Town Center's core and thus, the street warrants top priority. The cross section would be designed to City standards and include a raised median/center turn lane, bike lanes, curb, gutter, sidewalk, and landscaping. The improvements will require additional right-of-way and could include a boulevard configuration with a center median/turn lane and wide planting strips. The design would need to also accommodate traffic control, such as a roundabout or traffic signal, at the main access point(s) to the northwest quadrant. Also, substantial grading will be needed on the slopes between 228th Avenue SE and the core area to the west to enhance access, site distance, and safety. Widening of this corridor should also include improvements at the following intersections:

SE 4th Street/228th Avenue SE. The intersection of 228th Avenue SE/SE 4th Street is anticipated to operate at an overall acceptable level with the Preferred Alternative but queuing impacts are expected on the west approach. Eastbound queuing at the west approach can be mitigated through the addition of an eastbound right-turn lane to accommodate eastbound SE 4th Street traffic heading south on 228th Avenue SE. The widening of SE 4th Street should extend to 218th Avenue SE to the west to provide for an additional westbound turn lane at this intersection. In addition, provision of a dedicated southbound left turn lane and a dedicated northbound right turn lane or installation of a roundabout would provide for good progression through this intersection.

Convert Eastside Catholic High School's access road from 228th Avenue to a public street (extension of SE 4th Street). While this road was originally intended as dedicated access to Eastside Catholic High School, it will become the primary access point to development in the northeast and southeast quadrants under the Preferred Alternative. Thus, this link is expected to facilitate a substantial amount of vehicular, bicycle, pedestrian, and bus traffic. The plan calls for acquisition of a 72 foot right-of-way, lane configuration changes, raised median/center turn lane, bike lanes, planting strip, and sidewalk improvements.

Develop "connector roads" serving the northeast, southeast, and northwest quadrants of the Town Center. These roads are intended to provide better circulation within the Town Center and reduce pressure on 228th Avenue SE and SE 4th Street by providing more options to move about the area. Due to the cost, configuration, ownership pattern, and phased nature of such developments, these roads are likely to be built in phases parallel to development activity in the Town Center. While the exact location and configuration of these roads may vary from the example shown in the Draft Plan, the connection points shown in Figure 2-3 are the most desirable locations.

Develop local access roads. Additional public and private streets will be necessary to facilitate the planned Town Center development. While the configuration of local access roads shown in Figure 2-3 is only an "example," it was designed to generally fit with the existing topography

and provide for an appropriate number of connections to the arterial and connector streets. The roadway connections shown to arterials and connector streets may not meet minimum sight distance and intersection spacing requirements based on the existing topography. The specific location and design of these roadways would need to meet all applicable City standards and requirements. The cross sections in Figure 2-4 illustrate desirable roadway configurations of proposed streets.

3.5.4.2 Other Recommended Mitigation Measures

A preliminary evaluation of measures to reduce potential significant adverse environmental impacts on transportation facilities (intersection congestion and arterial capacity) was completed for the Preferred Alternative. Specific mitigation measures were explored for the Preferred Alternative and are presented in this section.

At this stage of the planning process, potential improvements have been identified but the feasibility and cost analyses have not been completed. In general, mitigating impacts to roadway and intersection segments can either be done through completing improvements that add capacity, through measures that reduce demand, or through adopting new policies that allow higher levels of congestion.

Intersection Mitigation Measures

Impacts at the 212th Avenue SE/SE 8th Street intersection could be mitigated through the following measures:

1. Separated turn lanes for the south and east approaches of the intersection would provide a dedicated northbound right turn lane and separated westbound left and right turn lanes. This would improve intersection operations to LOS C with the SE 8th Street approach being stop controlled.
2. Installing a roundabout or making the intersection all-way stop-controlled would also mitigate the impacts.

Roadway Mitigation Measures

There are four roadway segments that are forecast to exceed the concurrency threshold with the full buildout of the Town Center Preferred Alternative. The SE 4th Street segment west of 228th Avenue SE would be mitigated through the planned improvements identified above, which include widening SE 4th Street to a three-lane section. The remaining three roadway segments have only minor deficiencies that could be mitigated through implementing Transportation Demand Management measures to reduce the vehicular demand or by completing the long-range improvements identified in the City's Comprehensive Plan. In general, mitigating impacts to roadway segments can either be done through completing improvements that add capacity, through measures that reduce demand, or through adopting new policies that allow for higher levels of congestion. Mitigation measures for the remaining three roadway segments that have minor deficiencies as well as the 218th Avenue SE/SE 8th Street corridor to the west are described below:

SE Duthie Hill Road. The roadway segment west of Trossachs Boulevard is forecasted to exceed the capacity by 10 daily trips and the roadway segment east of SE Issaquah Beaver Lake Road is forecast to exceed the capacity by 610 daily trips (approximately 3.5 percent). Since the roadway section west of Trossachs Boulevard is only exceeding the daily capacities by a minor amount; it is likely that no mitigation would be required as this analysis conservatively estimated trip generation for the highest level in the range of development for the Preferred Alternative.

To mitigate impacts for the roadway segment west of Trossachs Boulevard, the roadway would need to be widened to a three lane section. The Comprehensive Plan has identified the following widening projects that would provide sufficient capacity to mitigate impacts for both segments of SE Duthie Hill Road:

- SE Duthie Hill Road east of Beaver Lake Road, (CP #43 Widen to 3 lanes with 5-ft bike lanes, curb, gutter, and sidewalk.); and
- SE Duthie Hill Road west of Trossachs Boulevard. (CP #44 Widen to 3 lanes with 5-ft bike lanes, curb, gutter, and sidewalk.)

The planned improvements identified in the Comprehensive Plan are long-term visions that do not have funding identified or a schedule for implementation.

228th Avenue South Corridor. The 228th Avenue South corridor is forecast to exceed the capacity by 310 daily trips (approximately 1 percent). With the capacity only being exceeded by 1 percent and a large percentage of Town Center traffic utilizing this corridor, higher levels of transit service and other Transportation Demand Management (TDM) measures are anticipated to mitigate this impact. This analysis conservatively estimated trip generation for the highest level in the range of development for the Preferred Alternative. In addition the trip generation estimates do not account for added transit or other TDM measures that would reduce the demand. Assuming a 6 percent transit ridership would mitigate impacts to this corridor. Other TDM measures besides transit ridership would include providing carpool/vanpool programs, having businesses participating in commute trip reduction programs, providing flexcar services, and other incentives that will reduce the vehicular demand.

If enhanced bus service or other TDM measures are not implemented or successful, the 228th Avenue South corridor could be mitigated by adding capacity. The segment of 228th Avenue SE between SE 24th Street and SE 20th Street is currently without bike lanes. By adding five foot bike lanes to this section of 228th Avenue SE the capacity of the corridor would exceed the forecast volumes for the Preferred Alternative. Another option would be to add capacity and improve operations by adding an additional southbound through lane on 228th Avenue SE through the intersection of Issaquah Pine Lake Road.

218th Avenue SE/SE 8th Street Corridor. This corridor is the main corridor west of the Town Center, which is comprised of two lane roads with no pedestrian facilities and minimal to no shoulders. The corridor is not built to current City standards. This roadway currently has a relatively low volume with capacity to accommodate the additional traffic from the Town Center but with the increase in vehicular traffic, consideration should be given to improving the pedestrian and bicycle safety along this roadway. This could include providing paved shoulders, sidewalks or pedestrian paths, and bike lanes to allow the safe and efficient mobility for pedestrian and bicycle travel. The specific area of interest is illustrated in Figure 3-9.

If the various mitigation strategies identified above are not feasible then impacts would need to be mitigated through one of the following:

- Adopt new level of service standards that allow for higher levels of congestion,
- Identify alternative improvements that would add capacity to the roadway system,
- Widen or add capacity to alternative routes that would alleviate the impacts to failing segments,
- Complete new roadway connections through the City to provide for improved connectivity and circulation that would provide alternative routes and better disperse traffic impacts,
- Implement higher levels of transportation demand management to reduce the vehicular demand on the roadway network,
- Reduce or change the mix and level of development.

Often, traffic impacts and congestion are mitigated through a combination of the above measures. The mitigation measures would be needed as the Town Center develops. Funding of improvements can be completed through a number of mechanisms including revisions to the City's Comprehensive Plan, updating the Traffic Impact Fee program, implementing Local Improvement Districts, obtaining grant funding, and through developer contributions.

Mitigation Measures in Adjacent Jurisdictions

In addition to the mitigation measures identified above, continued coordination with the City of Issaquah and adjacent jurisdictions will be needed to mitigate any potential impacts to areas outside of the city. Impacts to areas outside of the city could be mitigated through the following strategies:

- Jointly conduct additional analysis of specific corridors outside of the city to identify impacts and potential improvement needs.
- Adjacent jurisdictions could negotiate mitigation of impacts with individual developments through the SEPA process.
- Jointly work to expand local and regional transit service and implement other transportation demand management practices to reduce vehicular demand.
- Establish interlocal agreements identifying how transportation impacts would be mitigated.

3.5.5 Significant Unavoidable Adverse Impacts

In general, development in the Town Center under the Preferred Alternative would increase traffic volumes and congestion levels throughout much of the city. Where transportation impacts exceed the adopted thresholds and standards, mitigation measures are identified. If

implemented, traffic and congestion levels would not exceed City standards and would, therefore, not be considered significantly adverse.

3.6 Air and Sound

3.6.1 Impacts of the Preferred Alternative

The section evaluates potential impacts to the sound environment and air quality expected to result from development under the Town Center Preferred Alternative. As with the action alternatives in the Draft EIS, the Preferred Alternative would promote urbanization of the Town Center. New roads, increased traffic and increased intensity of use are factors which could impact sound and air conditions.

The two principle sources of impacts to air quality and the sound environment in the Town Center will be increased traffic and increased intensity of land use. Based on the traffic impacts identified in the transportation analysis, and intensity of use (number of housing units and square feet of commercial and civic facilities) in the Town Center, the potential impacts to the air and sound environment will be within the range evaluated in the Draft EIS. Therefore, this evaluation will be limited to comparing the Preferred Alternatives to the Draft EIS alternatives in terms of the amount, type and location of traffic impacts and increased intensity of urbanization.

Construction related impacts to the sound environment and air quality would be the same as discussed for the Draft EIS action alternatives.

3.6.1.1 Sound

Sources of community sound arising from increased housing and land use intensity are likely to increase under the Preferred Alternative above existing conditions and above conditions anticipated under the No-Action Alternative. The Preferred Alternative includes a number of housing units (up to 2,000) slightly less than Alternative 3 and an amount of commercial (retail and office) space which is slightly less than Alternative 1. Also, similar to Alternatives 1 and 3, the highest densities of residential, commercial, and civic development, under the Preferred Alternative would occur within the Town Center core mixed-use area. Therefore, the types and locations of change in community sound resulting from the Preferred Alternative would be similar to those described in the Draft EIS.

Additionally, certain civic facilities would likely be the site of meetings or events during daytime, evening, and occasional weekend hours; sound impacts associated with civic events would be anticipated at those times.

The other major source of sound impacts likely to result under the Preferred Alternative is increased automobile sound. Vehicular traffic (as expressed as total PM peak hour trips generated) is expected to increase under the Preferred Alternative (4,978 trips) more than under Alternatives 2 (2,590 trips) and 3 (3,920 trips) but less than under Alternative 1 (5,680). A complete discussion of transportation impacts is located in section 3.5 of this Final EIS. Accordingly, noise produced from vehicular traffic under this alternative is expected to fall in a corresponding range.

In general, increased sound would likely be most pronounced during typical AM and PM commutes. At these times noise from vehicular traffic would be expected along all existing and proposed roadways, especially at major intersections.

3.6.1.2 Air

Major sources of long-term or non-construction air quality impacts would include automobile traffic and residential wood burning. Under the Preferred Alternative, levels of vehicular traffic, and vehicular emissions would be within the range of impacts identified in the Draft EIS. Based on trip generation forecasts (see above), impacts to air quality from automobile traffics would be higher than Alternatives 2 and 3 and lower than Alternative 1.

Higher density multi-family and town home residential development would be expected to produce limited emissions of fine particles and other pollutants (discussed in DEIS Section 8.1.2.2) from wood burning stoves, fireplaces, and controlled outdoor fires. However, pollutants from wood burning stoves will depend on whether private developers decide to include wood burning fireplaces in apartments, condominiums, townhouse, cottages or ADUs.

3.6.2 Mitigation Measures

Mitigation measures to control impacts to sound and air quality would not differ from those described in the Draft EIS. No further mitigation measures are proposed.

3.6.3 Significant Unavoidable Adverse Impacts

No significant unavoidable adverse sound or air quality impacts are expected to result from the Preferred Alternatives. Any adopted Town Center Plan would require associated development to comply with all local and state noise and air quality regulations.

3.7 Public Services and Utilities

3.7.1 Impacts of the Preferred Alternative

This analysis evaluates the potential impacts on public services and utilities expected to result from implementation of the Preferred Alternative. Public services typically include fire, emergency services, police, parks, and public schools. Utilities typically include water, sewer, electricity, natural gas and solid waste.

3.7.1.1 Fire Protection and Emergency Medical Services (EMS)

Potential impacts from future growth are determined by the ability of fire and EMS services to operate within the City's established level of service (LOS) standard, and not by the direct population growth. For this reason, it is difficult to quantify the impacts that could result from implementation of the Draft Town Center Plan. New development under the Preferred Alternative would incrementally increase the demand for fire protection and EMS services over the 25-year planning horizon. It is possible, however, to qualitatively discuss the potential impacts of the Preferred Alternative in comparison with the alternatives discussed in the Draft EIS.

Population and land use intensity are both factors that could affect fire protection and EMS LOS. Increases in population and land use intensity would likely result in decreased LOS. Staffing, equipment, and facilities would be monitored to identify when new resources would need to be added to maintain adequate fire and EMS services. The Preferred Alternative would have more housing units, and subsequently a larger increase in population, than Alternative 2, but fewer than Alternatives 1 and 3. Similarly, the intensity of retail and office development under the Preferred Alternative would be greater than Alternatives 2 and 3, but less than Alternative 1.

3.7.1.2 Law Enforcement

New development under the Draft Town Center Plan would increase the demand for law enforcement services over the 25-year planning horizon. The Preferred Alternative could increase the population of Sammamish by approximately 3,300 people (see Table 3-6 for population estimates). Following the district standard of 0.6 commissioned officers per 1,000 residents, development in the Town Center would require the addition of approximately two officers. It is likely that this increase is attainable within the next 25 years (DEIS; Wills, 2006).

The land use mix in the Town Center may also affect the ultimate levels of law enforcement staffing. In some cases, the level of service required for a single-family development may be lower than that required for multi-unit development. The number of officers would be determined by the Sammamish Police Department based on ongoing evaluations of the Town Center's service needs (DEIS; Thompson, 2006).

3.7.1.3 Public Schools

Based on the District's projected growth rates, the Lake Washington School District (LWSD) schools serving the planning area will increase their enrollment by 179 students by the 2011-2012 school year (DEIS; LWSD, 2006 and Miller, personal communication, 2007[2]). The Issaquah School District (ISD) has projected an increase of 266 students in their enrollment in the Town Center planning area schools by the 2011-2012 school year (DEIS; ISD, 2006). Both of these growth projections are based on current planned growth in the area, and are above and beyond that which would be generated with implementation of the Draft Town Center Plan. Enrollment projections for the proposed planning horizon of 25-years are not available at this time. As described in the Draft EIS, the LWSD and ISD currently do not have the capacity to house the extra students projected to be enrolled by the year 2012 (DEIS; LWSD, 2006 and DEIS; ISD, 2006). They are, however, able to plan the construction of new facilities based on capacity needed during upcoming school years.

As there are no housing units proposed within the ISD under the Preferred Alternative, it would not be affected by implementation of the Draft Town Center Plan. Development under the Preferred Alternative would, however, contribute to the student population of the LWSD. The LWSD has developed factors, or student generation rates, that enable them to estimate the number of new students that will be added to the district from each new single-family dwelling

[2] Miller, Forest. 2007. Phone communications between ESA Adolfson and Forest Miller, Lake Washington School District, Director of Support Services. June 12, 2007

or multi-family dwelling units. Table 3-11 shows the estimated number of students that would be added by the Preferred Alternative.

Table 3-11. Number of Students Generated by the Town Center Sub-Area Plan within Each School District

	Preferred Alternative
Number of single-family units in LWSD	78
New LWSD students from single-family units	43
Number of multi-family units in LWSD	1921
New LWSD students from multi-family units	238
Total New Students in LWSD[1]	**281**

Source: LWSD Six-Year Capital Facility Plan 2006-2011, 2006.
[1] The number of new students generated is a combination of elementary, middle and high school students.

Implementation of the Preferred Alternative would affect LWSD school services more than Alternative 2, but less than Alternatives 1 and 3. The Preferred Alternative would create a larger demand for facilities than is currently planned under the LWSD's Facility Plan (DEIS; LWSD, 2006).

3.7.1.4 Parks and Open Space

According to the requirements outlined in SMC Title 21A.30.140, all residential developments of more than four units must provide on-site recreation space for leisure, play or sport activities. The amount of recreation space required is based on the size of the development and the number of bedrooms per unit. For the purposes of this analysis, a breakdown of the residential types for the Preferred Alternative has been estimated to calculate the total acreage of on-site recreational space that would be required upon full build-out[3]. A summary of these requirements is shown in Table 3-12 below.

[3] The number of bedrooms per housing unit was based on statistical averages from the neighboring communities of Redmond and Issaquah, Washington. Statistical information was obtained from the U.S. Census Bureau, Census 2000 Table QT-H8, retrieved October 2006.

Table 3-12. New Recreation Space Required

Residential Density	Recreation Space Required (square feet) per unit[1]	Number of Units (estimated)	New Recreation Space Required (acres) for Preferred Alternative
8 units/acre, or less[2]	390	78	0.70
Attached residential and mixed use, greater than 8 units/acre			
Studio and 1- bedroom	90	688	1.42
2-bedroom	130	928	2.77
3-bedroom or more	170	305	1.19
		Total	**6.08**

Source: Sammamish Municipal Code, Title 21A.30.140.
[1] See SMC Title 21A.30.140 for specific facility requirements.
[2] This analysis assumes that SFD units would be developed in blocks of four or more. Residences developed individually, or in developments of less than four units, would be exempt from this requirement.

The requirements shown in Table 3-12 are for on-site facilities that would be created concurrently with each residential development. An analysis of the exact amount of dedicated recreation land required will be completed during the planning stages of specific projects. This does not take into account the potential impacts to existing parks and open space facilities from population growth resulting from Town Center development. The Preferred Alternative could result in a population increase of up to approximately 3,307 people (2,332 above what would be expected under the No-Action Alternative), which would increase the demand on existing facilities.

The Draft Town Center Plan includes a parks, open space, trails and natural areas strategy that proposes a conceptual network of passive and active recreational spaces. A more detailed description of the Draft Plan's open space strategy is provided in section 2.1.3 of this Final EIS. In general, the Draft Town Center Plan system would include approximately 36 acres of public parks and open space.

The Preferred Alternative would comply with the goals and policies outlined in the Parks, Recreation and Open Space Plan (DEIS; City of Sammamish, 2004) and the Trails, Bikeways and Paths Plan (DEIS; City of Sammamish, 2005b). In addition, all development of new parks and recreation facilities would comply with City standards for parks and recreation facilities (SMC title 7).

3.7.1.5 Water

The size and number of new water lines and meters needed for development under the Preferred Alternative would be determined largely by the underlying zoning, and by fire flow requirements for the size and use of buildings. During individual project planning, each new development would be evaluated for the availability of water and appropriate infrastructure improvements. Developments would be required to comply with Sammamish Municipal Code (21A.60.040) and

Fire District standards in addition to the Sammamish Plateau Water and Sewer District (District) guidelines. Individual projects would be subject to connection and maintenance fees. Non-single-family projects would require a minimum of 12-inch diameter water mains.

The District's 2002 Water Comprehensive Plan does not anticipate the proposed development of the Town Center area in its projected water needs. The Plan does conclude, however, that projected new water demands would require the development or acquisition of new sources of supply. Since 2002, the District has increased its capacity through the Cascade Water Alliance (CWA). According to the District, there is currently adequate water supply to serve the Town Center under the Preferred Alternative (DEIS; Regenstreif, personal communication, 2006).

3.7.1.6 Sewer

The District's Draft Wastewater Comprehensive Plan (2003) projects future wastewater flows based on population and weather forecasts. Very little of the Town Center planning area is currently connected to the sewer system. All new development within the Town Center planning area would be required to connect to the District's sanitary sewer system, which will require the installation of new, or upgraded, infrastructure. The District would likely develop a conceptual layout of the proposed sewer collection system that considers the land use pattern of the Preferred Alternative. The District does not anticipate problems with connecting new development in the Town Center area to the wastewater system (DEIS; Regenstreif, personal communication, 2006).

During the planning stages, each new development would be evaluated for appropriate infrastructure improvements. The development would be required to comply with all District guidelines, as well as Sammamish Municipal Code (SMC 21A.60.030) standards. In addition, individual development projects would be subject to all connection fees required to provide service to new users and maintain system standards.

3.7.1.7 Electricity and Natural Gas

Average peak demands for electricity have been calculated for both residential and non-residential uses, based on "instantaneous maximum loads," rather than daily, monthly, or yearly average uses. Puget Sound Energy (PSE) measures these uses by power meters/residential units (not per capita). The average kilowatt (kW) per residential customer is 3.7kW, and the average kW/non-residential customer is 15 kW (DEIS; Van Nort, personal communication, 2006).

PSE projects demand for natural gas services using a forecast analysis calculation based on PSE's revenue report that is generated by City tax codes. Because natural gas is not an essential service, PSE is not required to serve all areas. Service additions are based on request and an analysis of revenue production. This analysis assumes that natural gas will be provided to the entire Town Center area.

The existing electrical system would likely handle most of the additional demand from the Preferred Alternative (DEIS; Van Nort, personal communication, 2006). Existing natural gas infrastructure is not adequate to service the development under the Preferred Alternative.

Additional electrical and natural gas infrastructure improvements would be required. However, according to PSE, these improvements would be required by 2030, under any of the alternatives (including the No-Action) (DEIS; Van Nort, personal communication, 2006). Therefore, this is not considered a project impact.

PSE's anticipated service area energy need in 2007 is expected to be approximately 3,000 annual megawatts (aMW). By 2025, that regional energy need is projected to increase to approximately 4,080 aMW. Due to expiring resource contracts within the next 6-7 years, there will be a regional shortfall in energy resources (approximately 2080 aMW) by 2025 (DEIS; Van Nort, 2006). This shortfall is due to regional growth throughout PSE's service area. While increased development in the Town Center would contribute to the expected shortfall, the Town Center's contribution would be relatively minor and will be expected under any of the Town Center alternatives. PSE expects to meet this shortfall through the actions discussed in the Draft EIS (Section 9.3.2.3).

3.7.1.8 Solid Waste

Development of the Town Center would occur incrementally, contributing proportionally larger amounts of solid waste to the total generated by the city. As new residences and businesses are added to the planning area, Rabanco will be required to expand the services currently provided to the planning area. The Preferred Alternative would require additional services al levels similar to Alternative 3, based on the amount and concentration of overall development.

All new residential and commercial developments under the Draft Town Center Plan would be required to pay service fees for pick-up of garbage, recycling and yard waste. These fees will reduce the impacts associated with the addition of services required by Rabanco. The Preferred Alternative would not exceed the provider's ability to service the planning area (DEIS; Frey, personal communication, 2006).

3.7.2 Mitigation Measures

3.7.2.1 Fire Protection and Emergency Medical Services

The Capital Facilities Plan (CFP) being prepared for the three Sammamish area fire stations contains project elements that may be required to provide adequate services for full build-out of the Town Center. The mitigation proposed for the action alternatives in the Draft EIS would also apply to the Preferred Alternative. If it is found that new development in the planning area has caused a failure to meet the LOS standard, a number of actions would be evaluated. Actions to restore the LOS may include, but are not limited to:

- Adjustments in staffing and/or shifts;
- Development of EMS facilities;
- Relocating existing stations;
- Making transportation improvements; and/or
- Automatic response agreements with other service providers (including Sammamish Police).

3.7.2.2 Law Enforcement

Law enforcement services are anticipated to be provided at existing levels of service. No mitigation is proposed.

3.7.2.3 Schools

The mitigation proposed for the action alternatives in the Draft EIS, the payment of impact fees to the school district, would also apply to the Preferred Alternative. These fees are paid by the developer at the time of construction and would reduce the impacts of the Preferred Alternative on LWSD by providing a portion of the funding necessary to expand school facilities. Additional funding sources for new and expanded facilities would have to be identified over the 25-year planning horizon (Miller, personal communication, 2007[4]). No new residences are proposed within the ISD under the Preferred Alternative and thus would not have an impact on that school district. No additional mitigation is proposed.

3.7.2.4 Parks and Open Space

The following Draft Plan policies would be considered programmatic mitigation for potential impacts to parks and open space:

OS-1.1 Usable open space should be a priority for each quadrant of the Town Center.

OS-1.2 The City should complete the development of Sammamish Commons to serve as the primary civic focus for the City.

OS-1.3 Master plans for each of the mixed use nodes should include a publicly accessible open space that meets the City's design guidelines.

OS-1.4 A variety of small open spaces should be developed as part of private development to serve local needs.

OS-2.1 Multi purpose trails, pathways and sidewalks connecting to the city-wide trail system should be developed.

OS-2.2 The City may need to acquire land or access rights in wetland buffer areas to accommodate the trails and to allow for the environmental enhancement of those areas.

The Sammamish City Council adopted Ordinance No. 02006-207 on November 21, 2006 requiring any applicant seeking residential development approval to pay an impact fee for parks and recreational facilities. The impact fees are assessed at $2,681.42 per single-family unit and $1,549.13 per multi-family unit. The fees are intended to mitigate the impacts of new development on the current parks system (i.e. to maintain the current level of service), and not

[4] Miller, Forest. 2007. Phone communications between ESA Adolfson and Forest Miller, Lake Washington School District, Director of Support Services. June 12, 2007

for the creation of new parks or for on-site improvements that are required of new development. Additionally, the fees may only be applied towards projects listed in the 6-Year Parks Capital Improvement Plan (CIP).

Upon adoption of a Town Center Plan, the City's Comprehensive Plan and Parks, Recreation and Open Space Plan would be amended. Planned projects resulting from these amendments would subsequently be included in the 6-Year Parks CIP. The impact fees collected from development under the Preferred Alternative would help to mitigate the impacts to existing parks and open space from the incremental increase in population.

The Draft Plan also includes the following recommended implementation actions that, if adopted, would mitigate potential impacts to parks, open space, and trails:

- Refine the proposed trail system plan outlined in the Draft Town Center Plan and prepare a proposal to fund and construct trails in the Plan.
- Begin planning the green spine.
- Consider acquiring easements or land for to enhance portions of environmentally sensitive areas for trails.

3.7.2.5 Water

Water services will be made available as needed. No mitigation is proposed.

3.7.2.6 Sewer

Sewer service will be made available as needed. No mitigation is proposed.

3.7.2.7 Electricity and Natural Gas

The mitigation proposed for the action alternatives in the Draft EIS would also apply to the Preferred Alternative. As with other utility services provided to the planning area, the specific impacts to electrical and natural gas services from individual development proposals will be evaluated on a case-by-case basis. No further mitigation measures are proposed.

3.7.2.8 Solid Waste

Solid waste service will be made available as needed. No mitigation is proposed.

3.7.3 Significant Unavoidable Adverse Impacts

If the proposed mitigation measures are implemented, significant unavoidable adverse impacts are not anticipated to result from implementation of the Preferred Alternative.

3.8 Aesthetics

3.8.1 Impacts of the Preferred Alternative

This discussion focuses on the changes in pattern, type, and scale of development in the Town Center resulting from implementation of the Preferred Alternative. As described in previous sections, the Preferred Alternative was developed as a "hybrid" of the land use alternatives discussed in the Draft EIS, using elements from each of the three action alternatives. As such, the aesthetic impacts of the Preferred Alternative have already been analyzed at a programmatic level (DEIS Chapter 10, Aesthetics). This section will qualitatively discuss the aesthetic and visual impacts of the Preferred Alternative, where they differ from those discussed in the Draft EIS or where specific information has been developed subsequent to its publication.

The impacts described in the Draft EIS as common to all alternatives will also be common to the Preferred Alternative. The Preferred Alternative will substantially change the area's character from a generally rural/suburban residential character to a more urban character.

Under the Preferred Alternative, development would be directed away from wetland, stream and buffer areas. Included in the Draft Town Center Plan's strategy for maintaining and enhancing vegetation and wildlife habitat are provisions for maintaining the Town Center's wetland and buffer areas. Retention and enhancement of these areas as open space with native vegetation will change the visual character of the Town Center, particularly in the NE and SE quadrant.

The design of new roads proposed in the Draft Town Center Plan would also represent a strong visual element that differs from current conditions. Most of the Town Center would feature a curvilinear roadway system (see Figure 2-3) designed to fit with the area's topography (the exception would be the CMU). Most of the new streets will be landscaped and include planting strips on both sides of the roads with street trees. Figure 2-4 shows conceptual cross-section of the proposed road network. The proposed trail connections and open space corridors (shown in Figure 2-5) between developments will also be a prominent visual feature that differs from current conditions.

As with the Draft EIS action alternatives, the Preferred Alternative is illustrated in this document using computer generated visualizations of the conceptual land use scenario. The intent of the visualizations is to provide an understanding of what the Town Center could look like, in terms of the height, bulk and scale of buildings and the location of development types, under the Draft Town Center Plan. The visualizations do not represent actual plans for development or redevelopment by the City or any private party. They do not show the details of building modulation or architectural details nor do they show all the landscape screening or vegetation. Actual constructed building locations and configurations will depend on individual developer decisions. Future Town Center implementation actions will include development of land use regulations, development standards, and capital improvements that will guide developer's efforts to conform to a Final Plan's vision.

3.8.1.1 Southeast Quadrant

Development in the southeast quadrant under the Preferred Alternative would feature a mix of medium density (3 – 4 story) multi-family buildings, townhouses, and neighborhood scale mixed-use (3 -5 stories) buildings with residential and neighborhood scale commercial uses. Townhouses would be visible from SE 8th Street and mid-rise multi-family buildings would be visible along 228th Avenue SE unless screened with vegetation. The interior of this quadrant, located on a topographic rise, would be characterized by a NMU featuring 3 – 5 story multi-family and mixed-use (residential/commercial) buildings and may be visible from 228th Ave SE.

Buildings in the higher density NMU area in this quadrant would be surrounded by landscaped open spaces. Views of the Sammamish Hills Lutheran Church, currently located at the intersection of 228th Avenue SE and SE 8th Street, are not expected to change. A visualization of the southeast quadrant is shown in Figure 3-10.

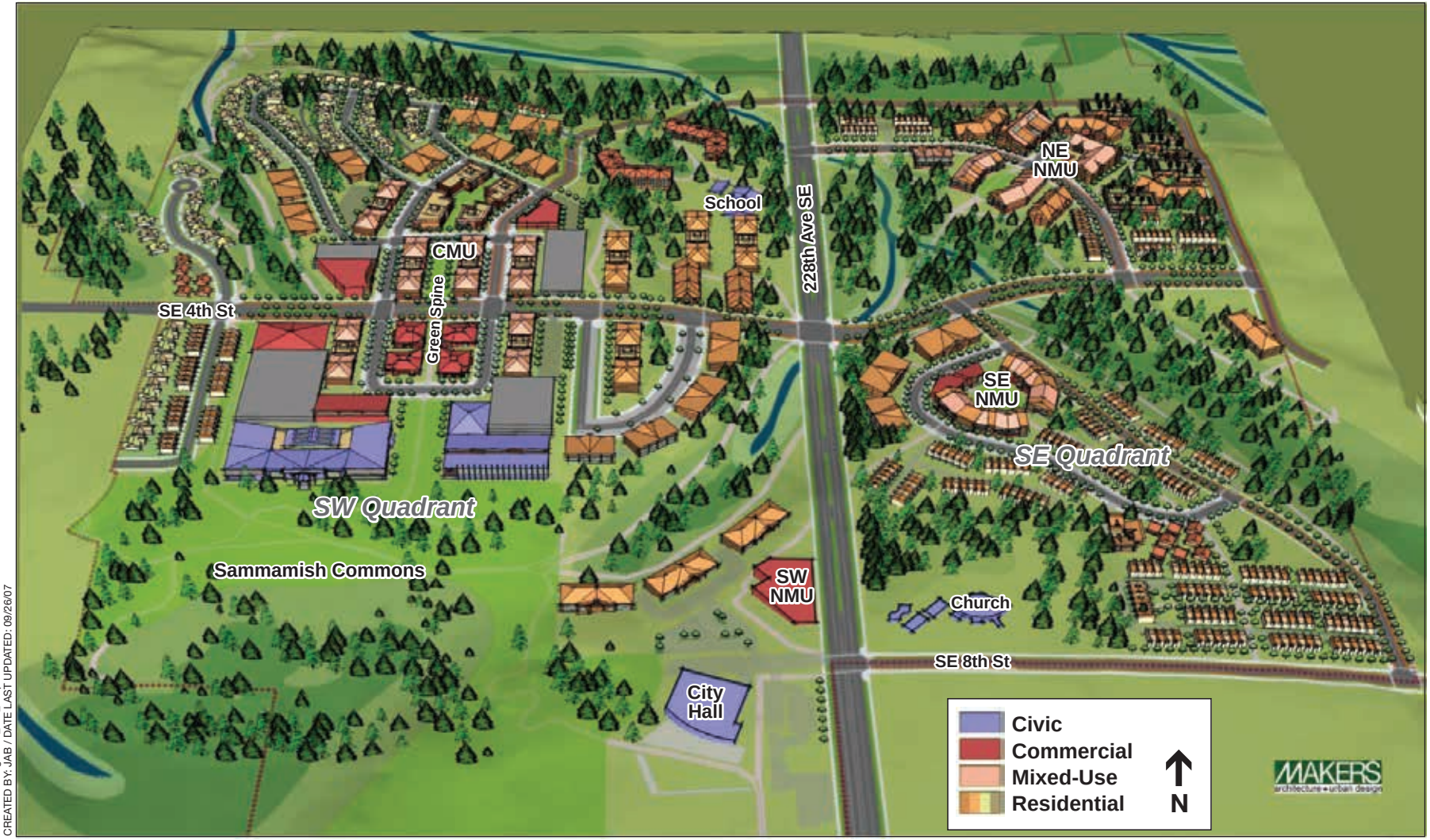
3.8.1.2 Southwest Quadrant

The commercial building included in the NMU north of City Hall near the northwest corner of 228th Avenue SE and SE 8th Street (Figure 3-10) would be a significant visual impact in the southwest quadrant under the Preferred Alternative. Because of the site's visual prominence from 228th Ave SE, it would be important to establish strong design guidelines to ensure that this building presents an attractive, pedestrian oriented façade to the street.

Views north across the Commons from City Hall would include new public and commercial buildings (2 – 4 stories) oriented toward park activities (Figure 3-10). A linear open space "spine" extending from the Commons north across SE 4th Street would be visible from City Hall and would represent a significant visual feature of the Town Center. A visualization of the "spine" is shown in Figure 3-11

Views from SE 4th Street would include medium density (3 – 4 story) buildings on both sides of the roadway as it rises west from 228th Avenue SE to the CMU area. The character of this street would change dramatically from current conditions. SE 4th Street would be a relatively intensely developed pedestrian oriented street with commercial and mixed-use developments (1 – 4 stories) visible from the street. As described above in Section 3.5.4.1 and shown in Figures 2-4 and 2-5, SE 4th Avenue (west of 228th Avenue SE) would be designed as a boulevard with landscaped median and wide planting strip with trees.

Impacts to views from existing properties west of the Town Center boundary would be minimal because of the low intensity single-family residences located along the western boundary. These would provide a buffer between the higher-intensity uses and adjacent neighborhoods. A visualization of the southwest quadrant is shown in Figure 3-10.



FILE NAME: Fig03-10_SW_SEquads.ai
CREATED BY: JAB / DATE LAST UPDATED: 09/26/07

SOURCE: The Transpo Group, 2007.

Figure 3-10
Preferred Alternative Southwest and Southeast Quadrants
Sammamish, Washington

N

FILE NAME: Fig03-11_greenspine.ai
CREATED BY: JAB / DATE LAST UPDATED: 09/14/07

SOURCE: The Transpo Group, 2007.

Figure 3-11
Sammamish Town Center Linear "Green Spine" Open Space
Sammamish, Washington

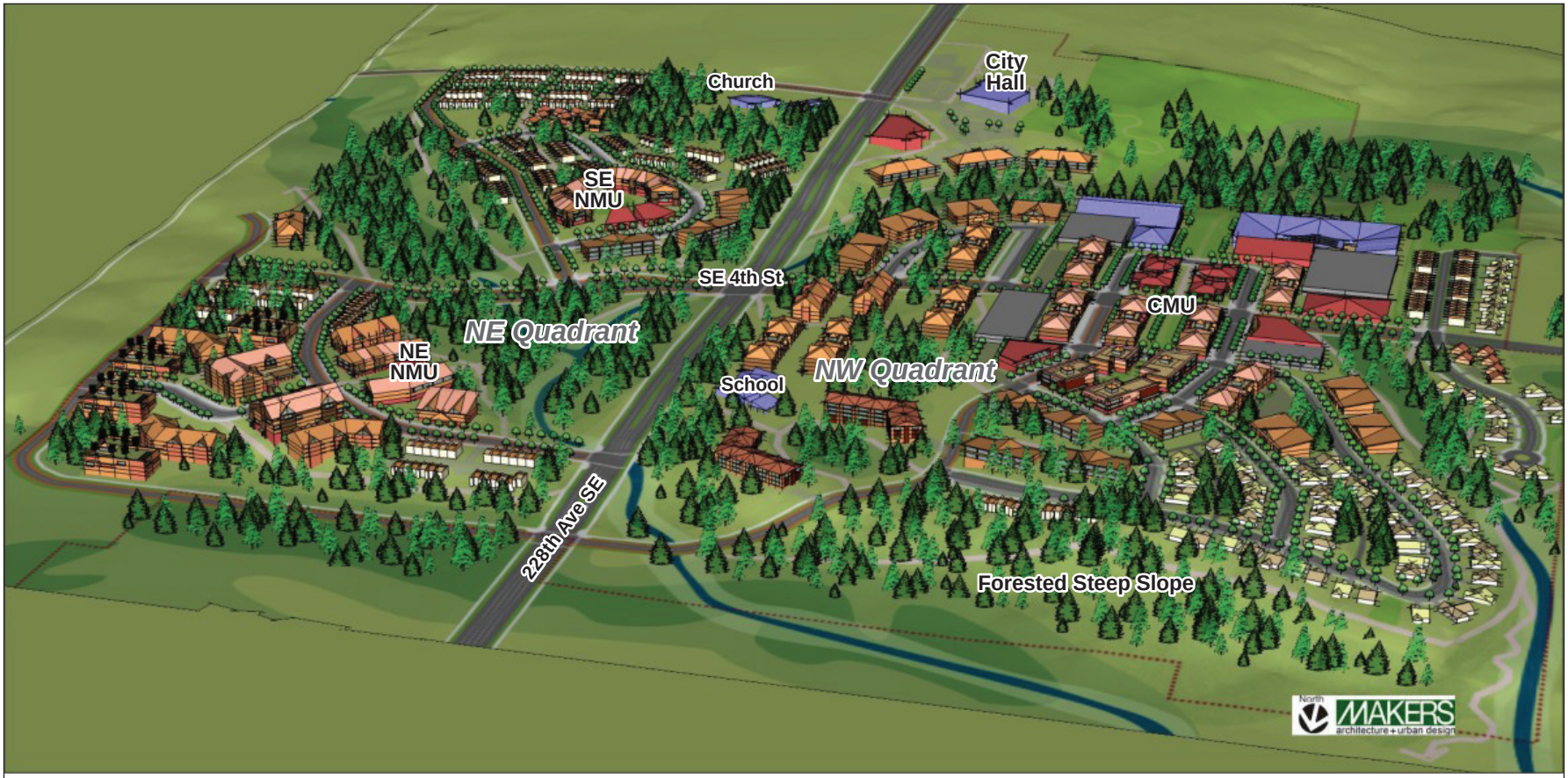
3.8.1.3 Northeast Quadrant

Views of the northeast quadrant eastward from 228th Avenue SE would include an NMU area featuring mixed-use (3 -5 stories) development around a small park/open space, surrounded by medium density (3 – 4 story) multi-family buildings and town houses. Development would be set back from 228th and Main Street. As viewed from 228th Ave SE and Main Street, the buildings would appear in the background, separated from the roads by undeveloped open space (which includes wetland, stream, and buffer areas). Landscaping standards and design guidelines would be necessary to direct development in this quadrant to present attractive faces toward 228th Avenue SE and Main Street. The northeast quadrant is illustrated in Figure 3-12.

3.8.1.4 Northwest Quadrant

Development in the Northwest Quadrant under the Preferred Alternative would include a portion of the CMU described in section 2.1.1 and, in more detail, in the Draft Town Center Plan. It would feature a mix of medium density (3 – 4 stories) multi-family and medium scale mixed-use (4 – 6 stories) buildings clustered around a linear open space "spine" (see Figure 3-11). This quadrant would also feature single use retail buildings and structured parking.

Development in this area would be visible from SE 4th Street. Views of the Town Center from the north would be largely blocked by the forested hill located roughly along E. Main Street. Development intensity would also taper down to the north and west with low-density single family and townhouses providing a visual buffer along the Town Center boundary. Views of new development would also be very limited from residences west of the project area because of existing vegetation in the wetland and buffer system along the planning area's western margin. The northwest quadrant is illustrated in Figure 3-12.



FILE NAME: Fig03-12_NW_NEquads.ai
CREATED BY: JAB / DATE LAST UPDATED: 09/27/07

SOURCE: The Transpo Group, 2007.

Figure 3-12

Preferred Alternative Northwest and Northeast Quadrants

Sammamish, Washington

3.8.2 Mitigation Measures

3.8.2.1 Incorporated Plan Elements

Features of the Preferred Alternative Town Center Plan would direct and regulate development in a manner that mitigates, minimizes, or avoids adverse aesthetic and visual impacts. These elements take the form of strategies, policies, and proposed actions that are included in the Draft Town Center Plan.

The Plan includes a design strategy (Chapter V) that focuses on achieving the City Council's Vision Statement goals through a combination of zoning standards, master planning processes and guidelines, and public improvements. One of the Draft Plan's fundamental concepts relates directly to the aesthetics goals of the plan:

> **Establish a distinctive design character.** The envisioned design character emphasizes integration with the natural rolling and wooded landscape and new buildings that exhibit an intimate scale, inviting architectural character, high quality construction and integration with the Town Center's natural setting. Beyond the Town center's physical image, the Town Center character will reinforce the larger City's identity of a progressive community supporting an active lifestyle and an intimate relationship to the natural environment.

The Draft Plan provides several policies that are considered programmatic mitigation measures intended to guide the implementation of the Town Center Plan. The policies that would specifically mitigate potential impacts to aesthetics and views include:

D-1.2 The City should adopt design guidelines for the Town Center.

D-1.3 Landscaping and natural elements should play a prominent role in the Town Center's overall design character, and landscape design should be an important part of public facilities, streets, and private development.

D-1.4 Aesthetics should be an important design criterion in the design of public infrastructure, including streets, utilities, and public facilities.

D-1.6 Foster design excellence by seeking a higher standard in the design and construction of quality of civic buildings.

D-2.1 Building forms and layouts should take advantage of views.

The Draft Plan also includes the following recommended implementation actions that, if adopted, would mitigate potential aesthetic impacts of the Preferred Alternative:

- Establish a process to master plan mixed-use nodes that guides development in an organized way and achieves the Town Center vision. As part of the design guidelines, adopt master planning principles for each mixed-use node.

- Adopt design guidelines and a design review process to guide development in the Town Center. Design guidelines would direct the form and character of the buildings, quality

and quantity of landscaping, treatment of parking lots, setbacks and open space, and environmental restoration

- Develop a set of roadway standards with streetscape elements that make streets in the Town Center attractive to travel and optimal settings for new development.

Adverse aesthetics and visual impacts would be further avoided to a large extent by the land use pattern approved by the City Council and prescribed in the Draft Town Center Plan land use strategy, specifically through the following means:

- Development intensity would taper down toward lower intensity uses and the Town Center Boundary in a "wedding cake" pattern (See Figure 2-2).

- The Draft Plan includes provisions to create open space buffers between medium and low intensity residential developments (building foot prints would be limited to 30 or 35 percent in residential zones)

- Street and park landscaping, accomplished as part of public works projects included in the Town Center Plan, would further increase the amount of "green infrastructure" and soften the visual character in the Town Center.

3.8.2.2 Other Recommended Mitigation Measures

No additional mitigation measures are proposed.

3.8.3 Significant Unavoidable Adverse Impacts

Implementation of the Preferred Alternative as described in the Draft Town Center Plan would represent a dramatic change in the visual character of the Town Center. Although the change would be significant, it is consistent with the City's Comprehensive Plan goals and policies and Council vision, therefore it would not be considered adverse.

The mitigation measure described above, including the City's development regulations, Town Center Plan features, Town Center development guidelines and design standards, would likely be sufficient to mitigate potential adverse impacts.

Chapter 4 Comments and Responses

A public comment period on the Draft EIS was held from January 31, 2007 to March 2, 2007 and extended to March 26, 2007. During that time 38 comment letters including approximately 180 individual comments were received by the City. All of the comments received during the comment period are reproduced and included in this chapter of the Final EIS. The individual responses to each comment follow the reproduced comment letter.

The comment letters are divided first by government agencies and then by citizens. Distinct comments are numbered in the margins with responses corresponding to the numbered comment. Where comments raise similar issues and warrant similar responses, the comment is responded to once with subsequent responses referring to the earlier response.

STATE OF WASHINGTON
DEPARTMENT OF COMMUNITY, TRADE AND ECONOMIC DEVELOPMENT
128 - 10th Avenue SW • PO Box 42525 • Olympia, Washington 98504-2525 • (360) 725-4000

March 26, 2007

Mr. Kamuron Gurol
Director of Community Development
Attn: Town Center DEIS
City of Sammamish
801 228th Avenue Southeast
Sammamish, Washington 98075

RE: Draft Environmental Impact Statement for the Sammamish Town Center Sub-Area Plan

Dear Mr. Gurol:

Thank you for sending the Washington State Department of Community, Trade and Economic Development (CTED) the Draft Environmental Impact Statement (DEIS) for the Sammamish Town Center Sub-Area Plan that we received on February 5, 2007. We recognize the substantial investment of time, energy, and resources that this document represents, and we appreciate the opportunity to comment.

We especially like the following:

The City of Sammamish is continuing to plan for its future, and is moving forward with plans for a town center. This is an exciting time for Sammamish as the community is faced with the option of developing as the current plan exists, or embracing the development of a true town center. We appreciate that the DEIS considers the full range of options including those for more intense uses of the site. Sammamish has conducted a market study which provides valuable information about the types of developments which could be profitable to developers, and those that are needed in Sammamish. Many communities are using these types of studies not only to develop their plans, but to market them so that the plans are implemented in the short term. We congratulate you on using this proven approach. In addition, all of the options take advantage of the natural features, and protect them by designating them as park and open space. All
1-1 options include a significant trail system to provide public access to these areas. These trail systems also provide bicycle and pedestrian connectivity to other neighborhoods, and offer opportunities for physical activity which is gaining increasing importance as part of planning for a community.

Of course, from a growth management perspective, we will encourage you to choose a more urban form that will be consistent with the goals of the Growth Management Act, and those of your own comprehensive plan. However, that are a lot more reasons why this is such an important decision. As you consider the options, we encourage you to consider the lessons from other suburban communities throughout the U.S. who are redesigning already-developed lands, at great cost, seeking to create a sense of place, and a true focus for their communities. Sammamish can skip this intermediate step, and go directly

1-1 to place-making[1] — defining and investing in a community center where the community can come together, and where a diversity of activities can take place.

We have some suggestions for strengthening your town center planning that we encourage you to consider:

1-2 Focus the options to be consistent with the comprehensive plan:
The vision in the 2003 Sammamish Comprehensive plan is for a *unique core of urban lifestyles and conveniences that put the pedestrian first.* The policies in your comprehensive plan, and the findings from the town center market analysis, point to a more diversified and pedestrian-oriented center than is represented in some of the alternatives in the EIS. We encourage you to focus on options which characterize the vision and policies in your comprehensive plan.

1-3 Multiple modes of transportation could be supported by the Town Center:
The analysis in the DEIS has a concentrated focus on accommodating motor vehicle trips. The analysis between the options might be broadened with a review how existing and new trips could be shifted to regional bus or vanpool services on 228th Avenue if convenient and high quality service was available.

The development of a town center for Sammamish can provide a central node not only for new residents of this area, but for the surrounding neighborhood. Goal LUG – 15 of the comprehensive plan is *to promote connectivity between neighborhoods.* At a minimum, we suggest that the plan ensure safe and efficient bicycle and pedestrian connections throughout the town center and multiple links to surrounding neighborhoods. A town center with a diverse mix of uses could provide local services within walking and bicycling distance or many existing homes. This would offer options for replacing local car-based shopping or dining trips to locations within the town center. We encourage you to more fully explore this option in your analysis. The benefits would include not only a reduction in traffic, pollution, and greenhouse gases, but increased opportunities for walking and bicycling.

1-4 Careful design makes a big difference:
Safe and efficient bicycle and pedestrian facilities are just the beginning of planning for a successful town center. Comprehensive plan policy LUP 2.4 states: *The City should promote design of the three designated community center environments based upon a human scale to encourage attractive street fronts and other connecting walkways that accommodate pedestrians as the first priority, while accommodating vehicular movement.* Careful attention to design of buildings, design of streets and sidewalks, placement of parking and landscaping, and form of public places make a great deal of difference in how the town center will feel when it is built. Good design in commercial areas creates a place where pedestrians feel comfortable. Good design in residential areas can help higher density developments fit better with surrounding developments, and still feel like a small town. Design details such as setbacks, lighting, landscaping, and pedestrian crossings along and across 228th Avenue can completely change the feel of this area. The DEIS captures some of the design options in the detailed renderings, but the importance of design in the success of the project should not be overlooked.

1-5 The Town Center is a good place for more housing diversity:
The three centers appear to be the best opportunities to create a wide range of housing options in Sammamish including cottage housing, townhouses, condos, flats, and other multifamily styles. This is supported by policy LUP 7.6 of the comprehensive plan – *High density multifamily housing should be*

[1] The Project for Public Spaces hosts a Web site with a great number of resources on placemaking at *www.pps.org/*.

COMMENT LETTER NO. 1

located close to arterials served by public transit and within walking distance of commercial activities, parks and recreational facilities. The market analysis provided a great deal of information regarding the potential for some of the more intense alternatives. The analysis suggested that five-story mixed-use structures, which may include commercial or office and residential would do very well in the town center. Well-designed structures could provide some landmark buildings to create a sense of place for this area as well as providing a range of housing options. The market analysis showed that smaller, more cost-efficient housing is needed for singles, seniors, and modest income earners such as teachers, fire-fighters, and other service workers. We encourage you to consider how to provide this range of housing within an easy five-minute walk of transit and commercial services within the town center.

1-5

Congratulations to you and your staff for the good work embodied by the DEIS. If you have any questions or concerns about our comments or any other growth management issues, please call me at (360) 725-3064 or Ike Nwankwo at (360) 725-3056. We extend our continued support to the City of Sammamish in achieving the goals of growth management.

Sincerely,

Anne Aurelia Fritzel, AICP
Growth Management Planner
Growth Management Services

AAF:tw

cc: The Honorable Mark Cross, Mayor of Sammamish
Leonard Bauer, AICP, Managing Director, Growth Management Services, CTED
David Andersen, AICP, Plan Review and Technical Assistance Manager, Growth Management Services, CTED
Ike Nwankwo, Financial and Technical Assistance Manager, Growth Management Services CTED

Comment Letter No. 1 – Washington State Department of Community Trade and Economic Development

1-1 Comment noted.

1-2 All of the action alternatives and the Preferred Alternative were developed to be consistent with the City's Comprehensive Plan goals and policies for a diverse, pedestrian-oriented center as well as the City Council's vision directing the Town Center to be "linked to the region with excellent transit service and bikeways and to the rest of the city with pedestrian trails" and to be "eminently walkable, with accessible sidewalks, trails, and pathways." The Preferred Alternative as expressed in the Draft Town Center Plan includes a strategy for pedestrian and bicycle access. The strategy provides for a hierarchy of trails to connect the land uses and amenities of the Town Center with surrounding areas. The Draft Plan also includes a conceptual trail network (See Figure 2-5), which is intended to serve both transportation and recreational functions. In addition, the compact and coordinated nature of the planned Town Center will provide for highly functioning and attractive non-motorized access.

1-3 See the response to comment 1-2. The Draft Plan's transportation strategy also includes a transit element. The Preferred Alternative will likely provide enough development density to justify increased transit access, frequency, and services. Some form of local transit service may also be included as a means to mitigate traffic (see section FEIS 3.5.4).

1-4 Development of the Preferred Alternative relied heavily on the City's Comprehensive Plan goals and policies and the City Council Vision Statement. The Draft Town Center Plan's design strategy includes policies and proposed implementation actions aimed at promoting design techniques that enhance pedestrian access, deemphasize vehicular access, provide for attractive and safe open space, reduce the perceived scale of buildings, enhance neighborhood character, and promote environmentally friendly design. The Town Center Plan will be implemented through design guidelines and development regulation that will be adopted before development in the Town Center begins. These implementing measures will address these concerns in detail. Additionally, measures to mitigate impacts to the area's aesthetics are discussed in section 3.8.2 of this FEIS.

1-5 The Preferred Alternative as embodied in the Draft Town Center Plan includes provisions to 1) increase the diversity of the housing stock in the City and 2) provide affordable housing. The Draft Plan includes the following "conceptual directions" to implement its fundamental concepts that relate to housing diversity:

> **A variety of housing types.** To encourage a diversity of housing to meet the needs of current and future residents, the plan calls for a mix of multi-family, townhouse, cottage housing, and single-family units. These will provide housing choices, allow for affordable housing initiatives, reduce impacts and support desired commercial uses.

The housing strategy in the Draft Plan calls for up to 2,000 dwelling units and includes a mix of multi-family units in mixed-use and stand-alone structures, townhouses, cottages, and detached single family dwellings. The most intensive housing densities are planned for mixed-use areas. The mixed-use areas will be compact in form, with pedestrian-oriented streets and spaces, and buildings up to six floors.

The Preferred Alternative also includes provisions for affordable housing. The Draft Plan directs that all residential development within the Town Center shall provide a portion of housing affordable to low or moderate income and that affordable housing should be provided in a variety of forms, serving various income levels, and be integrated with other uses in the Town Center. Refer to the Plan's housing strategy and goals and policies regarding affordable housing for further details.

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City of Sammamish

CITY OF ISSAQUAH

PLANNING DEPARTMENT
P.O. BOX 1307 - 1775 12TH AVENUE NW
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February 28, 2007

Kamuron Gurol
Community Development Director
City of Sammamish
801 – 228th Avenue NE
Sammamish, WA 98074

RE: Sammamish Town Center Sub-Area Plan DEIS

Dear Mr. Gurol:

Thank you for the opportunity to provide SEPA comments on the Sammamish Town Center Sub-Area Plan DEIS. We appreciate your efforts to study the future development of the town center in a comprehensive manner. Due to the large scale of the proposed development alternatives for the town center, each one appears to represent significant potential traffic on roads within Issaquah. Following are our comments, concerns, and questions in this regard:

1. Need for External Analysis:

2-1 We appreciate the acknowledgements in DEIS Transportation Chapter 7 that the proposed alternatives have traffic implications beyond the City of Sammamish. This includes statements in sections 7.1.3 Traffic Operations, 7.1.5 Transit Service, 7.2.1 PM Peak Hour Trip Generation & Travel Patterns, and 7.2.3 Traffic Operations.

2. DEIS Identification of Streets and Highways:

2-2 DEIS Transportation Chapter 7 correctly identifies Issaquah-Fall City Road, Issaquah-Pine Lake Road, and East Lake Sammamish Parkway as access routes to Sammamish and the proposed town center alternatives. The DEIS does not, however, include all the potentially impacted roads that are within Issaquah's city limits. The DEIS should include Issaquah's portion of 228th Ave SE, SE 43rd Way, SE 56th Street, SR-900, Highlands Drive, SE Black Nugget Road, and related I-90 interchanges as well.

3. Additional Issaquah Analysis Needed:

2-3 **a. General:** The DEIS shows significant PM peak hour traffic at points leading to/from Issaquah, but does not include sufficient analysis of that traffic within Issaquah, especially as it connects to I-90. The DEIS traffic analysis should include the streets and related intersections identified in #2 above. For example, no analysis of impacts to the future roundabout intersection at SE 43rd Way and East Lake Sammamish Parkway was included in the DEIS.

2-4 **b. 3 Issaquah intersections are included:** We appreciate the inclusion of 3 key intersections in the DEIS: 1) Issaquah-Fall City Road & Issaquah-Pine Lake Road; 2) E. Lake Sammamish Parkway & SE 56th Street; and 3) E. Lake Sammamish Parkway & Issaquah-Fall City Road. These intersections all appear to experience delays increased by the project with all action alternatives. This supports the need

2-4 for further analysis. We observed Chapter 7's analysis of other intersections that are located above the corridors listed in item 2 above.

4. Traffic Analysis Methodology:

2-5 **a. Intersections & Trips:** The DEIS information on the intersections provides the standard measurements for intersection delay, but does not appear to isolate numbers for the trips or the related percentages of increased demand on Issaquah intersections for each alternative as an project generated trips distributed into the City of Issaquah along the roadways listed in item 2. This information is needed to determine potentially impacted intersections. In the DEIS, it appears that a number of Issaquah intersections could be subject to significant impacts. For example, comparison of the traffic volume figures 7-3, 7-6, and 7-9 appears to suggest that the SE 43rd Way at E. Lake Sammamish Parkway intersection may be impacted by increases of 500 PM peak hour trips with the Commercial Alternative #1. More information and analysis as needed to fully determine potential Issaquah impacts.

2-6 **b. Trip Distribution:** The DEIS estimates that 40% or less of the trips generated will travel outside of Sammamish with variations depending on the alternative. While additional commercial development in Sammamish could provide an alternative to Issaquah destinations and a successful mixed use development may provide opportunities to live and work in close proximity, the 40% or less "capture" rate seems to be overly optimistic given the current experience that most Sammamish residents commute for employment and that many Sammamish retail employees do not reside in Sammamish. We request that the trip distribution be provided to the City of Issaquah along those roadways listed in item 2.

2-7 **c. AM Peak Hour:** The DEIS does not include any analysis of the AM Peak Hour which could be significant as well. In order to determine if AM Peak Hour trips create potential impacts greater than the PM Peak Hour, additional analysis as needed at the locations requested above.

5. Mitigation Considerations

Consistent with the provisions of Washington Administrative Code (WAC) 197-11-550 that addresses the responsibilities of commenting agencies, we are providing the following comments about mitigation for identified traffic impacts.

2-8 **a. General Mitigation:** We are concerned that a potential mitigation alternative noted in the DEIS includes lowering LOS and allowing congestion. While the City of Sammamish may pursue this option on its own streets, it would not be acceptable mitigation for impacts to Issaquah streets. Once the additional information and analysis is provided, the City of Issaquah will be able to better identify mitigation necessary for specific local traffic impacts. Mitigation proposals would then include proportionate funding options for specific projects. Another mitigation option may be the development of an interlocal agreement and/or reciprocal impact fees subject to the review and approval of both City Councils.

2-9 **b. Issaquah-Fall City Road (outside Issaquah):** Even without the additional information requested, the DEIS already appears to present significant impacts to Issaquah Fall City Road without any specific mitigation proposed. Improving this road is in the mutual interest of King County, the City of Sammamish, and the City of Issaquah. The City of Issaquah proposes that the City of Sammamish directly request King County involvement in determining appropriate mitigation for Issaquah Fall City Road related to impacts of the Sammamish preferred alternative for its town center.

c. GMA, SEPA and Sammamish Comprehensive Plan Direction: In comments on the Sammamish Comprehensive Plan and SEIS in 2003, the City of Issaquah cited RCW 36.70A.070(6)(a)(iv) that states: *"Intergovernmental coordination efforts, including an assessment of the impacts of the transportation plan and land use assumptions on the transportation systems of adjacent jurisdictions;"* are required in the transportation element of a GMA plan. SEPA contains similar direction on addressing impacts to adjacent communities in SEPA rules such as WAC 197-11-060(4)(d) which requires that, *"in assessing the significance of impacts, a lead agency shall not limit its consideration of a proposal's impacts only to those aspects within its jurisdiction, including local or state boundaries."* In 2003, the City of Issaquah also noted that we appreciated the emphasis that the Sammamish Comprehensive Plan places on contributing toward the improvement of routes that Sammamish commuters rely upon in adjacent cities. Other applicable sections of the Sammamish Comprehensive Plan include the list of transportation priorities, Transportation Policy TP-8.1.1 and Transportation Policy TP-8.1.2. We believe that the Sammamish Town Center Sub-Area Plan DEIS provides an excellent opportunity to work together on addressing transportation impacts in the manner anticipated by the GMA, SEPA and the Sammamish Comprehensive Plan.

2-10

6. Conclusion: While we understand the purpose of a DEIS to analyze development alternatives, the City of Issaquah wants to be on record at this early opportunity to note that a major mixed use development in Sammamish would likely have significant traffic impacts in Issaquah. We would be happy to meet with Sammamish representatives as needed to determine how to resolve our concerns in a mutually agreeable manner.

2-11

Thank you again for the opportunity to comment and to review the DEIS. We look forward to working with the City of Sammamish in this regard. Please call me at (425) 837-3088 if you have any questions.

Sincerely,

Mark Hinthorne, AICP
Planning Director

MH/EM/mb

cc: Mayor Ava Frisinger
Issaquah City Council
Leon Kos, City Administrator
Joe Meneghini, Deputy City Administrator
Bob Brock, Issaquah Director of Public Works Engineering
James Matthews, Senior Planner
Susan Cezar, Sammamish Community Development Deputy Director

Comment Letter No. 2 – City of Issaquah

2-1 Thank you for acknowledging that the DEIS does include discussion throughout the report that there are traffic impacts to areas outside of the city limits. These impacts are primarily due to the City of Sammamish being a bedroom community with most of the employment and shopping opportunities being located outside of the city limits. The City of Sammamish desires to be a "good neighbor" with adjacent communities and intends through this environmental review process to account for legitimate impacts of its long range plans that may extend beyond city limits.

2-2 It is recognized that traffic to and from the City of Sammamish utilizes roads within the City of Issaquah. The Sammamish Town Center Sub-area Plan EIS focuses on the same study area as was evaluated in the City of Sammamish Comprehensive Plan. This does include some intersections outside of the City but does not include all of the roadways and intersections that are mentioned in your letter. The FEIS analysis will not include an expanded study area but in an effort to quantify impacts we have made available the volume distribution plots showing the traffic volume impacts to the various roadways as requested. This information has helped to identify the order of magnitude that traffic impacts will have to areas within the City of Issaquah. The specific assignment and distribution of traffic from the preferred alternative can be seen in the model plots included in Appendix C.

2-3 As mentioned in the previous response to comment 2-2, the traffic volumes forecasts for the Preferred Alternative have been provided to City of Issaquah staff to help quantify and identify the traffic impacts related to the Sammamish Town Center. Preliminary analysis conducted by City of Issaquah staff indicates that most of the intersections affected by increased volumes would continue to operate within Issaquah's level of service standard and would require no mitigation, while three intersections may degrade to unacceptable levels for which mitigation could be considered. Two of these intersections (Gilman Blvd./Front Street and Issaquah Fall City Rd/Issaquah Pine Lk Rd) are affected by less than five seconds and are less than a half a second beyond the LOS E/F threshold. The third intersection (Issaquah Fall City Rd/Black Nugget) is within one tenth of a second from being at LOS F even without the development of the Town Center. Discussion of mitigating these impacts is included below in later responses.

2-4 See response to Comment 2-3.

2-5 As previously mentioned, the trip distribution and assignment of specific trips related to the Preferred Alternative has been provided to City of Issaquah staff.

2-6 A more detailed trip generation table by use and internal capture was also provided. The internally captured trips that represent roughly 30 percent may appear high as this percentage includes a double counting of internal trips. When utilizing the City's traffic model, an internal trip from one land use to another is quantified as an inbound trip for one use and an outbound trip for the other use. So, the 30 percent internal capture includes a double counting and more clarity and explanation is provided in the Final EIS to avoid this confusion.

The City of Sammamish collected updated traffic volumes throughout the city in late February and early March 2006. Specifically the data was collected February 28th through March 2nd. A figure summarizing the average AM peak hour, PM peak hour, and daily counts is incorporated into the Final EIS analysis and is attached to this response as Figure 4-1. As shown in the figure, all of the PM peak hour volumes exceed the AM peak hour volumes with the exception of one location. The AM peak hour traffic volumes on 244th Avenue NE, just south of SR 202 (NE Redmond Fall City Road), are slightly higher. The remainder of the city has higher traffic volumes occurring during the PM peak hour. Since traffic volumes are typically highest during the PM peak hour, the City's traffic model and concurrency program have been developed around the PM peak hour.

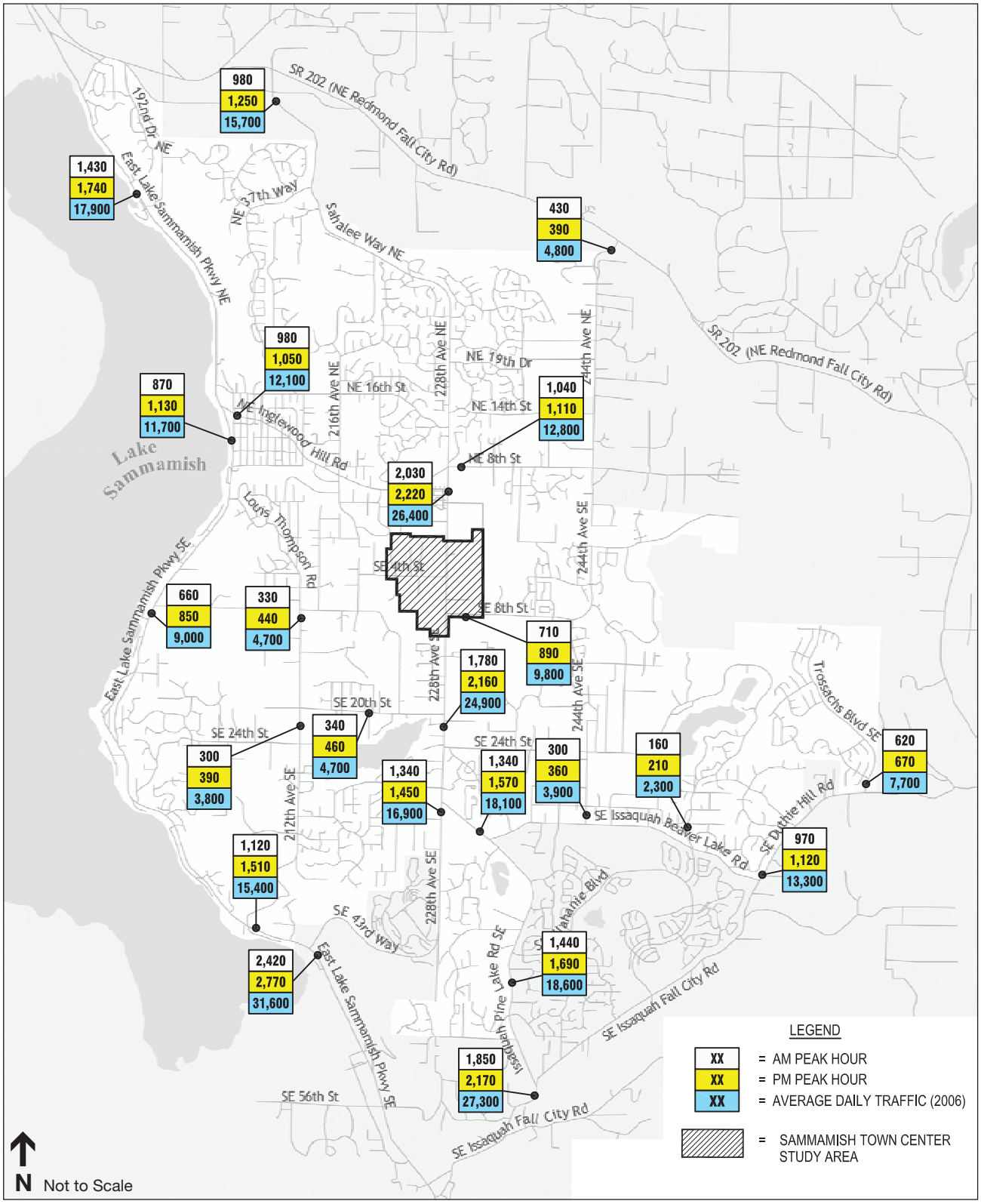
The focus of this analysis is based on the PM peak hour, as the combination of traffic generated by any of the Town Center land use alternatives along with the adjacent street traffic would be at the highest levels during the PM peak hour.

2-7 As noted in Section 1.4.1 of the DEIS, the adoption of the Sammamish Town-Center Sub-area Plan is a "non-project (programmatic) action. An EIS for a non-project action does not require site-specific analyses. Rather, the EIS discusses impacts and alternatives appropriate to the scope of the non-project proposal and the level of planning for the proposal (WAC 197-11-442)". Environmental review of the proposed Sub-area Plan is also following a course of phased environmental review. Under phased review, broader environmental documents, such as a sub-area plan, are followed by narrower documents, such as a site-specific or project-level analysis" (DEIS; Section 1.4.2). Therefore, although this FEIS reflects a broad review of the traffic impacts from the Sammamish Town Center on some Issaquah intersections, further analysis may be necessary on a project level basis as development under an adopted Town Center Plan proceeds.

2-8 The City of Sammamish is willing to continue to explore the option of an interlocal agreement and/or reciprocal impact fees with the City of Issaquah. As you know, this will require continued coordination between our jurisdictions, which we are committed toward.

2-9 The City of Sammamish will continue to work with King County and the City of Issaquah to determine appropriate mitigation for Issaquah Fall City Road.

2-10 The City of Sammamish will continue to coordinate with the City of Issaquah on the GMA and SEPA issues.



FILE NAME: Fig04-1_exist_traffic.ai
CREATED BY: JAB / DATE LAST UPDATED: 09/17/07

SOURCE: The Transpo Group, 2007.

Figure 4-1
Existing (2006) Traffic Volumes
Sammamish, Washington

2-11 The City of Sammamish will continue to openly work with the City of Issaquah to resolve our joint transportation issues/concerns and to develop an appropriate plan for mitigating impacts from the proposed Town Center. A few of the optional approaches are identified below:

- Pursue an agreement to analyze impacts and mitigation on a case by case basis under SEPA, similar to what has been occurring but with a more formalized structure and approach for consistency.

- Establish interlocal agreements identifying how transportation impacts would be mitigated. This would most likely include a reciprocal impact fee agreement between the jurisdictions or it may include identifying a specific impact fee for development within the Town Center.

- Jointly conduct additional analysis of the specific corridors of concern to identify impacts and potential improvement needs.

- Expand transit service and implement other transportation demand management practices to reduce vehicular demand.

Lake Washington School District No. 414

DON SAUL
Superintendent

JANENE FOGARD
Deputy Superintendent

CHIP KIMBALL
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March 7, 2007

Mr. Kamuron Gurol
Community Development Director
City of Sammamish
801 228th Ave SE
Sammamish, WA 98075

Re: Sammamish Town Center Sub-Area Plan Draft Environmental Impact Statement

Dear Mr. Gurol:

On behalf of the Lake Washington School District (the "District"), thank you for the opportunity to comment on the Draft Environmental Impact Statement ("DEIS") for the Sammamish Town Center Sub-Area Plan ("Town Center") proposed by the City of Sammamish.

I. Alternatives:

As you know, the District owns a 15.49 acre undeveloped site (the "School Site") in the Northeast planning area of the Town Center. The District is currently holding the site in reserve as a potential future school site. Whether the School Site is developed for a school (and, what type of school) will be the subject of future planning decisions and will depend upon a variety of factors including, but not limited to, student enrollment, population projections, service area needs, and financial capacity.

3-1 As you also know, the four alternatives in the DEIS suggest alternative uses for the School Site, which include low intensity residential, medium intensity residential, civic, and mixed use development. None of the alternatives recognize the potential development of a school on this site. Please confirm that, regardless of the preferred alternative selected by the City, the zoning will allow the District to develop a public school on this site should that be necessary in the future. If necessary, please add language to the DEIS to ensure that this potential use is preserved.

Please note that, in the event the District determines that the School Site is not needed for District purposes, the District's interest is that the site will be zoned for its highest and best use.

II. Public Services and Utilities:

As discussed in Chapter 9 of the DEIS, (page 9-14), the Town Center is anticipated to generate between 177 to 438 new students in the District, depending on which alternative is ultimately built. The DEIS also notes (page 9-5) that the following District schools currently serve the Town Center: Samantha Smith Elementary, Inglewood Middle School, and Eastlake High School. Furthermore, the DEIS recognizes that student enrollment currently exceeds capacity (both permanent and temporary) at Smith and Inglewood (page 9-5). This information is accurate.

However, the DEIS inaccurately states that, based upon the District's projected growth rates, the enrollment at the schools serving this area will increase by 103 students by the 2011-2012 school year (page 9-13). The District prepares detailed service area projections based upon expected new development. Using these projections, enrollment in this service area by the 2011-2012 and 2012-2013 school years will be as

3-2 follows:

School	Students Generated from New Development through 2011-12	Students Generated from New Development through 2012-13
Smith Elementary	99	122
Inglewood Junior High	48	76
Eastlake High School	32	58
Total	179	**256**

Please make this correction in the DEIS. Of course, these figures do not include the additional enrollment that would result from adopted land use changes in the Town Center planning area.

3-3 Regardless of the chosen alternative, development in the Town Center will impact the District's capacity. As the DEIS correctly notes, the elementary and junior high schools that serve the Town Center planning area are both currently over capacity. Students generated from the Town Center will only exacerbate the capacity deficiencies. The payment of school impact fees will offset some, but certainly not all, of the costs associated with providing capacity improvements necessary to serve new development.

If you should have any questions concerning the District's comments on the DEIS, please call. Thank you.

Sincerely

Dr. Don Saul
Superintendent

Comment Letter No. 3 – Lake Washington School District

3-1 The EIS acknowledges that the LWSD owns an undeveloped 15.5 acres in the northeast quadrant of the Town Center area and that the District is currently holding the property for future needs. The City's current residential zoning would allow the development of an elementary, middle or high school. Under the Draft Town Center Plan school development would continue to be an allowed use. For purposes of analysis, the Draft Town Center Plan proposes allowing medium density residential development (townhouses and mid-rise multi-family) on the eastern half of the property in the case that LWSD decides not to develop the property as a school. The western half of the property is heavily constrained by the presence of George Davis Creek, wetlands, and associated buffers so the analysis assumes open space (see Figure 5-1 in the DEIS).

Development decisions for the property would be made only by the LWSD. Development of the property would have to comply with the City's land use regulations, critical areas ordinance, and adopted Town Center Plan regulations and design guidelines.

The Preferred Alternative proposes the development of a roadway across the LWSD property. The City and LWSD would need to discuss how best to determine the use of the property for the public interest.

3-2 The projected enrollment has been corrected in section 3.7.1.3 of this Final EIS.

3-3 Text has been added to the mitigation (section 3.7.2.3) in this Final EIS to clarify that new funding sources would have to be identified for facilities required over the 25-year planning horizon.

DEIS Comment Submittal
Scott Hamilton

Submitted by Scott Hamilton
Member, Sammamish Planning Commission
(Submitted Individually)
19727 SE 19th St.
Sammamish, WA 98075-9639
March 26, 2007

I hereby submit the following comments in responses to the Draft EIS for the Sammamish Town Center dated January 31, 2007.

I. Traffic

A. Introduction. A draft of this Section I was provided to the City Staff and Traffic Consultants, resulting in the response dated March 19 that I understand will be contained in the FEIS. To put the March 19 response in context, I list the questions that pertained thereto below. My spreadsheet analysis referred to in Item 1 below is also hereby submitted for the record, as it also is referenced in the March 19 response and also a letter submitted at my request by Joseph Savage, PE, a transportation engineer. Mr. Savage's letter is contained as Attachment F in the March 19 response.

Inasmuch as the March 19 response addresses the points below, no further response is requested for Items 1-9 and their sub-points. I hereby thank the City and the Consultants for the time and effort expended in preparing the March 19 response.

HOWEVER, see I.B. that follows Item 9 below for additional comment hereby submitted in sur-response to the March 19 City-Consultant response.

4-1

1. A spread sheet is attached compiling all traffic data contained in Figures 7-3 through 7-9, plus traffic data from the September 2003 adopted Comprehensive Plan. The spread sheet contains lettered columns and numbered rows for identification, which are referenced in the comments below. There are two Excel spread sheets: one is entitled "Traffic Count" and the other is entitled "Peak Hour Count." Each will be referenced below and is follows the format described above.
2. Due to the errors or questionable results detailed below, the validity of the traffic analysis is questionable.
3. The Peak Hour spread sheet contains two sets of data:
   a. the 2003 Traffic Count as listed in the Comprehensive Plan, and the "Existing" traffic count as listed in the DEIS. Using the standard 10% ITE Trip Generation calculation, Peak Hour counts are calculated for these two sets of data.
   b. The remaining columns reproduce the Traffic Count and Peak Hour data from the DEIS forecasts for Alts. 1, 2, 3 and No Action. The Peak Hour data is then divided by the Traffic Count data to obtain the percentage of Peak Hour traffic to the ADT data forecast by the City's consultants. The results lead to the questions posed in Paragraph 4.

DEIS Comment Submittal
Scott Hamilton

4. **All Peak Hour traffic forecasts do not comply with the generally accepted ITE standard of 10% of ADT.** As the mathematical calculations in the accompanying Excel Spreadsheet indicates, some Peak Hour traffic is calculated to as low as – 5%. Furthermore, this figure varies from DEIS forecast-to-forecast for the same location.
   a. The methodology explained on DEIS Pg. 7-15 under Section 7.2 **1**., sub-paragraphs 1, 2 and 3 is designed to strictly limit the analysis to-and-from the Town Center. The result is the understatement, in some cases dramatically, the total peak hour traffic volumes throughout the city. These understatements *may have the effect* of falsely suggesting passing LOS or critical link volumes when in fact the additional traffic may result in failure of additional LOS or critical link locations throughout the city.
      i. See DEIS Pg. 7-18, Section 7.2.3.1, Para. 3, beginning: "In general, under all Town Center Alternatives...." This is precisely an example of how the understated Peak Hour calculation described above may in reality understate the impacts on intersection LOS. Recalculating impacts using the ITE Trip Generation standards may yield a far different result.
   b. Please explain the non-conformity to the 10% ADT ITE Trip Generation standards.
   c. Please explain how Peak Hour calculation percentages vary for the same location from forecast-to-forecast. In other words, percentages should be constant – why aren't they?

4-1

   d. An analysis conforming to ITE Trip Generation standards is requested for the FEIS.
5. DEIS Figure 7-3 is entitled "Existing Traffic Volumes". The implication is that these are 2006 figures but the chart is undated with respect to when traffic counts were actually taken.
   a. Please identify when the traffic counts were taken (AM or PM data).
   b. Although Figure 7-3 implies these are 2006 traffic counts, note the figures of 15,800 in the Traffic Count Spreadsheet Columns D6 and E6. These figures are identical, ostensibly three years apart. Please explain.
   c. The 2003 Comp Plan traffic Counts (Figure V-4 of the Comp Plan) identifies Actual or Modeled traffic counts. Please disclose Actual or Modeled Traffic Counts in DEIS Figure 7-3.
   d. See Traffic Count Spreadsheet Columns D3, E3 and F3; and D4, E4 and F4. According to DEIS Figure 7-3, traffic has declined vs. Actual counts in Comp Plan Figure V-4. Please explain if DEIS Figure 7-3 is based on Actual counts or Modeled counts and why the Figure 7-3 counts declined despite additional growth in the City of Sammamish between 2003 and 2006.
   e. Comp Plan Figure V-4 shows an Actual traffic count of 18,500 on East Lake Sammamish Parkway (ELSP) at the Sammamish/Redmond City Limits (Traffic Count Spreadsheet Column D11). DEIS Figure 7-3 does not show this precise location but shows a figure of 17,900 ADTs south of the City Limits and North of Weber Point (Traffic Count Spreadsheet Column

E2). E2 is marginally higher than Column D2, which is well south of Weber Point.

i. Please explain why a DEIS traffic count at the Redmond City Limits was not included.

ii. Please include this figure.

iii. Please explain why after considerable growth in Sammamish during three years the DEIS traffic count on ELSP increased only 1.7%, according to the DEIS figures.

1. Note that traffic on Inglewood Hill Road went up 8% 2006 vs. 2003 whole, according to DEIS figures, traffic on ELSP south of Inglewood Hill went *down* 8%. Suggesting traffic on ELSP north of Inglewood Hill went up only 1.7% therefore doesn't follow the sharp increase in traffic on Inglewood Hill Road

f. See Traffic Count Spreadsheet Columns E21 and M21 (Existing Traffic vs. 2030 No Action Alternative). Note that these figures are the same Note that Murray Franklyn currently has permit applications in process for approx. 250 SF and MF homes. Explain how the 2030 figure remains unchanged.

g. Please reexamine the published data and the data provided on the Excel Spreadsheets attached to this Comment for other similar anomalies and correct these in the FEIS.

4-1

6 Include the locations in Redmond and Issaquah identified in the Comp Plan traffic analysis (Figure V-4 of the Comp Plan) and conduct an analysis of the traffic impacts of all Alternatives (1, 2, 3, No Action and the Preferred Alternative) in the FEIS

7. Require full traffic analysis for each alternative identified in the DEIS, correcting all omissions and errors identified above.

a. First require updated traffic counts as baseline traffic from which analysis begins. Traffic counts in the Comp Plan were conducted in 2003 or before and are no longer current.

b. All locations identified in the Comp Plan should be updated.

i. Nearly all traffic counts north of NE 8th St. are calculated rather than actual. All major arterials throughout the city should have new, actual counts. Minor arterials likely to receive traffic from the Alternatives should receive update, actual counts. (Counts in the extremities of the city, such as Trossachs, unlikely to receive much traffic from the Alternatives, may be calculated.)

8. A recalculation of levels of service on the arterials outlined in #1 and including all data complied as outlined in #1, should be undertaken.

9 Cost for improvements to all affected roads, and a description of these improvements, required to meet acceptable levels of service should be detailed.

B. Sur-Response to City-Consultant March 19, 2007 Memorandum

1 The March 19 Response did not address the absence of traffic impact analysis on the so-called "choke-points" in Issaquah and Redmond that many our City's residents must traverse during AM and PM rush hours. Traffic impact projections omit analysis (although a few LOS intersection analyses are conducted in Issaquah). The omitted areas specifically include:

a. 43rd Way in Issaquah

4-2 b. East Lake Sammamish Parkway south of the Issaquah-Sammamish City Limits

c. East Lake Sammamish Parkway south of 43rd Way

d. Issaquah-Pine Lake Road south of the Sammamish City Limits

e East Lake Sammamish Parkway north of the Sammamish City Limits

f Sahalee Way north of the Sammamish City Limits

g. SR 202 between Sahalee Way and SR 520

4-3 2 What are the mitigations and the costs thereto that will be required for the segments listed in B.1?

4-4 3 How much cost of the mitigations in 1 B.2 will have to be borne by Sammamish taxpayers?

4-5 4 The March 19 Response acknowledges a land use error for Section 36 near Trossachs but the revised map does not appear to correct this error

5. See Attachment B of the March 19 City Response, Alts. 1, 2 and 3 of the Traffic Distribution maps. Alt. 1 shows 244th linking NE 8th and SE 8th streets, with continuing traffic distribution to SE 32nd. Alts. 2 and 3 do not show traffic distribution south of SE 8th. Please explain why and what, if any, implications are associated with this omission.

4-6

4-7 6. At my request, Mr. Joseph Savage, PE, a professional transportation engineer, reviewed the City's March 19 Response. He has prepared the following analysis, to which a City response is requested for the FEIS.

B. Sur-Response, Continued: MEMORANDUM by Joseph Savage

Date: March 25, 2007

From: Joseph P. Savage, Jr., P.E.

Subject: Comments on ESA Adolfson's March 19 memo

5d. The statement that "... questions about recent counts have no bearing on the traffic model" and the discussion about "real world count data" implies that the traffic model's estimates/forecasts of existing/future traffic volumes on city arterials and streets are unreliable (i.e., there being no relationship between the results of the model and actual traffic volumes). If the City is willing to accept this, then there is a serious misunderstanding about the purpose, validity and uses of the City's traffic model.

The purpose of a traffic model is not to simply simulate "non-real world" traffic flows but rather to provide a reliable tool for the City staff and appointed and elected officials to make decisions. To say that the model's volumes are independent of observed "real world" traffic counts clearly means that the model results cannot be relied upon to present an accurate picture of future traffic conditions (i.e., level of service calculations and concurrency tests made using modeled volumes) given future land use inputs. I.e., if a

4-8 model simulation of 2006 land use (population and employment) and traffic conditions does not reasonably match actual 2006 traffic counts, then the model does not reasonably reflect reality. And, unfortunately or not, the citizens of Sammamish live in the "real world" with actual traffic congestion reflected by "real world count data," not in the cyberspace of the model.

Contrary to this paragraph's conclusion, the City should be very concerned about the traffic model given the apparent assumption made by ESA Adolfson that the model is completely unrelated to the real world. The City cannot make informed and reasoned decisions about land use, transportation infrastructure and other key planning issues if their primary traffic analysis tool bears no relationship to actual traffic conditions. It is difficult to see how one could have confidence in forecasts of traffic conditions 24 years in the future based upon a model that, according to this response, cannot reasonably reflect today's conditions.

5e. I disagree with ESA Adolfson's factual statements and the conclusions drawn from them in this paragraph. Starting with the erroneous statement: "Figures 7-3 through 7-6

4-9 shows forecast volumes that equate to 3% per year for the No Action case and as High as 5% per year with Alternative 1," I prepared several tables of count comparisons shown below:

Table 1. Comparison of PM Peak Hour Traffic Volumes on 244th Avenue NE 2006 - 2030

Condition	PM Hour 244th NE	Annualized Growth Rate
2006	390	n/a
Alt 1	950	3.8%
Alt 2	880	3.4%
Alt 3	900	3.5%
No Action	710	2.5%

Table 2. Comparison of PM Peak Hour Traffic on East Lake Sammamish Parkway and 244th Avenue NE, 2006-2030

Condition	ELS	244th NE	Total	Annualized Growth Rate
2006	1,740	390	2,130	n/a
Alt 1	2,370	950	3,320	1.9%
Alt 2	2,210	880	3,090	1.6%
Alt 3	2,270	900	3,170	1.7%
No Action	1,870	710	2,580	0.8%

Table 3. Comparison of PM Peak Hour Traffic on East Lake Sammamish Parkway, Sahalee Way and 244th Avenue NE, 2006-2030

4-9

Condition	ELS	Sahalee Way	244th NE	Total	Total % Increase	Annualized Growth Rate
2006	1,740	1,250	390	3,380	n/a	n/a
Alt 1	2,370	1,200	950	4,520	33.7%	1.2%
Alt 2	2,210	1,606	880	4,696	38.9%	1.4%
Alt 3	2,270	1,130	900	4,300	27.2%	1.0%
No Action	1,870	910	710	3,490	3.3%	0.1%

As Tables 1 through 3 show, no combination of traffic volumes from the referenced figures yields the attested 3 to 5 percent per year growth rates. Given the significant differences in year 2006 volumes among the three roads that feed the City of Sammamish, the only valid comparison for annualized growth rates is that presented in Table 3 which combines traffic volumes on the three roads to offset the effect of redistribution of traffic among them.

Table 4. City of Sammamish South Screenline, 2006 - 2030

Condition	ELS	228th Ave SE	Issaquah-Pine Lake Rd	SE Duthie Hill Rd	Total	Annualized Growth Rate
2006	1,510	1,450	1,650	1,120	5,770	n/a
Alt 1	1,530	1,450	1,590	1,190	5,760	0.0%
Alt 2	1,660	1,550	1,840	1,480	6,670	0.6%
Alt 3	1,630	1,610	1,900	1,520	6,860	0.7%
No Action	1,530	1,450	1,590	1,190	5,760	0.0%

Table 4 shows a similar growth comparison for the roads feeding Sammamish from the south. Combining the totals for the No Action Alternative from Tables 3 and 4, we have a 2030 PM peak hour total of [3,490 + 5,760 =] 9,250 vehicle trips compared to an existing (2006) count of 9,150 PM peak hour trips. This results in a net increase of 100 vehicle trips over the next 24 years.

4-9 Given the data presented in Tables 3 and 4 derived from the figures referenced in ESA Adolfson's response to my previous comments, the City's model reflects virtually no growth in traffic into and out of the City between 2006 and 2030 under the No Action Alternative. It is my opinion that this result is so completely unreasonable that decision makers would make erroneous decisions based on the results of any analysis performed with this model, notwithstanding any assumptions made about the model's validity in 2001-2002 as stated by ESA Adolfson.

5f. I fully understand that the accuracy and reasonableness of the City's traffic model are not the subjects of this DEIS on the Town Center Sub-Area Plan. However, since the DEIS and the response of March 19 continue to assert that the traffic impacts of the proposed Plan were based on the model's results, if the model produces erroneous results then the traffic impacts based on those results must also be erroneous. Based on the comparison of existing (2006) and No Action (2030) traffic volumes presented above, it is my conclusion that the model significantly underestimates the likely actual (or "real world") traffic volumes for each of the 2030 Plan Alternatives, and the subsequent congestion, level of service and other analyses performed using those volumes would show significantly better traffic conditions that would likely exist, and therefore the DEIS probably significantly understates the adverse traffic impacts of the proposed Sub-Area Plan Alternatives.

Notwithstanding any conclusions presented in the 2001-2002 calibration report, the traffic forecasts for 2030 No Action are unreasonable in my opinion. The calibration of
4-10 the traffic simulation performed for 2001 conditions could well be within acceptable standards, and the model could still produce clearly erroneous results in its application for 2030 conditions due to any number of reasons. Potential sources of errors include incorrect application of trip generation and distribution procedures, unrealistic diversion of future vehicle trips to transit, unreasonably low population and employment growth forecasts, special adjustment factors related to internal capture of certain trip purposes not well represented in the model, etc. I am not saying that any of these sources are present in the model, and for the purposes of this DEIS the source of the unreasonable results showing no growth in traffic between 2006 and 2030 is not relevant. It is the unreasonableness of the results themselves that is at issue here.

5g. See above.

5h. See above.

This concludes my comments on ESA Adolfson's responses to my previous memo.

Although I have not analyzed other portions of ESA Adolfson's memo, I am very concerned about the repeated statements throughout that argue there is no connection or relationship between the model and "real world" traffic counts. The traffic conditions faced by Sammamish residents today, tomorrow and in 2030 will be materially affected
4-10 by the City's decisions on the Town Center Sub-Area Plan. Thus the decision makers should look very skeptically at any and all of the results presented in the DEIS that are based on these 2030 forecasts, and not accept any conclusions about traffic impacts just because "the model said so."

End of Savage Memorandum.

C. Services/Impact to Sammamish Taxpayers

The DEIS discusses impacts to the Lake Washington School District (LWSD); and the DEIS states that LOS standards for fire services will be met but otherwise fails to analyze other service needs and the cost to Sammamish taxpayers to meet the required improvements from development of the Town Center. This Section requests responses for Service and Cost Impact for Sammamish Taxpayers.

4-11
1. Transportation impact fees by law cannot account for 100% of growth; city taxpayers will be required to pay for some of the road improvements required as a result of growth and development in the Town Center.
   a. Please identify the estimated cost of road improvements required from the Preferred Alternative to be adopted by the City Council,
   b. Please analyze the portions of the costs to be paid from by developers through SEPA requirements, transportation impact fees; and the costs that will flow through to city taxpayers

4-12
2. A full assessment for the Preferred Alternative outlined in the DEIS should be made for the requirements of additional services, including all estimated costs to taxpayers for each of the following:
   a. Police: the number of additional police officers, police cars and other emergency equipment.
      i. Section 9.2.1.2 discusses the number of new police officers needed for population growth in the Town Center. This sections does not discuss the new equipment (police cars and personnel equipment, for example) required. Neither does this section discuss at all the number of new officers required to service the amount of retail, office and civic space discussed in the Alternatives. It is an established fact that such "attractions" require additional police (and fire) services over and above population. No discussion of the impacts of the Town Center development on police resources required to service this development is included in the DEIS, or its costs to taxpayers.
      ii. The FEIS should include a full discussion and analysis of the full requirements of police, support staff, police cars and related equipment and the cost to taxpayers.

b. Fire: the number of additional fire officers, EMT, fire apparatus, EMT apparatus and other emergency equipment:
   i. The DEIS relies on the city's LOS in its discussion of impacts. This approach ignores the changing character of the proposed Alternatives. Specifically, Alternative 1 contemplates 12-story "high-rises" (as defined by Sammamish). This requires snorkel or ladder trucks to fight fires. No discussion or analysis of this is included in the DEIS and whether additional such equipment will be required
   ii. The above example demonstrates why an analysis beyond LOS is required to identify the cost of equipment needed to provide proper fire protection, the additional personnel needed for this equipment, the cost of building or altering fire stations to house this equipment, the need for additional EMS equipment and staff and so on to service the additional population proposed by any of the Alternatives, including the selected Preferred Alternative
   iii. Relying solely on the city's LOS for analysis ignores the impact of the additional population projections of each alternative, the different types of buildings and the new quantity of buildings. Office and Retail generates fire calls, typically EMS but also fire alarms (real and false), requiring additional personnel and equipment unrelated to LOS response time. The FEIS should include analysis of these impacts and the cost to taxpayers to acquire the equipment, build the buildings and staff the equipment to properly service the Town Center development.

4-13

c. Schools, the number of additional schools and/or classrooms, teachers, support staff, buses, and all other equipment associated with servicing the proposed new development (i.e., impacts to LWSD).
   i. The DEIS misleads the Reader insofar as it leaves the impression the Issaquah School District has capacity to serve the development of the Town Center. The DEIS correctly points out that the boundaries for the two school districts is SE 8th St., only a careful reading of the DEIS would enable the Reader to realize that only proposed development of the Kellerman and/or the Arbor School property into residential falls into the ISD. Both properties represent a very small portion of the Town Center
      1. The FEIS needs to make clear in unambiguous terms that the burden of any development falls upon the LWSD, which is highly capacity-constrained and as a result may face the need to build new facilities. Such cost to taxpayers should be analyzed in the FEIS.
      2. Any requirement by the ISD to build new capacity for the Town Center development should be specifically identified in the FEIS and the costs to taxpayers analyzed and identified

4-14

d. Sports Facilities: the number and description of new sports fields required to service the Preferred Alternative;

4-15

e. Parks space needed to service the proposed Preferred Alternative;
f. The cost to taxpayers of other civic facilities in the proposed Preferred Alternative.

4-16

D. General

1. A general financial analysis of development of the Town Center should be included, insofar as staff, some City Council members and citizen proponents of Town Center development frequently cite the benefits of sales tax and property tax revenues to the City, an analysis of these benefits should be included in the FEIS. On the other side of the analysis should be an analysis of the cost to provide services, including but not limited to, cost to taxpayers of building and improving roads; additional police and fire personnel, equipment, support staff and buildings; new schools that may be required, whether via portables or permanent structures; civic facilities; utilities; and so on.

4-17

2. Figure 10-7 misidentifies SE 8th St. as SE 4th St. in the lower right hand corner of the illustration of the SE Quadrant.

4-18

3. In general, the illustrations of the layouts fail to conform to policies in the Comprehensive Plan, which call for parking lots to be "hidden" by buildings rather than facing streets.
4. In general, the illustrations of the layouts fail to conform to policies in the Comp Plan which favor underground or structured parking in order to minimize impervious surfaces. The illustrations additionally fail to conform to the intent of the Vision Statement of the City Council to minimize impervious surfaces through the over-reliance of surface parking

4-19

Traffic Counts

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
		[illegible] Sept. 2003		TC DEIS Jan 2004 Existing Conditions		TC DEIS Jan 2004 Alternative 1		TC DEIS Jan 2004 Alternative 2		TC DEIS Jan 2004 Alternative 3		TC DEIS Jan 2004 No Action Alt		TC DEIS 2004 No Action Alt
Ref #	Location	Actual or Modeled	2003 Count	2004 Count (1)	Change Vs 2003	2030 Projection	Change Vs 2004	2030 Projection	Change Vs 2004	2030 Projection	Change Vs 2004	2030 Projection	Change Vs 2004	Change Vs 2004
1	[illegible] @ Redmond City Limits	A	18,[illegible]	NL		24,200		22,800		23,[illegible]		19,[illegible]		[illegible]
2	[illegible]	[illegible]	17,[illegible]	17,400	300	22,[illegible]	[illegible]	20,400	2,600	2[illegible]	[illegible]	17,800	[illegible]	[illegible]
2A	[illegible]	[illegible]	NL	11,700		NL		NL		[illegible]		NL		
3	[illegible]	[illegible]	[illegible]	9,000	1500	8,100	100	3,900	[illegible]	[illegible]	[illegible]	8,100	[illegible]	(1,200)
4	[illegible]	A	18,700	15,400	(1,300)	20,200	4,800	19,200	5,800	19,500	4,[illegible]	10,300	900	(400)
5	[illegible]	A	23,[illegible]	21,400	100	NL		NL		NL		NL		
6	Sahalee Way N of Gray Barn	A	15,[illegible]	15,400		NL		NL		NL		NL		
7	Sahalee Way [illegible]	M	9,[illegible]	NL		18,[illegible]		41,200		18,[illegible]		14,400		4,[illegible]
8	[illegible]	A	11,200	12,100	200	12,700	800	10,600	(1,300)	11,400	([illegible])	11,200	[illegible]	([illegible])
8A	[illegible]	[illegible]	NL	NL		9,200		[illegible]		[illegible]		1,300		[illegible]
9	[illegible]	A	3,[illegible]	4,100	(1,100)	11,[illegible]	7,100	[illegible]	5,300	10,[illegible]	9,[illegible]	3,800	[illegible]	[illegible]
9A	[illegible]		NL	3,600		NL		NL		NL		NL		
9B	[illegible]		NL	4,[illegible]		NL		NL		NL		NL		
10	[illegible]	A	15,[illegible]	16,900	1,500	[illegible]100	2,700	16,600	1,700	[illegible]	2,[illegible]	[illegible]	900	2,000
11	[illegible]	A	4,200	4,800	600	10,[illegible]	6,100	10,100	5,[illegible]	[illegible]	[illegible]	[illegible]	3,900	3,000
12	[illegible]	[illegible]	2,[illegible]	NL		NL		NL		NL		NL		
13	[illegible]	[illegible]	5,[illegible]	12,800	(7,100)	[illegible]	(7,100)	10,[illegible]	([illegible])	[illegible]	(3,000)	5,700	(4,100)	3,[illegible]
14	[illegible]	[illegible]	18,[illegible]	26,400	7,[illegible]	28,400	2,400	27,700	([illegible])	28,[illegible]	([illegible])	22,300	([illegible])	2,[illegible]
14A	[illegible]	[illegible]	NL	NL		16,[illegible]		12,300		15,700		3,100		
15	[illegible]	[illegible]	[illegible]	9,600	([illegible])	12,[illegible]	2,600	10,100	300	11,[illegible]	1,500	9,500	(400)	[illegible]
16	[illegible]	A	21,[illegible]	24,800	[illegible]	30,[illegible]	13,[illegible]	29,400	4,500	31,[illegible]	8,[illegible]	27,[illegible]	[illegible]	[illegible]
17	[illegible]	A	1[illegible]	18,[illegible]	[illegible]	28,100	8,600	24,700	8,600	26,[illegible]	8,[illegible]	[illegible]	[illegible]	[illegible]
18	[illegible]	A	2,[illegible]	[illegible]	[illegible]	6,[illegible]	2,000	4,450	500	[illegible]	1,[illegible]	[illegible]	100	1,800
19	[illegible]	A	22,[illegible]	NL		28,600		21,350		[illegible]		18,400		6,000
19A	[illegible]		NL	16,500		NL		NL		NL		NL		
20	[illegible]	A	[illegible]	27,300	4,500	NL	[illegible]	NL		NL	[illegible]	NL		[illegible]
21	[illegible]	A	4,100	7,700	3,000	[illegible]	1,[illegible]	[illegible]	1,[illegible]	[illegible]	7,700	7,700		3,000
22	[illegible]	[illegible]	2,100	2,300	200	NL		NL		NL		NL		
23	[illegible]	A	8,800	12,700	[illegible]	12,[illegible]	4,300	16,300	3,600	17,[illegible]	6,100	11,100	[illegible]	4,700

NL = Not Listed
(1) Data [illegible] Actual or Modeled Traffic Counts

Comment Letter No. 4 – Hamilton, Scott

4-1 See the Transportation Technical Memorandum prepared March 19, 2007 and included as Appendix A in the Final EIS.

4-2 See response to comment 2-5.

4-3 Mitigation measures for traffic impacts of the Preferred Alternative are listed in section 3.5.4 of the Final EIS.

4-4 Evaluations of costs and methods of financing capital improvements for infrastructure, utilities, and public services are not quantitatively addressed in the EIS. These items are considered financial issues and not environmental issues for discussion in a SEPA EIS. The costs involved with implementing the Town Center Plan are addressed in the Draft Plan's implementation strategy. Financing for the Plan will be addressed through the City's ongoing financial analysis, and future policy decisions. The financial analysis will provide a better understanding of the costs and benefits (i.e. generation of new revenues), expected to accompany implementation of the Town Center Preferred Alternative.

4-5 The land use error identified in the Draft EIS analysis has been revised. The revision is reflected in the No-Action and Preferred Alternative analyses included in Chapter 3 of this Final EIS (Section 3.5).

4-6 The trip distribution maps provided in the March 19, 2007 Transportation Technical Memorandum (included as Appendix A) do identify the volume of Town Center traffic impacting those areas south of SE 8th. Revised model plots for the No-Action and Preferred Alternatives are provided in Appendix C.

4-7 The letter from Mr. Joseph Savage, P.E., attached to your comments is acknowledged.

4-8 Details regarding how the traffic model uses land use forecasts to estimate traffic volumes are presented in the March 19, 2007 Transportation Technical Memorandum (included as Appendix A). The traffic model is calibrated to real data from 2002 and not the 2006 data presented in the Draft EIS and updated in the Final EIS (Figure 4-1).

4-9 The No-Action analysis in the Final EIS has been revised to account for additional background growth that was not accounted for in the Draft EIS. See section 3.5.2 of this Final EIS for the complete revised transportation analysis of the No-Action Alternative.

4-10 See the response to comment 4-8.

4-11 See the response to comment 4-4.

4-12 The District standard of 0.6 police officers for 1,000 per capita does take into account the increase in non-residential development associated with general population growth. The established standard takes into account additional or different types of equipment as well as additional personnel.

See response to comment 4-4 regarding costs and methods of financing the Town Center Preferred Alternative.

4-13 The Draft EIS states that ongoing monitoring of the LOS would be the determining factor for increases in staffing, equipment, and/or facilities. While it may not be evident in the Draft EIS discussion, monitoring of the level of police and fire service is an on-going process which takes into account changes in the character of development, by examining zoning and construction type as required through the building permit review process . It should be noted that the option of high-rise buildings has been eliminated from the Preferred Alternative.

See response to comment 4-4 regarding costs and methods of financing the Town Center Preferred Alternative.

The LOS is a measure of response time for all types of calls received by EFRD and other emergency responders. As the number and density of buildings and population increases with additional development, the number of calls received is also expected to increase. As stated in the Draft EIS, the City and EFRD evaluate the steps necessary to maintain the established standard which includes many factors, not just personnel. This could include additional or different types of equipment, changes in staffing, or interdepartmental agreements.

4-14 It is correct that the majority of the population growth under the Draft EIS alternatives would be within the LWSD. Section 9.2.1.3 of the Draft EIS gives the projected increase in student populations. The Preferred Alternative analysis in the Final EIS states there would be no impacts to the ISD, as all proposed development is within LWSD boundaries.

See response to comment 4-4 regarding costs and methods of financing the Town Center Preferred Alternative.

4-15 The amount of additional recreational space required for new development is outlined in Section 9.2.1.4 of the Draft EIS, and in Section 3.7.1.4 of the Final EIS. A broader discussion of the parks and open space strategy in the Draft Plan is included in section 2.1.3 of this FEIS.

4-16 See response to comment 4-4 regarding costs and methods of financing the Town Center Preferred Alternative.

4-17 See response to comment 4-4 regarding costs and methods of financing the Town Center Preferred Alternative.

4-18 Comment acknowledged. SE 8th Street in Figure 10-7 in the Draft EIS is mislabeled as SE 4th Street. The correct label should be SE 8th Street.

4-19 The Draft EIS action alternatives were developed to show a range of possible public parking configurations for the purpose of analysis. Alternative 3 includes a heavy reliance on surface parking, while Alternative 1 included more structured parking.

As directed by the recommended policies in the Preferred Alternative, the Draft Town Center Plan strives to minimize impacts of parking by centralizing parking and preferring structured over surface parking. The Draft Town Center Plan contains the following policy regarding parking:

> **LU-1.4** Parking impacts should be minimized (by centralizing it) as much as possible and by using structured or underground facilities.

The plan also includes the following recommended implementation action:

> **Adopt parking standards emphasizing structured parking**. Specifically, at least 80 percent of all off-street parking spaces for new development shall be within or underneath a structure.

4-20 The inclusion of the table is acknowledged.

Sammamish Town Center Sub-Area Plan
DEIS Comment Submittal

Submitted by Karen Moran
20705 SE 3rd Way
Sammamish WA 98074
March 26, 2007

I hereby submit the following comments in response to the Sammamish Town Center Sub-Area Plan dated 1/31/07 and City Consultant responses dated 3/19/07.

1. Traffic

5-1 I would like to thank the staff and consultants for the amount of time into preparing the response dated 3/19/2007. That being said, I still have some concerns as per the response given on said day.

5-2 **Concern – The traffic forecast does not follow the accepted ITE standard of 10% of ADT.**

5-3 **Concern – Per our calculations seem to change, for same locations, from alternative to alternative.**

A. Please explain why we do not follow the ADT ITE Trip Generation Standards.

B. Please explain how the calculations can be different, for the same locations, in each of the alternatives.

C. Please provide what the actual counts would be using the accepted standards.

5-4 **Concern – We still have not addressed the why as to large percentage differences to Sammamish numbers vs. Redmond/Issaquah numbers (as per information given previously) or why growth over the last three years has caused only a small percentage of trip generation.**

Since an error in any of these numbers will effect the entire Sammamish model please provide:

5-4 A. An actual number analysis with current Redmond, Issaquah information and also correcting any errors in the model.

B. Actual traffic numbers for the north side of the city. Most numbers seem to be calculated (leading us back to concern #1) vs. actual counts.

C. Actual traffic numbers for all major/minor arterials in the city.

5-5 **CONCERN – How does a change in LOS (reducing by 1 and 2 LOS) change the impacts in each alternative?**

CONCERN – What about costs?

5-6 A. Please provide an analysis of what LOS reductions will do to traffic counts in each alternative.

B. What are the costs of transportation/infrastructure for each alternative?

UTILITIES

Concern-" Upgrades and/or expansion of both the existing electrical and natural gas systems would be required to supports full build out of the town center under any of the action alternatives." - DEIS
A full assessment for each Alternative outlined in the EIS should be made for the requirements of additional services, including all estimated costs for each of the following:

5-7 A. Electricity: Upgrades and/or expansion of existing electrical including and additional substation locations and costs (Comp. Plan Ch VII)

B. Natural Gas: As natural gas is not considered an essential service… (Comp Plan Ch VII) upgrades and/or expansion of existing natural gas facilities including any additional right-of-way costs.

OTHER IMPACTS TO RESIDENTS

5-8 **Concern – What will the additional costs for Police, Fire? What will the effect of each alternative do to the Lake Washington School District?**

A. Please provide an analysis of costs, for each alternative, for Police and Fire (i.e. officers, stations, insurance etc.)

5-9 B. Please provide an analysis of what effect, each alternative, has on the Lake Washington School District.

5-10 **Concern – The citizens have clearly voiced an opinion for green space and public facilities. What effect does this have on the taxpayer for each alternative?**

A. Please show an analysis for what each of the items, listed above, costs the Sammamish resident.

L-t

3/26/07

Comment Letter No. 5 – Moran, Karen

5-1 Comment noted.

5-2 PM peak hour traffic is not always 10 percent of daily traffic. This issue was addressed in the March 19, 2007 Transportation Technical Memorandum (included as Appendix A of this FEIS).

5-3 Revised forecast were provided in the March 19, 2007 Transportation Technical Memorandum (included as Appendix A of this FEIS).

5-4 The variation observed in the daily tube counts are addressed in the March 19, 2007 Transportation Technical Memorandum (included as Appendix A in this Final EIS). Updated existing (2006) traffic volumes for AM peak hour, PM peak hour and average daily traffic are shown in Figure 4-1.

5-5 The levels of service (LOS) and the City's LOS standards are defined in the Transportation Element of the City's Comprehensive Plan (Chapter V). If, in the case of a proposal that would create conditions that exceed the City's LOS standard, the level of service policy standards were lowered (example: accepting LOS E instead of D), the impacts of the proposed action that need to be mitigated would be reduced because fewer locations would be identified as deficient. The actual physical impacts would not have changed (i.e., traffic volumes and congestion levels), but the amount of mitigation required would be diminished. More congested conditions would be tolerated with lower LOS standards. Final EIS section 3.5.4 presents recommended mitigation for the proposed action. If the LOS standard were lowered, mitigation actions would be reduced or eliminated.

5-6 A. See response to comment 5-5.

B. See response to comment 4-4.

5-7 The location of additional utility service facilities will need to undergo project-specific environmental evaluation. For purposes of this programmatic analysis, we have advised that additional facilities will be required to maintain existing levels of service under all of the alternatives. See response to comment 4-4 regarding costs and methods of financing the Town Center Preferred Alternative.

5-8 See response to comment 4-4 regarding costs and methods of financing the Town Center Preferred Alternative.

5-9 Because the timing and density of individual projects is not known at this time, we cannot accurately predict when and where the LWSD will require new or expanded facilities. The number of students projected to be generated by each alternative is provided in Section 9.2.1.3 of the Draft EIS and 3.7.1.3 of the Final EIS. Through these documents, the community and LWSD are advised that additional personnel and facilities will be required to maintain existing levels of service under any of the alternatives and that planning to accommodate the projected demand will be necessary.

5-10 See response to comment 4-4 regarding costs and methods of financing the Town Center Preferred Alternative.

City of Sammamish

PUBLIC COMMENT FORM

City of Sammamish
Town Center
Draft Environmental Impact Statement (DEIS)

We welcome your comments on the alternatives, impacts and mitigations described in the DEIS. Please complete and drop your form in the comment box or mail to the address listed on the back.

6-1 The consultant's ability to edit/proof read needs improvement (and please don't tell me it's just a draft!!).

Sincerely,

Stan Bump

If you would like to be on the mailing list, please fill in the following information.
You may also email comments to: Asea Sandine at: asandine@ci.sammamish.wa.us

Name: _____

Address: _____ City _____

Zip _____ Phone: _____ Email: _____

COMMENT LETTER NO. 6

6-2 Page 1-10, Alternative 1, Traffic Operations, bullets 2 and 3 each have 2 extra "th"s

Page 1-11, Alternative 2, Traffic Operations, bullet 1 should read "228th Avenue SE north of NE 12th"

Page 1-11, Alternative 3, Traffic Operations, bullet 2 should read "228th Avenue SE north of NE 12th"

Page 1-11, Alternative 4, Parking, line 2 should read "include any public parking."

Page 1-15, Section 1.7, line 6 should read "adopted plans and policies,"

Page 4-1, Section 4.1.1.1, paragraph 1, line 2 should read "which drains west to"

Page 4-7, Section 4.1.2, paragraph 2, line 2 should read "As discussed in Chapter 3,"

6-3 Page 4-7, Section 4.1.2, paragraph 3, line 1 should read "(approximately south of E Main Street)"

6-4 Page 4-15, Section 4.1.7, paragraph 2, bullet 1 should read " located within the 1 or 5 year capture zone of a Wellhead Protection Area."

Page 4-18, Table 4-1; Recommend that the Residential titles be changed to read "Residential (R4) and Residential (R12)"

Page 4-22, Section4.2.5.1, paragraph 4, line 1 should read "For Ebright Creek, the lack of permeable deposits"

6-5 Page 5-13, Section 5.1.6, paragraph 4; Comment. Even though the PHS database indicates that no priority wildlife species are documented within the Town Center, we have seen pileated woodpeckers in our back yard on numerous occasions (23010 SE 8th Street).

6-6 Page 5-14, Section 5.2.1, paragraph 3, line 3 should read "currently wetlands, streams or buffers and"

Page 5-16, Section 5.2.2, paragraph 5, line 1 should read "Total open space in the Town Center in Alternative 1,"

Page 6-1, Section 6.1.1, paragraph 5, line 2 should read " Skyline High School to the south, and"

Page 6-14, Table 6-4, Alternative 3, Public Parking, Comment: Either the Total should be "505" or Structured Parking should be "80"

Page 6-21, Section 6.2.2.1, paragraph 4, line 6 should read "space would be much lower for"

Page 6-21, Section 6.2.2.1, paragraph 6, line 5 should read " located in the northwest and southeast corners"

6-6 Page 6-21, Section 6.2.2.1, paragraph 8: Comment: "It is located north of SE 8th Street and south of the Eastside Catholic High school property "describes property on the east side of 228th Avenue SE not the west side

Page 6-25, Section 6.2.2.3, paragraph 5, line 2 should read "likely than under Alternative 2 as discussed"

Page 6-25, Section 6.2.2.4, paragraph 1, line 3 should read "Under this alternative,"

6-7 Page 7-1, Section 7.1.1, paragraph 1, Comment. Figure 7-2 is supposed to show roundabouts but it doesn't

6-8 Page 7-2, Section 7.1.1, paragraph 1, NE 8th Street bullet should read "with a posted speed limit of 40 mph."

6-9 Page 7-2, Section 7.1.2, paragraph 2, line 4 should read "southern end of 228th Avenue NE"

6-10 Page 7-8, Table 7-1, Comp Plan Numbers 4, 5, 6, 7, and 8 should read "228th Ave SE/"

Page 7-11, Table 7-2, line 4 should read "228thAve SE"

6-11 Page 7-11, Table 7-2, line 8 should read "West end of road"

Page 7-24, Table 7-5, Comp Plan Numbers 4, 5, 6, 7, and 8 should read "228th Ave SE/"

Page 7-27, Table 7-6, Comp Plan Numbers 23 and 24 should read "228th Avenue NE"

Page 7-31, Section 7.2.3.3, paragraph 4, bullet 6 should read "SE 4th Street west of 228th Avenue SE,"

6-12 Page 7-31, Section 7.2.3.3, paragraph 4, bullet 7 should read " 228th Avenue NE north of NE 12th Street,"

Page 7-31, Section 7.2.3.3, paragraph 5, line 3 should read "west of 228th Avenue SE, respectively)."

Page 7-31, Section 7.2.3.3, paragraph 6, line 3 should read "228th Avenue NE north of NE 12th Street,"

Page 7-32, Section 7.2.3.4, paragraph 4, bullet 4 should read "SE 4th Street west of 228th Avenue SE,"

Page 7-32, Section 7.2.3.4, paragraph 4, bullet 5 should read "228th Avenue NE north of NE 12th Street,"

Page 7-32, Section 7.2.3.4, paragraph 5, line 4 should read "SE 4th Street west of 228th Avenue SE"

Page 7-33, Section 7.2.3.4, paragraph 6, line 3 should read "228th Avenue NE north of NE 12th Street,"

Page 7-34, Section 7.2.3.5, paragraph 4, bullet 4 should read "SE 4th Street west of 228th Avenue SE,"

Page 7-34, Section 7.2.3.5, paragraph 4, bullet 5 should read "228th Avenue NE north of NE 12th Street,"

Page 7-34, Section 7.2.3.5, paragraph 6, line 3 should read "228th Avenue NE north of NE12th Street,"

6-12 Page 7-39, Section 7.2.4, paragraph 2, line 2 should read "Town Center area and through the entire"

Page 7-40, Section 7.2.4.3, paragraph 2, line 3 should read "and 228th Avenue SE as provided"

Page 8-2, Section 8.1.1.1, paragraph 1, line 5 should read "(Skyline High School, Eastside Catholic High School, Arbor School, and"

Page 8-5, Section 8.2.1.2, paragraph 1, line 5, Comment: Something is missing from the sentence inasmuch as it ends with "area under"

Page 8-6, Section 8.2.1.3, paragraph 1, line 3 should read "(as identified in Chapter 7,"

Page 8-6, Section 8.2.1.4, paragraph 1, line 3 should read "(as identified in Chapter 7, Transportation)"

Page 8-8, Section 8.2.2.4, paragraph 1, line 5 should read "impacts analysis in Chapter 7."

Page 9-2, Section 9.1.1.3, paragraph 2, Comment: It might be more correct to say, "Children of residents of the" in lines 2 and 4

Page 9-6, Section 9.1.1.4, paragraph 4, line 4 should read "parks connected by trails, pathways and corridors,"

6-12 Page 9-7, Section 9.1.3.4, paragraph 9, line 3 should read "Sammamish Commons is listed in the City's TIP."

6-13 Page 9-7, Section 9.1.1.4, Comment: The comment that there are currently no bike lanes or trails in the Town Center planning area is incorrect. Bike lanes exist on both sides of SE 8th Street and there is a double wide sidewalk, north and south, on the east side of 228th Avenue SE which is intended to be for bicycles as well as pedestrians.

6-14 Page 9-12, Section 9.1.2.4, Comment: Solid waste collection and disposal services are provided by Allied Waste Services and a new pick-up schedule is being implemented.

6-15 Page 9-12, Section 9.2.1.2, paragraph 1, line 4, Comment: (see chapter 3.6) is not existent. The highest numbered section in that chapter is 3.4. Maybe it should be a section out of Chapter 6.

Page 9-12, Section 9.2.1.2, paragraph 2, line 2 should read "In some cases, the level of service required for a single-family"

Page 9-13, Section 9.2.1.2, paragraph 2, line 5, Comment: Remove the extra period at the end of the sentence.

Page 9-14, Tables 9-3 and 9-4, Comment: The introduction defines single family dwelling (SFD) and multi-family dwelling (MFD) and yet both tables use the acronyms of SFR and MFR. Recommend that the tables be changed to reflect the SFD and MFD designation.

Page 9-14, Table 9-4, Alternative 2, Total New Students in LWSD should read "237"

Page 9-15, Section 9.2.1.4, paragraph 1, line 6 should read " would be required upon full build-out."

Page 9-15, Table 9-5, note 2, Recommend: Change SFR to SFD to be in keeping with the introductory paragraph.

Page 9-15, Section 9.2.1.4, paragraph 3, line 2 should read "Alternatives 1 and 3 would"

Page 9-16, Section 9.2.2, paragraph 2, line 1 should read "projects future water demand based on"

6-16 Page 9-18, Section 9.2.2.4, paragraph 1, line 3 should read "planning area, Allied Waste Services will be required"

Page 9-18, Section 9.2.2.4, paragraph 2, line 3 should read "required by Allied Waste Services"

6-17 Page 9-18, Section 9.3.1.1, paragraph 1, line 1, Comment: What does the acronym CFP stand for?

6-18 Page 9-19, Section 9.3.1.4, paragraph 1, line 6 should read "may only be applied towards projects listed in the"

Page 9-19, Section 9.3.1.4, paragraph 1, line 7 should read "per SFD unit and $1,549.13 per MFD unit."

Page 10-1, Section 10.1.1.1, paragraph 2, line 2 should read "Since 1970,"

Page 10-1, Section 10.1.1.1, paragraph 2, line 4 should read "39,000 currently"

Page 10-2, Section 10.1.1.3, paragraph 1, line 7; Comment: There are no planter strips along SE 8th Street.

Page 10-2, Section 10.1.1.3, paragraph 3, line 10 should read "To the east, it is"

Page 10-2, Section 10.1.2, paragraph 3, line 6 should read "and the west side of 228th Avenue SE (Figure 10-2)."

Page 10-9, Comment: There is either a page missing between 10-2 and 10-7 or the pages are not correctly numbered.

6-19 Page 10-7, Section 10.1.2, paragraph 4, Comment: The picture in Figure 10-5 was actually taken on the corner of NE Inglehill Road and 222nd Ave NE, at least four blocks north of the Town Center and Main Street. The land in that area is relatively flat and the referenced hill is not visible. Is that what was intended?

6-20 Page 10-7, Section 10.1.2, paragraph 4, line 3 should read "above sea level)"

Page 10-12, Section 10.2.2, paragraph 6, line 3 should read "from SE 4th Street."

Page 10-12, Section 10.2.3, paragraph 1 line 5 should read "The southeast quadrant"

Page 10-21, Section 10.2.5, paragraph 1, line 4 should read "other alternatives above would need to be applied"

Page 10-22, Section 10.4, paragraph 1 line 4 should read "The mitigation measures described"

Page 12-4, Comment: The people listed on this page belong after the City Council listed on page 12-1 inasmuch as the header is labeled - **COUNCIL, PLANNING COMMISSIONERS & COMMITTEE MEMBERS.** The Town Center Committee members should be arranged in alphabetical order as well.

Comment Letter No. 6 –Bump, Stan

6-1 Comment noted.

6-2 The edits noted correct or clarify text that is in the DEIS.

6-3 See response to comment 6-2.

6-4 See response to comment 6-2.

6-5 Site-specific wildlife inventory studies were not conducted as part of this programmatic EIS. Impacts to any state or federally listed species would have to be evaluated as part of specific project proposals.

6-6 See response to comment 6-2.

6-7 Draft EIS Figure 7-2 is intended to depict the traffic control of only the study intersections.

6-8 The comment is correct the posted speed limit is 40 MPH.

6-9 See response to comment 6-2.

6-10 See response to comment 6-2.

6-11 See response to comment 6-2.

6-12 See response to comment 6-2.

6-13 The comment is correct, there are bicycle lanes on SE 8th St. and there is a bike/pedestrian path on the east side of 228th Ave. SE.

6-14 Allied Waste is the holding company for Rabanco. Rabanco operates the service within the area.

6-15 See response to comment 6-2.

6-16 See response to comment 6-14.

6-17 CFP is an acronym for Capital Facilities Plan. The acronym is defined in section 9.1.1.1 of the Draft EIS.

6-18 See response to comment 6-2.

6-19 The comment is accurate. DEIS Figure 10-5 does not show a view of the hill near Main Street, which it was intended to do. The forested hill can be seen in the aerial photos included as DEIS Figure 3-3 and in the topographical map shown in DEIS Figure 3-1.

6-20 See response to comment 6-2.

Asea Sandine

From: jegalvin@comcast.net
Sent: Wednesday, February 28, 2007 1:04 PM
To: Asea Sandine; Kamuron Gurol
Subject: DEIS Comment

Name: John Galvin
Address: 432 228th Ave. SE

City: Sammamish
State: WA
Zip: 98074
Email: jegalvin@comcast.net
Wish to receive information via e-mail: False

Comments: To: DEIS Project Team

From: John Galvin
432 228th Ave. SE
Sammamish, WA 98074

RE: Air and Sound
East side of 228th between SE 4th and SE 8th

7-1 The statement "current land use in the Town Center planning area is primarily residential" 8.1.1.1. p. 8-2 adequately describes the area West of 228th Ave. further up SE 4th but is totally erroneous as a description of the area East of 228th Avenue.

The area East of 228th Avenue between is a sparsely residential area dominated by three high schools, a day care facility, churches and greatly impacted by 228th Ave. traffic and noise.

7-2 It is also important to note that a large parcel of land belongs to the Lake Washington School District and that the School District is waiting for the City of Sammamish to clarify future growth before the School District decides how it will use its land. It is very possible, according to school officials, that another school will be built on their land.

7-3 The issue of a Sammamish post office also remains undecided. A city of 40,000 people with a potential to grow to 55,000 or more sooner or later will need postal facilities. It is very likely that the post office will be located along 228th .

7-4 A final point concerns fire and police services. The people living East of 228th avenue in the area between Main Street and SE 8th constantly hear sirens from both fire and police vehicles. We need to also note that the city police department is located at the
7-5 intersection of SE 8th and 228th.

7-6 Recently, during a power outage, the neighborhood was subjected to the constant noise of the city's generator, a noise that was very similar to an airplane reading for take off.

7-7 The key point is that to describe this area as a quiet residential neighborhood is very inaccurate and the Environmental Impact Statement should be re-written to accurately describe the noise levels that are currently characteristic of the East of 228th area.

7-8 With the primarily source of both air and noise pollution being the traffic along 228th it is difficult to see how development of multi-family, mixed-use would add significantly to

7-8 these problems. On the contrary, with proper design it is very likely that areas that are now openly subject to noise pollution might be protected. Additionally, any actions that create a pedestrian oriented area and supports public transportation may have a positive impact on auto generated air pollution.

Comment Letter No. 7 –Galvin, John

7-1 Current land uses in the Town Center are identified in Figure 6-1 of the Draft EIS. The comment is accurate in that although, the entire east side of 228th Avenue SE is currently zoned R1 (1 du per acre), there are several existing, planned, and potential new non-residential uses in that area. These non-residential uses include the Sammamish Hills Lutheran Church; a portion of the Eastside Catholic High School property, which has been partially developed as an entrance roadway; and a LWSD property, which is currently undeveloped. There are also several non-residential uses outside, but adjacent to the Town Center boundary. These include Skyline High School to the south, the main campus of the Eastside Catholic High School (currently under development) to the east, and the Evergreen Christian Fellowship Church to the north (also currently in development).

The environmental noise generated by these non-residential uses is (will be) more pronounced than that generated by the low-density housing currently allowed by the City's zoning code. Noise generated by schools is greatest during drop-off and pick-up times and planned events. Noise generated by the churches is greatest before and after services and other events. In addition to on-site noise, arriving and departing cars generate environmental noise along 228th Avenue SE and other roadways.

7-2 See response to comment 3-1.

7-3 The Preferred Alternative identifies a post office among the possible civic and community facilities that could locate in the Town Center. However, the U.S. Postal Service (USPS) has a facilities siting process that is independent of the City of Sammamish. A specific location for a new post office is not known at this time. To the extent possible, the City will work with the USPS to locate a post office appropriately in the Town Center.

7-4 Section 9.1.1.1 and 9.1.1.2 of the Draft EIS note locations of the Sammamish Police Department and the City's three fire stations. The comment is correct that 228th Avenue SE is the main north-south roadway through Sammamish. Because of the function of 228th Ave SE and the location of the police and fire stations in the city, police, fire, and EMT vehicles commonly use 228th Ave SE for travel to emergencies. As a result sirens are and will continue to be a frequent source of noise for properties along and in the vicinity of 228th Ave SE.

7-5 See response to comment 7-4.

7-6 The Sammamish City Hall has a back-up diesel generator. The generator is used during emergencies, such as power outages and is periodically tested to ensure its reliability. While infrequent, the generator is and will be a source of noise to adjacent properties, but is necessary to maintain vital city services.

7-7 Chapter 8 of the Draft EIS (Air and Sound) states that current land use in the Town Center planning area is primarily residential. While this is true in aggregate, there are smaller areas of the Town Center, where this description would not be accurate. Chapter

6 of the Draft EIS (Land Use) describes land uses in the Town Center and identifies those uses listed in comment 7-1.

The information on sources of noise in section 8.1.1.1 of the Draft EIS describes traffic on 228th Avenue SE and the surrounding street network and activities related to the area schools (Skyline High School, Eastside Catholic High School, Arbor School, and Sammamish Children's School) among the primary sources of noise in the Town Center. While this is the case, other sources of noise also include those identified in responses to comments 7-1 through 7-6.

7-8 As stated in Chapter 8 of the Draft EIS, the primary sources of noise and air pollution in the Town Center include automobile traffic, particularly along 228th Ave SE. Under the Preferred Alternative, it is estimated that up to 3,307 new residents would live in the Town Center. According to the traffic analysis in the Final EIS, increased population will translate into an increased number of automobile trips along 228th Avenue SE as well as other roads (4,978 pm peak hour trips generated).

Retail, office, multi-family, and mixed-use development in the Town Center would create some internal capture of trips. The transportation analysis acknowledges that "with a higher density development proposal, a pedestrian friendly environment with amenities to encourage the use of non-motorized travel could provide some relief from vehicular congestion." However, the overall number of automobile trips is projected to increase above the No-Action Alternative. The likely outcome of increased trips will be increased sound and air quality impacts.

It is acknowledged that mitigation measures such as site designs that buffer conflicting uses and concentrate on pedestrian and transit trips can reduce impacts to sound and air quality. Mitigation in other areas, such as implementation of landscaping requirements and low-impact development techniques, can further reduce noise and air pollution.

The DEIS: A lot of theory, little reality.

The three alternatives are based on a half day brainstorming session.

Truth is sometime stranger than fiction. It is no fiction but the truth for city records show that the DEIS investigates three alternatives that are based on a half day brain storming session during which groups of citizens where instructed to create their ideal town center without reference to concrete realities, the town center vision, GMA goals, and smart growth, mixed-use principles.

I will make the point again, "the three alternatives are based on a half day, open ended, brainstorming session." There were no site inspections, market analysis, no plan for civic amenities, no inventory of housing, office, retail, open space to be included. No identification of key design challenges, no professional guidelines. Citizens where free to do as the pleased.

8-1

Calling the June 24, 2006 half day brainstorming session a charrette doesn't make it one. (See the attached description of a charrette presented to the city council and staff prior to the half day Saturday.) Staff and consultants simple invited participants to " share design ideas." Staff did not provide citizens with input regarding GMA requirements and principles, best practices for Town Center planning, principles of mixed use, smart growth, economic realities, market research results, transportation options based on on-site investigations. City staff and consultants encouraged and allowed citizens to put down on paper anything their hearts desired.

The drawings produced by the participants, see attached documents, exhibit the character of kindergarten drawings. The plans were entirely amateurish and detached from data that normally grounds this type of planning in reality.

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COMMENT LETTER NO. 8

Town Center DEIS comments
February, 2007 Theory, little reality

After the June 24th, 2006 half day activity, City staff handed the drawings over to MAKERS, the city consultants, who produced three draft alternatives. These draft alternatives, see attachments, identified areas with color that represented types of uses such as mid-rise multi-family, town houses, commercial, parking lots. The colors did not represent zoning categories and did not include any quantitative data that stipulated amount of square feet of uses, housing density, and mix of use allowed within that area. The dominant pattern of development was single use, not mixed use.

8-2

Planning in a vacuum.

The city staff and consultants presented three draft alternatives to citizens on July 13, 2006. At this time, the city had yet to complete a market study of the area and other relevant studies and policy decision such as economic feasibilities studies, population growth targets, and developer consultations likewise were lacking. The three alternatives appeared out of a planning vacuum. Who decided what and what was based on data and what was based on someone's subjective opinions was unknown.

8-3

Pictures but no numerical data indicating density, square footage, economic feasibility, economic return for the city.

By this time, increasing numbers of landowners where asking when a market study would be complete and why was this study and other studies being postponed until after the alternatives where prepared. Individuals pointed to the contract with MAKERS, the planning processes of neighboring cities and standard planning processes through out the nation, in every case the first steps in planning where to gather relevant data so as to base planning in reality. Sammamish pursued a process that was driven by the diverse, subjective opinions of a group of citizens numbering about 50. Lacking clear guidance from professionals and

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the relevant data the three alternatives represent little more than the subjective biases of "charrette" participants.

Between July 13th and July 25th city staff and consultants made minor adjustments to the three alternatives reflecting feedback from the Town Center Committee and a handful of citizens. These alternatives continued to ignore realities such as availability of land, city needs, economic feasibility, and market data. Despite continued calls for a completed market analysis, none was forthcoming. All of the draft alternatives available during this time lacked numerical data showing city needs for housing, retail, office, and civic uses, the level of development that each alternative would represent, economic feasibility, impact on city revenues. Not a single, relevant study had been completed. City planners and consultants made no effort whatsoever to relate the alternatives to availability of land, city needs, economic realities, demographic trends, population growth in the city, economic needs of the city.

8-3

Like a rabbit pulled from a magicians hat, numbers appeared.

On October 12th, 2006, still without a completed market analysis and other studies, the city presented three alternatives, described as working documents, that included numerical data describing the potential number of units and square footage yields associate with the three alternatives. There were vague references to the city council confirming these numbers, but no reference to disciplined, objective studies. The city council and staff informed citizens that these where the alternatives the city would use to complete a DEIS.

General, abstract, and site unspecific

8-4

The general, abstract, and site unspecific nature of the alternatives leads to a DEIS that is equally general, abstract and non-specific. For example, there is much talk about an aquatic center. However, the planning process is so general and abstract

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that no realistic locations for this facility have been suggested therefore the potential impact of this facility on traffic, noise, parking, etc can't be evaluated. Likewise, one alternative calls for 190,000 square feet of civic facilities to be built in a central location but fails to specify what these civic facilities would include.

8-4

Another example involves the network of transportation proposed by the three alternatives. The two major, new road developments proposed by the alternatives traverse areas of deep ravines and through land owned by landowners who have publicly stated they do not want to participate in town center development. It is unlikely that the roads proposed will be built. Proposing plans that have very little potential for implementation in respect to the environment, availability of land, and financial feasibility raises concerns about the value of the DEIS. We can predict with a high degree of confidence

8-5

that these plans will be significantly altered. At best, this DEIS proposes standard mitigation methods that are applicable to most any project.

8-6

Citizens are on record pointing out that the process used to create the three alternatives is seriously flawed and ignores normal planning procedures. This unorthodox approach to planning invites concern as to the relevance of this DEIS for development that will be required if the city is to have a sustainable town center

How useful is this DEIS for deciding what should or should not be planned within the Town Center?

8-7

Given the abstract, theoretical nature of the DEIS we suggest that the city council and Planning Commission use caution when depending on the DEIS to rationalize decisions that are intended to restrict development to a

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level inconsistent with the development of a sustainable, mixed use city center
8-7 that is designed to address realistic demographic, market, and economic needs.

We need to recognize and acknowledge the limitations of this study.

We are all committed to mitigating legitimate environment impacts, but we need to avoid ideologically driven decisions that are lacking a solid foundation in established principles, best practices and reliable data. We must consider all relevant issues and while environmental issues are a top priority, economic, market, GMA goals,
8-8 City comprehensive plan objectives, broader community, society and national concerns are relevant as well. The development of sustainable mixed-use town centers based on smart growth principles that prevent sprawl, reduce dependency on the automobile, provide affordable housing to younger generations, create dynamic social and economic centers, utilize natural and community resources efficiently , all of these advantages need to be considered when producing a plan.

While an Environmental Impact Study is merely concerned with the impact to the environment and not the many other issues associated with a planned development, we cannot ignore the rather obtuse planning process that produced the alternatives this DEIS addresses. We are left with serious doubts as to the utility of this study as we move forward to determine the zoning that
8-9 will be applied to this town center area and the mitigation that is needed to protect the environment.

What this DEIS proposes to assess may not at all be relevant. The city council should recognize and acknowledge the limitations of this draft environment impact study.

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In section **"3.2.2 Land Use Compatibility"** of the DEIS we read:

> The analysis of land use compatibility examines land use patterns to identify potential conflicts between adjacent or nearby land uses. In general, conflicts arise from lighting, noise and general activity levels that may spill over from commercial or civic uses to residential areas. Under all of the action alternatives, significant changes in the intensity and form of development as well as the character of the Sammamish Town Center area would occur. Land would become more intensively used and existing uses would be displaced and redeveloped. Impacts to adjacent land uses could occur because of disparate types of land uses.
>
> For example, residential land uses may experience impacts from commercial uses in the form of additional traffic, general activity, noise, light and changes to the visual character. Likewise, lower intensity residential uses may experiences these impacts from adjacent higher intensity residential uses. P. 21

8-10

City permitted and initiated development since incorporation in 1999 have already created traffic, noise, and lighting that is at urban levels.

DEIS discussion of development impacts is misleading and inaccurate. City wide development, infrastructure build out along 228th Avenue and SE 8th as well as institutional uses in the town center area have already created traffic, noise, and lighting that is at urban levels. This remaining pocket of old rural development in its current condition is completely inappropriate and incompatible with developments in the town center area since city incorporation. The development of a mixed-use, high density town center will do more to remedy than create adverse impacts and incompatibilities.

Supporting arguments:

8-11 Any discussion of land use incompatibilities and potential adverse impacts to adjacent development and current uses within the Town Center area must accurately describe existing incompatibilities and the adverse impacts due to development permitted and carried out by the City of Sammamish since city incorporation in 1999.

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Residents in the Town Center area pointed out negative impacts and incompatibilities as early as 2001 –2002.

Residents in the Town Center began pointing out the incompatibilities and inappropriate zoning in the Town Center study area as early as 2001 - 2002 when the city was preparing its comprehensive plan. The existence of numerous parcels of R1 land within the town center and an extended eight-year long moratorium on building permits except for low density and institutional use has caused unplanned development. The town center is a mixture of schools, churches, and civic uses and old single family houses, trailers, and un-kept open space covered with blackberry bushes and other invasive non-native plants. (See attached pictures)

City council purchased land for city hall in 1999.

8-11

In 1999, almost simultaneously with city incorporation, the city council purchased land within the town center study area for city hall. Since 1999, major changes in the area have taken place. The population of the city of Sammamish has reached 40,000 and will continue to grow to 55,000 plus citizens.

Sammamish is a large suburban city

The Puget Sound Regional Council defines Sammamish as one of 13 large suburban cities in the Puget Sound Region. Since incorporation, the city has built out 228th Ave. SE, to be the transportation backbone of the city. 228th Avenue runs directly through the town center study area and is a now a major, four lane north south arterial with ADT of 24,000 and a concurrency capacity of 34,0000, the highest in the city of Sammamish. Traffic signals have been installed at the intersections of SE 8th, SE 4th and Main Street, and a full range of urban infrastructure including sewers and underground utilities now serves the area. (but remain unused).

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As part of 228th's build out the City of Sammamish installed a 8 foot wide sidewalk on the eastside of 228th Avenue. In 2006, the City completed construction of a 20,000 square foot city hall, a skate park, and 20 acre city park. City Hall includes the Sammamish Police station as well.

20,000 square foot library planned for the Town Center.

The King County Library System is planning to build a new library in the Town Center. The city council argued that a large city like Sammamish with so many youth and with such a lack of public facilities needed a larger library. So the King County Library System has agreed to expand the Sammamish facility from its planned 10,000 square foot facility to a 20,000 square foot facility

Three High Schools 4500 students, night athletics, loud speaker systems

8-11

Within a quarter of a mile or less distance with the city center there are two high schools with loud speaker systems. At both of these facilities the city has developed public use ball fields with night time lighting. A third High School with access from 228th Ave. at SE 4th is being built adjacent to the Town Center on the eastside of 228th. The two existing high schools, Eastlake and Skyline, and the Eastside Catholic High School currently under construction will have a total of 4,500 students. All three facilities have ball parks, loud speaker systems for school activities, and a constant coming and going of people. The student and faculty of all three facilities will be using local facilities during the day.

The city of Sammamish plans to host a farmers market, July of the 4th fireworks and other events in the area that are incompatible with the R1 zoning

Eight year moratorium encouraged inappropriate development

Since incorporation, the city council implemented policies that have had major adverse impacts on land within the town center study area. Since

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incorporation in 1999, the council maintained a moratorium on town center lands that prevented applications for appropriate zoning change and building permits in the area. However, city policy allowed low density, R1 rural development resulting in a number of new homes being built that incompatible with town center development. Every expert we, my neighbors and I consulted expressed the view that higher density, town center development was inevitable.

City has attempted to buy land for civic uses.

City staff with the encouragement of the city council has attempted to purchase land for civic uses. In order to create access to the city commons from SE 4th, the city forced at least one landowner in the Town Center area to make available a 20-foot wide section of his land for right of way for the city to build an access road to the city commons. Since a 50 foot road is required by code, City official's are pressing an adjacent landowner to sell land to complete this road. Completion of this road, under current zoning, will destroy the land value of properties. In one case, this road would run within feet of a private, single family home. This is but one of many examples of the negative impacts and incompatibilities that exist and will emerge under current conditions.

8-11

Since 2001, town center development has been a primary focus of city study and planning. With the completion of the comprehensive plan in 2003, the city called for a subarea plan for the town center. It is now 2007, and completion of a plan is still a year to a year and a half off. There is no single area within the entire city that manifests such severe incompatibilities. The negative impacts upon residents of the area are already extensive. The area itself is not a defined neighborhood but a disconnected, unplanned, ghetto of older rural properties.

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Summary:

Citywide development, infrastructure build out, and institutional uses in the Town Center area have already created traffic, noise, and lighting that is at urban levels.

The city has already invested tens of millions of taxpayer dollars in the town center area that has a population of approximately one person per acre. Town center development will address numerous GMA and city comprehensive plan goals that otherwise would be unaddressed: diversity of housing, affordable housing, city services, non-auto transportation, trails, and more.

Development of the town center will correct more problems than it can possibly create.

8-11

Failure to develop an appropriate town center plan and to develop the town center in a timely manner will see existing negative impacts and incompatibilities grow more severe.

The city council's recent decision to discontinue a town center moratorium before completion of a town center plan and new zoning invites additional unplanned and incompatible development. The development of a higher density, mixed-use town center is the only way to prevent further deterioration of the town center area. The development of the town center will correct more environmental problems than it will create.

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Issue #1: Travel Demand Forecast Model

8-12 *The travel demand forecast model used by the Town Center DEIS is appropriate for estimating trip generation for single use suburban development but not for evaluating trips generated by the mixed-use Town Center alternatives. The trip generation data for the town center alternatives may be 30% to 45% less if an appropriate travel demand forecast methodology is used.*

Internal Trip Capture

Land use planners contend that mixed-use development helps reduce traffic and, at the same time, create conditions that enhance the quality of life. The premise is that the greater the mix of uses in a community, the greater the internal capture of trips that otherwise would have gone elsewhere. Internal capture is a measure of the degree to which a community can provide destinations for its residents within its limits. When the internal capture is high, a large share of residents do not have to drive considerable distances to satisfy a frequent need, i.e., the uses are brought to a location near the user.

The DEIS should account for internal trips in a multi-use development.

Reduce trip generation estimates by 24%

8-13 The method of developing a trip generation estimate for mixed-use developments should take into consideration the fact that some of the trips counted at stand-alone sites are actually made within a multi-use development, by vehicle or by an alternate mode such as walking. The most common example of this trip-making occurs at multi-use developments that include both residential and shopping areas. Some of the residents' work trips and shopping trips are made to the on-site shopping area. These trips are internal to the multi-use site. Because they are captured on-site, a capture rate is used. A capture rate is a percentage reduction in traditionally developed trip forecasts to account for internal trips. The reduction may be applied to the total trips estimated, just as is the pass-by percentage reduction.

The ITE (Institute of Transportation Engineers) has found that multi-use developments could reduce trip generation estimates by 24%. Note that this trip reduction for captured trips is separate from the reduction for pass-by trips. They are distinct phenomena and both may be applicable to a development.

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8-13 Both NCHRP and ITE Trip Generation assessment models specify guidelines for determining internal trip capture for mixed-use developments. These calculations translate into a reduction of the total trips generated by the mixed-use development.

Accounting for "pass-by" trips.

Typical trip generation rates are derived from counts taken at the driveways of the various land uses. For many land uses, not all of the trips generated at the driveway represent new trips added to the roadways. This is due to "pass-by" trips. Pass-by trips are made by traffic already using the adjacent roadway (228th Ave. in this case) and enter the site as an intermediate stop on the way from another destination. The trip may not necessarily be "generated" by the land use under study, and thus, not a new trip added to the transportation system. This pass-by factor should be taken into account in devising

8-14 a trip generation estimate.

The percentage of pass-by trips varies by land use. The Institute of Transportation Engineers (ITE) recommends the adjustments for pass-by trips and provide tables for this analysis. For example, "standard trip generation rates indicate that a 300,000 square foot shopping center would generate approximately 1,320 PM peak hour trips at its driveways. Given the above pass-by percentage of 25 percent, the amount of additional traffic on the adjacent roadway system would be approximately 990 trips ((1,320 X (1 - .25)). Note that the full 1,320 trips should be shown (and analyzed) at the site driveways—the pass-by reduction will only affect the amount of traffic at to non-driveway intersections within the study area

Other measures are relevant in assessing traffic impacts:

The city's travel demand forecast model should also take into account other measures that identify additional reductions in the number of trips generated by the mixed-use

8-15 development: Use of alternative transportation modalities, decrease in SOV, i.e., carpools, and reverse commuting patterns.

The DEIS analyses of traffic impacts for the three alternatives #1, #2, and #3 do not address these issues.

8-16 The town center DEIS also fails to address VTM (vehicle travel miles) and the positive impacts on air quality, reduced fuel use, and traffic congestion. We argue that these are serious omissions that undermine the value of the data.

Travel demand forecasting model is suitable for 99% of the city's single use, single family, low density housing but not for higher density mixed-use, multi-family development.

These measures are not included in the traffic impact analysis.

- **Internal trip capture**
- **Pass-by traffic**
- **Use of alternative transportation modalities**
- **Decrease in SOV, i.e., carpools**
- **Reverse commute patterns**

8-17

According to the Town Center DEIS the trip generation estimates for the town center alternatives were derived with the travel demand forecasting model used in preparing the city's transportation element for the comprehensive plan. (See page 7-15).

Unless authors of the DEIS can show otherwise, we argue that the methodology for evaluating transportation impacts intersections for the comprehensive plan (2003a) is not sensitive to the different patterns of traffic impacts associated with a mixed-use town center. As a result, the DEIS's analysis of town center traffic impact is compromised.

Trip types

The authors of the DEIS identify trip types for the alternatives but how these categories are used in assessing traffic impacts needs clarification. As far as we can see they are all treated the same and used to calculate total gross trips.

8-18

On page 15, table 7-4, PM peak hour trip generation estimates for each of the four alternative are summarized and presented. This summary identifies three trip types: "connects within town center," "connects within Sammamish," "connects external to city." Whether these trip types are meant to represent internal trip capture, pass-by trips or is not clear. It is equally unclear whether calculations of these various types translate into trip reductions. As presented, it appears as if internal trips and trips within Sammamish are included in the total trip gross.

8-19

In summary, the town center traffic impact analysis has failed to utilize best practices in determining the impact of mixed-use trip generation. The utilization of the city's travel demand forecast model, the one used to calculate traffic impacts for the transportation element of the comprehensive plan may be suitable for other areas within the city, but is not suitable for the town center.

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Table 7-4. Sammamish Town Center PM Peak Hour Trip Generation Summary

Trip Type	Trip Generation Area	Alternative 1		Alternative 2		Alternative 3		Alternative 4	
		Trips	Percent	Trips	Percent	Trips	Percent	Trips	Percent
1	Connects Within Town Center	1,370	24%	390	15%	870	22%	10	2%
2	Connects Within Sammamish	2,600	46%	1,560	60%	1,980	51%	320	76%
3	Connects External to City	1,710	30%	650	25%	1,070	27%	80	20%
Total Gross Trips		5,680	100%	2,590	100%	3,920	100%	410	100%

The calculations of total gross trips included in the above table should be much lower except for Alternative 4 which represents standard, low density suburban sprawl. This is the type of development the Planning Advisory Board proposed for the area in direct contradiction to guidelines from the GMA, Smart Growth Practices and the city's mission statement that calls for a core of urban amenities.

8-20

Trip Generation numbers should be much lower

Trip generation numbers for the town center should be much lower, as much as 30% to 50%. For example, for alternative #1 at least the trips within the town center, 1,370, should be subtracted from the total gross trips of 5,680 for Alternative 1. Gross trips should be 4310.

Trips mixed-use developments = Σ [Trips individual land uses] - internal trips

In the absence of local or site-specific data, the percentages given in NCHRP Report 323 [15] and ITE Trip Generation [5] can be used as a guideline for determining the percentage of internal trips.

Conclusion:

The utilization of the city's standard Travel Demand Forecast Model to evaluate the estimate town center trip generation is inappropriate and the data presented in the DEIS erroneous.

Issue #2: Town Center impacts mixed with impact of city wide development and city council policies.

The DEIS fails to distinguish trips generated by town center development and their impacts from trips and impacts generated by developments throughout the city. The data presented by the DEIS gives us a very unclear picture of the potential transportation impacts attributed to town center development.

The DEIS analysis fails to differentiate increase in trips attributed to town center development and trips generated by developments, auto use patterns through out the city, and city council policies that define Sammamish as a bedroom community, a community of commuters

Auto use not simply a factor of population growth

Trip generation and VMT (vehicle miles traveled) are not simply a factor of increased population, but of patterns of auto use, land development, availability of alternative transportation modalities, development policy and other factors.

8-21

A variety of studies at the national and regional levels show that VMT are increasing at a rate that exceeds population growth. Some studies have shown that up to 63% of increased VMT is due to factors other than population growth. Care must be taken to avoid attributing all increased traffic to population increases. In certain circumstances, population increase, the density of housing and services will have less impact than a development with a lower population density and single use.

It is also important to understand that existing developments continue to impact traffic volumes. For example, the large number of children in Sammamish will age and in this affluent city as teenagers they will demand a car so they can drive to school and to Issaquah and Redmond for entertainment and shopping. The school districts reluctance to require students to use school buses, the cultural significance of the automobile, and patterns of sprawl all add up to more cars on our roads without an increase in

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population. Another example would be city policies that limit local services and require more trips on and off the plateau.

Figure 7-6 2030 ALTERNATIVE 1 TRAFFIC VOLUMES

The presentation of 2030 traffic volumes in figure 7-6, for example, suggests that traffic volumes presented are due to trips generated by Town Center Alternative 1. **This is absurd.** A wide range of variables will influence 2030 traffic volumes. Smart growth literature and related studies tell us that current patterns of Sammamish low density, sprawling development, the policy decision to define the city as a "bedroom" community, city council preference that Sammamish residents continue to travel to Issaquah and Redmond for services, transportation plans that leave Sahalee way undeveloped, these and other factors will have an extremely negative impact on city transportation.

The DEIS presents a distorted picture

8-21

In contrast, appropriate mixed-use town center development that adds sufficient amounts of multi-family housing, retail, restaurants, offices, jobs, local entertainment, alternative transportation modalities will have a positive impact on Sammamish traffic. Unfortunately, the DEIS lumps everything together and presents the distorted picture that the increase in traffic volumes depicted in this and other illustrations of future traffic volumes are due to town center development.

Conclusion:

Most of the data generated by the DEIS depicting future ADT on Sammamish roads is not related to town center development However, the DEIS does not distinguish between the impacts attributed to Town Center development and impacts attributed to city wide development, patterns of auto use, etc. The data presented has little value for assessing the impact of town center development on traffic in the near and long term future.

Issue #3: DEIS overlooks positive impacts of transportation improvements.

The DEIS fails to consider the impacts of 244th Avenue build out on traffic volumes along 228th in the the Town Center study area and other traffic improvements. The DEIS also confuses impacts of city wide developments and policies, and town center development impacts.

In Figure 7-3 existing 2006 traffic volumes along 228th Ave. are presented. Traffic volumes just North of the town center area are shown to be 26,400 ADT. Traffic volumes just South of the Town Center are shown to be 24,900.

Based on the 244th Avenue DEIS, after build out of 244th Ave. 2010 traffic volumes on 228th Ave North and South of the town center decrease significantly.

- **North of the town center 26,400 declines to 20,600. (a decrease of 5,800 ADT)**
- **South of the town center 24,900 declines to 20,800. (a decrease of 4,100 ADT)**

8-21

These estimates when applied to the estimated impacts of the three town center development result in a "status quo" scenario for traffic along 228th Ave. Even without adjustments associated with an appropriate travel demand forecast as outlined in Issue #1, the impact of town center development on area roads and intersections appears negligible if any at all

Failure to account for the positive impact of 244th Ave. build out leads us to suspect that other traffic improvements within the city have not been adequately included in the DEIS estimate of town center impacts

2030 traffic volume estimates just don't add up.

The apparent miscalculations due to the use of an inappropriate travel demand forecast model, exclusion of 244th build out impacts, leave us wondering how

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8-21 the DEIS data relates to town center development.

How do 2030 ADT estimates relate to the Town Center?

Very serious anomalies exist and it is a mystery how in figure 7-6 2030 traffic volumes as measured by ADT South of the Town Center reaches a staggering 38,100. Traffic volumes North of the town center are shown to be 28,800 Authors of the DEIS need to

8-22 show how these estimates are calculated and how they relate to the Town Center alternatives. As shown earlier, based on alternatives 1, 2, and 3, the highest additions of ADT originating in the town center is less than 5,000 Consider the decrease in traffic along 228th in the area of the town center due to 244th Ave. build out, ADT just north and South of the Town Center will be in the range of 25,000

Conclusion:

The DEIS should examine the impact of town center mixed-use development not the accumulative impacts of development and traffic management throughout the city.

The DEIS fails to show how ADT and p.m. peak hour traffic volumes are associated with town center development. City staff and the authors of the town center DEIS need to explain

8-23 the huge increases in traffic volumes depicted in the DEIS's 2030 estimates of ADT and show what volume of ADT is related to Town Center Development and what is related to other developments and city policies that encourage low density, suburban sprawl and dependence on Issaquah and Redmond for retail, office, and other services

More detailed analysis of the DEIS would likely uncover additional anomalies

Additional issues that invite consideration:

The Town Center DEIS contains other issues that need clarification:

Retail is unlikely to attract noticeable amounts of external traffic.

The assumption that significant development of retail in the Town center will attract shoppers from off the plateau is questionable. Town center development alternatives assume little if any increase in the current 10% trade capture. The retail that is included in the alternative reflects population increase not an increase in trade capture. 8-24 With a 90% trade leakage it would seem irrational to suggest that the city will see a noticeable increase in traffic due to non-residents choosing to shop in Sammamish.

The assumption that Sammamish retail will have a regional appeal is very questionable A much greater amount of retail would be needed to justify this assumption. Even with an increase of 400,000 to 600,000 square feet of retail we would not see Sammamish's trade capture rise to significant levels.

Office Space:

The amount of office space included in the alternatives is considerable less than what market analysis suggests is possible. We do recognize that how much office space is included in the town center is as much a factor of market dynamics as it is a factor of city policy

8-25 **Reverse Commuting is a good use of our transportation system**

Any increase in office space will not, however, have a negative impact on traffic. First, if residents of Sammamish use the office space trips on and off the plateau will decrease. Secondly, additional office space would possibly attract traffic from off the plateau, but this would be reverse commute traffic and not constitute an adverse impact. If one travels from outside of Sammamish at 8 a.m. to the town center area, traffic in the lanes entering Sammamish are almost empty of automobile traffic.

Lack of site specificity

A major issue associated with this DEIS is the lack of site specificity. The alternatives identify huge amounts of civic use (190,000 sq. ft.) but fail to describe the kinds of uses 8-26 that would be developed A senior center and an aquatic center create very different patterns of use. Placement of these facilities has different impacts as well If an Aquatic Center is placed in either the Northwest or Southwest quadrants of the town center, impacts will be very significant If the aquatic center is placed adjacent to city hall and the library on the Kellerman property egress will be very congested and users will be forced to drive via 228th and SE 4th to services in other areas of the town center.

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Town Center DEIS comments
February, 2007 Additional issues for consideration

Good mixed use design that reduces traffic impacts is not an accident. It is well thought out and planned.

8-26 The location of specific uses does make a difference in traffic flow. It is for this reason that good mixed-use design looks carefully at the placement of facilities, how they complement each other, and how they are connected by the transportation network. Putting high traffic amenities such as an aquatic facility, the library, city hall in an isolated spot more than a quarter mile from the majority of residential, retail, and office space is a questionable design choice A traffic impact assessment of this design would produce different results from the assessment of a design that brings everything together within a walk-able distance with good connectivity and a high degree of mutuality

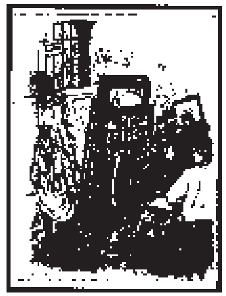
Impact of transportation network development

Compared to the Northeast and Southeast quadrants traffic infrastructure development is much more problematic. The DEIS shows that the greatest increase in traffic will be 8-27 on SE 4th Street going West and along 218th and SE 8th West of the town center Equally problematic is the ring road from Main Street at 228th Ave. SE and SE 4th at 222nd Ave Sadly, the alternative seek to put the greatest amount of development in this area and some are inclined to put only residential development on the east side of 228th along with the three high schools. This pattern will require a lot of auto travel across 228th and up SE 4th westward.

8-28 DEIS is examining alternatives that do not identify uses for specific sites and the level of analysis remains quite general and the data generated fails to depict true impacts.

NCI

[illegible]



The French word, "charrette" means "cart" and is often used to describe the final, intense work effort expended by art and architecture students to meet a project deadline. This use of the term is said to originate from the École des Beaux Arts in Paris during the 19th century, where proctors circulated a cart, or "charrette", to collect final drawings while students frantically put finishing touches on their work.

[illegible]

The NCI Charrette combines this creative, intense work session with public workshops and open houses. The NCI Charrette is a collaborative planning process that harnesses the talents and energies of all interested parties to create and support a feasible plan that represents transformative community change.

8-29

An NCI Charrette is:

- At least four consecutive days
- An open process that includes all interested parties
- A collaborative process involving all disciplines in a series of short feedback loops
- A process that produces a feasible plan
- A generalist, holistic approach
- See our [illegible] for the key strategies for success

An NCI Charrette is not:

- A one-day workshop
- A multi-day marathon meeting involving everyone all the time
- A plan authored by a select few that will affect many
- A brainstorming session that stops short of implementation

[illegible]

- Planners and Designers
- Architects
- Public Officials and Organizations
- Planning and Community Development Directors
- Public and Private Developers and Land Owners
- Citizen Activist Groups
- Non-Governmental Organizations

[illegible]

Though charrettes can be used virtually anytime a product needs to be created or designed, the NCI Charrette most results in feasible plans for:

- Regional Planning
- Comprehensive Planning
- Rewriting Development Codes
- New Community Master Planning
- Specific Planning
- Redevelopment Projects
- Affordable Housing Developments
- Buildings

Conventional approaches to the public approval process are failing. Even high quality architecture and planning projects with demonstrable public benefit may lose support without a collaborative approach like the NCI Charrette. The public design Charrette has emerged as an alternative to the "design and present" convention. NCI Charrettes provide a framework for creating a shared vision with community involvement, directed by consultants representing all key disciplines. For a complete description of Dynamic Planning see our [illegible]

Key benefits of using the Dynamic Planning process:

[illegible] Dynamic Planning promotes trust between citizens and government through meaningful public involvement and education.

[illegible] Dynamic Planning fosters a shared community vision and turns opposition into support.

[illegible] Dynamic Planning increases the likelihood of getting projects built by gaining broad support from citizens, professionals, and staff. And, it creates a better plan through diverse input and involvement.

[illegible] Dynamic Planning avoids costly rework and allows highly productive work sessions.

Additional NCI Charrette Specific Benefits

- It's fun and attracts the interest of a broad range of people
- The Charrette itself is a marketing event for the project
- The multi-day and night studio provides many opportunities for people to participate
- The Charrette provides a good story for the press

[illegible]

It is important to note that a successful Charrette cannot be a stand-alone process. It is one phase of the Dynamic Planning process, which requires extensive preparation and follow-through for plan approval and implementation. For more on the three part process of Dynamic Planning visit our [illegible]

Overview of the design, input and feedback cycles that occur throughout the NCI Charrette:

8-29

8-29

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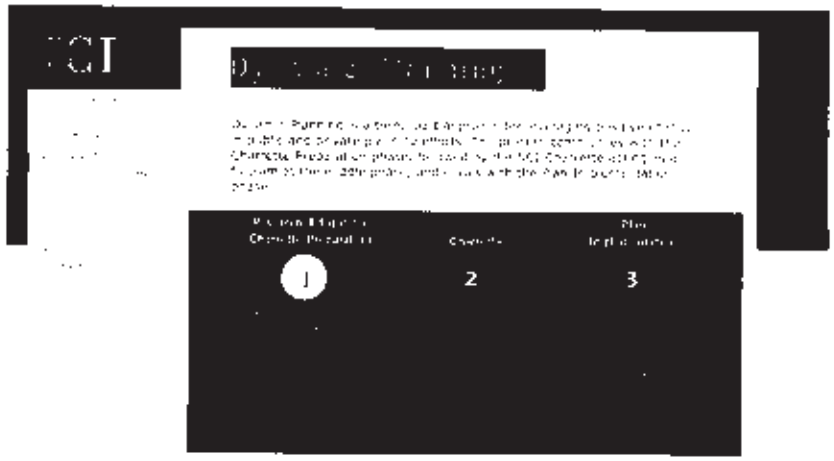


The following key strategies are essential to a successful Dynamic Planning Process and NCI Charrette:

■ Work collaboratively

■ Design cross-functionally

■ Compress work sessions

■ Communicate in short feedback loops

■ Study the details and the whole

■ Confirm progress through measuring outcomes

■ Produce a feasible plan

■ Use design to achieve a shared vision and create holistic solutions

■ Include a multiple day charrette

■ Hold the charrette on or near the site

8-29

Comment Letter No. 8 –Galvin, John

8-1 Several sources of information about the Town Center project were developed and made available to citizens before the June 24th, 2006 charette. In addition to the City's Comprehensive Plan, Special Study Area Task Force Report, and City Council Vision Statement, a Draft Market Analysis was prepared by Community Attributes and an Existing Conditions Report was prepared by ESA Adolfson.

The results of the charette were used in conjunction with other sources of community input including a visual preference survey (March, 2006), youth board meeting (March, 2006), town center bus tour (June, 2006), property owners survey (August, 2006), and a city-wide level of service survey (September, 2006). These sources of community information along with citizen comments were used to understand the community's vision for the Town Center. Development of the Draft EIS alternatives was based on that public input as well as input from the property owner's forum, Town Center Committee, Planning Commission and City Council. The alternatives developed for the Draft EIS were designed to reflect the community's vision of the Town Center, the Councils' direction, and represent a range of options that would be broad enough to explore both positive and negative impacts of multiple land use concepts.

8-2 See response to comment 8-1.

8-3 As stated in section 2.5 of the Draft EIS and the response to comment 8-1, the action alternatives were developed based on input from several sources. Three functional visions of the Town Center emerged from this process. The Town Center was envisioned as a retail-focused destination (DEIS Alternative 1); a center for civic facilities (DEIS Alternative 3); or a smaller local commercial area (DEIS Alternative 2). The design consultant then developed three general land use alternatives to represent each of these scenarios. The parameters of the alternatives were based on information in the Draft Market Study, the Draft Existing Conditions Report, and previous Council decisions, as well as the project team's professional experience.

All of the action alternatives contained mixed-use development, a range of housing types and a pedestrian-oriented core. The purpose of the Draft EIS was to analyze the impacts (positive and negative) of a range of possible future land use patterns with the goal of identifying a "preferred alternative" based on the results of the analysis and public comment. To perform the this analysis, development assumptions were necessary to forecast traffic impacts, estimate impervious surface, and evaluate impacts to public services. These development assumptions are identified in Table 2-1 of the Draft EIS. These land use assumptions were developed as reasonable future outcome as a means to compare alternatives, they do not represent specific development plans. The parameters displayed on October 12, 2006 were reflective of these development assumptions.

8-4 The Sammamish Town Center Sub-area Plan EIS is a programmatic or non-project EIS that addresses potential future development and growth in the Town Center area likely to occur. Subsequent projects implementing a plan would be evaluated on the basis of consistency with the approved Sub-area Plan/EIS, consistency with the Growth

Management Act (GMA) and compliance with the requirements of the State Environmental Policy Act (SEPA).

The Draft EIS process for such a proposal is characterized by a continually expanding level of detail. As stated in section 2.5, the Town Center alternatives were developed simultaneously with the environmental and economic analysis in order to generate a plan that avoids or minimizes environmental impacts, but also has the best potential for economic viability. The Preferred Alternative was developed using components of each of the Draft EIS alternatives and additional detail (see the Draft Town Center Plan). Specific land uses in the Town Center will ultimately be determined by several factors including City infrastructure investments, development regulations, guidelines, and private investment choices.

8-5 The mitigation measures provided in Chapter 7 of the Draft EIS were meant as possible measures to mitigate traffic impacts from the action alternatives. More detailed mitigation measures for the Preferred Alternative have been provided for traffic impacts in section 3.5.4 of the Final EIS.

8-6 Comment noted. The process explained in Comment 8-4 is known as an integrated SEPA/GMA process and is encouraged by State Guidelines (WAC 197-11-210).

8-7 Comment noted.

8-8 Comment noted. The City is considering economic and market issues as well as consistency with GMA and the City's Comprehensive Plan in developing a final plan for the Town Center.

8-9 See responses to comments 8-1 through 8-4 and 8-6.

8-10 The comment is correct in pointing out that development along 228th Ave SE and many of the institutional uses currently in place in the Town Center are more reflective of an urban place. However, because of the development moratorium that was in place until recently, substantial areas of the Town Center are undeveloped or developed at below urban levels. Although consistent with the City's plans, the DEIS alternatives (including the No-Action Alternative), or the Preferred Alternative would represent a significant change in land use that could create temporary or permanent conflicts with existing uses. SEPA requires that an EIS identify probable impacts. However, the DEIS also points out that "While significant, this change is consistent with the City's planning goals and policies as outlined in the Comprehensive Plan and the City Council's vision statement. As such, it should be viewed as a positive change."

8-11 The comment is correct in pointing out that major land use changes have occurred in the Town Center boundary since the City incorporated. It is further correct in pointing out that because of the development moratorium, many areas the Town Center are not developed at urban levels, which is not consistent with the City's comprehensive plan. Current levels of traffic, noise, and lighting are greater than would be expected in an undeveloped or rural area. However, while development of a Town Center featuring commercial and civic uses, higher density housing, and mixed use development is consistent with GMA and City plans, it is likely that such development will increase

impacts commonly associated with urban development. As stated in the response to comment 8-10, SEPA requires that an EIS identifying probable impacts. The DEIS also points out that while these impacts are expected, they are consistent with the City's planning goals and policies as outlined in the Comprehensive Plan and the City Council's Vision Statement and should be viewed as positive change.

8-12 The travel demand forecast model estimated trips for the specific mix of land uses proposed for the Town Center. The model accounts for the reductions described in the comment through the distribution sub-model. This procedure automatically allocates trips between origins and destinations, including consideration of matching opportunities within Town Center. The Town Center area is modeled with twelve distinct zones to enable this sophisticated kind of internal trip distribution to function. As a result, the model internalized approximately 15 to 24 percent of the total traffic generated within the Town Center as a whole, as trips traveling from one internal land use to another, depending on the DEIS alternative. The changes in land use mix assumed for the Preferred Alternative caused this proportion to rise to 30 percent.

The design of the development and the specific mix of tenants would also play a role in reducing the travel demand but, at this programmatic planning level, a more conservative approach is taken and trip generation and travel demand may actually be less than is reported in the EIS. More detailed trip generation tables were provided in the Transportation Technical Memorandum (included as Appendix A) as well as in the Final EIS analysis of the Preferred Alternative (FEIS Section 3.5).

8-13 Internal capture behavior was accounted for by the City's traffic model. The trip generation and distribution procedures do account for internal capture between land uses. The more detailed trip generation tables provided in the Transportation Technical Memorandum (included as Appendix A) and the Final EIS analysis (Section 3.5) provide complete summaries of the various trip types. The Preferred Alternative accounts for approximately 30 percent internally captured trips within the Town Center boundary, which includes those trips that occur within a mixed-use development that are not impacting the roadway network.

8-14 The trip generation estimates generated from the model are based on net new trips, which do account for pass-by trips. The analysis uses the same trip generation rates for the Town Center as for the No-Action Alternative, to be conservative. The trip rates account for existing levels of use of alternative models. This was done because environmental impact analysis should evaluate worst-case conditions and not rely on uncertain assumptions. Additional transit usage and ridesharing may come about in the future, which would reduce the reported trip generation. Reductions due to transit improvements and transportation demand management techniques are discussed in section 3.5.4 as potential mitigation

8-15 See response to comment 8-14.

8-16 The vehicle miles traveled (VMT) is routinely calculated for the City as a whole through the use of the traffic forecasting model, but this information was not reported in the Draft EIS. The VMT from traffic model sources is reported below for No-Action, the Preferred

Alternative, and Draft EIS alternatives. An evaluation of air quality and fuel consumption was not performed, but the trends of those items would be proportional to VMT.

DEIS Alt 1 = 481,373 VMT	No-Action = 405,281 VMT
DEIS Alt 2 = 444,330 VMT	Preferred Alternative = 463,578 VMT
DEIS Alt 3 = 463,963 VMT	

8-17 See responses to comments 8-12 through 8-16.

8-18 More detailed trip generation tables were provided in the March 19, 2007 Transportation Technical Memorandum (included as Appendix A) as well as in the Final EIS analysis of the Preferred Alternative (Section 3.5) which also clarifies the trip type assumptions.

8-19 See responses to comments 8-12 through 8-16.

8-20 The City's travel demand forecast model was determined to be the best tool for estimating trip generation for a large land use plan such as the Town Center and for evaluating long-term regional impacts throughout the City.

8-21 Trips associated with other planned developments citywide are accounted for in the No-Action Alternative. The No-Action Alternative assumes full buildout of the city allowed under the current Comprehensive Plan land use designations for the year 2030 to provide a baseline for comparison. The currently adopted Transportation Element of the Comprehensive Plan is designed to adequately serve that level of future growth. The potential impacts of the Town Center action alternatives are evaluated in this EIS in terms of the anticipated additional demand added by implementation of the Town Center action alternatives and the additional transportation improvements needed to serve that demand consistent with adopted level of service standards.

Estimates of traffic generated from implementation of each of the Draft EIS alternatives and the Preferred Alternative were developed. Comparing the alternatives with the No-Action Alternative (as required by SEPA) provides an estimate of the net additional number of trips and traffic that would be attributed directly to the alternatives. More information is provided in the Final EIS (section 3.5) to better describe the impacts as the net difference between the No-Action and Preferred Alternatives.

The Town Center EIS analysis incorporated all land use changes and roadway improvements that are planned and funded for completion by 2030, which includes the 244th Avenue connection. The shifts in travel patterns created by the 244th Avenue connection are accounted for in full. The potential impacts of the proposed alternatives can be described as the net difference between the forecast volumes with a Town Center plan and the No-Action volumes without a Town Center plan.

8-22 The ADT volumes were derived from PM peak hour volumes forecast by the travel demand model, based on existing ratios of peak-to-daily traffic volumes. This is a standardized methodology applied equally to all of the alternatives. The No-Action and Preferred Alternatives both include the effects of the 244th Avenue completion. As described in the response to 8-2, the impacts from the Town Center alternatives can be measured by comparing the increase of traffic and congestion over the No-Action Alternative.

The No-Action section in the Final EIS has been updated from what was reported for the

No-Action Alternative (Alternative 4) in the Draft EIS. The updated analysis accounts for more background traffic growth generated in adjacent communities, to be fully consistent with the background growth calculated for the action alternatives. The No-Action Alternative in the Draft EIS inadvertently considered background growth for only 6 years rather than through 2030. This change produced an increase of approximately 200 PM peak hour vehicle trips on most of the major corridors in the No-Action scenario. As a result, the net difference shows less impact related to Town Center development.

8-23 Impacts of the Preferred Alternative are compared with the No-Action Alternative in the Final EIS (Section 3.5). The No-Action analysis assumes full buildout of the City in 2030 based on the adopted Comprehensive Plan land use map with primarily R-4 zoning in the Town Center area.

8-24 The retail component of the Town Center is estimated to primarily serve patrons and trips generated within the city of Sammamish. A small part of the retail traffic will be generated from outside of the city, including for example, store employees, suppliers, etc. This is shown in the distribution plots in the March 19th, 2006 Transportation Technical Memorandum (Appendix A).

8-25 Comment noted.

8-26 The location of specific uses can make a slight difference in traffic flow. The Final EIS analysis evaluates the Preferred Alternative which is based on one set of assumptions about a probable mix of land uses. Moving these land uses in various configurations within the Town Center area may provide some slight changes within the local area but will not make significant differences to the external network. At this stage it is too early to evaluate detailed site specific impacts. However, it is true that the design of each site could impact vehicular and pedestrian circulation and the amount of traffic generated, which is why SEPA review will be conducted as specific projects are proposed.

8-27 See the analysis of the Preferred Alternative transportation impacts and proposed mitigation measures in Section 3.5 of this Final EIS for more detailed information on impacts and proposed mitigation measures. Refer to the Circulation Strategy in the Draft Town Center Plan for more detailed information on proposed road configurations and off-site improvements.

8-28 See response to comment 8-4. The Sammamish Town Center Sub-area Plan EIS is a programmatic EIS that addresses potential future development and growth in the Town Center area. SEPA acknowledges that analysis at this level is often constrained by the lack of specific information. SEPA provides that the level of detail should be appropriate to the scope of the project. In this case, the scope is considerably broad. Subsequent projects implementing a Town Center Plan will be evaluated in more detail for consistency with the approved Sub-area Plan/EIS, and compliance with the requirements of the SEPA.

8-29 The articles titled "What is a charrete?" and "Dynamic Planning" included in your comment letter are acknowledged.

Asea Sandine

From: jegalvin@comcast.net
Sent: Wednesday, March 14, 2007 12:32 PM
To: Asea Sandine; Kamuron Gurol
Subject: DEIS Comment

Name: John Galvin
Address: 432 228th Ave. SE

City: Sammamish
State: WA
Zip: 98074
Email: jegalvin@comcast.net
Wish to receive information via e-mail: False

Comments: Re: Town Center Traffic Impact

9-1 The project team needs to explain how Town Center Development (alternative 1 for example) with trip generation of 2,370 pm peak hour trips going in and out of the Town Center to the North can result in an increase of 4,000 ADT at the intersection of SE Issaquah Beaver Lake Rd. and SE Duthie Hill Rd.

The outcome of the model analysis is counter intuitive and lacks face value. Increase of traffic at two related points are less than half. An explanation is needed to demonstrate that this impact is attributable to town center development.

9-2 I have come across studies that have indicated that with mixed-use development traffic impacts decrease as the distance form the develop increases.

9-3 An error rate of one, two or three thousand is significant. As a planning tool this appears to be a pretty blunt tool.

9-4 At this stage of the planning process and due to the disconnect between the alternatives and future development, it is not worthwhile to spend money with experts to assesss these issues. Nevertheless, it is important that these concerns be entered into the record.

Comment Letter No. 9 –Galvin, John

9-1 The traffic forecasts for the No-Action analysis in the Draft EIS were low and did not account for an adequate level of background growth through the 2030 plan year. These volumes have been corrected in the Final EIS and a comparison of the Preferred Alternative with the updated No-Action Alternative is provided in the Final EIS (Section 3.5).

9-2 It is true that traffic impacts for most mixed-use developments generally decrease as the distance from the development increase. The forecasts account for this.

9-3 The revised No-Action Alternative forecasts reported in the Final EIS (Section 3.5) correct the referenced error.

9-4 Comment noted.

Asea Sandine

From: johsamm@comcast.net
Sent: Monday, March 26, 2007 4:17 PM
To: Asea Sandine, Kamuron Gurol
Subject: OEIS Comment

Name: John Hansen
Address: 584 - 586 228th Ave. SE
City: Sammamish
State: Wa
Zip: 98074
Email: johsamm@comcast.net
Wish to receive information via e-mail: True

Comments: To: Kamuron Gurol/Director of Community Development/City of Sammamish Re:Sammamish Town Center - Draft EIS These comments are coming in late and somewhat impromptu - as of last night, Dick Birgh, Paul Stickney and I were going to combine all of our comments into a single letter, addressing the wetlands that we share on the eastern part of our properties - Wetland area #1511 in Chapter 5 of the DEIS, as well as our comments on Chapter 6, regarding Land Use, Population, and Housing. However, I think Dick may be headed to the hospital this afternoon and I want to make sure my comments regarding the wetlands gets to you, in case that combined version doesn't.

10-1 Wetland 1511 is both incorrectly shown and (very) incorrectly categorized as a Class 1. That wetland is much smaller than shown, is contained primarily by two shallow hydraulic ponds that were created by Mr. Birgh in the 1960's/1970's. When an objective wetland evaluation is done on this area, it will show this to be no more than a Class II, and quite possibly a Class III wetland, with commensurate buffers.
I believe the Habitat score is also in error, and shown somewhat higher than it should be. Note that in Section 5.1.6 of the DEIS, the last two paragraphs, it states that "the PHS database search found that no priority wildlife species are documented within the TC planning area", and "No anadromous fish are reported present in the stream reaches in the Town Center planning area . . ."

Sincerely,
John Hansen

Comment Letter No. 10 –Hanson, John

10-1 As noted in Section 5.1.4 of the Draft EIS, the City used existing GIS data to map wetlands and streams in the Town Center area for preliminary planning purposes only. No site-specific wetland studies were or will be conducted as part of this programmatic EIS. As required by the City's Environmentally Critical Areas regulations, any project development in the vicinity of known critical areas will require site-specific investigations to accurately determine the location, rating, classification, and associated buffers of critical areas.

COMMENT LETTER NO. 11

Richard Birgh
442 228th Avenue SE, Sammamish, WA 98074-7206 USA
Home 1 (425) 996-8641 · Cell 1 (425) 491-8717 · Fax 1 (425) 996-8643
· e-mail rbirgh@comcast.net ·

RECEIVED
MAR 26 2007
By

March 26, 2007

To City of Sammamish
Community Development Department
486 228th Avenue SE
Sammamish WA 98074

Attention: Mr. Kamuron Gurol, Director

Re: Comments to Draft EIS for the Town Center Development
These comments refer to Chapter 5 – Streams, Fish, Wetlands, and Wildlife and apply only to Wetland 1511.

The wetland is minimal in size and is mostly contained inside the area of the two hydraulic retention ponds, which were man made in the 1960's and 1970's. Before the ponds were created, there was a small, seasonal surface watercourse devoid of fish runs or spawning grounds.

11-1
- The Wetland is not a Class I wetland but rather class II or possibly even class III.
- The Fish and Wildlife Habitat score is incorrect.
- Wetland 1511 is not properly mapped and placed on maps and diagrams
- The Stream is a drainage ditch or inside a culvert.
- The water comes from groundwater, not surface water.
- The two man-made ponds are far greater in width than was the original wetland area. Buffers should be adjusted accordingly.
- A Habitat/wildlife corridor does not exist; it was mostly a figment of Ms. Ann Knapp's imagination. Only one deer family exists in the area. It is loosing members every year.

Very Truly Yours,

Richard Birgh
cc. Paul Stickney

COMMENT LETTER NO. 11

March 26, 2007.

To City of Sammamish
Community Development Department
801 228th Avenue SE
Sammamish WA 98075

Attention: Mr. Kamuron Gurol, Director

Re: Comments to Draft EIS for the Town Center Development

These comments refer directly to Chapters 1, 2, 6, 7 and 10 and indirectly to the other chapters

The three action alternatives reviewed by the Draft EIS are unsound as they were developed ***without*** comprehensive market feasibility studies, economic development strategies, and fiscal planning or policy decisions on population growth, jobs and services.

Also missing from the alternatives are professional recommendations from the city planning staff or the hired consultants. The alternatives were crafted mostly from the "wants" of a few dozen lay citizens and disregard sound planning practices. Citizen input is important but needs to be given within a context of complete information, professional recommendations and policies clearly in place. This has not happened. The planning process that has been carried out thus far, although may be well intended, does not meet either the current or the future needs and best interest of the City and its Citizens.

A more proper process to develop alternatives would have been as follows:

11-2
1. Order impartial, comprehensive market and feasibility studies and instruct the Consultant Firms to provide a full spectrum of what could be done in Sammamish relating to Jobs, Office, Retail and Housing needs and opportunities. Further, direct the Consultants to provide bookends wide enough apart to span from clearly too low to clearly too high of what Sammamish could support now and also for the next 20 to 30 years. Let them give their objective assessments and ask for their best recommendation on what is right for Sammamish, based on industry standards and their experience. This is the correct starting point.
2. With the comprehensive studies in hand - not biased or influenced by any special interests -, the City Council needs to mandate the development of the economic element of the Comprehensive Plan as required by the GMA. The City needs to concurrently eliminate the statement in the Comprehensive Plan exempting the City from the requirement to do the Economic Element because Sammamish is a bedroom community, and create Community Economic Development Strategies.

At this stage in the process, it is the time to face these truths:

Sammamish today is a *City* of approximately 40,000 people; it is not a small bedroom community.
The City will continue to grow larger over the next 20-30 years.
Economic planning is needed to successfully compete in a changing economy.
Economic and fiscal planning is of benefit to both the City and its Citizens.
All PSRC large suburban cities have economic-fiscal plans and/or policies.
No other cities with over 20,000 people in King County, that we are aware of, have exempted themselves from economic and fiscal planning in their comprehensive plans.
There are no sound reasons not to have economic and fiscal policies in order to:
Sustain economic vitality and protect the environment with a sound economic plan.
Significantly reduce car trips off the plateau with local jobs and services.
Improve the quality of life for the Sammamish residents.
Increase the wealth and prosperity of local residents and businesses.

3. Gather important information at a minimum from the following sources before formulating the economic element of the comprehensive plan and the development of community economic development strategies:

   Completed Market and Feasibility studies as described above,
   Fiscal analysis related to various levels of jobs, retail, and housing,
11-2 Comp Plan goals and values; vision statements; community goals, desired civic amenities and how to pay for them,
   PSRC population and jobs projections,
   King County Growth Management Planning Council,
   Growth Management Services of the Washington State Department of Community, Trade and Economic Development,
   State GMA Economic Development Resources,
   Private sector commercial and residential developers,
   Community Development Directors from King County cities with established economic development plans.

4. After gathering the source information described above, consider as an intermediate step a Citizen Survey that is objectively written, asking for clear opinions regarding different levels of jobs, retail, and housing; and what the implications would be to transportation, less pollution, time savings, civic amenities, convenience, fiscal considerations, real estate tax rates, variety of retail services, and job opportunities now and in the future. Also asking about diversity of housing options to meet the needs of more than just baby boomers. Let the Citizens have their say, in light of the various economic scenarios.

5. Have the professionals – the City Staff and the Consultants - prepare the economic element of the comprehensive plan and create community economic development strategies based on thorough market feasibility studies, complete information, Planning Commission input, and results from the Citizen Survey. Provide these products to the City Council and the Citizens for review, comment, and refinement.

6. The City Council adopts an economic element and community economic development strategies that include clear policy decisions on population growth, jobs, and retail services to meet the needs of Sammamish today and in the future.

7. With the economic element of the comprehensive plan completed and community economic development strategies for the entire city in hand, hold a true community wide Charrette, where action alternatives are developed. It can be accomplished quickly, in a few days or a week, as all base information and policies are clear and the foundation now is in place to create three meaningful alternatives.

8. Have DEIS completed on all the alternatives.

9. Instruct the Staff and the Consultants to create the preferred alternative based on their professional expertise and the entire Town Center planning process to this point.

11-2 10. Appoint a Town Center Oversight Committee of nine or fewer individuals from Citizens, Landowners, Commissioners, and Council to develop recommendations and feedback to the Staff and Consultant, for them to generate a Preferred Alternative.

11. Provide time and place for comments on the preferred alternative from the Public, the Planning Commission, the TCC, and the Stakeholders.

12. The City Council can now adopt a Preferred Alternative that is anchored in reality, and a vibrant, lovely, exciting, and viable Town Center can be developed. A Town Center that will be used and cherished by residents for decades to come.

We believe that we again need to voice our opinions on the above, but fully understand, how difficult it is to drastically change the planning process at this juncture. However, a course correction is in order, and can without a doubt be accomplished. Be assured that we continue to support the efforts to create a successful, vibrant Town Center.

Respectfully Submitted by Richard Birgh, John Hansen, and Paul Stickney

Comment Letter No. 11 –Birgh, Richard

11-1 See response to comment 10-1. Also, as stated in Chapter 3, the classification of wetland 1511 is currently being reviewed as part of a re-zone application for a property adjacent to the Town Center. A preliminary wetland classification performed by the City in 2006 concluded that the wetland was a Type I wetland, which would require a 150 foot buffer. The maps shown in the EIS and Draft Town Center Plan reflect this classification and show the 150 foot buffer. If the ongoing review of wetland 1511 concludes that the wetland is a Type II wetland, the buffer requirement would likely be 100 feet.

11-2 See response to comments 8-1 through 8-4

Asea Sandine

From: chuck@dulken.com
Sent: Wednesday, February 28, 2007 5:54 PM
To: Asea Sandine, Kamuron Gurol
Subject: DEIS Comment

Name: Chuck Dulken
Address: 23117 E. Main St.
City: Sammamish
State: WA
Zip: 98074
Email: chuck@dulken.com
Wish to receive information via e-mail: True

12-1 Comments: The properties in the SE 1st/E. Main St. neighborhood are increasingly sandwiched between non-residential developments: Eastlake High School, Evergreen Christian Church, Eastside Catholic High School, Sammamish Water & Sewer District Pump House & Water Treatment Plant. No longer suitable for single family dwellings, a more dense zoning is appropriate (R24, multi-use).

12-2 Also, the wetland buffer defined in the DEIS in the NE corner of the NE quadrant seem excessive, especially considering that existing structures are already located on much of the wetland buffer area in question.

Comment Letter No. 12 –Dulken, Chuck

12-1 The Preferred Alternative proposes a mix of higher density multi-family buildings and town houses surrounding smaller neighborhood-scale mixed use areas in the NE, SE, and SW quadrants of the Town Center.

12-2 See response to comment 10-1

Asea Sandine

From: ldulken@copper.net
Sent: Thursday, March 01, 2007 7:27 PM
To: Asea Sandine, Karen Gural
Subject: DEIS Comment

Name: Linda Dulken
Address: 23117 E. Main Street
City: Sammamish
State: Wa
Zip: 98074
Email: ldulken@copper.net
Wish to receive information via e-mail: True

13-1 Comments: The properties in the SE 1st/E. Main St. neighborhood are increasingly sandwiched between non-residential developments: Eastlake High School, Evergreen Christian Church, Eastside Catholic High School, Sammamish Water & Sewer District Pump House & Water Treatment Plant. No longer suitable for single family dwellings, a more dense zoning is appropriate (R12-R24, multi-use).

13-2 Also, the wetland buffer defined in the DEIS in the NE corner of the NE quadrant seem excessive, especially considering that existing structures are already located on much of the wetland buffer area in question.

Comment Letter No. 13 –Dulken, Linda

13-1 See response to comment 12-1.

13-2 See response to comment 10-1.

COMMENT LETTER NO. 14

Asea Sandine

From: fernhillfarm@comcast.net
Sent: Wednesday, February 07, 2007 12:41 AM
To: Asea Sandine, Kamuron Gurol
Subject: OEIS Comment

Name: Marybeth Lambe MD
Address: 101 224 Ave SE
City: Sammamish
State: WA
Zip: 98074
Email: fernhillfarm@comcast.net
Wish to receive information via e-mail: True

Comments: We have made repeated calls and had no response so will now try via email. We live on Fern Hill Farm
14-1 101 224 Ave SE
We have asked for someone to come out and lay eyes on the wildlife corridor which now sweeps through our wooded acrege. We have also had repeated sightsing of Pileated woodpeckers, Merlins, and Last srping we begged someone to come out and see the 2 pileated woodpecker nests on the property. Also, coyotes, fox, borrowing owls, Cooper's Hawk, Northern Goshawk, Vaux's Swift, Rufous Hummingbirds, Red breasted sapsuckers, Downy woodpeckers, Northern Flickers, vesper sparrow, spotted Towee, Flammulated Owl, Screetch
14-2 owls, short eared owls, Spotted owls, Boreal owls,

In my walks around our area I have also seen wildcat, cougar, marmot, badgers, Ferriginous Hawks, and, of corsue Red Hawks, deer, elk, sharp shinned hawks, vesper sparrows, spotted Towee, bald eagles, cougars, brown bears and others oth 24 years we have lived here.

14-3 Why will no one contact me about viewing our woods and their inhabitates?

Comment Letter No. 14 –Lambe, Marybeth

14-1 See response to comment 8-24. As a non-project or programmatic EIS the State Environmental Policy Act (SEPA) provides that the level of detail should be appropriate to the scope of a proposal. Because of the broad scale of the Town Center Sub-area planning process, the analysis of wildlife habitat relied on exiting reports. While the Town Center Plan may allow more development or a different type of development on a specific property, development decisions for the property would be made only by the property owner.

In the event that a property owner decides to develop their property, the specific project proposal would have to be evaluated in more detail for consistency with the approved Town Center Plan, relevant City regulations, the Growth Management Act (GMA) and the requirements of the State Environmental Policy Act. This level of analysis could involve site specific wildlife/habitat assessment.

14-2 As discussed in response to comment 6-5, no site-specific wildlife inventory studies were or will be conducted as part of this programmatic EIS. However, as described in Section 5.1.1.3 of the DEIS, the City's Environmentally Critical Areas regulations include protection of fish and wildlife habitats during review of permit applications. Some of the species mentioned in your comment are state or federally listed species that warrant protection under a Habitat Conservation Plan (HCP), if development activities are proposed. In addition, listed species are protected by the US Fish and Wildlife Service and Washington Department of Fish and Wildlife. These agencies have management recommendations and requirements for development activities proposed near documented nesting habitats of listed species. It may be helpful for them to receive word of your sitings.

14-3 See response to comment 14-1.

Asea Sandine

From: sesixth@w-link.net
Sent: Wednesday, March 07, 2007 6:17 PM
To: Asea Sandine, Kamuron Gurol
Subject: DEIS Comment

Name: Maureen and Frank Santoni
Address: 22828 SE Sixth Place
City: Sammamish
State: WA
Zip: 98074
Email: sesixth@w-link.net
Wish to receive information via e-mail: False

15-1 Comments: We have lived on the Sammamish Plateau for 28 years and have always seen Pileated Woodpeckers where we live in the SE quadrant of the Town Center Area.

Comment Letter No. 15 –Santoni, Maureen and Frank

15-1 See response to comment 6-5 and 14-2.

Asea Sandine

From: jegalvin@comcast.net
Sent: Thursday, March 01, 2007 4:30 PM
To: Asea Sandine, Kamuron Gurol
Subject: DEIS Comment

Name: John Galvin
Address: 432 228th Ave. SE

City: Sammamish
State: WA
Zip: 98074
Email: jegalvin@comcast.net
Wish to receive information via e-mail: False

Comments: To: Project Team

RE: Wildlife corridors

16-1 The local wildlife are local born and do not travel along wildlife corridors. The existince of SE 8th and 228th have cut off any corridors that may have existed in the past.

Comment Letter No. 16 –Galvin, John

16-1 Comment noted.

Asea Sandine

From: jegalvin@comcast.net
Sent: Wednesday, February 28, 2007 11:55 AM
To: Asea Sandine; Kamuron Gurol
Subject: DEIS Comment

Name: John Galvin
Address: 432 228th Ave. SE

City: Sammamish
State: WA
Zip: 98074
Email: jegalvin@comcast.net
Wish to receive information via e-mail: True

Comments To: DEIS Project Team

From: John Galvin
432 228th Ave. SE
Sammamish, WA 98074

RE: Erosion Hazard Areas
East side of 228th between SE 4th and SE 8th

On numerous occasions my neighbors and I have pointed out to the city that maps designating our area East of 228th Ave between SE 4th and SE 8th are not erosion hazard areas.

Some of my neighbors have lived here many years, 1970 onward, and I have lived her since 1996. none of us have seen signs of erosion.

17-1 The map that designates this area as an erosion hazard area is the result of aerial inspections and as far as we know there has never been a ground investigation to support the aerial assessment.

Any judgment as to the nature of the soils in the area must be conditional and with the expressed caveat that further study is required before any decisions can be made as to what type of development is allowed or not allowed or what forms of mitigation will be necessary.

Comment Letter No. 17 –Galvin, John

17-1 As stated in the City's Comprehensive Plan, erosion hazard areas within the city are designated on the basis of the U.S. Department of Agriculture Soil Conservation Service soil identification. The City's updated Environmentally Sensitive Areas Map also shows these erosion hazard areas. As stated in the Draft EIS, according to the 2003 Comprehensive Plan and the City's Critical Areas Ordinance, all development within these designated critical areas must undergo site-specific evaluation for erosion potential prior to project approval.

MAR 2 6 2007

Erica Tiliacos
1130 Lancaster Way SE
Sammamish, WA 98075

March 12, 2007

Kamuron Gurol
Dir. Of Community Development
801 228th Ave. SE
Sammamish, WA 98075-9509

Dear Kamuron:

I would like to comment on the Sammamish Town Center Sub-area Plan DEIS and rather more specifically on the environment.

18-1 The DEIS has characterized the natural conditions on the ground in an accurate manner, and unlike the Comp Plan DEIS for the Town Center portion, was more thorough in its review of the basins it will most impact.

18-2 Under the heading Purpose and Proposal 1.3.1. the study states that "by directing growth to a defined "core", the City can further protect its natural environment… in other parts of the city.". The designated Town Center area has been one of the least developed, and one of the most environmentally intact areas of the city. Ironically, it is this area precisely that was being protected from standard urban development by zoning large portions of it as R-1, an environmentally sensitive zoning within the Urban Growth Boundary. This zoning requires leaving 50% open space and clustering away from environmental resources. Furthermore, many of these same parcels had p-suffix conditions attached to the zoning designation to signal special considerations in development

COMMENT LETTER NO. 18

so as to not adversely affect ecosystem functions (ie. wildlife corridors, erosion hazards, aquifer recharge). Those parcels that drain to Class 1 Wetlands over erosion hazard areas or the headwaters of streams were later placed in Wetland Management Area Overlays. These overlays limited the amount of built impervious surfaces to 8% and required clustering away from the sensitive areas. The 50% open space requirement allowed development to be clustered further away from the wetland in addition to the standard buffer required for Class 1 wetlands thereby creating even greater buffers.

18-2 Our current adopted wetland buffers do not provide sufficient protections to Class 1 Wetlands. In the Dept. of Ecology's review of our Critical Area Ordinance, they specifically were concerned that the buffers called for in our ordinance did not go far enough to protect wetland functions, particularly in Class 1 wetlands. Dept. of Ecology's recommendation on wetland buffers is to provide greater buffers for the resource as the impervious surfaces increase. The City responded that we had Overlays in place to protect class 1 wetlands but failed to mention they only applied to R-1 zoned parcels. The 2 Class 1 wetlands that will be directly impacted by the Town Center development are now excluded from these protections.

This information is not new to staff or the Council. What I did find concerning was no acknowledgement of the additional protections these Overlays and the R-1 zoning had provided to large portions of this Town Center Area or analysis of the impacts that removing these protections will have on the functions of the ecosystem and water quality of these 2 basins. The least expensive way to deal

18-3 with stormwater and its impacts in this area was to limit the impervious surfaces. Taking that away, the city now has to require costlier ways of mitigating for these conditions, and to give up the ability for the natural systems to function on their own. New

mitigation measures have not been proposed to replace these lost protections. Requiring full Low Impact Development in the
18-3 previously zoned R-1 parcels and requiring clustering away from sensitive areas could help reduce the effective impervious surfaces and its adverse impacts.

The Wildlife Corridor is not specifically addressed in the mitigation. How will a 150-300 ft. corridor be preserved throughout the planning area? How is the city proposing to avoid fragmentation of the corridor due to fencing? There are Pileated woodpeckers and Vaux's swift, 2 special-status species within the forested areas of the Town Center and there has been no mitigation
18-4 proposed for their continued survival. There are significant areas of forest cover within the TC some of which should be preserved to permit connectivity to wetlands and streams, and to preserve habitat for these species of concern. Possible mitigation could be a city wide investment in, and designation of, Conservation Resource Areas that could help pay for areas of high habitat value within the TC and throughout the city.

In page 4-1 under 4.1.1. Surface Water, it states "while channel mapping in this area is not entirely clear,"(referring to the Thompson Basin) I would like to call your attention to the downstream analysis that Murray Franklin provided for their developments of Redford Ranch and the Glen at Redford Ranch. They performed a level 1, 2, and 3 downstream analysis that
18-5 provides a clear assessment of the drainage area from the upper reaches of the southwestern side of 228th down to 212th Ave. SE which traverses Wetland 1517 in the Thompson Basin. Of note in this analysis was the recognition that the roadway would flood. The city later raised the road, but the result has been higher levels of water in this forested wetland that has lead to high tree mortality.

COMMENT LETTER NO. 18

One of the important mitigations being proposed in the DEIS is to "perform baseline and ongoing surface water quantity and quality monitoring". Within the Thompson Basin the city currently is monitoring Wetland 1561 and Ebright Creek as part of a settlement agreement. Monitoring of Wetland 1517 of this same basin has been performed by Buchan Homes. As a condition for their permit
18-6 the City Council also required them to continue this monitoring. The city should commit to correlate all the ongoing monitoring efforts and to continue them through the update of the Thompson Basin Plan. This way the city will truly have a baseline for this Basin as they go forward with development for the TC and will be in a position to better mitigate its impacts.

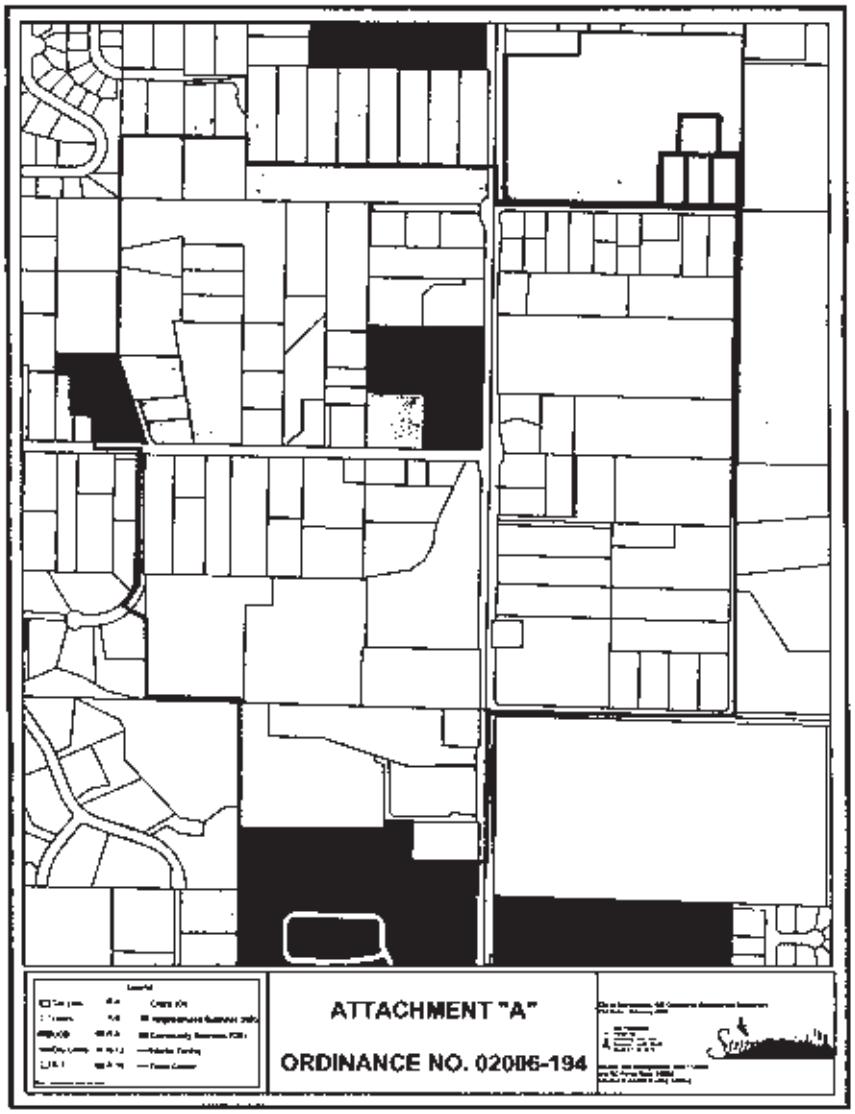
There are those who feel that the areas within the Urban Growth Boundary should not have to limit impervious surfaces since they are the areas where growth is being directed. However, the Growth Management Act also requires protections of environmentally
18-7 sensitive areas within the UGB. It is recognized science that watershed practices have a great impact on these resources and that buffers alone cannot provide sufficient protections. Furthermore, these protected areas in urban zones are a link from the larger water bodies out to the rural lands.

Current common practices will not conserve the natural environment and do not pay for their losses. Environmental
18-8 degradation is an ignored cost we are all burdened with. We should be forward thinking in our approach to the development of our Town Center.

I thank you for allowing me to comment.

Erica Tiliacos

Attachment - current zoning map of TC


ATTACHMENT "A"
ORDINANCE NO. 02006-194

Comment Letter No. 18 –Tiliacos, Erica

18-1 Comment noted.

18-2 The comment is correct in noting that the current Town Center area is largely undeveloped relative to nearby areas. However, the undeveloped nature of the Town Center is in large part due to the development moratorium (recently lifted), rather than an effort to permanently limit development.

It is also the case that current zoning in the Town Center area is primarily R-1 (in the NE, SE, and SW quadrants). However, as shown in the City's Comprehensive Plan land use designations, the City had already decided to increase zoning in the Town Center area to, at least, R-4. In the absence of adoption of a Town Center Plan, most of the R-1 zoned areas would be changed to R-4. This is the scenario that was analyzed as the No-Action Alternative in the DEIS and FEIS.

The comment is also correct that parts of the Town Center area are within the City's Wetland Management Area Special Overlay District (SMC 21A.50.322). The overlay district largely regulates development through the R-1 zone. These provisions would not apply to properties in the R-4 zone. Also, according to the code, the provision limiting impervious surface to eight percent (3a) does not apply to properties in the Town Center area.

The City Council has clearly expressed that the Town Center should be developed in a manner that preserves and enhances the Town Center area's natural features. The Council's Town Center Vision Statement includes the priority to employ "a variety of environmental enhancement and low-impact development techniques to improve ecological functions, such as surface water hydrology and wildlife habitat."

As a result, the Draft Town Center Plan includes a natural systems strategy intended to achieve those objectives. The Draft Town Center Plan (Chapter IV) includes several key strategies to protect the area's hydrology and habitats. For complete details of these strategies, see the Draft Town Center Plan. Also see the mitigation measures proposed in Chapter 3 of this Final EIS. The key strategies in the Town Center Plan include:

1. Development of a comprehensive stormwater management plan;
2. Creation of a regional stormwater treatment system;
3. Enhancements to area stream corridors;
4. Requirement of low-impact development techniques;
5. Reductions in the footprint area per dwelling unit;
6. Continued enforcement of the City's tree retention strategy;
7. Revision of the City's wildlife corridors; and

8. Landscape standards for commercial and residential development that emphasize ecological functions of landscaped areas.

18-3 While R-1 zoning may limit the number of units per acre, R-1 development can have enough impervious surface (resulting from driveways, outbuildings, etc.) to result in negative impacts to aquatic systems. Therefore, it is not possible to conclude that R-1 zoning would be significantly more protective than the proposed alternatives.

Under the Draft Town Center Plan, development would be clustered to provide a more compact urban footprint allowing greater connected open space and less impervious surface. The Draft Town Center Plan also contains provisions to enhance stormwater management through a comprehensive stormwater system, stream enhancements, and low-impact development techniques, which would otherwise not be available through incremental development under R-1 zoning.

18-4 The Final EIS includes a proposal for revising the City's designation of wildlife corridors in the Town Center area as mitigation.

18-5 Comment noted. As discussed in section 3.2 of the FEIS and in the Draft Town Center Plan, implementation of a Town Center plan would require further basin-wide analyses to better understand and plan for stormwater management. Refer to section 3.2.2 for a complete discussion of stormwater related mitigation measures.

18-6 Comment noted.

18-7 The comment is correct. Waterbodies are influenced by activities throughout their watersheds. In addition to steering development away from designated wetlands, streams, and buffers, the Draft Town Center Plan contains provisions to enhance stormwater management through a comprehensive stormwater system, stream enhancements, and low-impact development techniques. Vegetation and wildlife habitat will be protected by existing regulations as well as new landscaping standards that emphasize the ecological functions of landscaped areas. The overall goal of these provisions is to avoid impacts to the existing flow regimes in George Davis and Ebright Creeks.

18-8 The commenter is correct that development of the Town Center as a relatively dense urban area poses challenges to the natural environment. However, planning for a Town Center supports the States' growth management goals by concentrating growth in the urban areas and helping retain natural systems in the rural areas.

18-9 Attachment "A" is acknowledged.

Asea Sandine

From: klytton-lang@strategicresources.com
Sent: Thursday, February 01, 2007 9:45 AM
To: Asea Sandine; Kamuron Gurol
Subject: DEIS Comment

Name: Karen Lang
Address: 24403 NE 18th Street
City: Sammamish
State: wa
Zip: 98074
Email: klytton-lang@strategicresources.com
Wish to receive information via e-mail: True

Comments: Commons Area Sammamish

I am opposed to all of the current plans under consideration. If I was forced to choose one, it would be Option 2, under much duress. Housing is the LAST thing Sammamish Needs.....please take the time to read my comments and thoughts below. I know it's quite long, but I really think that now is YOUR time to make a wonderful, positive impact on Sammamish and I truly believe that you are making a mistake by increasing our housing to such an extent. I have provided some alternatives that could provide revenues for the City. I just wish that you would consider the impact on the people & environment by your current proposals.

19-1 Objections

Housing.

Does Sammamish really need more houses and housing developments? We are stripping out land it seems, wherever available. Illahee on NE 8th is now a huge development, with not a tree left in site. It blights the landscape when these developments maximize there use of every available piece of land. If housing developments have be included in this plan then I opt for Plan #2. Even so, 2,590 extra commuters is not acceptable. The number of houses/condominiums built should be lowered. Alternative sources of revenue to develop the area should be investigated by the council!!

19-2 I also firmly believe that considerable effort be made to make housing developers comply with NEW regulations that the council needs to adopt. The council needs to ensure that existing trees, native plants etc are not ALL stripped away. The council needs to make a provision whereby developers must provide plans that include keeping trees and plants. The council has an obligation to the environment to ensure this occurs.

19-3 It should also be noted that developers, if given the opportunity to develop, in Sammamish should adhere to NEW aesthetic guidelines. Houses that all look the same with scant importance paid to originality, innovation, sustainability or local materials should not be

19-3 allowed. As before, stripping of natural habitat to add an extra 10 houses or so, should not be permitted. The Council needs to stand Firm Environmentally friendly, sustainable housing should be considered in this age of continued global warming!

19-4 I do not think the council is really serving its current residents very well. We not need more housing or condominiums in this vicinity.
Possibly the only type of housing project considered should be for those aged 55+, potentially assisted living as well. It should however not provide more than 1,000/2,000 units. By adopting a senior living space you would, most likely, still be getting $$ for sale of land to developers, thereby providing the City with funding for the proposed commons development. but you would also not be needing extra school space, thereby delaying the overcrowding problem in the schools.

Schooling:

19-5 Already our schools are bursting at the seams. IHI is at it's maximum intake level, or was in 2006. Providing more housing will exacerbate this problem. Therefore, you would need to build additional schools. High School and Junior High in particular. This will increase overall cost and possibly reduce current education budget to pay for a development program.

Traffic

19-6 Getting on and off the Plateau is ridiculous. Using E Lk Sammamish Pkwy from 7.15am to 9.30.am is horrendous, sometimes taking more than 45 mins to go west from Inglewood Hill to 202/Marymoor Park.
More housing, more people, more cars

19-7 What the City of Sammamish needs desperately, more than anything else is leisure, Recreational, Retail & Restaurants. (Not fast food) We have two reasonable quality Restaurants on the Plateau. All the others are FAST FOOD outlets. With so much emphasis on Obesity in the States I think it is pertinent that Fast Food outlets now be restricted!! We have MacDonald's, Taco Bell, Taco Time, Kentucky Fried Chicken, Jack in the Box, Papa Johns Pizza and another Pizza outlet, Quiznos that I can think of, off the top of my head, all of them at Highlands Plaza....Ridiculous!!!...these need to be restricted on the new site allowing for independent restaurants, bistros. Issaquah at Gilman Blvd has more than six restaurants and NO fast food outlets, if they can do it, so can we

19-8 Cinema is essential and not just for adults. Teenagers who do not drive MUST have choices of what to do of an evening. They hang around in Car Parks with nothing to do, except maybe get in to trouble. A cinema complex in this area would mean many kids could actually walk there! Better than 25 mins to Redmond or Issaquah.by car as your only option

Swimming Pool =Recreation Center

19-9 Exercise is key. Where is there in Sammamish that the city provides recreational facilities indoors?

19-9 A swimming pool, basketball court, and possibly fitness rooms would provide many residents the opportunity to exercise at reduced cost as well as give kids the opportunity to have some local indoor activities. It would also provide employment to the area and revenue for the Council

Retail

19-10 Is of paramount importance. It brings Employment, long term. We need shops that sell a variety of goods.
Now is our opportunity to make Sammamish Commons an interesting and profitable area. Clothing stores, florists, house wares, trinkets, NW Produce, Ski Apparel specialists are just some of the business types you could attract

19-11 Possibly Sammamish Council should consider a Business Tax, similar to Bellevue, thereby allowing revenues to be collected from the businesses and reducing the overall effect of having not sold LAND to HOUSING DEVELOPERS.

19-12 Trails/Both Biking & Walking are essential

I cannot reiterate how opposed to additional housing I am. I am sure if you were to take a poll of residents of Sammamish, you would find that I am not alone, not by a long way.

19-13 Truly, you should look at areas like Fremont, Madison Park, Queen Anne, and E Washington Blvd, Kirkland. We need to provide a neighborhood environment. Not some sprawling, unsightly, Lego land of housing with a smattering of fast food outlets and goodness knows what else.

Thank you for your time

A very concerned resident

Karen Lang

Comment Letter No. 19 –Lang, Karen

19-1 The inclusion of housing in the Town Center is driven by directives in the City's Comprehensive Plan as well as state and regional growth management goals for areas within the Urban Growth Boundary. See section 6.1.3 in the Draft EIS for a complete description of relevant state, regional, county and local plans and policies related to housing and growth management.

The intent of the Draft Town Center Plan is to help accommodate the City's share of future regional growth in compact urban areas that are pedestrian-oriented, reduce the need for automobile trips, provide an alternative to the low-density housing pattern that currently exists in much of the City, and maintain environmental functions and values.

19-2 All development in the Town Center would have to comply with existing development regulations, including requirement for tree retention (SMC 21A.35). In addition the Draft Town Center Plan would maintain existing vegetated corridors (including wetlands, stream buffers and designated wildlife corridors) and create landscape standards that retain vegetation and focus on ecological functions of landscaped areas.

19-3 Provisions for resource preservation, quality design, and low-impact development techniques have been incorporated into the Draft Town Center Plan. The provisions will be implemented through development regulations and design guidelines. Refer to the Open Space, Trails and Public Facilities; Natural Systems; and Design chapters of the Draft Town Center Plan for complete plan details.

19-4 See response to comment 19-1.

19-5 According to information provided by the school district, only the middle school was over capacity in 2006. See section 9.2.1.3 in the Draft EIS for projected growth. Impacts to the middle school will occur even without the proposed Town Center Plan.

19-6 Traffic impacts from the Preferred Alternative as well as mitigation measure are presented in the Final EIS section 3.5.

19-7 See the Council-approved Preferred Alternative and the Draft Town Center Plan for a description of the types of commercial and civic uses envisioned in the Draft Town Center Plan.

19-8 See response to comment 19-7

19-9 See response to comment 19-7

19-10 See response to comment 19-7

19-11 See response to comment 4-4 regarding costs and methods of financing the Town Center Preferred Alternative.

19-12 The Draft Town Center Plan (Chapter IV) provides for a hierarchy of non-motorized trails to connect the land uses and amenities of the Town Center with surrounding uses. The trails are intended to serve both transportation and recreational functions.

19-13 See response to comment19-1.

COMMENT LETTER NO. 20

Asea Sandine

From: sandybethune@comcast.net
Sent: Thursday, February 01, 2007 1:12 PM
To: Asea Sandine; Kamuron Gurol
Subject: DEIS Comment

Name: Sandy Bethune
Address: 2609 233rd Place, NE
City: Sammamish
State: WA
Zip: 98074
Email: sandybethune@comcast.net
Wish to receive information via e-mail: True

Comments: My vote would be for Alternative 3, Civic focus. Sammamish residents desperately need public facilities, i.e. community center, aquatic center, youth center, senior center, a farmers market, and other civic amenity. Right now, the residents have to go to Issaquah, Redmond or Bellevue. Also, Sammamish has a high number of residents under age 18; we need a closer environment/facilities where after school activities can be offered. 20-1

Alternative 3 would provide a balance of commercial, residential and civic amenities. In my opinion, this alternative would be a win-win for most of the Sammamish residents.

Thank you!

Comment Letter No. 20 –Bethune, Sandy

20-1 The Preferred Alternative approved by the Council on April 17, 2007, represents a hybrid of the three action alternatives discussed in the Draft EIS. As such, the Preferred Alternative contains elements from each of the Draft EIS alternatives. In fact, the Preferred Alternative, as described in Chapter 2 of the Final EIS, provides for up to 164,000 square feet of civic/institutional facilities, which could include several of the facilities noted in this comment. A list of possible civic and community facilities that could be sited in the Town Center is provided in the Council-approved Preferred Alternative.

Asea Sandine

From: webmaster@ci.sammamish.wa.us
Sent: Monday, February 05, 2007 1:59 PM
To: Asea Sandine; Kamuron Gurol
Subject: DEIS Comment

Name: Bob Keller
Address: 23708 NE 4th Place
City: Sammamish
State: Wa
Zip: 98074
Email:
Wish to receive information via e-mail: True

Comments: 3.2.1.3 Public Schools

21-1 The LWSD is currently over capacity in both elementary and middle school serving the planning area. While the DEIS states the LWSD has an elementary school planned for the Town Center area the location has not been determined. If the land is not available, how will the need be met?
Even if there is a bond measure that passed in February 2006 to fund a school, if no location has been determined this seems like a potential problem. I would like to see a specific comment by the LWSD.

Comment Letter No. 21 –Keller, Bob

21-1 The LWSD submitted a comment letter on the Draft EIS (See comment letter No. 3) which did not address the potential need for siting a new elementary school. The LWDS currently owns a 15.5 acre parcel in the Town Center area, which the District may decide to use for a new school or for another purpose. To the extent possible, the City would work with the LWSD to site any new facilities in the Town Center in a manner that is compatible with the goals of a final town center plan.

Asea Sandine

From: webmaster@ci.sammamish.wa.us
Sent: Thursday, February 08, 2007 8:07 AM
To: Asea Sandine; Kamuron Gurol
Subject: DEIS Comment

Name: Kari Anne Tuohy
Address: 24037 SE 10th Court
City: Sammamish
State: WA
Zip: 98075
Email:
Wish to receive information via e-mail: False

Comments: I think Sammamish would benefit most as a community from the civic-centered alternative. We don't need more condensed housing on the Plateau. We do need more services and space for families, youth and teens to be together and enjoy a healthy lifestyle.

22-1 In the civic alternative, the Town Center would thrive with a pool and/or community water park, a space for teens to do homework and play pool and ping pong, as well as options for kids to take classes through the city (rather than a private athletic club or issaquah or redmond) like dance, art, basketball, swimming, gymnastics, etc. It is inconvenient and increasingly frustrating to have to leave our community in order to pursue these activities with our children.

22-2 A post office would also serve the community very well so citizens don't have to drive off the Plateau for more affordable postage options (rather than using the more expensive private mailing stores).

22-3 Finally, the community would benefit from some additional (proven) retail and restaurant options.

Comment Letter No. 22 –Tuohy, Kari Anne

22-1 See response to comment 20-1

22-2 See response to comment 7-3.

22-3 Comment noted. See response to comment 19-7.

COMMENT LETTER NO. 23

City of Sammamish

PUBLIC COMMENT FORM

City of Sammamish
Town Center
Draft Environmental Impact Statement (DEIS)

We welcome your comments on the alternatives, impacts and mitigations described in the DEIS. Please complete and drop your form in the comment box or mail to the address listed on the back.

23-1 [I FAVOR ALT. #2, LOW IMPACT.

If you would like to be on the mailing list, please fill in the following information.
You may also email comments to: Asta Sandine at: asandine@ci.sammamish.wa.us

Name JOHN LAMBE & PAT LAMBE

Address 205 224 TH AVE City SAMMAMISH

Zip 98074 Phone: 392-0974 Email: WATERGRASSHILL @COMCAST.NET

Comment Letter No. 23 – Lamb, John and Pat

23-1 Comment noted.

Asea Sandine

From: mousetrap55@comcast.net
Sent: Thursday, February 15, 2007 3:22 PM
To: Asea Sandine, Kamuron Gurol
Subject: CEIS Comment

Name: Lisa Cason
Address: 2605 234th Ave NE
City: Sammamish
State: WA
Zip: 98074
Email: mousetrap55@comcast.net
Wish to receive information via e-mail: True

Comments: My first choice if there was only one from those already designated would be #1 - Commercial focus with a grocery store and rents that small businesses can afford! I like the walkability of the green space down the middle. It is also very important to me that we keep the civic buildings together in our fine city and that they include aquatic center, recreation center, ball fields, etc. I would hope that we can mix these two priorities. My preference for housing is that it be as much multi-family as possilbe.

24-1

Comment Letter No. 24 – Cason. Lisa

24-1 See response to comments 19-1, 19-7, and 20-1.

COMMENT LETTER NO. 25

City of Sammamish

PUBLIC COMMENT FORM

City of Sammamish
Town Center
Draft Environmental Impact Statement (DEIS)

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25-1 Since I doubt Alt # 4 is a real choice so Alt # 2

If you would like to be on the mailing list, please fill in the following information. You may also email comments to: Vesa Sandnes at vsandnes@ci.sammamish.wa.us

Name: Marybeth Lambe

Address: 101 224 Ave SE City Sammamish

Zip 98074- Phone 392 1507 Email: fernhillfarm@comcast.net

Comment Letter No. 25 – Lambe, Marybeth

25-1 Comment noted.

COMMENT LETTER NO. 26

City of Sammamish

PUBLIC COMMENT FORM

City of Sammamish
Town Center
Draft Environmental Impact Statement (DEIS)

We welcome your comments on the alternatives, impacts and mitigations described in the DEIS. Please complete and drop your form in the comment box or mail to the address listed on the back.

26-1 #4

26-2 #2 LEAST UGLY OF DEVELOP CHOICES

If you would like to be on the mailing list, please fill in the following information.
You may also email comments to: Asea Sandnes at asandnes@ci.sammamish.wa.us

Name: MARK LEVY

Address: FERN HILL City: SAMMAMISH

Zip: 98074 Phone: 392 1507 Email:

Comment Letter No. 26 – Levy, Mark

26-1 Comment noted.

26-2 Comment noted.

022007_ DEIS Comment_10.txt

-----Original Message-----
From: kaschko@msn.com [mailto:kaschko@msn.com]
Sent: Saturday, February 17, 2007 9:49 AM
To: Asea Sandine; Kamuron Gurol
Subject: DEIS Comment

Name: John Kaschko
Address: 629 234th Ave SE
City: Sammamish
State: WA
Zip: 98074
Email: kaschko@msn.com
Wish to receive information via e-mail: True

27-1 Comments: Having looked at the Summary of the DEIS and attended the two Town Center Committee meetings during which the Recommendations on Key Components were discussed/confirmed, I will first comment that I agree with the vast majority of the Key Components with a couple of exceptions. I will not review all the Key Components but will point out the areas I disagree and specific points worth emphasizing. Areas I disagree:

27-2 1) Looking at SE 4th as a northern barrier for retail/office/civic, in other words, keeping all these activities to the south of 4th.

27-3 2) limiting residential units to 1000 (specified number) over the current zoning.

27-4 3) only having residential activities in the NE and SW quadrants and essentially "shrinking" the Town Center area.

I am out of town on February 20th when the Key Components will be presented to the Council, consequently, in these areas where I have listed "disagreement," depending on how the Key Components are presented, the "disagreement" may not seem that great. Specific detail/comment on the above areas:

27-5 1) Using SE 4th as a limit or barrier I feel will start to compartmentalize things too much, the left side of the road looks very different from the right side of the road. I can easily see a commercial/civic/office area heading north/south in both the NW and SW quadrants over SE 4th. Some members on the TCC agreed, some did not, I want to point out there was not unanimity on this point and personally I believe using SE4th as a definition point would be a mistake. Both Alternatives 1 and 3 show a mixture on both sides of SE 4th, this makes sense.

27-6 2) I don't know the right number for residential units. Alternative 1 seems way too big, but "1000" is a very specific number and anytime a specific number is embraced at the start of a process like this, it can very constraining/limiting. Perhaps the direction going forward should be 1000-2000, or "around 1500." With a time frame of 2030 in mind, 1000 feels like it may be too small, too constraining. I think the key message is to be on the "less units rather than more."

27-7 3) Limiting nonresidential activity to the SW quadrant and the top of the NE quadrant is too compartmentalizing. It makes sense to keep retail off of 228th, but I could easily see smaller civic or office use in the NW and SE quadrants. This point ties to point 1), having SE 4th as a limit. This is too compartmentalizing.

Specific areas worth emphasizing:

27-8 - keep access to 228th at the current intersections only - SE8th, SE 4th, Main street. Do not add additional driveways/cutouts, get rid of ones already there as future development occurs.

27-9 - with parking this area, look to have a substantial covered/below ground parking norm, perhaps a guiding principle would be 50% of parking is under cover. I believe this close to the Saffron area which is much more esthetically pleasing than the Safeway/QFC lots.

27-10 - no "high rise" in other words, above 5 stories. Structures should be 4-5/1.

Comments on the 3 Alternatives:

022007_ DEIS Comment_10.txt

27-11 Alternative 1:
This is the "Too Big" alternative...too much retail and too much housing. While I think the total nonresidential square footage of 540-610K is about right, 400K is too much retail, 4000 residential units too many.

27-12 Alternative 2:
This is the "Too Small" alternative, not enough non residential usage, no civic, no office and fairly limited retail.

27-13 Alternative 3:
This is the "About Right" alternative. The non-residential total of 480-545 K feels right but the residential units are too high.

27-14 My preferred alternative:
... would look at a goal of about 500K sq feet of "nonresidential usage" with perhaps 50% retail, 25% each for office and civic uses. I see the key to this, however, is having some flexibility within these categories, not having an area only being able to be office or civic.
It would be important, however, to be specific about what areas can be retail to keep these off the 228th corridor.

27-15 ...residential units perhaps 1000-2000, the year 2030 is a ways off and 20 years ago (I was living here) I would have not foreseen the growth that has occurred already here. Both Alternative 1 and 3 seem too big in this regards, but as I pointed out, the 1000 seems constraining.

Comment Letter No. 27 – Kaschko, John

27-1 Comment noted.

27-2 As shown in the Preferred Alternative and in the Draft Town Center Plan, the core mixed-use area on west side of 228th Avenue SE, which is proposed to contain a relatively dense mix of commercial, civic and residential uses, will extend from the north end of the Sammamish Commons north past SE 4th Street.

27-3 The Preferred Alternative provides for a range of 1,300 to 2,000 new residential units in the Town Center.

27-4 As described in the Draft Town Center Plan, three neighborhood-scale, mixed-use areas would be established (in the SW, SE, and NE quadrants) surrounded by residential units that transition out in decreasing intensity following the "wedding cake" approach prescribed by the City Council in the Preferred Alternative.

27-5 See response to comment 27-2 and 27-4.

27-6 See response to comment 27-3.

27-7 See response to comment 27-4.

27-8 As described in the recommended policies for the Preferred Alternative and the Draft Town Center Plan's circulation strategy, access to 228th Avenue SE would be limited to the existing signalized intersections.

27-9 See response to comment 4-19.

27-10 The high-rise residential buildings proposed under Draft EIS Alternative 1 were not included in the Preferred Alternative. According to the Draft Town Center Plan's land use strategy, the maximum height allowed for a residential building would be six stories in the core mixed-use area. The maximum height of buildings on the east side of 228th Ave SE would be five stories in the neighborhood mixed-use areas.

27-11 See the description of the Preferred Alternative in the Final EIS and the Draft Town Center Plan.

27-12 See response to comment 27-11.

27-13 See response to comment 27-11.

27-14 See response to comment 27-11. The Preferred Alternative is close to these recommendations.

27-15 The Preferred Alternative is more consistent with these recommendations.

COMMENT LETTER NO. 28

Asea Sandine

From: blucking@comcast.net
Sent: Thursday, February 22, 2007 3:57 PM
To: Asea Sandine, Kamuron Gurol
Subject: DEIS Comment

Name: Bernie Lucking
Address: 2708 Audubon Pk Dr SE
City: Sammamish
State: WA
Zip: 98075
Email: blucking@comcast.net
Wish to receive information via e-mail: True

28-1 Comments: I like the DEIS so far. We hear a lot of "noise" from the small element of citizens living within these boundaries that harbor dreams of becoming instant mall millionaires. They have universally condemned this work. They have even gone so far as to say that they want a Wal Mart there. We need to resist the siren call of greed commonly referred to as "highest best use". We have an opportunity to define best use in the community interest according to the vision earlier stated. Stay the course.

Comment Letter No. 28 – Lucking, Bernie

28-1 Comment noted.

Asea Sandine

From: Ken Bentler [kenbentler@gmail.com]
Sent: Friday, February 16, 2007 9:18 PM
To: Asea Sandine
Subject: Real Needs!

29-1 Hi. We keep hearing about sizes and types of buildings,but we don't hear what we need and where we need it.Our conversations talk about we need to purchase locally,we need a quality department store,shoe store,including shoe repair,all types of clothing. A large general store,including building materials etc. Men's barber shop, sports equipment,retirement condo's or apartments. We need an Overlake Clinic or hospital.A new library would be great,but we don't need more schools . Our traffic can be reduced by purchasing here, not running up and down our hills elsewhere.Just some of the things I know. Overlake Hospital is interested,makes more sense than a Seattle Hosp. Ken Bentler

2/23/2007

Comment Letter No. 29 – Bentler, Ken

29-1 See the Preferred Alternative for the types of retail, civic and community facilities that have been proposed for possible inclusion in the Town Center.

Asea Sandine

From: joebri@ezenix.com
Sent: Wednesday, February 28, 2007 1:02 PM
To: Asea Sandine, Karl Jon Garo
Subject: DEIS Comment

Name: Joel Brighton
Address: 145 221st Ave NE
City: Sammamish
State: WA
Zip: 98074
Email: joebri@ezenix.com
Wish to receive information via e-mail: True

Comments: One short comment - PLEASE DO NOT allow Alternative 1 to proceed. Having high-rises in Sammamish will ruin the "feel" of the city (one of the reasons I moved here in the first place) and the extra traffic from so many new homes will make the current commute even worse than it is now. 30-1

While I feel it still has faults I would say that Alternative 2 is the best of the available options - it brings a good mix of new facilities while having the lowest impact on the existing community.

Thank you

Comment Letter No. 30 – Brighton, Joel

30-1 Alternative 1 was not selected as the preferred alternative by the City Council. Based on comments received throughout the process, the Council developed a hybrid of the action alternatives for further development. See Chapter 2 of the Final EIS and Draft Town Center Plan for additional details.

Asea Sandine

From: Bgirlbox26@yahoo.co
Sent: Thursday, March 01, 2007 7:41 PM
To: Asea Sandine, Kamuron Gurol
Subject: DEIS Comment

Name: Betsy Elizabeth Mead
Address: 23112 E Main Street
City: Sammamish
State: Wa
Zip: 98074
Email: Bgirlbox26@yahoo.co
Wish to receive information via e-mail: True

31-1 Comments: After looking over the Preliminary plans. I fill it would be in the best itterest of the community in the long term to look at using Preliminary plan 3. Also with the developemt of the Church. Eastside Catholic, Water District growth of Building and property bought up by them. This is no longer the feeling of a quite neighborhood. Also With the end of the street showing to eventually going through . With the City of Sammamish in walking distance it makes more sence in the future to zone this this way. Also Main street sits at the center in between everything for in the future. You need to put things in growth down the street or back not only on 228th. It is better to compact all the building of bussmess or condo's or multi both to benifit the residents for the future. To keep traffic flow also down this plan encourages walking distance of many things all ready for only a few people. Where as in this plan it encourages more people to walk verses drive.For those that would be involved in the future.

Comment Letter No. 31 – Mead, Betsy Elizabeth

31-1 Based on comments received throughout the process, the Council developed a hybrid of the action alternatives for further development. See Chapter 2 of the Final EIS and Draft Town Center Plan for additional details.

COMMENT LETTER NO. 32

City of Sammamish

PUBLIC COMMENT FORM

RECEIVED
MAR 0 6 2007
City of Sammamish

City of Sammamish
Town Center
Draft Environmental Impact Statement (DEIS)

We welcome your comments on the alternatives, impacts and mitigations described in the DEIS. Please complete and drop your form in the comment box or mail to the address listed on the back.

I am in favor of Alternative 1 or 3.

In my particular neighborhood, I would like to see mixed-use style development. I do not feel that this type of development would adversely effect the surrounding area. Our neighborhood has already been impacted by development - Catholic School, church, 228th widening and I am certain that something will go in directly South of me in the near future. I hope the city really does consider my input.

32-1

If you would like to be on the mailing list, please fill in the following information.
You may also email comments to: Anca Sandhu at asandhu@ci.sammamish.wa.us

Name: Janet Isaacs

Address: 22844 SE First St. City: Sammamish

Zip: 98074 Phone: 391.3897 Email: GIRLBASSETT52@Comcast.net

Comment Letter No. 32 – Isaacs, Janet

32-1 See the response to comment 27-4.

Asea Sandine

From: jegalvin@comcast.net
Sent: Wednesday, March 07, 2007 12:37 PM
To: Asea Sandine; Kamuron Gurol
Subject: DEIS Comment

Name: John Galvin
Address: 432 228th Ave. SE

City: Sammmamish
State: WA
Zip: 98074
Email: jegalvin@comcast.net
Wish to receive information via e-mail: False

Comments: In evaluating the impact of traffic attributed to the Town Center we need to acknowledge that many of the causes of traffic congestion are not reduceable to increased population. I would like the following article to be introduced and considered relevant to assessing the impact of traffic from the Town Center Development.

An appropriately designed town center with higher density does not have the same impact as low density, single family, single use development, i.e., single family suburban density of
33-1 R4 will not provide the positive impacts on traffic of a higher density, mixed-use town center.

Certain members of the public, the city council and planning commission focus on the number of housing units included in the town center and ignore mitigating factors that are naturally associated with mixed-use, compact, higher density development. It is important that how we grow has a big impact on the traffic we experience. Also, it is important to recognize that building more road capacity appears to have a paradoxical effect.

This chapter is taken form a California Traffic study and report:

CHAPTER THREE: THE UNDERLYING CAUSES OF TRAFFIC CONGESTION The underlying causes of congestion are far more complicated than many traditional interests have historically been willing to admit. The ability of available roadway space—the most traditional method of measuring supply or capacity as expressed in lane-miles—to meet traffic demand as measured in vehicle miles traveled, is just one of a set of several underlying factors that research has found contribute to traffic congestion. From this research and from a growing body of experience in both the United States and overseas, it is apparent that traffic congestion is a symptom of a much larger problem, a problem that includes:

33-2 The Lack of Affordable Housing. The lack of affordable and mixed-income housing near employment centers, and the imbalance between jobs and housing, creates the notorious two-hour commutes between places like the Central Valley and the Silicon Valley or Lancaster and Los Angeles. California is now home to seven of the ten least affordable housing markets in the country.

Sprawling Patterns of New Growth. Poorly planned sprawling development and land use patterns and zoning codes that separate uses further and further apart require people to travel longer distances. Many short trips that until recently had been made by walking from home to school, between commercial establishments, from work to lunch, are now made by vehicle trips that often occur at similar times and lead to peak hour congestion around intersections and along freeways. Indeed, recent research by the U.S. Department of Transportation found that only 13 percent of the increase in driving is attributable to population growth. The remainder has

been a result of a steady growth in the number of trips taken and the length of trips, both primarily products of low-density suburban development that requires ever greater levels of dependency on driving.
To make matters worse, not only does the typical suburban development model— characterized by low-density cul-de-sacs, wide, high-speed arterials, and massive intersections—make traffic management difficult, it also makes it less cost-effective for transit to serve scattered destinations and makes walking or bicycling both inconvenient and dangerous.

- Changes in Home to School Travel. Whereas more than half of all kids walked or bicycled to school in the 1950s, that number has now fallen below 10 percent as streets have become more dangerous due to traffic. Combined with the loss of school bus service, the resulting trend has been an overwhelming increase in parents driving their children to school, clogging local roadways during critical peak hours. An estimated 20 25 percent of rush hour traffic on local streets and roads is now attributable to the school commute.
-
- Fiscal Incentives Promoting Sprawl. Local governments increasingly rely on "big box" commercial developments to generate local revenues through increased sales taxes. Such commercial highway strip development has proven to be incredibly inefficient from the perspective of traffic flow, generating many peak hour trips that tie up intersections for hours at a time. Numerous short vehicle trips between retail stores, services, and fast food outlets are now replacing what used to be walking trips between shops on smaller neighborhood streets and even more recently were walking trips made between stores inside shopping malls. (By not having local retail services you encourage Sammamish's citizens to frequent Big Box stores adding to traffic congestion)

33-2 Furthermore, fiscal incentives favoring commercial development over residential due to the promise of sales tax revenues has created a vast imbalance between jobs and housing in communities throughout California, requiring long distance commutes between the workplace, stores, other errands and home.

Figure 2: Population increases are often wrongly cited as the primary cause of increased traffic congestion. In reality, sprawling land use patterns are having a far greater impact on the growth in driving (source: U.S. Department of Transportation).

Economic Disincentives For Greater Efficiency. The skewed pricing signals given to travelers appear to make highway travel, even at the most congested periods of the day, entirely free, while public transit and commuter rail are often perceived as too expensive. While tolls and peak hour congestion pricing are politically unpopular and must be handled carefully to ensure social equity, their absence as a traffic demand management tool greatly exacerbates roadway congestion problems.

Build It And They'll Come
A growing body of research has shown that widening highways is only a temporary solution at best to the complex problem of traffic congestion. Indeed, research has pointed to a phenomenon known as "induced traffic" that suggests new and wider highways actually create additional traffic, above and beyond what can be attributed to rapid population increases and economic growth. In larger metropolitan areas, drivers will often abandon carpools and public transit when additional roadway space is made available through highway widenings or new road construction, thus creating additional trips and more traffic. In the longer term, the promise of more convenient transportation access allows commuters to live further from work, increasing development pressures and thus fueling even more traffic demand. (It should be noted that any form of transportation can produce this effect; whether it was "streetcar-suburbs" at the turn of the 20th century or new commuter trains attracting Silicon Valley workers to live in the Central Valley with the promise of a more convenient commute.)

Build It And They'll Come

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TABLE 9: REGIONAL IMPACTS FROM "INDUCED TRAFFIC"

Metropolitan area (UZA)	Forecast annual growth rate in VMT (on freeways & arterials), assuming current growth trends	Forecast annual growth rate in VMT (on freeways & arterials), with no growth in roadway capacity	Percent of total VMT growth attributable to "induced traffic"
Bakersfield	9.0%	6.8%	24.6%
Fresno	5.8%	5.1%	12.4%
Los Angeles	-0.8%	-0.8%	100.0%
Sacramento	3.3%	1.5%	54.6%
San Diego	1.3%	0.4%	72.6%
San Francisco-Oakland	0.6%	-0.4%	100.0%
San Jose	1.3%	0.3%	77.6%
AVERAGE	3.0%	1.6%	45.2%

Note: VMT = vehicle miles traveled or overall mileage driven; Los Angeles and San Francisco have negative growth in VMT when no lane miles are constructed, thus 100% of growth is attributed to the induced travel effect. Source: Robert Noland, 2000.

33-2

The Federal Highway Administration has recently concluded that this phenomenon of "induced traffic" does in fact occur quite frequently in metropolitan areas throughout the United States. Another detailed study has also concluded that traffic in the Bay Area and Los Angeles would actually decrease if no new highway expansion took place. It also determined that two thirds of the growth in traffic in San Jose and San Diego in the coming decades will be attributable to induced demand.

A recent study conducted by the U.C. Berkeley Institute for Transportation Studies concluded that 90 percent of all new highway capacity added to California's metropolitan areas is filled within four years, and 60 percent-70 percent of all new county-level highway capacity is filled within two years. This, authors Mark Hansen and Yuanlin Huang explain, means an additional highway lane-mile constructed in the San Francisco Bay Area, Los Angeles or San Diego regions would increase traffic by 10,000-12,000 vehicle-miles traveled per day; in Sacramento and Stockton would equate to 7,000-8,000 additional VMT; and in smaller but nonetheless rapidly growing areas like Modesto, Merced, Monterey and Bakersfield would translate into an additional 3,000-6,000 VMT per day. The authors conclude:

"Our results suggest that the urban state highway lane miles added since 1970 have, on the whole, yielded little in the way of level of service improvements. Consistent with previous work, we find that increasing highway supply results in higher vehicle miles traveled (VMT). An induced traffic impact of such magnitude must be considered when assessing road capacity enhancements, whether in a broad policy context or on a project specific basis."

Several other reports in recent years have pointed to similar conclusions. In 1998, the Legislative Analyst's Office revealed the results of its own research on the issue and

cautioned policymakers about the promise of relying solely on new highway construction in order to reduce traffic congestion throughout California:

"New road capacity will typically lead to new traffic, especially in urban areas, because people and businesses benefit from the mobility that the transportation system provides and seek to use it to their benefit.Ultimately, road use will increase, leading to congestion of new road capacity. For this reason, expansion of the existing transportation will rarely alleviate congestion permanently; however, by restraining demand this tendency can be offset and existing congested roads, as well as new roads, can be made to operate efficiently."

The growing belief that induced traffic largely offsets any short-term congestion relief gains also led authorities in the United Kingdom to cancel more than 70 planned highway construction and road expansion projects in the 1990s alone. Similar experiences have been reported by transportation officials in Germany, Holland and Japan. Many of these countries have retooled their transportation programs to incorporate a more balanced approach to managing traffic congestion as well as a new emphasis on growth management techniques, more compact development patterns, and other land use strategies as a way of beginning to combat what officials and experts see as the underlying cause of increasing traffic volumes.

Cost-Effective Congestion Management

Combine the phenomenon of "induced traffic" with the fact that more than 50 percent of all freeway traffic jams are caused by construction-related delays or traffic accidents, and it becomes clear that what California needs is a far more sophisticated approach in trying to manage congestion. Other states have utilized a diversity of strategies including better real-time traveler information technologies, peak-hour congestion pricing, coordination of transportation and land use goals, telecommuting, staggered work hours, strong financial incentives promoting ridesharing and vanpooling, and better traffic incident management.

The experience of other states and countries in attempting to solve traffic congestion problems, in addition to the evidence provided by growing bodies of research, are absolutely critical lessons for policymakers. There is an overwhelming temptation at any level of government to want to believe in both the quick fix to a problem like traffic congestion as well as to hope that by simply throwing more money at it, the problem itself will disappear. But the futility of trying to build our way out of congestion is an emerging reality that has led many other industrialized countries to dramatically alter their approach to transportation. Instead, many states and other countries are beginning to favor more balanced and cost-effective approaches that rely on a diversity of solutions and a more sophisticated overall approach to traffic management.

33-2

Three pioneering TRN examples: Stanford, Santa Barbara, Redwood City

1) Stanford West: 628 apartments

Stanford provides priority to local workers with very short commutes, saving 2.6 million annual vehicle miles traveled and 2.6 million annual pounds of CO2. Stanford West residents with green commutes receive a 10 percent monthly rent discount. Stanford provides a top-notch shuttle bus system and an extensive dedicated bike path network. Stanford charges $93 per month for employees to park on campus, and that parking isn't very convenient.

2) Santa Barbara's Casa de Las Fuentes

For 42 affordable downtown apartments with excellent access to jobs, shops, recreation, and transit, Santa Barbara adopted green commute housing preferences:

First priority: Residents who work downtown who do not own a vehicle and agree not to own one during their occupancy. (Rent is $50 per month less for residents who do not park a car. All

employed household members must work only in the downtown area.) Second priority: Residents who work downtown. The 42 unit development has only TWENTY CARS!

3) Redwood City's Peninsula Park - 800 condos

33-2 This project is still in the planning stages, but represents the U.S.'s first proposal to apply TRM to market rate condos. Redwood City has a vibrant mixed-use downtown with a Caltrain commuter rail station. There are 85,000 jobs within 3 miles of the project site. The Peninsula Park project will feature a 0.8 mile bike path to downtown and a 1.4 mile shuttle bus route to downtown. The developer's banker has already approved TRM - that's an important occurrence that should be noted. Innovations such as these are not readily supported by the real-estate lending community.

Comment Letter No. 33 – Galvin, John

33-1 Mixed-use developments often result in a higher number of trips that remain internal to the project site which in turn typically results in fewer off-site trips. The analysis does account for some reduction in external traffic due to the density and mixes of land use. The ultimate design can contribute to how well these developments function and generate traffic.

33-2 Many of the concepts to reduce congestion in the "California Traffic Study and Report" have been considered in the transportation analysis. Please see the March 19, 2007 Transportation Technical Memorandum (included as Appendix A) as well as the transportation analysis of the Preferred Alternative in the FEIS (Section 3.5).

Asea Sandine

From: pjmurphyusa@hotmail.com
Sent: Tuesday, March 13, 2007 7:51 AM
To: Asea Sandine, Kamuron Gurol
Subject: IDEIS Comment

Name: Peter Murphy
Address: 21002 NE 44th Street
City: Sammamish
State: WA
Zip: 98074
Email: pjmurphyusa@hotmail.com
Wish to receive information via e-mail: False

Comments: I support the High Growth option for our Town Center. More business and office space would encourage jobs on the Plateau. This would help us by 1) increasing our tax base and 2) minimize traffic congestion from commuting. The idea of commuting to Seattle or even Redmond to work is outdated. Why approve a plan that would have us spending more time
34-1 sitting on I-90 or Sahalee Way wasting gas each weekday morning? It doesn't make sense.

The Town Center gives us the opportunity to improve this by developing a vibrant core. The High Growth option will better support the inevitable growth and opportunities for a greener, more resident friendly future.

Comment Letter No. 34 – Murphy, Peter

34-1 Based on the DEIS analysis and comments received throughout the Ton Center planning process, the Council developed a preferred Alternative as a "hybrid" of the action alternatives. The Preferred Alternative was then further developed as the Draft Town Center Plan. See Chapter 2 of the Final EIS and Draft Town Center Plan for additional details.

Asea Sandine

From: warmblu@yahoo.com
Sent: Tuesday, March 13, 2007 11:13 AM
To: Asea Sandine, Kamuron Gurol
Subject: DEIS Comment

Name: Carla Murphy
Address: 21002 Northeast 44th street
City: Sammamish
State: WA
Zip: 98074
Email: warmblu@yahoo.com
Wish to receive information via e-mail: False

35-1 Comments: I support the High Growth option for our Town Center. More business and office space would encourage jobs on The Plateau. This would help us by 1) increasing our tax base and 2) minimize traffic congestion from commuting. The idea of commuting to Seattle or even Redmond to work is outdated. Why approve a plan that would have us spending more time sitting on I 90 or Sahalee Way wasting gas each weekday morning? It doesn't make sense.

The Town Center gives us the opportunity to improve this by developing a vibrant core. The High Growth option will better support the inevitable growth and opportunities for a greener, more resident friendly future.

Comment Letter No. 35 – Murphy, Carla

35-1 See response to comment letter 34.

Asca Sandine

From: webmaster@ci.sammamish.wa.us
Sent: Wednesday, March 14, 2007 11:51 PM
To: Asca Sandine, Kamuron Gurol
Subject: DDS Comment

Name: Shu Scott
Address: 414 209th Ave SE
City: Sammamish
State: WA
Zip: 98074
Email:
Wish to receive information via e-mail: False

Comments: The reasons why we chose Sammamish our new home are:
1) Commute that is tolerable
2) Sammamish has a "close to nature" and "family oriented" setting
3) Good schools

The roads are fairly congested already. Currently, during normal rush hours, it takes 40min-60min to travel 9miles from the intersection of 228th Ave & Inglewood to Redmond. The additional housing and commerical space will bring about significantly more traffic and a change to the "close to nature" family oriented settings. Unless there are significant infrastructure improvements in place PRIOR to adding housing & commerical spaces, I am afraid
1) the commute will become intolerable
2) The "close to nature" characteristic of the community will be lost
3) The school district's ability to quickly absorb the population increase is to be determined

If the above 3 concerns are not addressed in advance and sufficiently well, the changes will drive the current residents somewhere else and make Sammamish a much less attractive place to live.

36-1

Comment Letter No. 36 – Shu, Scott

36-1 Measures to mitigate impacts to traffic, natural resources, and public services are identified in Chapter 3 of the Final EIS.

Asea Sandine

From: paula,jones2@msn.com
Sent: Sunday, March 25, 2007 6:02 PM
To: Asea Sandine, Kathleen Gurol
Subject: DEIS Comment

Name: Paula Jones
Address: 1121 East Pike #599
City: Seattle
State: WA
Zip: 98122
Email: paulajones2@msn.com
Wish to receive information via e-mail: True

Comments: I would like to see a child development center for children from the ages of 2 months to five years of age and after school children. The child development center would have 50 square feet per child, instead of the WAC standard of 35 square feet per child. In addition, the child development center would include an outdoor playground for the children which would have at least 100 square feet per child, instead of the WAC standard of 75 square feet per child. By having larger spaces for children we could set a model of "Quality" care in Washington State. Especially in light of the "Early Learning" focus that is happening in Washington State.

37-1 It is my hope that you will consider this idea for children and families. It would be sad to have such a wonderful development and not have a place for children. It would be a "gift" to the children and families in our community to have a safe, healthy and wonderful child development center for children included in the Town Center.

I live in the City of Sammamish. The address that I am completing on the form is my mailing address. Please feel free to contact me if you need further information. I have experience in this field, including but not limited to a child care licensure. If you need further information, please don't hesitate to contact me.

Thank you for the opportunity to make a comment on the development of the Town Center.

My best,

Paula Jones

Comment Letter No. 37 – Jones, Paula

37-1 Comment noted. The Preferred Alternative does not specifically include a childcare facility as a component of the Town Center. However, it would be a permitted use under the Draft Town Center Plan, if a private or public entity wished to develop such a use.

Friends of Pine Lake
21553 SE 28th Lane
Sammamish, WA 98075
425-392-0556

COMMENTS ON THE PROPOSED TOWN CENTER

General Comments

The City has asked its citizens for their visions for the Town Center area. Speaking for Friends of Pine Lake, the comments are not that different from the reasons we became a City in the first place. Have more control over growth, stop traffic gridlock, prevent ongoing environmental degradation, and preserve what we can of our beauty and rural aesthetic.

38-1 The first reason we became a City – control of growth – is already out the window. And as sad and angry as that makes some of us, especially in light of the Viking Decision, we believe the Council had our true interests at heart when our grow ordinance was abandoned. The developer's got their way and they will choose the pace of growth in Sammamish. That said there is still a lot we can do to make Sammamish a better place to live.

Traffic

Stopping traffic gridlock is still within the Council's power. We believe the citizens of Sammamish will not take it lightly if the Council ignores this public mandate and lowers the level of service on our intersections. This would be a disservice to the public. The true repercussions of having three high schools within the City Center are not yet

38-2 known, as Eastside Catholic High School is not finished. Citizens have spoken at public meetings about their problems with even current conditions in the area. There is a real possibility that the City Center could become a traffic nightmare, blocking traffic flow north and south through the city. Although some may have visions of a world-class city, with high rises and dense development, the reality is that there are real traffic limitations in our current circumstances. We rely on adjacent cities for traffic flow in and out of our City. The Council should limit growth in the City Center to the extent that the levels of service will not change.

Environment, Wetland Management and LID

The Town Center will impact two sub-basins in Sammamish, the Thompson Basin and the Inglewood Basin.

Thompson Basin

38-3 The Thompson Basin has a single major stream, Ebright Creek, home to one of the last remaining runs of the native Lake Sammamish Kokanee. As the native summer run of Lake Sammamish Kokanee are now extinct, it is imperative that we save this last run of native salmon. To do that we must limit development in this basin, or at the very least require Low Impact Development. The Sammamish Commons and Class-One Wetland 61 are at the headwaters of Ebright Creek, as is a portion of the Town Center area. As the King County Basin Plan states, because of its small size and its location in the middle of the catchment, Wetland 61 is impacted to a great degree by development in its basin as it is "quite susceptible to damage and pollution from upstream development". In addition, the topography and geology of the larger basin (recessional outwash in the headwaters, till deposits in the mid-reaches and advance outwash in the lower spawning beds) create a scenario that exposes this sensitive basin to damage from increases in stormwater flow. King County created the SO-190, the Erosion Hazard Near Sensitive Water Bodies Special District Overlay (EHNSWB) in order to better control increases in stormwater through and into these highly erosive areas area on the edges of the plateau. All increases in stormwater in this basin flow through the no touch zone of the EHNSWB best described by Derek Booth in an e-mail to the Council on October 14, 2005.

"What do you do when every increment of increased stormwater appears to have a direct (negative) response to the channel, and thence into Lake Sammamish? When there is no "buffering capacity"? I mean, maybe there used to be but it's all gone development of the 1960's, and 1970's, and 1980's (and alas, beyond) got there first and used it all up. For the basin plan, we could only come up with two answers: infiltrate it all, or bypass it all. There is no third option. I don't remember if, at the time, we believed that sufficiently severe detention might be a last alternative, but subsequently published research (a.k.a. Best Available Science) has laid that hope to rest. I know the City must be pressured by property owners who want to build out "just like the other guy." But if you were ever looking for a location where you got the biggest

environmental bang for your regulatory buck or, perhaps better put, the largest environmental problems for your regulatory flexibility this is the place. If Lake Sammamish isn't worth it, why bother at all?"

38-3 During the Comprehensive Plan process and the update of our Critical Areas Ordinance, the Council discussed the need to require Low Impact Development (LID) in the Thompson Basin to assure that Lake Sammamish and the Kokanee were protected. As the Council has discussed in the past, LID should be required as a future condition of development in the Thompson Basin.

Inglewood Basin

38-4 Due to the soil characteristics, the Inglewood Basin has the most complex hydrology of any basin in our city. Hydrologic conditions and the geology of this sub-basin make it particularly sensitive to impacts of urbanization. A single stream, George Davis Creek, flows west into Lake Sammamish. Although it used to be a salmon stream, flooding caused by a lack of onsite detention in the basin caused a huge blowout of the stream into Lake Sammamish which scoured the lower reaches and rendered the stream unavailable to the runs of salmon that spawned there. High rates of runoff occur in the upper reaches due to urbanization, however the runoff rapidly infiltrates once the surface flow reaches the deposits of outwash soils. To maintain infiltration capacity, and prevent future wetland loss, it is imperative that LID and enhanced detention be applied basin-wide. Otherwise, sedimentation and erosion could prevent current infiltration rates. George Davis Creek is fed by a system of wetlands, the largest being Class One Wetland 9. Wetland 9, and the western portion of wetland 26 are rare bog systems that are especially critical for maintaining both stable stream channels, groundwater storage and recharge, and wildlife habitat functions in this basin. The entire eastern portion of the Town Center Area (east of 228th Avenue) is in a Wetland Management Area (now exempted by Council). Additional strategies must be in force here that protect Wetland 9 and its system that currently protect the public from flooding and habitat loss.

Wetland Management

38-5 Two of the City's nine class one wetlands lie in the Town Center area. Class One Wetlands are the City's most important wetlands. King County created Wetland Management Areas (WMA's), still in force today, to protect and maintain the functional qualities of these wetlands through management strategies based on the best available science, including low densities, limiting impervious surfaces, open space and other requirements. However, the City Council, at staff's suggestion, exempted the city from the limitations of the WMA's. Since then, the city has proceeded with the DEIS process as if the existence of the WMA's is no longer. Nothing could be further from the truth. An exemption does not erase the existence and need for management of our class one wetlands. WMA's are still a valuable tool in managing these wetlands, and the science must still assist us in choosing appropriate development and zoning. In fact, it is our opinion that the city must not only recognize the existence of the WMA's, but recognize that they are based on best available science; that any environmental analysis should include this information so we know the repercussions of our actions. Isn't this the very purpose of doing an EIS? The city should either put into place strategies equal to the functional value of the WMA's or let the public know ahead of time what the environmental repercussions will be. Will the infiltration capacity of the George Davis Basin be compromised by increased flows and erosion and sedimentation? Will the Kokanee in Ebright Creek die out due to increased flows in its basin? Will the existing and ongoing addition of impervious surfaces oinThe Sammamish Commons and/or in the Thompson Basin overall negatively affect Wetland 61?

Zoning

38-6 There seems to be some discrepancy between the zoning map in the Sammamish Town Center Sub-Area Plan and the zoning map in the Sammamish Comprehensive Plan, both west of 228th Avenue. In the far northeast corner (still east of 228th) the zoning seems to have changed from R-4 to R-6, and in the southern section (again east of 228th) a couple of the lots seem to have changed from R-4 to R-8 or 12.

Parks

38-7 Parks have been a rare commodity in Sammamish from our inception. The chances that there will be additional park land in the future Town Center is even less likely. The time is now to expand the Sammamish Commons Park to address future need for park land, to add beauty and character to our city and to address legitimate environmental concerns for the Thompson Basin. In addition, the trail system should include many pocket parks that take advantage of the properties of people who expect to stay in the Town Center and keep their property natural, by positioning the parks adjacent to these properties. We must also preserve the remaining forests not only for their beauty, but for their valuable function in maintaining the landscape. In this way, there will be more open space, habitat, aesthetic beauty and natural space to buffer the impacts of development.

Thank you for the opportunity to comment. Please don't hesitate to contact me if you have any questions.

Ilene Stahl

Comment Letter No. 38 – Stahl, Ilene (Friends of Pine Lake)

38-1 Comment noted.

38-2 Comment noted. See analysis of potential transportation impacts in section 3.5 of the Final EIS.

38-3 Implementing low-impact development techniques to manage stormwater has the potential to avoid and minimize impacts to aquatic systems, including Wetland 61. See response to comment 18.7 and the updated mitigation measures identified in section 3.2.2 of this Final EIS.

38-4 See response to comment 38-3.

38-5 The potential impacts to water resources and streams, fish, wetlands, and wildlife likely to result from implementation of the Preferred Alternative and measures to mitigate those potential impacts are addressed in (section 3.2 and 3.3 of this Final EIS).

Also see the response to comment 18-2 regarding the Wetland Management Area Special Overlay District the Natural Systems strategy in the Draft Town Center Plan.

The Draft EIS and Final EIS have established that development in the Town Center area has the potential to change stormwater quantity, timing, and quality. The described mitigation measures provide a framework to estimate (via monitoring and development of a Thompson Creek basin plan), minimize (through the use of LID and other stormwater management techniques), and potentially avoid impacts to aquatic systems.

38-6 Yes, there is a discrepancy between the Comprehensive Plan land use designations and zoning in the Town Center area. Current zoning in the Town Center, as shown in DEIS Figure 6-3, is largely R-1 in the NE, SE, and SW quadrants, which differs from the Comprehensive Plan's land use map, in which those areas are primarily R-4. There are a few other specific differences between zoning and the Comprehensive Plan land use designations as well:

1. Three parcels in the NE corner of the NE quadrant are currently zoned R-6, but have Comprehensive Plan designation of R-1.

2. A parcel in the southeast corner of the SW quadrant is zoned R-1 and has a Comprehensive Plan designation of R-8.

3. A parcel at the southwest corner of the NW quadrant is zoned R-6 and has a Comprehensive Plan designation of R-6.

The Land Use Chapter (Chapter 6) of the Draft EIS contains both a zoning map (DEIS Figure 6-3) and Comprehensive Plan land use map (DEIS Figure 6-2) for the Town Center vicinity. The Comprehensive Plan land use map in the Draft EIS is identical to the land use plan map in the City's Comprehensive Plan (Comp. Plan Figure III-2). Zoning for the Comprehensive Plan's land use designations for the Town Center area has not been adopted in anticipation of preparation of a sub-area plan for the Town Center.

38-7 The Draft Town Center Plan contains strategies that address acquisition, management and protection of these resources. See the Open Space, Trails and Public Facilities and Natural Systems chapters of the Draft Town Center Plan.

Chapter 5 Distribution List

State Agencies

Washington State Department of Community, Trade & Econ Develop.
Washington State Department of Ecology, Northwest Regional Office
Washington State Department of Ecology

Cities

City of Issaquah
City of Redmond

Utilities/Services

Eastside Fire & Rescue District
Issaquah School District #411
Lake Washington School District #414
NE Sammamish Sewer & Water District
Puget Sound Energy
Sammamish Plateau Sewer & Water District

City of Sammamish City Council

Jack Barry
Mark Cross
Lee Fellinge
Don Gerend
Kathy Huckabay
Michele Petitti
Nancy Whitten

City of Sammamish Planning Commission

Ron Brown
Robert Conger
Scott Hamilton
Scot Jarvis
Robert Keller
Karen Moran
Erica Tiliacos

Notice of Availability

Federal Agencies

Federal Emergency Management Agency
National Marine Fisheries Service - NW Region
U.S. Army Corps of Engineers - Seattle District
U.S. Department of Housing and Urban Development, Region 10
U.S. Environmental Protection Agency, Region X
U.S. Fish and Wildlife Service
U.S. Geological Survey
U.S. Natural Resource Conservation Service

Indian Tribes

Muckleshoot Indian Tribe
Snoqualmie Tribe

State Agencies

Interagency Committee on Outdoor Recreation
Puget Sound Water Quality Action Team
Washington State Office of Archaeology and Historic Preservation
Washington State Department of Corrections
Washington State Department of Fish and Wildlife
Washington State Department of Health
Washington State Department of Natural Resources
Washington State Department of Social and Health Services
Washington State Department of Transportation
Washington State Department of Transportation, Northwest Region
Washington State Office of Financial Management
Washington State Parks and Recreation Commission
Washington State Utilities and Transportation Commission
Washington State Energy Office

Regional Agencies

Puget Sound Clean Air Agency
Puget Sound Regional Council
Seattle-King County Department of Public Health
Seattle-King County Economic Development Council
Washington Environmental Council
Sound Transit

King County Agencies/Offices

King County Office of Cultural Resources
Metro Transit Service
King County Conservation District
King County Council

King County Department of Budget
King County Department of Development & Environmental Services
King County Executive
King County Fire Marshal's Office
King County Prosecuting Attorney
King County Sheriff's Office
King County Solid Waste Division
King County Department of Transportation
King County Department of Natural Resources & Parks

Cities

City of Carnation
City of Snoqualmie

Utilities/Services

Milleniuum
Comcast
City of Seattle Water Department
Qwest
Rabanco Connections
Sammamish Chamber of Commerce
Sno-King Waste Management
Verizon
Williams Pipeline Corporation

Libraries

Bellevue Public Library
Issaquah Public Library
King County Library System
Muckleshoot Library
Redmond Public Library
Sammamish Public Library
University of Washington Libraries

Media

Sammamish Review
Seattle Times
Seattle Times, Eastside Bureau
Seattle Post-Intelligencer

Community Organizations

Save Lake Sammamish
Friends of Pine Lake
Beaver Lake Community Club
Sammamish Historical Society
Sammamish Saddle Club
Pine Lake Plateau Steering Committee

Sammamish Homeowners/Renters United

City of Sammamish Town Center Committee

Hank Klein
Kelly Jensen
Richard Amidei
Sharon Peaslee
Vin Santoro
Viral Saraiya
Will Sadler
Bob Abbott

Draft EIS Commenters

Karen Lang
Sandy Bethune
Bob Keller
Marybeth Lambe, MD
Kari Anne Tuohy
John & Pat Lambe
Lisa Cason
Mark Levy
John Kaschko
Bernie Lucking
Ken Bentler
Stan Bump
John Galvin
Joel Brighton
Chuck & Lisa Dulken
Betsy Elizabeth Mead
City of Issaquah
Janet Isaacs
Maureen & Frank Santoni
Peter Murphy
Carla Murphy
Shu Scott
Scott Hamilton
Paula Jones
John Hansen
Richard Birgh
Erica Tiliacos
Karen Moran
Friends of Pine Lake

Appendix A

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Memorandum

date March 19, 2007

to Kamuron Gurol, City of Sammamish

prepared by Alex Cohen, ESA Adolfson, Mike Birdsall, David Evans Associates, and Dan McKinney, Jr., The Transpo Group

Sammamish Town Center Sub-Area Plan

Technical Memorandum on the DEIS Transportation Analysis

The Draft Environmental Impact Statement (DEIS) for the proposed Sammamish Town Center Sub-Area Plan was issued on January 31, 2007. Since the date of issuance several Planning Commissioners, City Council members, and citizens have raised questions regarding the methods and data presented in the transportation analysis (Chapter 7). City staff held two public meetings on February 21, 2007 and March 9, 2007 at which the public (including planning commissioners and council members) were invited to ask questions of the City transportation staff, the city's transportation consultants, (David Evans and Associates (DEA)), and the DEIS consultant team (ESA Adolfson, EIS lead and The Transpo Group (Transpo), DEIS Transportation analysis lead).

At these meetings several clarifying questions were raised regarding the methods behind the transportation analysis and the conclusions. Several written questions were also submitted to the City. To the extent possible, city staff and the consultant team addressed these questions at the meetings. Where further inquiry or adjustment were required city staff and the consultant team agreed to research questions, refine data, and /or add further explanations for elements of concern.

The purpose of this memo is to present these questions and to provide supplemental data, adjustments to the analysis or expanded explanations for the issues raised. The organization of this memo follows the topics that were raised. Each issue is presented as a bold header and followed by a response in the text. There are also several attachments, which are referred to under particular topics..

1. Variations in Daily Tube Counts

Concerns have been raised about differences in traffic counts from year to year, and even within the same year from different sources. Consistent with standard industry best practices, traffic engineers understand that traffic counts at the same location will vary by as much as 10% from day to day for the reason that people's daily activities are not the same every day. Traffic varies due to factors such as special events, weather conditions, and traffic conditions elsewhere. Within a year, seasonal variations may be 10% to 25% in urban areas, and higher in

rural areas. To reduce the uncertainty associated with counts, it is typical to take the average of 2 to 3 day's counts, or count for an entire week and compute the weekly average. But that is not always done, for economy. Counts at different points along a road (e.g., East Lake Sammamish Parkway between Sammamish and Redmond) also may vary due to turning activity along the road between those points, so care must be taken to adjust for intermediate events when comparing counts at different locations.

The trend of historical counts at the same location does not always change at the same rate as the surrounding area as a whole. A highly congested road may show little change from year to year in spite of area-wide growth because there is little capacity to accept more growth. When that happens, it is likely that a parallel road will exhibit above-average growth. The sum of both roads' growth would tend toward the average for the area.

2. Section 36 Park Trip Generation

As explained at the March 9, 2007 meeting, the disparity of volumes on Trossachs Boulevard is not related to development activity but to an inconsistency in the handling of future user activity at the Section 36 park. This is easily corrected in the traffic model, to obtain consistent volumes on Trossachs Boulevard for all cases. It will also add some traffic volumes to various roads citywide, dissipating with distance from Trossachs Boulevard.

3. Updated Traffic Volume Figures:

It was noted that the volume ratios between the PM peak hour and the daily volumes fluctuated from alternative to alternative. The small variations were due to rounding; and the larger variations were due to reporting the PM volumes from a slightly different segment of the link than from the location that daily volumes were reported. These figures were updated to report the PM peak hour volume for the same location that the daily volumes were generated from. The updated figures are provided in **Attachment A.**

4. Relative Impacts of the Alternatives

Total Trip Distribution

Attached (**Attachment B**) are three small figures showing the flow of trips generated by each DEIS alternative for the Town Center site. These show the distribution of travel to and from the Town Center site. The scale of each of the three figures is the same, so relative comparisons between the figures are reasonably good indicators of different volume magnitudes.

Please note: The direct impact of Town Center in the figures in **Attachment B** is a larger number at some locations than the net change from No Action for the same alternative. This is a manifestation of Town Center trips being internalized within Sammamish. As some Town Center trips are assigned to destinations within Sammamish, they displace other Sammamish-based trips. Traffic distributions for all zones in Sammamish are affected by Town Center. Some trips at other zones are redistributed, citywide, due to the new opportunities provided by the land use in Town Center.

Therefore, simply adding the direct impact of any alternative to the No Action base forecast tends to over-predict total future demand, especially at the fringes of the city. That is not usually an issue for individual developments. But with a planned area of this magnitude, the redistribution effects within Sammamish are significant. The traffic model addresses that automatically. The reader is advised to use the direct impact plots for a general impression of where Town Center trips go. Use the net difference between cases for the net impact.

Trip Generation Analysis

The following tables provide more detailed trip generation summaries for each Town Center alternative than was presented in the DEIS. Specifically, this provides the breakdown of trips generated by each general land use category and provides the inbound and outbound split. Trip generation rates within each general land use category include a variety of subtypes, which differ somewhat between the alternatives. For example; the residential category includes single-family and multi-family dwellings; the retail category includes everything from gas stations and fast food restaurants to specialty stores, drug stores, and supermarkets; the office land use accounts for all types of non-retail employment; and open space is a general category used in the traffic model to represent parks, playgrounds, etc. The open space trip allowance is a constant in the traffic model for all three alternatives.

The total trips reported for each land use alternative is larger than previously reported in the DEIS because in this format each trip that remains within Town Center is counted twice – once outbound and once inbound. The summary in the DEIS didn't accurately account for this. There has been no change in the actual amount of trip generation to the external roadway network; only the manner of reporting has changed. The main impact of this change is that the percentage of trips internalized is larger than previously described, and more consistent with the level commonly expected for multi-use developments. Beyond the boundaries of Town Center, all trips are the same as previously reported.

Trip generation summaries are presented in various ways, to answer particular interests at the boundary of Town Center, versus the boundaries of the City of Sammamish. Directional splits in and out of the developments are provided, which show the difference in directionality of residential trip generation versus office generation or retail generation, in the afternoon peak hour.

Alternative 1 Trip Generation Summary

PM Peak Hour Trip Generation:

Land Use	Amount	Units	Out-bound	In-bound	Total	Share		Out-bound	In-bound
Residential	3,514	dwellings	717	1247	1964	28%		37%	63%
Retail	530	1,000 s.f.	2074	1894	3968	56%		52%	48%
Office	416	1,000 s.f.	378	125	503	7%		75%	25%
Open Space	550	Trips	325	301	627	9%		52%	48%
Total Trips			3495	3567	7062	100%		49%	51%

Trip Distribution by Major Areas (from trip table):

Within Town Center	1374	1374	2748	39%		50%	50%
To/From Sammamish Other	1391	1209	2600	37%		54%	47%
To/From External Areas	730	984	1714	24%		43%	57%
Total Trips	3495	3567	7062	100%		49%	51%

Total Trips without double-count of "within" trips: 5688

Net trip generation leaving Town Center:	4314		49%	51%
Net trip generation leaving Sammamish:	1714		43%	57%

Alternative 2 Trip Generation Summary

Afternoon Peak Hour Trip Generation:

Land Use	Amount	Units	Out-bound	In-bound	Total	Share	Out-bound	In-bound
Residential	1,104	dwellings	308	474	782	26%	39%	61%
Retail	167	1,000 s.f.	782	691	1473	50%	53%	47%
Office	30	1,000 s.f.	34	8	42	1%	80%	20%
Active Land	550	Trips	349	315	663	22%	53%	47%
		Total Trips	1472	1488	2960	100%	50%	50%

Trip Distribution by Major Areas (from trip table):

Within Town Center	376	376	752	25%	50%	50%
To/From Sammamish Other	845	713	1558	53%	54%	46%
To/From External Areas	251	399	650	22%	39%	61%
Total Trips	1472	1488	2960	100%	50%	50%

Total Trips without double-count of "within" trips: 2584

Net trip generation leaving Town Center:	2208	50%	50%
Net trip generation leaving Sammamish:	650	39%	61%

Alternative 3 Trip Generation Summary

Afternoon Peak Hour Trip Generation:

Land Use	Amount	Units	Out-bound	In-bound	Total	Share	Out-bound	In-bound
Residential	2,961	dwellings	635	1084	1719	36%	37%	63%
Retail	254	1,000 s.f.	1147	1026	2173	45%	53%	47%
Office	200	1,000 s.f.	183	59	242	5%	75%	25%
Active Land	550	Trips	344	313	657	14%	52%	48%
		Total Trips	2309	2482	4791	100%	48%	52%

Trip Distribution by Major Areas (from trip table):

Within Town Center	871	871	1742	36%	50%	50%
To/From Sammamish Other	1060	919	1979	41%	54%	46%
To/From External Areas	378	692	1070	22%	35%	65%
Total Trips	2309	2482	4791	100%	48%	52%

Total Trips without double-count of "within" trips: 3920

Net trip generation leaving Town Center:	3049	47%	53%
Net trip generation leaving Sammamish:	1070	35%	65%

Directional Distribution of Trips within Sammamish

The figures presented in **Attachment C** show the directional distribution pattern of trips generated in Town Center, for residential and non-residential land uses. The focus of these figures is on the trips leaving Town Center. Alternative 1 was used for these illustrations; however, the general pattern of distribution would be the same for the same land use type, in other alternatives. Total numbers of trips obviously change, but the directional patterns would be the same in a proportional sense.

The thickness of the flow patterns is proportional to volume, and the direction of travel is indicated by which side of the centerline the flow pattern is drawn. In the residential figure, the majority of travel is shown in the direction toward Town Center, since PM peak hour conditions are depicted. In the PM peak hour, roughly two-thirds of residential trip generation is inbound, toward the residence.

The non-residential distribution pattern represents a combination of retail and office developments – the mixed use concept for Town Center. The directional orientation is approximately equal in each direction, overall, but with slightly more outbound than inbound travel. Both figures are drawn to approximately the same scale, so the comparison between both figures can be used to approximately estimate the relative shares of impact on any road between the residential and non-residential developments in Town Center.

From the underlying numerical data, the relative directional distribution patterns were also summarized at three locations ranging from the edges of Town Center itself, to a mid-plateau location, and to the edges of the City of Sammamish. The share of trips oriented to the north versus the south changes depending on where the measure is taken, and whether the measure is for trips only on 228th Avenue NE/SE or on all north-south routes that carry shares of total travel.

For residential trip generation, the northward orientation of trips is 53% nearest to Town Center on 228th only, and 55% about a half-mile further away in each direction, but now counting the sum of three parallel routes. At the north and south city limits, this orientation drops to 49%. This shift is consistent with the retention of a substantial part of Town Center travel within the City of Sammamish. The higher emphasis toward the south at the city limits is consistent with the fact that commuter trips from employment elsewhere are somewhat more likely to travel via I-90 through Issaquah than via SR202 through Redmond.

The non-residential trip orientation is more pronounced toward the north, at 59% within Sammamish, and still 55% at the city limits. This is consistent with the fact that the external residential areas that will be providing employees and shoppers to future commercial developments in the Town Center are larger to the north than to the south (e.g., greater Redmond and areas from Bear Creek to Carnation, as compared to Issaquah).

The north-oriented pattern for future Town Center non-residential trips stands out as being different from the existing patterns of general traffic in Sammamish, which tends slightly more to the south than the north. This is because most Sammamish traffic today is residentially based. The residential distribution for Town Center is closer to the existing residential average for Sammamish, while the non-residential part is more north-oriented.

5. Response to Mr. Savage Letter

The transportation team was presented with a letter from Joe Savage, P.E. by Commissioner Hamilton and asked for a response. Many of Mr. Savage's points were addressed during the March 9, 2007 meeting and his specific points are covered in paragraph order. The letter is included as **Attachment F**

(a) Peak Hour to Daily Ratio of 10%. Joe has essentially agreed with Transpo and DEA that the 10% factor is not a "standard" but only a "rule of thumb" to fall back on if there is no other information to go on. The specific traffic count data available for Sammamish in years 2002 to 2006 shows a range of factors that are generally in the 8% to 9% range, and almost never match 10%. This is due to widespread congestion and associated peak-spreading.

(b) Estimated vs. Actual Existing Traffic. The discussion at the March 9, 2007 meeting clarified that all the "existing" data in the DEIS represents actual counts taken in 2006. Existing 2006 roadway link traffic volumes are summarized in **Attachment D**, showing the AM and PM peak hour volumes compared to the Daily volumes.

Mr. Savage's letter recommends that "all analysis of levels of service at intersections and on street segments should be performed with peak hour rather than daily volumes." The intersection analysis was indeed done on peak hour volumes; however, consistent with City's concurrency methodology, the segment analysis was done on the daily equivalent volumes. Both methods are required to be done that way by the Comprehensive Plan as adopted City policy. There is no reason in Sammamish to do segment analysis based on peak hours.

(c) Disagreement over Peak Hour Methods. In looking at the modeled numbers, the team can assure that the peak hour turn movements at the intersections analyzed and the peak hour link volumes posted in figures are consistent and correct. Link volumes match exactly the sum of turn movements at intersections.

(d) Accuracy and Validity of the Model Results. The traffic model does not use counts at all, so questions pertaining to recent counts have no bearing on the traffic model. Traffic model forecasts are derived from land use forecasts, totally independent of count data. The model was accurately calibrated to "forecast" 2001 counts based on input of 2001 land use. In the DEIS, the only use of 2006 count data is to describe existing conditions for general information. If the count data changes, that has zero effect on the traffic model forecasts. Any concerns about real world count data in 2003 to 2006 do not in any way extend to concern about the traffic model.

(e) Future Growth Rate may not be Sufficient. The forecast of 1% annual average growth on East Lake Sammamish Parkway is not unreasonable for that location, in context. Much more growth is forecast on 244th Avenue NE due to the future extension of that road. Figures 7-3 through 7-6 show forecast volumes that equate to 3% per year for the No Action case and as high as 5% per year with Alternative 1. The combination of both roads is consistent with the overall growth forecast for Sammamish as a whole.

For a comprehensive perspective of citywide growth rates, the following table presents data available in the City's Concurrency Monitoring System and the Town Center model forecasts, for total peak hour trip generation in Sammamish. All figures are based on the traffic model:

TOTAL PEAK HOUR TRIP GENERATION

Year	Trip Generation	Annualized Growth from 2006
2001	16,510	
2006 (estimated)	18,500	
2013 Pipeline	20,845	1.8%
2030 No Action	22,720	0.9%
2030 Alternative 1	29,583	2.5%
2030 Alternative 2	25,398	1.6%
2030 Alternative 3	27,476	2.0%

In this table, the 2030 No Action growth rate is lower than other rates, because that amount of growth is based on the current land use density assumptions in the Comprehensive Plan. Town Center alternatives would modify those policies and allow for more growth, resulting in higher average growth rates.

The current pipeline of developments in process represents the first phase of the No Action growth envelope. It appears to be "front-loaded" compared to the long-range rate to 2030 No Action. Note, however, that the year associated with pipeline developments is an artificial assumption. It is assumed to be six years ahead for planning purposes (such as calculating average growth rates for the next six years) but that is merely an assumption. The year that the pipeline growth will be 100% complete is actually at the whim of the marketplace.

(f) Model's Reasonableness Questioned. See response in (d) above.

(g) Model Calibration. The City has a complete model calibration report, prepared by DEA's Mike Birdsall while employed at Earth Tech. It shows that the model exceeds the expectations of the FHWA "standards" by a large margin. This calibration information was presented to the Ad-Hoc Planning Advisory Committee in 2002 and was part of the process of establishing credibility of the model and model forecasts that supported the adoption of the Comprehensive Plan Transportation Element in 2002.

(h) Quick Check on Model Validity. The model calibration report includes just such a table of screenlines, showing the model to be within 2% to 5% of actual counts in 2002. We agree that the screenline technique is a useful way to summarize traffic trends. If necessary, it could be incorporated into the FEIS, as an additional way to view and understand in proper context the data already provided.

6. Comparison of AM and PM Peak Hour Traffic

The City of Sammamish collected updated traffic volumes throughout the City in late February and early March 2006. Specifically the data was collected February 28th through March 2nd. A figure summarizing the average AM peak hour, PM peak hour, and Daily counts is provided in **Attachment A**. As shown in the figure, all of the PM peak hour volumes exceed the AM peak hour volumes with the exception of one location. The AM peak hour traffic volumes on 244th Avenue NE, just south of SR 202 (NE Redmond Fall City Road), are slightly higher. The remainder of the City has higher traffic volumes occurring during the PM peak hour. Since traffic volumes are typically highest during the PM peak hour, the City's traffic model and concurrency program have been developed around the PM peak hour.

The focus of the analysis was based on the PM peak hour, as the combination of traffic generated by any of the Town Center land use alternatives along with the adjacent street traffic would be at the highest levels during the PM peak hour.

Intersection levels of service were evaluated for both the AM and PM peak hours in the Eastside Catholic EIS analysis. Although the AM peak hour volumes are lower than the PM peak hour volumes, there are some locations where the level of service is worse during the AM peak hour. This occurs most notably along Eastlake Sammamish Parkway at SE 56th Street, Inglewood Hill Road, and SR 202. This is due to the large volume of traffic heading off the Sammamish Plateau funneling toward Redmond. The PM volumes are still higher than the AM peak hour due to a more balanced flow of volumes in both directions. The existing level of service results and volumes reported in the Eastside Catholic High School EIS are provided in **Attachment E**.

7. Traffic Counts and Future Forecast Modeling

Commissioner Hamilton asked for clarification of the message that "numbers don't matter, only land use matters" for the modeling, which appears to contrast with his understanding that traffic counts are a key component of concurrency and traffic mitigation impact fees. Part of the answer is to differentiate carefully between different kinds of traffic numbers. All numbers are not created equal. Traffic "numbers" in a report may be of several kinds:

- Actual counted volumes – various methods, differing accuracy levels;
- Manually estimated volumes in lieu of actual counts, as a substitute for counts;
- Manually estimated future volumes based on existing counts plus growth assumptions; and
- Future volumes forecast by computer models based on land use forecasts.

Where future conditions are concerned, forecasts can be generated either by manual projections based on an existing count plus estimated growth trends, or by a traffic forecasting model based on land use. These are two very different methods. The manual method based on counts is common practice with traffic impact studies for individual developments with near term horizon years, since the development being studied usually adds only a small (comparatively) impact to background traffic. The success of this method obviously depends on the quality of the initial count data and the accuracy of the assumed distribution pattern for site impacts. When many developments are combined and a long term horizon year is used, the method loses accuracy because there are multiple interactions between all developments. Background assumptions become very important, and litigation abounds over such issues. Because the method is done by hand, and relies on assumptions to cover the background issues, there is much diversity of results between different analysts.

The traffic model approach treats all developments in a consistent way. Traffic forecasting models also provide the background context by covering the entire city or subarea, not just the development at hand. All input assumptions are land use projections in each individual Traffic Analysis Zones. But traffic models are large, complex systems that need careful calibration in the beginning and expert operation and maintenance thereafter. Such models are also not perfect, but a well-calibrated forecasting model comes close to matching existing counts, when existing land use data is input. That validation test is the only way that counts are used with a forecasting model. After that, it's all forecast numbers. The best use of forecasting models is to compare one model case to another model case, because that tends to neutralize the calibration differences between the model

and reality. In the DEIS, the evaluation of the Town Center alternatives is based on the comparison to the No Action alternative.

The Sammamish Traffic Forecasting Model was calibrated to closely match 2001 counts, based on the input of 2001 land use data and road network information. This calibration accuracy gives confidence that that model will predict future volumes with similar accuracy. In addition to planning studies, the model is used for concurrency, to track the cumulative effect of adding new development applications to the 2001 land use base. The resulting volume forecasts represent the future condition when all pipeline developments are developed and generating traffic. The 2030 model is based instead on the City's total growth projections to "buildout" based on land use codes (or alternative assumptions) beyond the present day concurrency pipeline.

Do 2006 counts have to do with the traffic model? No. The model calibration to counts was done with 2001 counts and 2001 land use data. The calibration is still valid for this use. The 2006 counts show that growth has happened since 2001, in real terms. The traffic model also shows growth. It forecasts higher volumes for the concurrency future than were true in 2001. But since the concurrency future case includes all development now in the planning/permit/construction pipeline, it goes well beyond existing 2006 conditions. As long as the 2006 counts fall somewhere between the 2001 counts and the concurrency future forecast, the model is working as designed.

Why then are 2006 counts even reported in the DEIS? They are reported to provide the reader with a sense of today's volumes and level of service as a reference. They do not directly serve to help the evaluation of the future alternatives.

8. North/South Distribution of Trips

Commissioner Moran asked the transportation team to clarify the assumption that the majority of traffic, from town center, would head south vs. north, given that it is in the LWSD. The trip distribution pattern for the Town Center site is modeled for the afternoon peak hour, roughly 5 pm or later. Activity at high schools at this time is small compared to the peak hour for each high school that occurs earlier in the day. Travel between the Town Center and Eastlake High School at this hour is nearly negligible. Travel at other hours of the day is accounted for by the peak-to-daily expansion factors on 228th that are used to estimate daily volumes from the peak hour assignment. Existing patterns of orientation to each high school are a constituent part of the existing expansion factors, so the mid-day high school connection to Town Center is actually covered in the forecast daily travel volumes. That said, the high school portion of daily travel patterns is not a dominant part of the total travel activity of any residential area, Town Center or otherwise. For commercial areas, it is even less. For both residential and commercial land uses in the future Town Center, there is a roughly even split of destination opportunities for travel to the south and to the north, with a slightly larger emphasis to the south.

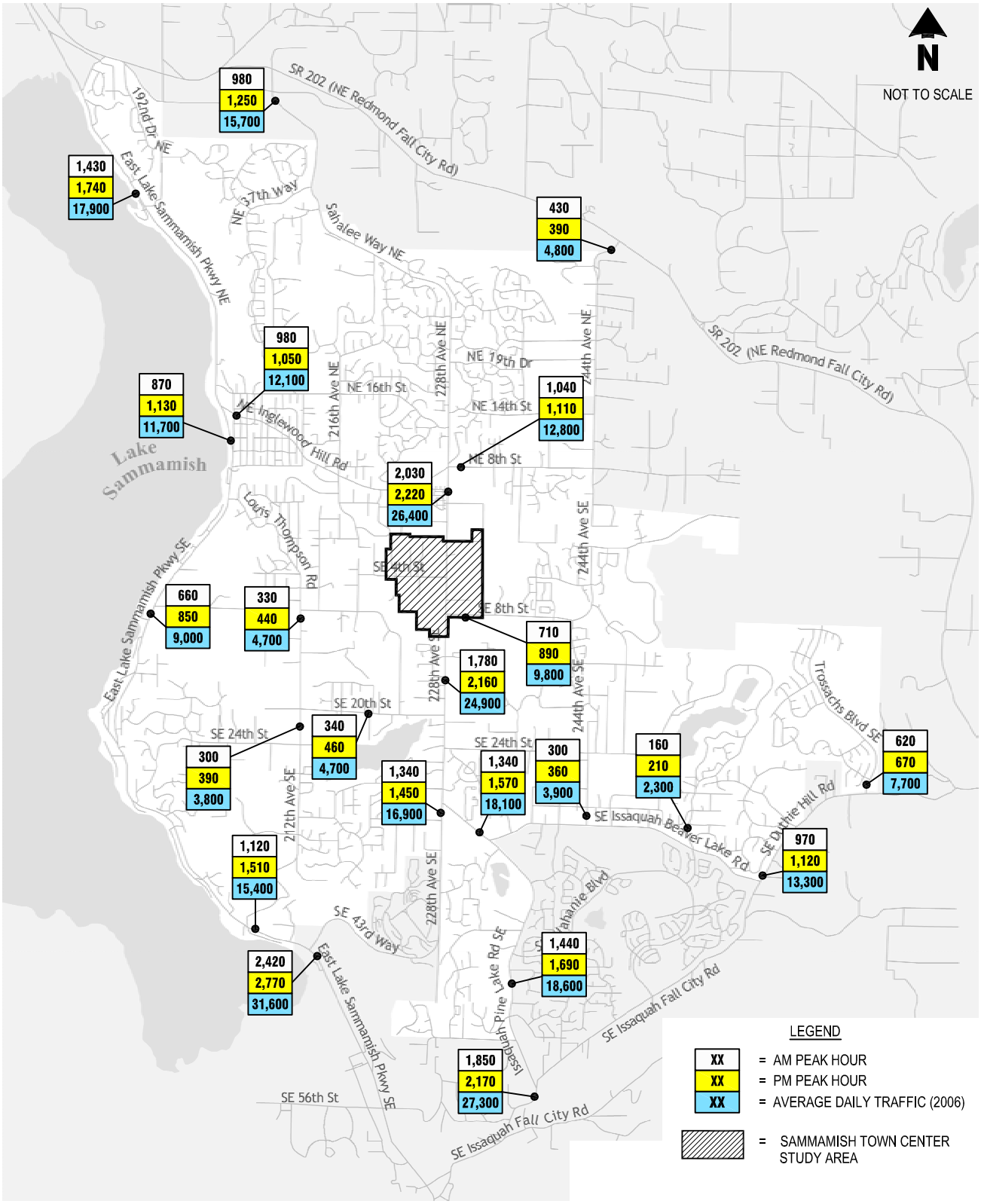
After discounting for the trips internalized within Town Center due to mixed-use effects, the remaining distribution pattern of "exported" trips away from Town Center travels in all directions, with a slightly larger share to the south than to the north. For Town Center Alternative 1, the distribution is 27% north on 228th, 34% south on 228th, 27% west on SE 4th, and 12% east on SE 8th.

The commercial component of Town Center attracts traffic from all directions on the plateau, roughly in proportion to the weight of residential population in each direction. There is also some commercially generated traffic to/from other commercial areas, which are found both north and south along 228th.

The residential component generates traffic that is connects to employment opportunities that are mostly outside Sammamish, and to commercial destinations located both within and outside Sammamish. Commuter trips split north and south depending on proximity to the external highway system. At Town Center, slightly more go south to I-90 versus north to SR-202/SR-520. Much of the remainder of residential trip generation is oriented to shopping centers within Sammamish, which are found in both directions from the Town Center area. Finally, there is travel from residences to other residential destinations all over the plateau, and to commercial and residential destination beyond city limits.

Attachment A

Updated Traffic Volumes (2006 Existing and Alternatives 1 – 4)



Existing 2006 Traffic Volumes

City of Sammamish Town Center Sub–Area Plan DEIS

The Transpo Group

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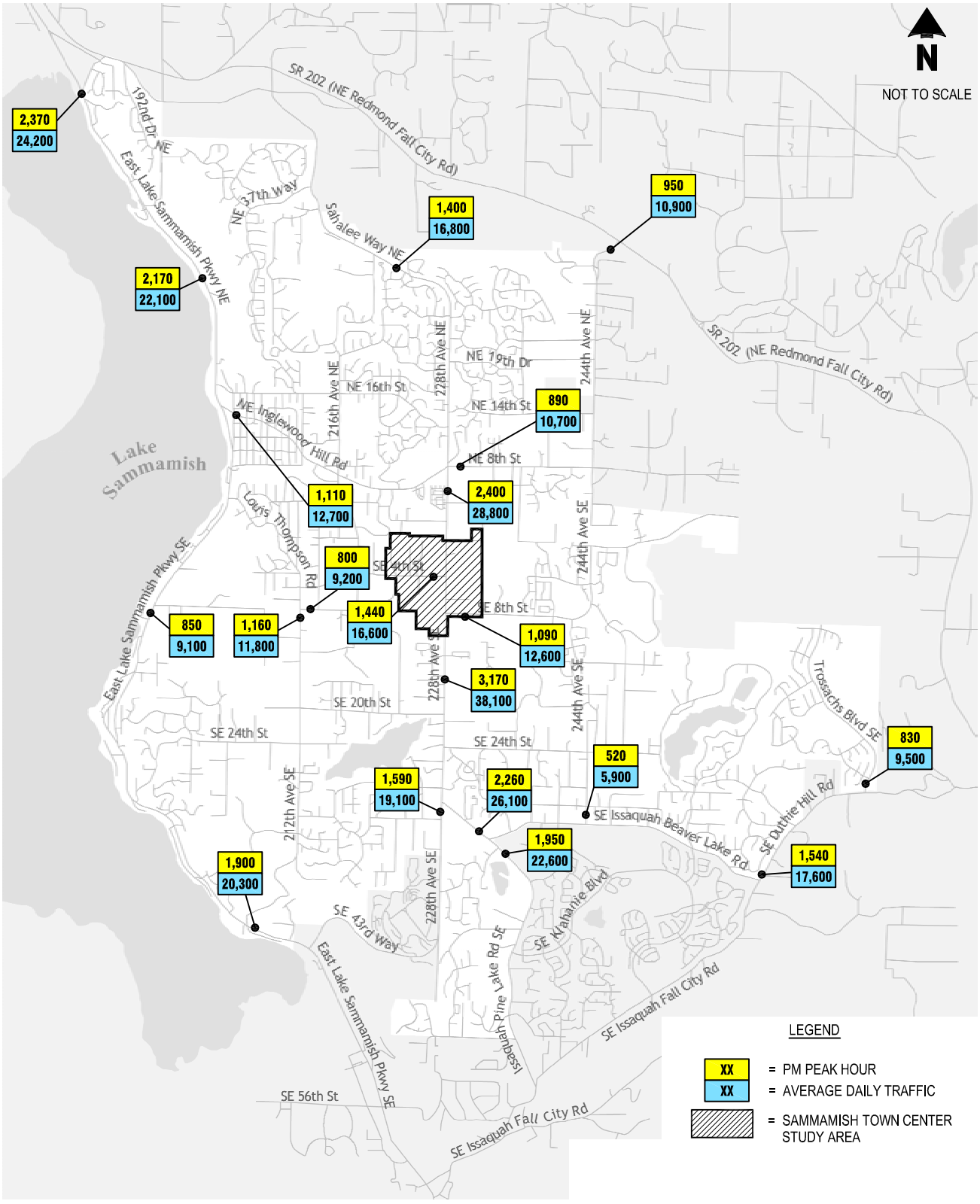

SOURCE: DEA Inc.

2030 Alternative 1 Traffic Volumes (Updated DEIS Figure 7-6)

City of Sammamish Town Center Sub-Area Plan DEIS

The Transpo Group

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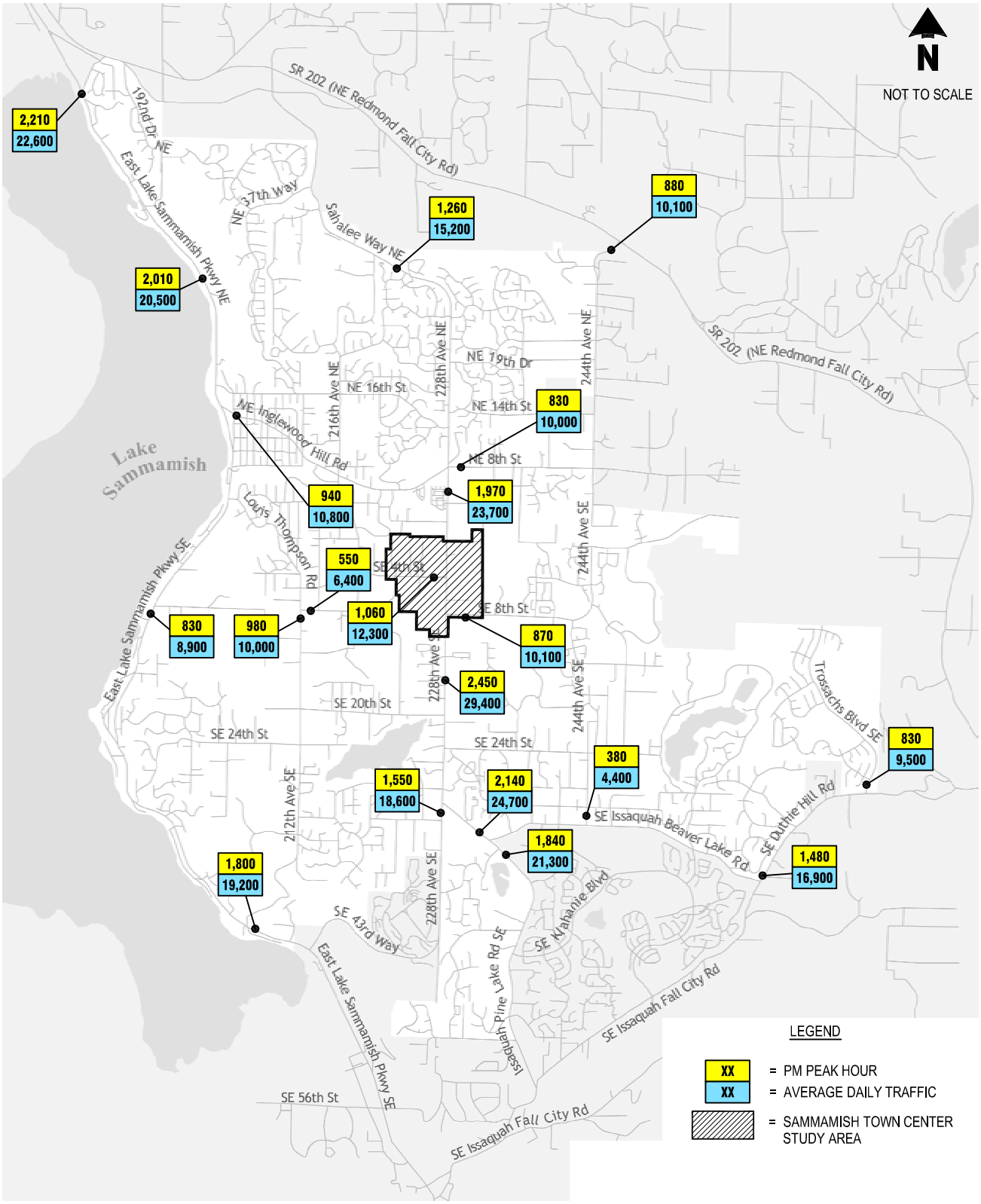

SOURCE: DEA Inc.

2030 Alternative 2 Traffic Volumes (Updated DEIS Figure 7–7)

City of Sammamish Town Center Sub–Area Plan DEIS

The Transpo Group

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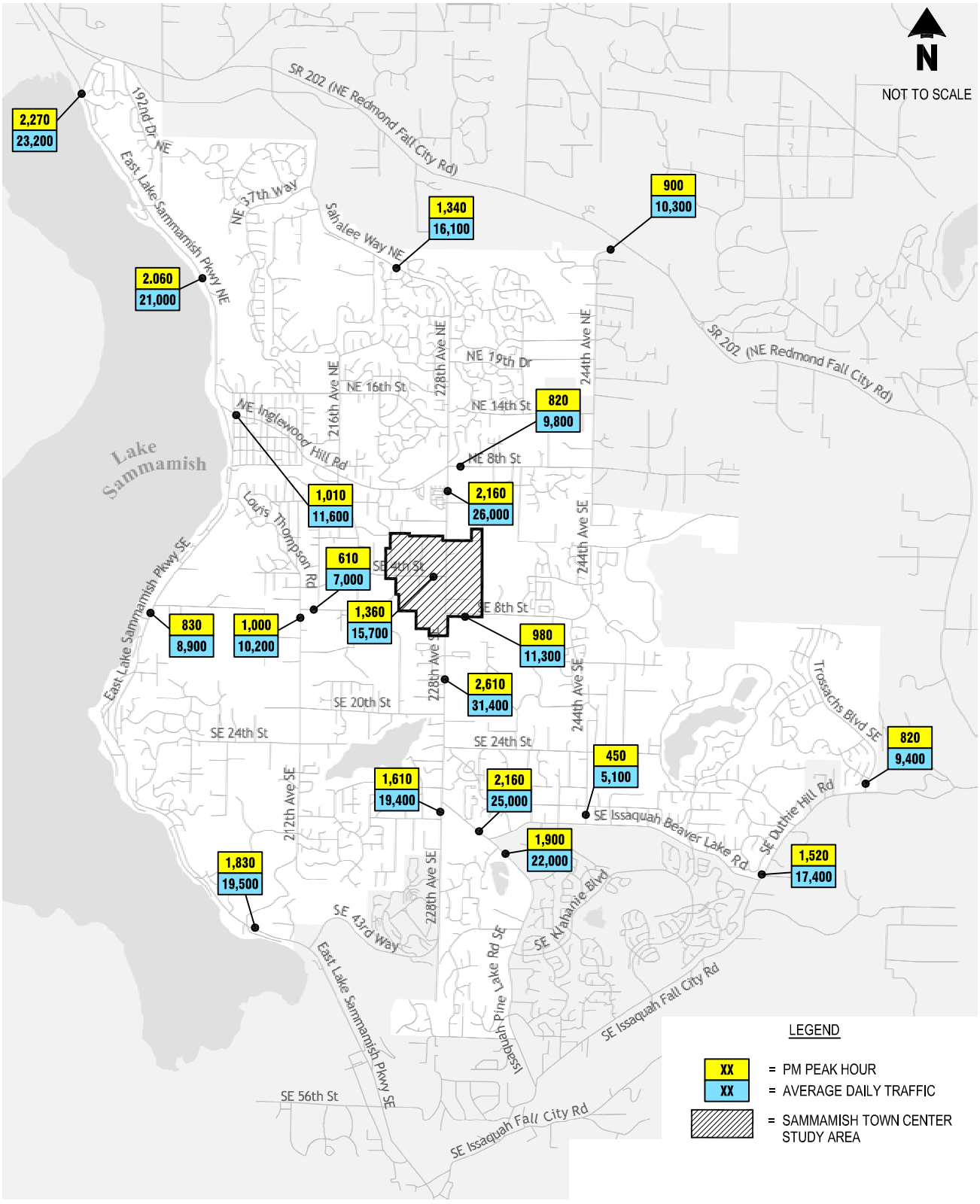

SOURCE: DEA Inc.

2030 Alternative 3 Traffic Volumes (Updated DEIS Figure 7–8)

City of Sammamish Town Center Sub–Area Plan DEIS

The Transpo Group

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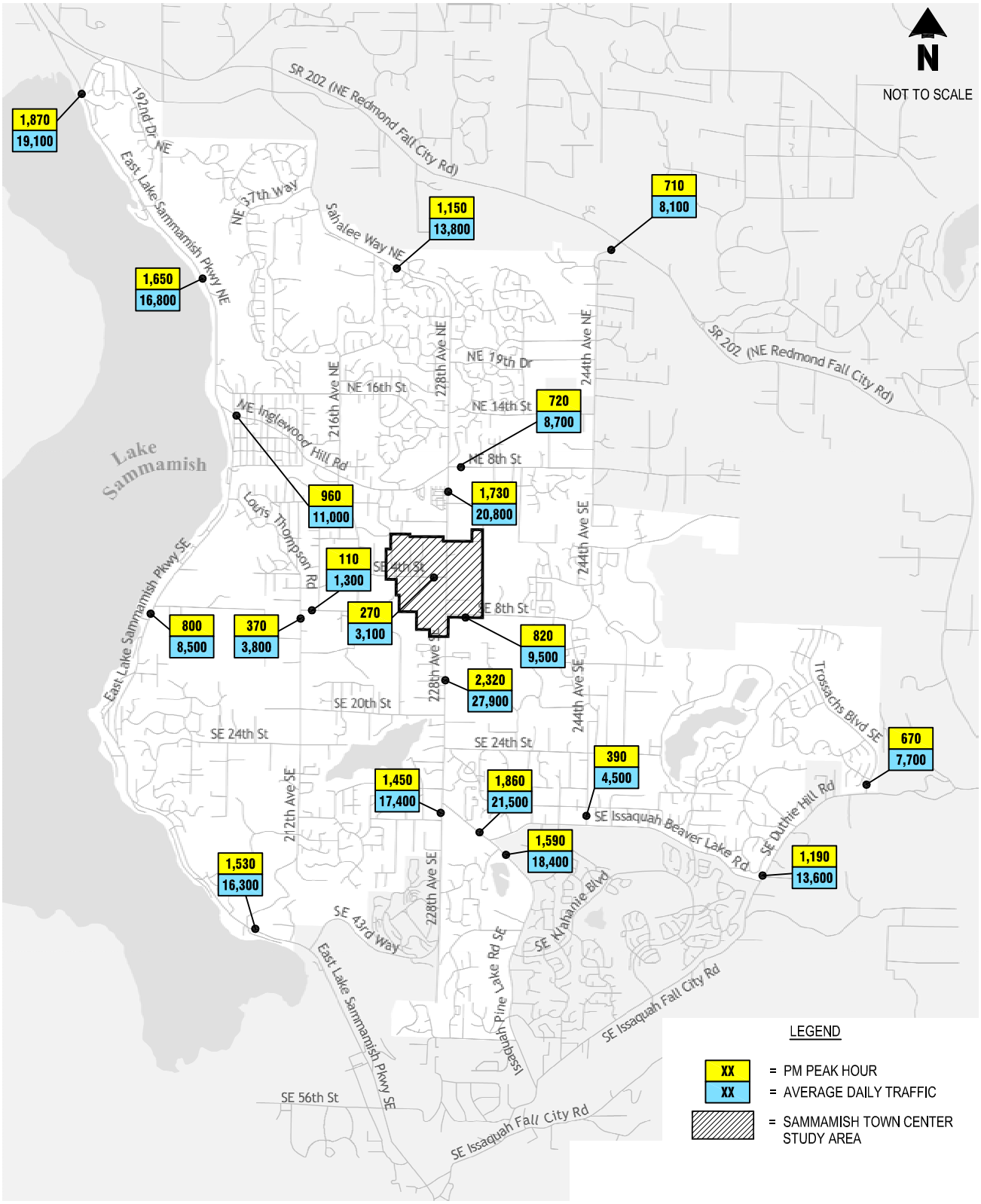

SOURCE: DEA Inc.

2030 Alternative 4 (No-Action) Traffic Volumes (Updated DEIS Figure 7-9)

City of Sammamish Town Center Sub-Area Plan DEIS

The Transpo Group

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Attachment B

Total Trip Distribution (Alternatives 1 – 3)

TMODEL 2

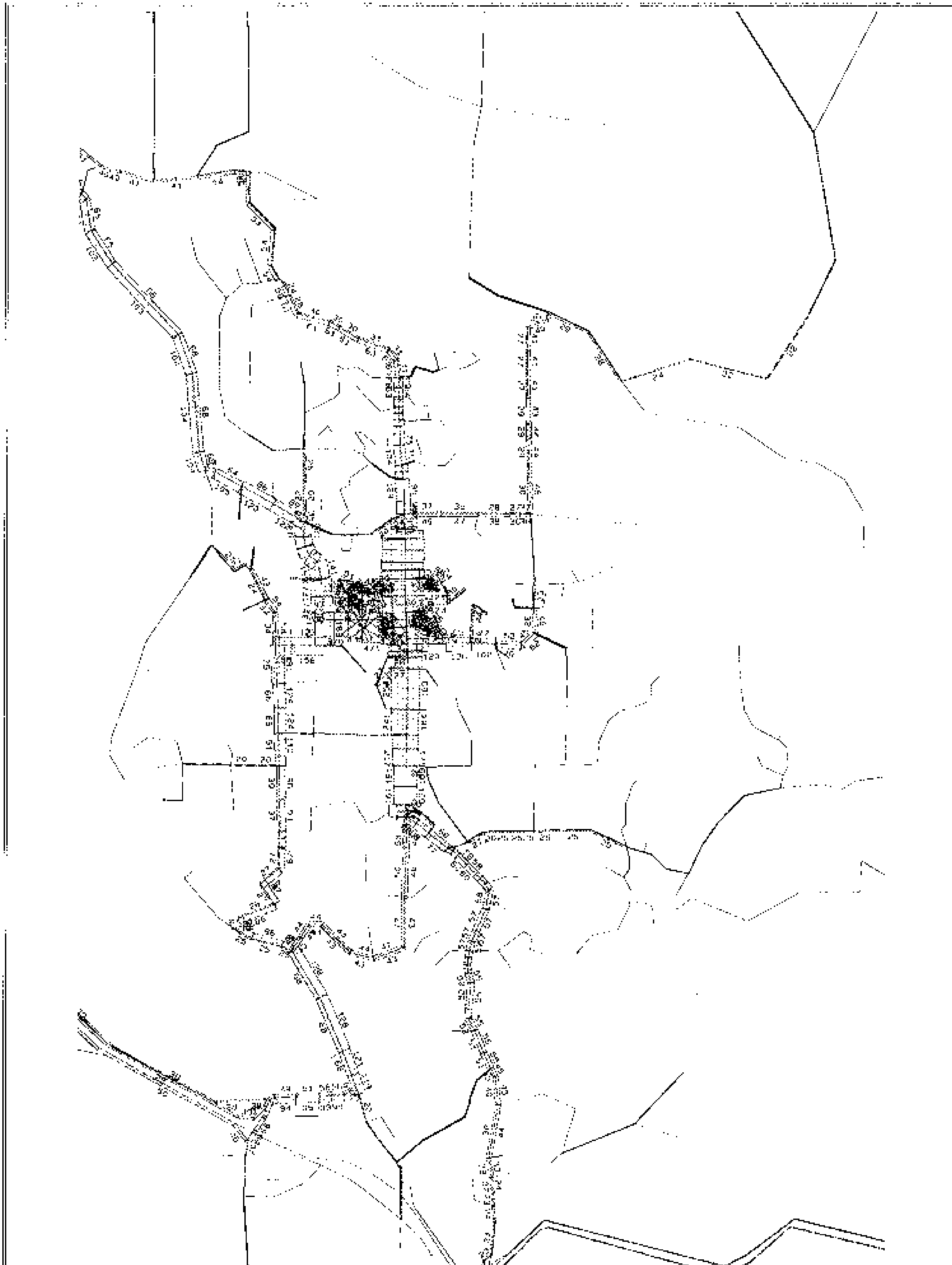
Town Center Alt 1 rev Distribution

Sammamish Traffic Forecasting Model - 2030 PM Pk Hr

DAVID EVANS & ASSOCIATES, BELLEVUE, WA

TOTAL TO LEX
TOTAL TO NOE

LL 7505/14050
UL 14050/21605
01 16 2007



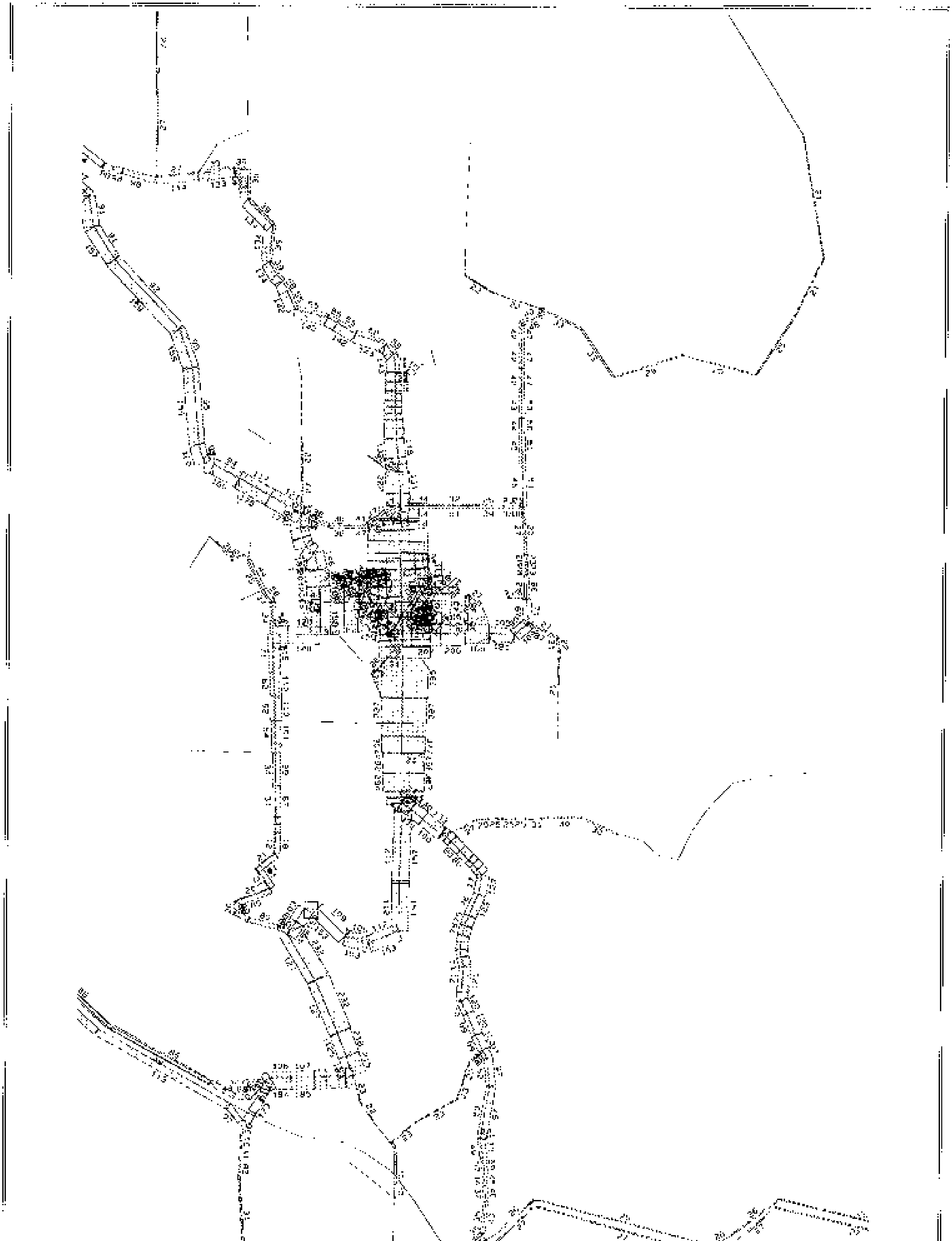
TMODEL 2

Town Center Alt 2 rev Distribution

Sammamish Traffic Forecasting Model · 2030 PM Pk Hr

DAVID EVANS & ASSOCIATES, BELLEVUE, WA

01-16-2007



TMODEL 2

Town Center Alt 3 rev Distribution

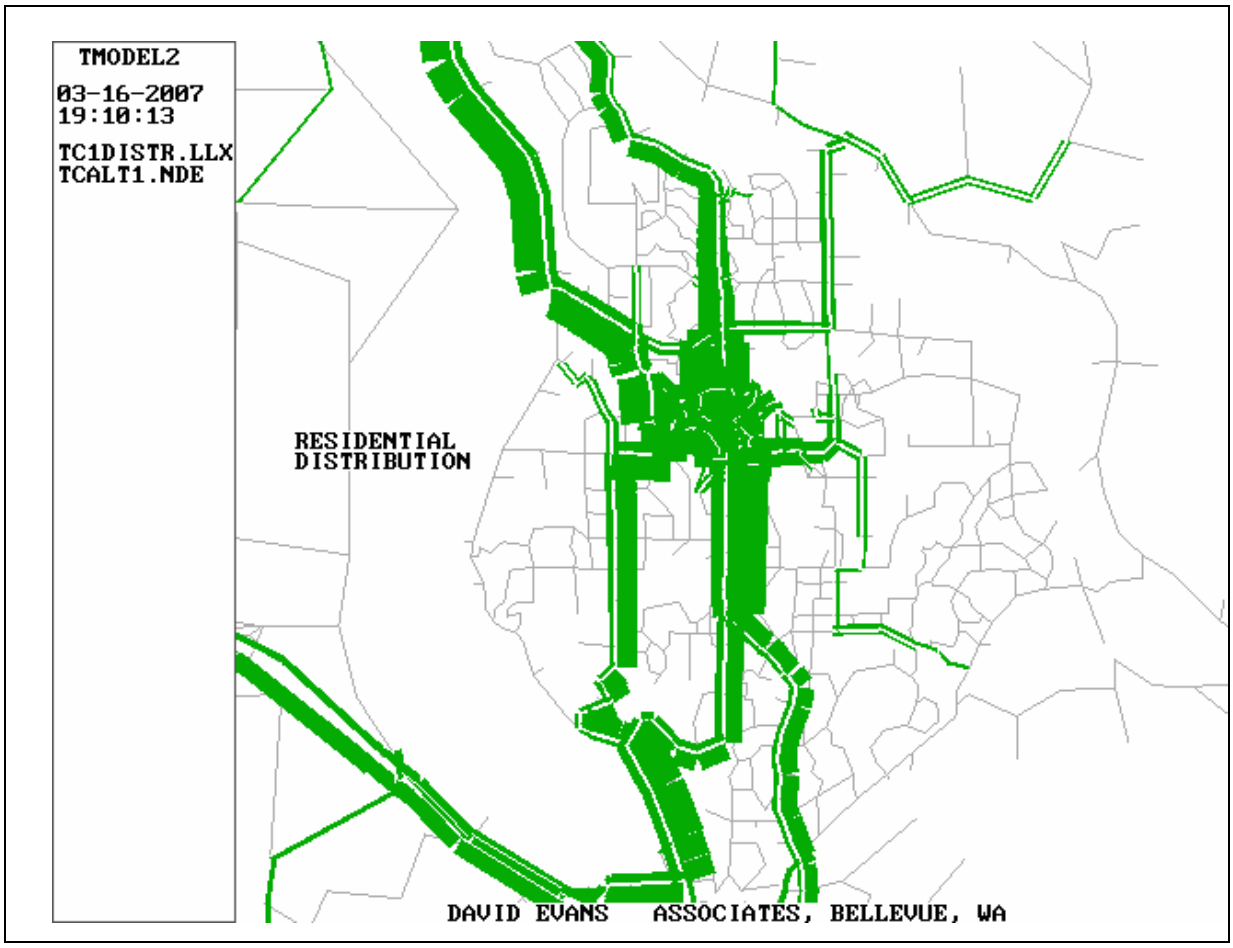
Sammamish Traffic Forecasting Model - 2030 PM Pk Hr

DAVID EVANS & ASSOCIATES BELLEVUE, WA

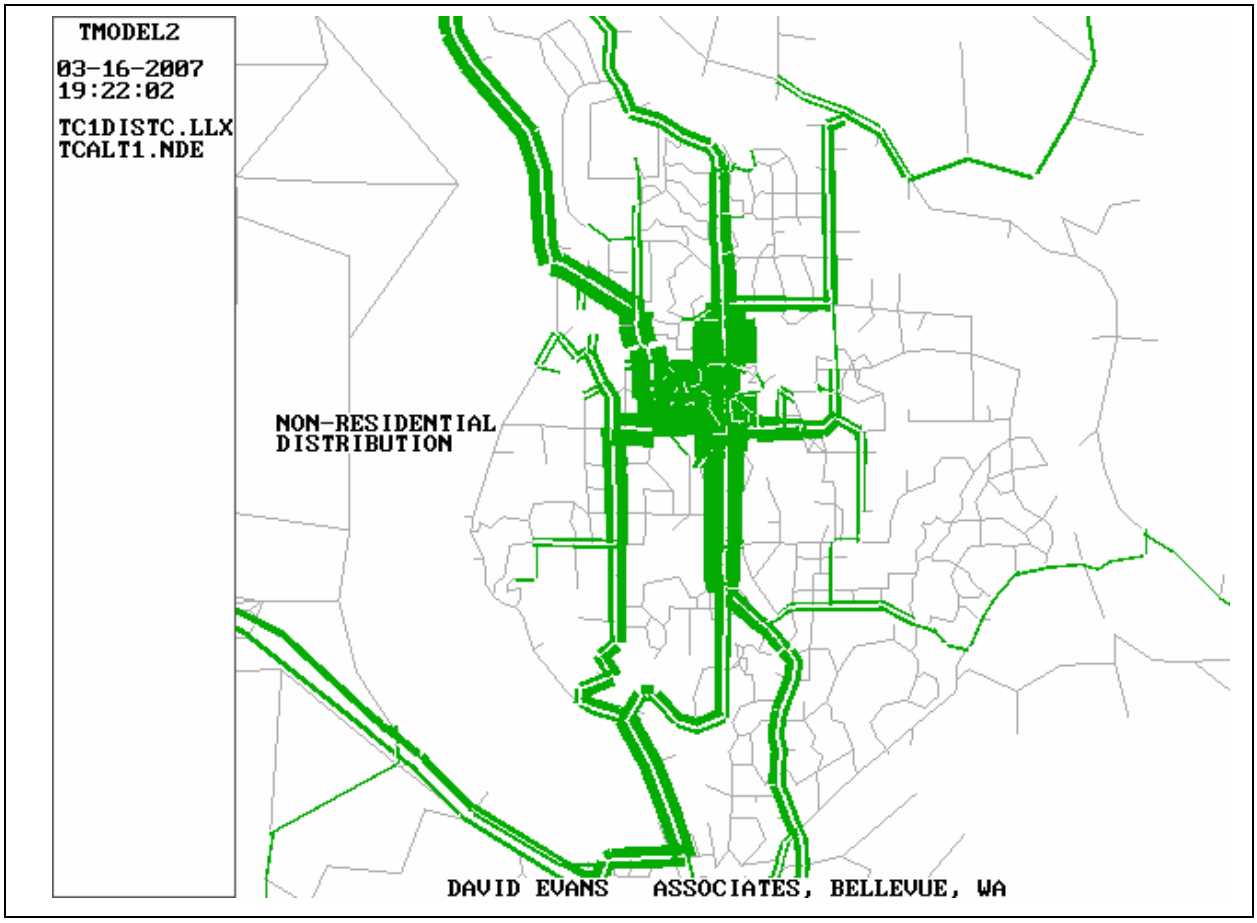
Attachment C

Trip Distribution by Land Use Type (Residential vs. Non-Residential)

Trip Distribution: Residential



Trip Distribution: Non – Residential



Attachment D

Existing 2006 Roadway Link Traffic Volumes

Existing 2006 AM-PM-Average Weekday Daily Trips (AWDT)

Location		Existing 2006				
		PM%	PM	AM%	AM	AWDT
E Lk Sammamish Pkwy NE	s/o 187th	9.7%	1,742	7.9%	1,425	17,949
E Lk Sammamish Pkwy NE	s/o Inglewood Hill Rd	9.7%	1,134	7.5%	871	11,650
E Lk Sammamish Pkwy NE	s/o SE 8th St	9.5%	849	7.3%	656	8,950
E Lk Sammamish Pkwy SE	n/o SE 43rd Way	8.8%	2,770	7.6%	2,415	31,610
E Lk Sammamish Pkwy SE	s/o 212th Way SE	9.8%	1,513	7.3%	1,118	15,366
212th Ave SE	s/o SE 8th St	9.4%	444	7.0%	330	4,740
212th Ave SE	s/o SE 20th St	10.2%	388	7.8%	295	3,799
NE Inglewood Hill Rd	e/o E Lk Samm Pkwy	8.7%	1,053	8.2%	984	12,050
SE 20th St	w/o 228th Ave SE	9.7%	461	7.2%	343	4,744
Sahalee Way NE	n/o NE 50th St	8.0%	1,251	6.2%	982	15,735
228th Avenue NE	s/o NE 8th St	8.4%	2,219	7.7%	2,025	26,404
228th Avenue SE	s/o SE 8th St	8.7%	2,162	7.2%	1,782	24,903
228th Avenue SE	n/o SE 32nd St	8.6%	1,381	7.9%	1,274	16,116
228th Avenue SE	s/o Issq Pine Lk Rd	8.6%	1,448	7.9%	1,337	16,905
NE 8th St	e/o 228th Ave NE	8.7%	1,105	8.1%	1,038	12,769
SE 8th St	e/o 228th Ave SE	9.1%	893	7.3%	714	9,831
Issq Pine Lk Rd SE	s/o 228th Ave SE	9.1%	1,689	7.7%	1,436	18,646
Issq Pine Lk Rd SE	n/o 32nd way	8.7%	1,568	7.4%	1,339	18,103
Issq Pine Lk Rd SE	at Highlands Drive	7.9%	2,165	6.8%	1,846	27,285
244th Ave NE	uninc, s/o SR 202	8.0%	387	8.9%	427	4,810
244th Ave NE	s/o SE 24th	9.3%	357	7.8%	301	3,853
SE Issq Bvr Lk Rd	w/o Duthie Hill Rd	9.0%	209	6.7%	155	2,328
SE Duthie Hill Rd	e/o Bvr Lk Rd	8.4%	1,116	7.3%	970	13,308
Trossachs Blvd SE	n/o Duthie Hill Rd	8.7%	665	8.0%	616	7,681

Model AM-PM-Average Weekday Daily Trips (AWDT) for all Alts

Segment #	Location		Alternative 1			Alternative 2			Alternative 3			Alternative 4		
				PM	ADT		PM	ADT		PM	ADT		PM	ADT
1	E Lk Sammamish Pkwy NE	s/o 187th	9.8%	2,370	24,200	9.8%	2,210	22,600	9.8%	2,270	23,200	9.8%	1,870	19,100
4	E Lk Sammamish Pkwy NE	s/o Inglewood Hill Rd	9.4%	1,270	13,500	9.4%	1,280	13,600	9.4%	1,270	13,500	9.4%	1,030	11,000
5	E Lk Sammamish Pkwy NE	s/o Thompson Hill Rd	9.4%	850	9,100	9.4%	830	8,900	9.4%	830	8,900	9.4%	800	8,500
6	E Lk Sammamish Pkwy SE	n/o SE 24th St	9.4%	790	8,400	9.4%	780	8,300	9.4%	780	8,300	9.4%	780	8,300
8	E Lk Sammamish Pkwy SE	s/o 212th Way SE	9.4%	1,900	20,300	9.4%	1,800	19,200	9.4%	1,830	19,500	9.4%	1,530	16,300
12	212th Ave SE	s/o SE 8th St	9.8%	1,160	11,800	9.8%	980	10,000	9.8%	1,000	10,200	9.8%	370	3,800
13	212th Ave SE	s/o SE 20th St	9.8%	870	8,900	9.8%	700	7,100	9.8%	740	7,500	9.8%	350	3,600
15	NE Inglewood Hill Rd	e/o E Lk Samm Pkwy	8.7%	1,110	12,700	8.7%	940	10,800	8.7%	1,010	11,600	8.7%	960	11,000
20	SE 20th St	w/o 228th Ave SE	8.7%	610	7,100	8.7%	610	7,000	8.7%	590	6,800	8.7%	430	5,000
22	Sahalee Way NE	n/o NE 25th	8.3%	1,200	14,400	8.3%	1,060	12,700	8.3%	1,130	13,600	8.3%	910	10,900
24	228th Avenue NE	s/o NE 8th St	8.3%	2,400	28,800	8.3%	1,970	23,700	8.3%	2,160	26,000	8.3%	1,730	20,800
25	228th Avenue SE	s/o SE 8th St	8.3%	3,170	38,100	8.3%	2,450	29,400	8.3%	2,610	31,400	8.3%	2,320	27,900
26	228th Avenue SE	s/o SE20th St	8.3%	3,320	39,900	8.3%	3,100	37,200	8.3%	3,190	38,400	8.3%	2,670	32,100
27	228th Avenue SE	s/o Issq Pine Lk Rd	8.3%	1,590	19,100	8.3%	1,550	18,600	8.3%	1,610	19,400	8.3%	1,450	17,400
28	NE 8th St	e/o 228th Ave NE	8.3%	890	10,700	8.3%	830	10,000	8.3%	820	9,800	8.3%	720	8,700
29	SE 8th St	e/o 228th Ave SE	8.7%	1,090	12,600	8.7%	870	10,100	8.7%	980	11,300	8.7%	820	9,500
32	Issq Pine Lk Rd SE	s/o 228th Ave SE	8.7%	2,260	26,100	8.7%	2,140	24,700	8.7%	2,160	25,000	8.7%	1,860	21,500
33	Issq Pine Lk Rd SE	s/o 32nd way	8.7%	1,950	22,600	8.7%	1,840	21,300	8.7%	1,900	22,000	8.7%	1,590	18,400
34	Issq Pine Lk Rd SE	n/o SE 48th St	8.7%	2,590	29,900	8.7%	2,510	29,000	8.7%	2,530	29,300	8.7%	2,230	25,800
35	244th Ave NE	uninc, s/o SR 202	8.7%	950	10,900	8.7%	880	10,100	8.7%	900	10,300	8.7%	710	8,100
39	244th Ave NE	s/o SE 24th	8.7%	520	5,900	8.7%	380	4,400	8.7%	450	5,100	8.7%	390	4,500
42	SE Issq Bvr Lk Rd	w/o Duthie Hill Rd	8.7%	560	6,400	8.7%	410	4,700	8.7%	470	5,400	8.7%	330	3,800
43	SE Duthie Hill Rd	e/o Bvr Lk Rd	8.7%	1,540	17,600	8.7%	1,480	16,900	8.7%	1,520	17,400	8.7%	1,190	13,600
45	Trossachs Blvd SE	n/o Duthie Hill Rd	8.7%	830	9,500	8.7%	830	9,500	8.7%	820	9,400	8.7%	670	7,700

Attachment E

Level of Service (LOS) and Traffic Volumes as Reported in the Eastside Catholic High School EIS

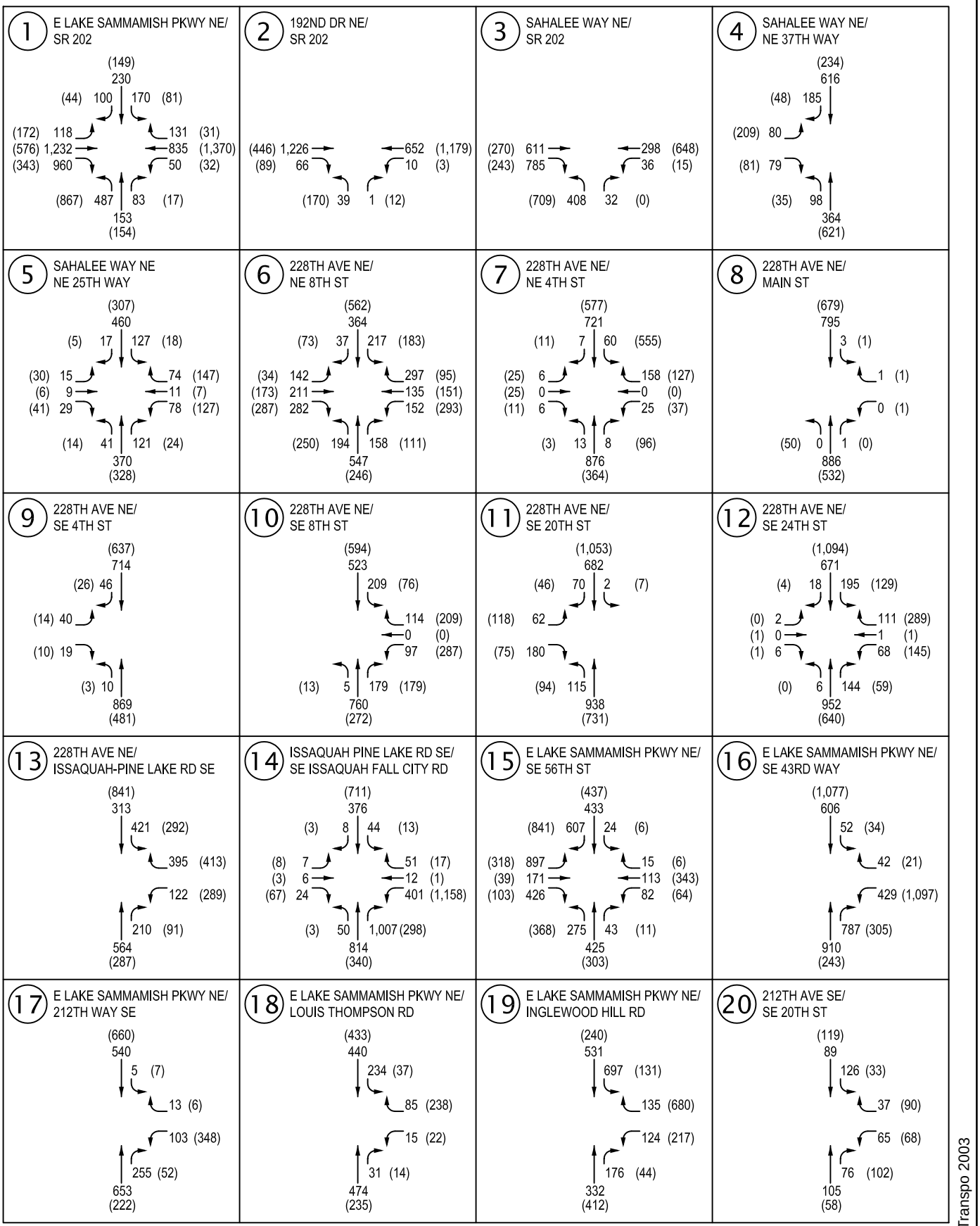


Figure 16. Existing AM and PM peak hour of adjacent street traffic volumes.

Table 4. Existing levels of service.

	AM Peak Hour			Noon Peak Hour			PM Peak Hour of School			PM Peak Hour of Adjacent Streets			Special Event Peak Hour		
Signalized Intersections	**LOS**	**Delay [a]**	**V/C**	**LOS**	**Delay [a]**	**V/C**	**LOS**	**Delay [a]**	**V/C**	**LOS**	**Delay [a]**	**V/C**	**LOS**	**Delay [a]**	**V/C**
SR 202 / East Lake Sammamish Parkway	F	80.8	1.00	–	–	–	D	37.5	0.66	D	42.0	0.84	–	–	–
SR 202 / 192nd Drive NE	B	13.5	0.82	–	–	–	A	6.4	0.64	A	7.7	0.75	–	–	–
SR 202 / Sahalee Way NE	C	27.7	0.86	–	–	–	C	29.6	0.88	F	104.4	1.13	–	–	–
NE 37th Way / Sahalee Way NE	A	9.1	0.56	–	–	–	A	7.6	0.43	A	9.0	0.53	–	–	–
NE 25th Way / Sahalee Way NE	B	14.4	0.55	B	10.0	0.41	B	11.9	0.50	B	12.2	0.51	B	11.0	0.52
NE Eighth Street (Inglewood Hill Road) / 228th Avenue NE	D	41.9	0.84	C	24.2	0.62	C	31.8	0.74	C	33.1	0.74	C	34.4	0.81
NE Fourth Street / 228th Avenue	C	32.8	0.80	B	16.5	0.65	E	71.1	0.98	B	18.2	0.75	B	18.4	0.72
SE Eighth Street / 228th Avenue SE	C	20.3	0.42	B	11.8	0.33	B	12.8	0.35	A	8.3	0.41	A	9.2	0.44
SE 20th Street / 228th Avenue SE	B	14.6	0.55	A	6.5	0.29	B	10.3	0.48	B	10.6	0.46	B	10.1	0.56
SE 24th Street / 228th Avenue SE	C	22.9	0.64	B	15.2	0.32	C	24.6	0.52	C	21.1	0.55	C	23.2	0.68
Issaquah-Pine Lake Road / 228th Avenue SE	C	32.5	0.83	C	22.4	0.39	C	29.4	0.52	C	22.6	0.50	B	14.4	0.47
Issaquah-Pine Lake Road / Issaquah-Fall City Road	C	29.5	0.72	–	–	–	B	17.4	0.65	B	17.7	0.72	–	–	–
SE 56th Street / East Lake Sammamish Parkway	E	66.0	1.08	–	–	–	C	34.8	0.81	D	44.7	0.87	–	–	–
SE 43rd Way / East Lake Sammamish Parkway	B	14.9	0.71	–	–	–	B	10.5	0.62	B	13.2	0.75	–	–	–
212th Way SE / East Lake Sammamish Parkway	B	12.0	0.68	–	–	–	A	5.1	0.40	A	5.1	0.50	–	–	–
Inglewood Hill Road / East Lake Sammamish Parkway	D	36.7	0.88	–	–	–	A	9.0	0.54	B	18.9	0.74	–	–	–
Unsignalized Intersections [b]	**LOS**	**Delay [a]**	**WM**	**LOS**	**Delay [a]**	**WM**	**LOS**	**Delay [a]**	**WM**	**LOS**	**Delay [a]**	**WM**	**LOS**	**Delay [a]**	**WM**
Main Street / 228th Avenue SE	C	18.5	WB	C	22.2	WB	C	24.6	WB	C	16.1	WB	E	39.6	WB
SE Fourth Street / 228th Avenue SE	C	21.4	EB	D	25.4	EB	D	25.0	EB	F	61.6	EB	E	38.5	EB
Louis Thompson Road / East Lake Sammamish Parkway	C	16.6	WBLT	–	–	–	C	22.2	WBLT	E	47.5	WBLT	–	–	–
SE 20th Street / 212th Avenue SE	B	11.2	WB	–	–	–	–	–	–	B	12.7	WB	–	–	–

EB – eastbound.
LOS – level of service.
V/C – volume-to-capacity ratio.
WB – westbound.
WBLT – westbound left turn.
WM – worst movement.
[a] Average delay in seconds per vehicle.
[b] LOS and delay are reported for the worst movement at unsignalized intersections.

Attachment F

Mr. Savage Letter

MEMORANDUM

Date: March 8, 2007

To: Mr. Scott Hamilton

From: Joseph P. Savage, Jr., P.E.

Per your request, I have reviewed the information regarding the Draft EIS on the Sammamish Town Center, including your initial comment letter and the response from Dan McKinney of The Transpo Group. Although I have been away from Sammamish for over two years, I am still quite familiar with the City and the Comprehensive Plan.

To begin with Mr. McKinney is correct about the ITE Trip Generation estimate of about 10% of daily traffic to/from a single family residential development occurring in the peak hour is not a good estimate of the peak hour percentage of daily traffic on a given street in Sammamish. This is true because those streets carry a mix of residential and non-residential trips, and even the residential peak hour percentages would likely vary from one subdivision to another. Since all you had available for the "existing" traffic volumes were daily traffic, assuming a constant 10% factor is not inappropriate for a non-traffic engineer to begin reviewing the EIS document.

Since Mr. McKinney clearly states that the actual traffic modeling and analysis was conducted using PM peak hour volumes on street segments (links) and intersection approaches, then the EIS should provide the 2006 "existing" PM peak hour traffic volumes used in the EIS as the starting point for analysis. These volumes should be listed in tabular format at the 25 – 30 locations you identified for 2006, and for 2030 for each of the four alternatives (1-3 plus no action). Then one can compare "apples-to-apples." Although I agree with presenting estimated daily traffic volumes based on factoring from the modeled peak hour volumes, all analysis of levels of service at intersections and on street segments should be performed with peak hour rather than daily volumes. Clearly the PM peak hour volumes are readily available for 2006 and the alternatives since Transpo used that data.

I strongly disagree with Mr. McKinney's assertion that "The PM Peak hour intersection operations [I believe he means the LOS calculations] were based on intersection volumes and not the PM peak hour link volumes shown in the figures. So, the operational analysis will not change or be impacted by updating these figures." [Emphasis added.] First, the sums of the traffic volumes entering and leaving a given intersection should reasonably match the directional peak hour link volumes feeding the four legs of the intersection. Thus, there should be a good correlation between the link volumes and the intersection volumes; they are not independent as Mr. McKinney implies. Second, if a comparison of the link volumes between 2006 and 2030, and across the 2030 alternatives, yields questionable results, then both intersection and link volumes should be rationalized.

Looking past the 10% peak hour assumption, your table of 2002, 2006 and 2030 daily traffic volumes appropriately raises significant questions about the accuracy and reliability of the Sammamish traffic model and Transpo's application of it for this DEIS. Mr. McKinney offers no explanation of why the 2002/3 and 2006 daily traffic volumes are different, nor does he explain why 2030 daily traffic volumes on some streets are less than the 2002/3 counts. These

are appropriate questions to be addressed in an EIS, and on their face raise valid questions about the reasonableness of the model results and the conclusions drawn from them.

Having lived in Eagle Ridge adjacent to East Lake Sammamish Parkway (ELSP) for nearly 20 years, and having conducted extensive forensic analysis of the King County traffic models, it is inconceivable to me that ELSP would have such little growth in traffic between 2006 and 2030 – about 1% per year for Alternative 1 and less for the other alternatives. For the No Action Alternative, the analysis shows an actual decline in traffic on ELSP at Weber Point and at SE 8th Street. Similarly, 2030 volumes are projected to be less than 2006 volumes on Inglewood Road, NE 8th, NE 228th, etc. for one or more alternatives or no action. Unless there is a recession in the Puget Sound region, it is not reasonable to expect such declines or low growth situations.

Again, these trends raise serious questions about the reasonableness of the Sammamish traffic model or about Transpo's application of it.

"Calibration" of the traffic model is referenced several times by Mr. McKinney. Is a model calibration report available? Does the model meet FHWA model calibration/validation standards? This information would have been prepared by the model developers (DEA?); I would not expect Transpo to revalidate/recalibrate the model but rather to simply apply what they had been given to work with. Therefore, the questions I raise probably pertain more to the original model rather than Transpo's application of it to the Town Center proposal.

A quick check of the overall validity of the Sammamish model would be to draw a "cordon line" around the city and tally the actual base year traffic counts, then do the same for the 2030 no action alternative and see if the comparison makes sense in relation to projected population and employment growth in Sammamish between the base year and 2030. If the results of that check are not reasonable (i.e., growth of total traffic crossing the cordon line approximates growth in population and employment), then clearly the results of the analysis conducted for the Town Center proposal using that model cannot be relied upon as the basis for a decision on Town Center alternatives by the City.

In closing, the points that you raised in your table and in your list of questions are valid points and deserve an adequate response. The unreasonableness of the traffic model projections for 2030 in comparison to 2006 cause me to question the validity of the entire analysis and results presented in the Draft EIS, even though the problems may lie with the City's traffic model and not the project-specific analysis for the Town Center alternatives. These questions can be addressed by providing the 2006 PM peak hour volumes alongside the forecast 2030 PM peak hour volumes, and the reasonableness of their relationships determined.

Other points, such as the varying PM peak hour percentages by location and by alternative, also deserve attention, but not until the overall reasonableness of the traffic modeling is assured.

Appendix B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		0.91	0.91		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.99		0.95	1.00	1.00
Satd. Flow (prot)	1711	3421	1531	1711	4800		3113	1568		1625	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.99		0.95	1.00	1.00
Satd. Flow (perm)	1711	3421	1531	1711	4800		3113	1568		1625	1711	1531
Volume (vph)	100	1501	694	68	888	166	614	164	64	245	560	43
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	111	1668	771	76	987	184	682	182	71	272	622	48
RTOR Reduction (vph)	0	0	27	0	22	0	0	9	0	0	0	25
Lane Group Flow (vph)	111	1668	744	76	1149	0	615	311	0	272	622	23
Turn Type	Prot		pm+ov	Prot			Split			Split		Perm
Protected Phases	7	4	2	3	8		2	2		1	1	
Permitted Phases			4									1
Actuated Green, G (s)	12.0	44.0	66.0	4.0	37.0		22.0	22.0		32.0	32.0	32.0
Effective Green, g (s)	13.0	46.0	69.0	6.0	39.0		23.0	23.0		33.0	33.0	33.0
Actuated g/C Ratio	0.11	0.38	0.57	0.05	0.32		0.19	0.19		0.28	0.28	0.28
Clearance Time (s)	4.0	5.0	4.0	5.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	185	1311	880	86	1560		597	301		447	471	421
v/s Ratio Prot	0.06	c0.49	0.16	c0.04	0.24		0.20	c0.20		0.17	c0.36	
v/s Ratio Perm			0.32									0.01
v/c Ratio	0.60	1.27	0.85	0.88	0.74		1.03	1.03		0.61	1.32	0.05
Uniform Delay, d1	51.0	37.0	21.1	56.7	35.9		48.5	48.5		37.9	43.5	32.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	5.4	128.7	7.5	59.9	1.8		44.8	60.8		2.3	158.6	0.1
Delay (s)	56.4	165.7	28.6	116.6	37.8		93.3	109.3		40.2	202.1	32.1
Level of Service	E	F	C	F	D		F	F		D	F	C
Approach Delay (s)		119.5			42.6			98.8			146.7	
Approach LOS		F			D			F			F	

Intersection Summary				
HCM Average Control Delay	103.7	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.22			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	103.6%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3421	1531	1711	3421	1711	1531
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3421	1531	1711	3421	1711	1531
Volume (vph)	1617	225	23	708	124	15
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1797	250	26	787	138	17
RTOR Reduction (vph)	0	85	0	0	0	14
Lane Group Flow (vph)	1797	165	26	787	138	3
Turn Type		Perm	Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	48.9	48.9	2.2	55.1	11.8	11.8
Effective Green, g (s)	50.9	50.9	3.2	57.1	13.8	13.8
Actuated g/C Ratio	0.66	0.66	0.04	0.74	0.18	0.18
Clearance Time (s)	5.0	5.0	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2264	1013	71	2540	307	275
v/s Ratio Prot	c0.53		c0.02	0.23	c0.08	
v/s Ratio Perm		0.11				0.00
v/c Ratio	0.79	0.16	0.37	0.31	0.45	0.01
Uniform Delay, d1	9.3	4.9	35.9	3.3	28.2	25.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	0.1	3.2	0.1	1.0	0.0
Delay (s)	11.3	5.0	39.0	3.4	29.2	26.0
Level of Service	B	A	D	A	C	C
Approach Delay (s)	10.5			4.5	28.9	
Approach LOS	B			A	C	

Intersection Summary				
HCM Average Control Delay	9.8	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	76.9	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	58.2%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	3.0	3.0	3.0		3.0		3.0			
Lane Util. Factor		1.00	1.00	1.00	1.00		1.00		1.00			
Frt		1.00	0.85	1.00	1.00		1.00		0.85			
Flt Protected		1.00	1.00	0.95	1.00		0.95		1.00			
Satd. Flow (prot)		1801	1531	1711	1801		1711		1531			
Flt Permitted		1.00	1.00	0.06	1.00		0.95		1.00			
Satd. Flow (perm)		1801	1531	105	1801		1711		1531			
Volume (vph)	0	889	847	61	454	0	526	0	53	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	988	941	68	504	0	584	0	59	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	15	0	0	0
Lane Group Flow (vph)	0	988	941	68	504	0	584	0	44	0	0	0
Turn Type			Free	pm+pt			custom		custom			
Protected Phases		2		1	6		8		8			
Permitted Phases			Free	6			8		8			
Actuated Green, G (s)		62.8	120.0	70.0	70.0		38.0		38.0			
Effective Green, g (s)		65.8	120.0	73.0	73.0		41.0		41.0			
Actuated g/C Ratio		0.55	1.00	0.61	0.61		0.34		0.34			
Clearance Time (s)		6.0		4.0	6.0		6.0		6.0			
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0			
Lane Grp Cap (vph)		988	1531	120	1096		585		523			
v/s Ratio Prot		c0.55		0.02	0.28		c0.34		0.03			
v/s Ratio Perm			c0.61	0.33								
v/c Ratio		1.00	0.61	0.57	0.46		1.00		0.08			
Uniform Delay, d1		27.1	0.0	28.2	12.8		39.5		26.8			
Progression Factor		1.00	1.00	1.00	1.00		0.90		0.83			
Incremental Delay, d2		28.6	1.9	6.0	1.4		35.9		0.1			
Delay (s)		55.7	1.9	34.2	14.2		71.3		22.3			
Level of Service		E	A	C	B		E		C			
Approach Delay (s)		29.5			16.6			66.8			0.0	
Approach LOS		C			B			E			A	

Intersection Summary				
HCM Average Control Delay	34.7	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.98			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	86.5%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.94	
Flt Protected	1.00	1.00	0.95	1.00	0.97	
Satd. Flow (prot)	1801	1531	1711	1801	1642	
Flt Permitted	1.00	1.00	0.95	1.00	0.97	
Satd. Flow (perm)	1801	1531	1711	1801	1642	
Volume (vph)	895	374	109	397	173	155
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	994	416	121	441	192	172
RTOR Reduction (vph)	0	140	0	0	27	0
Lane Group Flow (vph)	994	276	121	441	337	0
Turn Type		Perm	Prot			
Protected Phases	4		3	8	2	
Permitted Phases		4				
Actuated Green, G (s)	62.9	62.9	9.6	76.5	24.3	
Effective Green, g (s)	64.9	64.9	10.6	78.5	26.3	
Actuated g/C Ratio	0.59	0.59	0.10	0.71	0.24	
Clearance Time (s)	5.0	5.0	4.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	1055	897	164	1276	390	
v/s Ratio Prot	c0.55		c0.07	0.24	c0.21	
v/s Ratio Perm		0.18				
v/c Ratio	0.94	0.31	0.74	0.35	0.86	
Uniform Delay, d1	21.2	11.6	48.7	6.2	40.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	15.7	0.2	15.8	0.2	17.7	
Delay (s)	36.9	11.8	64.6	6.4	58.3	
Level of Service	D	B	E	A	E	
Approach Delay (s)	29.5			18.9	58.3	
Approach LOS	C			B	E	

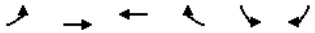
Intersection Summary				
HCM Average Control Delay	31.4	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.90			
Actuated Cycle Length (s)	110.8	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	82.2%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1711	1531	1801	1531	1711	1801
Flt Permitted	0.95	1.00	1.00	1.00	0.36	1.00
Satd. Flow (perm)	1711	1531	1801	1531	650	1801
Volume (vph)	68	333	421	95	496	613
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	76	370	468	106	551	681
RTOR Reduction (vph)	0	134	0	30	0	0
Lane Group Flow (vph)	76	236	468	76	551	681
Turn Type		pt+ov		pt+ov	pm+pt	
Protected Phases	4	4 1	2	2 4	1	6
Permitted Phases					6	
Actuated Green, G (s)	14.3	45.5	64.5	83.8	95.7	95.7
Effective Green, g (s)	16.3	47.5	66.5	85.8	97.7	97.7
Actuated g/C Ratio	0.14	0.40	0.55	0.72	0.81	0.81
Clearance Time (s)	5.0		5.0		5.0	5.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	232	606	998	1095	779	1466
v/s Ratio Prot	0.04	c0.15	0.26	0.05	c0.17	0.38
v/s Ratio Perm					c0.41	
v/c Ratio	0.33	0.39	0.47	0.07	0.71	0.46
Uniform Delay, d1	46.9	25.9	16.1	5.1	6.9	3.3
Progression Factor	1.00	1.00	0.94	1.91	1.00	1.00
Incremental Delay, d2	0.8	0.4	1.5	0.0	2.9	1.1
Delay (s)	47.7	26.3	16.7	9.8	9.9	4.4
Level of Service	D	C	B	A	A	A
Approach Delay (s)	30.0		15.4			6.8
Approach LOS	C		B			A

Intersection Summary				
HCM Average Control Delay	13.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	63.8%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

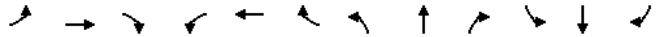
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1711	1531	1775		1711	1801
Flt Permitted	0.95	1.00	1.00		0.45	1.00
Satd. Flow (perm)	1711	1531	1775		804	1801
Volume (vph)	36	96	421	50	275	406
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	40	107	468	56	306	451
RTOR Reduction (vph)	0	95	4	0	0	0
Lane Group Flow (vph)	40	12	520	0	306	451
Turn Type		Perm			Perm	
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	5.9	5.9	46.1		46.1	46.1
Effective Green, g (s)	6.9	6.9	47.1		47.1	47.1
Actuated g/C Ratio	0.12	0.12	0.78		0.78	0.78
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	197	176	1393		631	1414
v/s Ratio Prot	c0.02		0.29			0.25
v/s Ratio Perm		0.01			c0.38	
v/c Ratio	0.20	0.07	0.37		0.48	0.32
Uniform Delay, d1	24.1	23.7	2.0		2.2	1.8
Progression Factor	1.00	1.00	1.00		0.74	0.55
Incremental Delay, d2	0.5	0.2	0.8		2.4	0.5
Delay (s)	24.6	23.9	2.7		4.1	1.6
Level of Service	C	C	A		A	A
Approach Delay (s)	24.1		2.7			2.6
Approach LOS	C		A			A

Intersection Summary				
HCM Average Control Delay	4.8	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.45			
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	53.8%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.98		0.96	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1711	1801	1762		1672	
Flt Permitted	0.20	1.00	1.00		0.97	
Satd. Flow (perm)	363	1801	1762		1672	
Volume (vph)	30	370	513	97	72	29
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	33	411	570	108	80	32
RTOR Reduction (vph)	0	0	14	0	20	0
Lane Group Flow (vph)	33	411	664	0	92	0
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)	22.4	22.4	22.4		17.5	
Effective Green, g (s)	23.4	23.4	23.4		18.5	
Actuated g/C Ratio	0.49	0.49	0.49		0.39	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	177	880	861		646	
v/s Ratio Prot		0.23	c0.38		c0.06	
v/s Ratio Perm	0.09					
v/c Ratio	0.19	0.47	0.77		0.14	
Uniform Delay, d1	6.9	8.1	10.1		9.5	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.5	0.4	4.3		0.5	
Delay (s)	7.4	8.5	14.4		10.0	
Level of Service	A	A	B		B	
Approach Delay (s)		8.4	14.4		10.0	
Approach LOS		A	B		B	

Intersection Summary				
HCM Average Control Delay	11.8	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.49			
Actuated Cycle Length (s)	47.9	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	45.3%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0					3.0	
Lane Util. Factor		1.00			1.00	1.00					1.00	
Frt		1.00			1.00	0.85					0.99	
Flt Protected		1.00			1.00	1.00					0.95	
Satd. Flow (prot)		1799			1801	1531					1707	
Flt Permitted		0.99			1.00	1.00					0.95	
Satd. Flow (perm)		1777			1801	1531					1707	
Volume (vph)	8	497	0	0	715	285	0	0	0	135	0	7
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	552	0	0	794	317	0	0	0	150	0	8
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	561	0	0	794	317	0	0	0	0	156	0
Turn Type	Perm					pm+ov				Split		
Protected Phases		2			6 7	8				8	8	
Permitted Phases	2					6 7						
Actuated Green, G (s)		26.2			40.9	51.9					11.0	
Effective Green, g (s)		28.7			41.9	55.4					13.5	
Actuated g/C Ratio		0.47			0.68	0.90					0.22	
Clearance Time (s)		5.5				5.5					5.5	
Vehicle Extension (s)		3.0				3.0					3.0	
Lane Grp Cap (vph)		831			1229	1531					375	
v/s Ratio Prot					c0.44	0.05					c0.09	
v/s Ratio Perm		c0.32				0.16						
v/c Ratio		0.68			0.65	0.21					0.42	
Uniform Delay, d1		12.7			5.5	0.4					20.6	
Progression Factor		1.00			1.00	1.00					1.00	
Incremental Delay, d2		2.2			1.2	0.1					0.8	
Delay (s)		14.9			6.7	0.4					21.3	
Level of Service		B			A	A					C	
Approach Delay (s)		14.9			4.9			0.0			21.3	
Approach LOS		B			A			A			C	

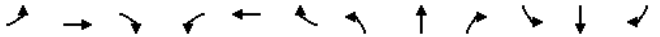
Intersection Summary				
HCM Average Control Delay	9.4	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.60			
Actuated Cycle Length (s)	61.4	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	52.2%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1625	1648	1531	1711	1776		1711	3376		1711	3421	1531
Flt Permitted	0.95	0.96	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1625	1648	1531	1711	1776		1711	3376		1711	3421	1531
Volume (vph)	1135	158	499	91	164	16	524	573	56	19	676	963
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1261	176	554	101	182	18	582	637	62	21	751	1070
RTOR Reduction (vph)	0	0	250	0	3	0	0	6	0	0	0	53
Lane Group Flow (vph)	700	737	304	101	197	0	582	693	0	21	751	1017
Turn Type	Split		Perm	Split			Prot			Prot		pm+ov
Protected Phases	4	4		3	3		5	2		1	6	4
Permitted Phases			4									6
Actuated Green, G (s)	37.0	37.0	37.0	15.2	15.2		26.0	48.4		1.6	25.0	62.0
Effective Green, g (s)	39.0	39.0	39.0	17.2	17.2		27.0	50.4		3.6	27.0	66.0
Actuated g/C Ratio	0.32	0.32	0.32	0.14	0.14		0.22	0.41		0.03	0.22	0.54
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	519	526	489	241	250		378	1392		50	756	864
v/s Ratio Prot	0.43	c0.45		0.06	c0.11		c0.34	0.21		0.01	0.22	c0.38
v/s Ratio Perm			0.20									0.29
v/c Ratio	1.35	1.40	0.62	0.42	0.79		1.54	0.50		0.42	0.99	1.18
Uniform Delay, d1	41.6	41.6	35.3	47.9	50.8		47.6	26.5		58.3	47.5	28.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	169.4	191.8	2.5	1.2	15.2		255.8	0.3		5.6	30.9	91.6
Delay (s)	211.0	233.4	37.8	49.1	65.9		303.4	26.8		63.9	78.4	119.7
Level of Service	F	F	D	D	E		F	C		E	E	F
Approach Delay (s)		171.1			60.3			152.5			102.2	
Approach LOS		F			E			F			F	

Intersection Summary				
HCM Average Control Delay	137.1	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.29			
Actuated Cycle Length (s)	122.2	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	108.3%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1711	3416		1711	3421	1531		1766	1531	1625	1631	1531
Flt Permitted	0.11	1.00		0.09	1.00	1.00		0.98	1.00	0.95	0.95	1.00
Satd. Flow (perm)	192	3416		168	3421	1531		1766	1531	1625	1631	1531
Volume (vph)	220	1344	14	9	903	1133	13	20	79	755	11	292
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	244	1493	16	10	1003	1259	14	22	88	839	12	324
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	60	0	0	234
Lane Group Flow (vph)	244	1509	0	10	1003	1259	0	36	28	420	431	90
Turn Type	pm+pt			pm+pt		Free	Split		Perm	Split		Perm
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases	4			8		Free			2			1
Actuated Green, G (s)	60.1	54.3		41.7	40.9	112.3		8.1	8.1	29.1	29.1	29.1
Effective Green, g (s)	62.1	56.3		45.7	42.9	112.3		10.1	10.1	31.1	31.1	31.1
Actuated g/C Ratio	0.55	0.50		0.41	0.38	1.00		0.09	0.09	0.28	0.28	0.28
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	325	1713		107	1307	1531		159	138	450	452	424
v/s Ratio Prot	0.11	c0.44		0.00	0.29			0.02		0.26	c0.26	
v/s Ratio Perm	0.31			0.04		c0.82			0.02			0.06
v/c Ratio	0.75	0.88		0.09	0.77	0.82		0.23	0.20	0.93	0.95	0.21
Uniform Delay, d1	24.9	25.0		23.4	30.3	0.0		47.5	47.4	39.6	39.9	31.2
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.4	5.7		0.4	2.8	5.1		0.7	0.7	26.4	30.6	0.3
Delay (s)	34.3	30.7		23.8	33.1	5.1		48.2	48.1	66.0	70.4	31.4
Level of Service	C	C		C	C	A		D	D	E	E	C
Approach Delay (s)		31.2			17.6			48.1			58.1	
Approach LOS		C			B			D			E	

Intersection Summary				
HCM Average Control Delay	31.7	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.88			
Actuated Cycle Length (s)	112.3	Sum of lost time (s)	3.0	
Intersection Capacity Utilization	78.8%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

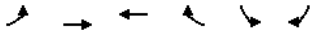


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3319	3421		3319	3402		1711	3421	1531	1711	3421	1531
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3319	3421		3319	3402		1711	3421	1531	1711	3421	1531
Volume (vph)	678	858	0	285	602	23	12	1110	867	16	476	450
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	753	953	0	317	669	26	13	1233	963	18	529	500
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	32	0	0	44
Lane Group Flow (vph)	753	953	0	317	693	0	13	1233	931	18	529	456
Turn Type	Prot			Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases									8			4
Actuated Green, G (s)	29.4	28.3		27.5	26.4		1.6	44.6	72.1	1.6	44.6	74.0
Effective Green, g (s)	30.9	29.8		29.0	27.9		3.1	46.1	75.1	3.1	46.1	77.0
Actuated g/C Ratio	0.26	0.25		0.24	0.23		0.03	0.38	0.63	0.03	0.38	0.64
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	855	850		802	791		44	1314	958	44	1314	1021
v/s Ratio Prot	0.23	c0.28		0.10	0.20		0.01	0.36	c0.23	c0.01	0.15	0.12
v/s Ratio Perm									0.37			0.18
v/c Ratio	0.88	1.12		0.40	0.88		0.30	0.94	0.97	0.41	0.40	0.45
Uniform Delay, d1	42.8	45.1		38.1	44.4		57.4	35.6	21.4	57.5	26.9	10.8
Progression Factor	1.00	1.00		0.78	0.76		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.5	69.8		0.2	6.8		3.7	12.7	22.4	6.1	0.2	0.3
Delay (s)	53.3	114.9		29.8	40.7		61.1	48.3	43.8	63.6	27.1	11.1
Level of Service	D	F		C	D		E	D	D	E	C	B
Approach Delay (s)		87.7			37.2			46.4			20.1	
Approach LOS		F			D			D			C	

Intersection Summary				
HCM Average Control Delay	52.0	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.97			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	90.7%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1711	1531	1711	1801	1801	1531
Flt Permitted	0.95	1.00	0.45	1.00	1.00	1.00
Satd. Flow (perm)	1711	1531	810	1801	1801	1531
Volume (vph)	118	51	100	810	446	98
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	131	57	111	900	496	109
RTOR Reduction (vph)	0	48	0	0	0	27
Lane Group Flow (vph)	131	9	111	900	496	82
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	10.2	10.2	52.2	52.2	52.2	52.2
Effective Green, g (s)	11.2	11.2	53.2	53.2	53.2	53.2
Actuated g/C Ratio	0.16	0.16	0.76	0.76	0.76	0.76
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	272	244	612	1361	1361	1157
v/s Ratio Prot	c0.08			c0.50	0.28	
v/s Ratio Perm		0.01	0.14			0.05
v/c Ratio	0.48	0.04	0.18	0.66	0.36	0.07
Uniform Delay, d1	27.0	25.0	2.4	4.2	2.9	2.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.1	0.7	2.5	0.8	0.1
Delay (s)	28.3	25.1	3.1	6.7	3.7	2.3
Level of Service	C	C	A	A	A	A
Approach Delay (s)	27.3			6.3	3.4	
Approach LOS	C			A	A	

Intersection Summary				
HCM Average Control Delay	7.5	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	70.4	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	55.8%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1711	1801	1726		1711	1531
Flt Permitted	0.40	1.00	1.00		0.95	1.00
Satd. Flow (perm)	729	1801	1726		1711	1531
Volume (vph)	359	523	333	147	116	206
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	399	581	370	163	129	229
RTOR Reduction (vph)	0	0	21	0	0	177
Lane Group Flow (vph)	399	581	512	0	129	52
Turn Type	Perm					Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Actuated Green, G (s)	33.7	33.7	33.7		10.9	10.9
Effective Green, g (s)	34.7	34.7	34.7		11.9	11.9
Actuated g/C Ratio	0.66	0.66	0.66		0.23	0.23
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	481	1188	1139		387	346
v/s Ratio Prot		0.32	0.30		c0.08	
v/s Ratio Perm	c0.55					0.03
v/c Ratio	0.83	0.49	0.45		0.33	0.15
Uniform Delay, d1	6.7	4.5	4.3		17.0	16.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	11.3	0.3	0.3		0.5	0.2
Delay (s)	18.0	4.8	4.6		17.5	16.5
Level of Service	B	A	A		B	B
Approach Delay (s)		10.2	4.6		16.9	
Approach LOS		B	A		B	

Intersection Summary				
HCM Average Control Delay	9.9	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	52.6	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	62.8%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-10%	10%	
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1711	1531	1796	1891	1711	1454
Flt Permitted	0.95	1.00	0.26	1.00	1.00	1.00
Satd. Flow (perm)	1711	1531	492	1891	1711	1454
Volume (vph)	66	36	75	471	785	85
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	73	40	83	523	872	94
RTOR Reduction (vph)	0	36	0	0	0	15
Lane Group Flow (vph)	73	4	83	523	872	79
Turn Type		Perm	pm+pt			Perm
Protected Phases	8		5	2	6	
Permitted Phases		8	2			6
Actuated Green, G (s)	8.9	8.9	101.1	99.1	88.9	88.9
Effective Green, g (s)	10.9	10.9	103.1	103.1	92.9	92.9
Actuated g/C Ratio	0.09	0.09	0.86	0.86	0.77	0.77
Clearance Time (s)	5.0	5.0	5.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	155	139	501	1625	1325	1126
v/s Ratio Prot	c0.04		0.01	c0.28	c0.51	
v/s Ratio Perm		0.00	0.13			0.05
v/c Ratio	0.47	0.03	0.17	0.32	0.66	0.07
Uniform Delay, d1	51.8	49.7	7.4	1.6	6.2	3.2
Progression Factor	1.00	1.00	1.00	1.00	0.99	0.99
Incremental Delay, d2	2.3	0.1	0.2	0.5	2.1	0.1
Delay (s)	54.1	49.8	7.6	2.2	8.2	3.3
Level of Service	D	D	A	A	A	A
Approach Delay (s)	52.6			2.9	7.7	
Approach LOS	D			A	A	

Intersection Summary				
HCM Average Control Delay	9.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	59.6%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.89			0.95		1.00	0.96		1.00	1.00	
Flt Protected		1.00			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1605			1658		1711	1731		1711	1801	
Flt Permitted		1.00			0.80		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1605			1369		1711	1731		1711	1801	
Volume (vph)	0	8	33	82	7	59	55	391	136	96	498	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	9	37	91	8	66	61	434	151	107	553	0
RTOR Reduction (vph)	0	30	0	0	48	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	16	0	0	117	0	61	569	0	107	553	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		9.2			9.2		3.1	30.0		4.4	31.3	
Effective Green, g (s)		11.2			11.2		5.1	32.6		6.4	33.9	
Actuated g/C Ratio		0.19			0.19		0.09	0.55		0.11	0.57	
Clearance Time (s)		5.0			5.0		5.0	5.6		5.0	5.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		304			259		147	953		185	1031	
v/s Ratio Prot		0.01					0.04	c0.33		c0.06	0.31	
v/s Ratio Perm					c0.09							
v/c Ratio		0.05			0.45		0.41	0.60		0.58	0.54	
Uniform Delay, d1		19.7			21.3		25.6	8.9		25.1	7.8	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			1.3		1.9	1.0		4.3	0.5	
Delay (s)		19.7			22.5		27.5	9.9		29.4	8.3	
Level of Service		B			C		C	A		C	A	
Approach Delay (s)		19.7			22.5			11.6			11.8	
Approach LOS		B			C			B			B	

Intersection Summary				
HCM Average Control Delay	13.1	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	59.2	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	59.4%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-6%			0%	0%	
Total Lost time (s)	3.0		3.0	3.0	3.0	
Lane Util. Factor	1.00		1.00	0.95	0.95	
Frt	0.89		1.00	1.00	0.99	
Flt Protected	0.99		0.95	1.00	1.00	
Satd. Flow (prot)	1633		1711	3421	3396	
Flt Permitted	0.99		0.95	1.00	1.00	
Satd. Flow (perm)	1633		1711	3421	3396	
Volume (vph)	16	80	137	828	628	32
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	89	152	920	698	36
RTOR Reduction (vph)	82	0	0	0	2	0
Lane Group Flow (vph)	25	0	152	920	732	0
Turn Type			Prot			
Protected Phases	8		5	2	6	
Permitted Phases						
Actuated Green, G (s)	6.4		14.6	93.6	74.0	
Effective Green, g (s)	8.4		16.6	95.6	76.0	
Actuated g/C Ratio	0.08		0.15	0.87	0.69	
Clearance Time (s)	5.0		5.0	5.0	5.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	125		258	2973	2346	
v/s Ratio Prot	c0.02		c0.09	c0.27	0.22	
v/s Ratio Perm						
v/c Ratio	0.20		0.59	0.31	0.31	
Uniform Delay, d1	47.6		43.5	1.3	6.7	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.8		3.4	0.3	0.3	
Delay (s)	48.4		46.9	1.6	7.0	
Level of Service	D		D	A	A	
Approach Delay (s)	48.4			8.0	7.0	
Approach LOS	D			A	A	

Intersection Summary				
HCM Average Control Delay	9.9	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.34			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	41.8%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			2%	
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1711	1801	1531	1711	1801	1531	1711	3421	1531	1694	3360	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1711	1801	1531	1711	1801	1531	1711	3421	1531	1694	3360	
Volume (vph)	48	322	77	51	329	115	177	805	168	92	585	32
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	53	358	86	57	366	128	197	894	187	102	650	36
RTOR Reduction (vph)	0	0	48	0	0	78	0	0	92	0	3	0
Lane Group Flow (vph)	53	358	38	57	366	50	197	894	95	102	683	0
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		
Protected Phases	3	8	5	7	4	1	5	2	7	1	6	
Permitted Phases			8			4			2			
Actuated Green, G (s)	6.3	27.3	44.1	7.4	28.0	38.9	16.8	44.1	51.5	10.9	38.2	
Effective Green, g (s)	8.3	29.3	48.1	9.4	30.4	43.3	18.8	46.4	55.8	12.9	40.5	
Actuated g/C Ratio	0.08	0.27	0.44	0.09	0.28	0.39	0.17	0.42	0.51	0.12	0.37	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.4	5.0	5.0	5.3	5.0	5.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	129	480	711	146	498	644	292	1443	818	199	1237	
v/s Ratio Prot	0.03	0.20	0.01	c0.03	c0.20	0.01	c0.12	c0.26	0.01	0.06	0.20	
v/s Ratio Perm			0.02			0.02			0.05			
v/c Ratio	0.41	0.75	0.05	0.39	0.73	0.08	0.67	0.62	0.12	0.51	0.55	
Uniform Delay, d1	48.5	36.9	17.8	47.6	36.1	20.9	42.7	24.9	14.2	45.6	27.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.1	6.2	0.0	1.7	5.6	0.1	6.0	2.0	0.1	2.2	1.8	
Delay (s)	50.6	43.2	17.9	49.3	41.7	20.9	48.8	26.9	14.3	47.8	29.3	
Level of Service	D	D	B	D	D	C	D	C	B	D	C	
Approach Delay (s)		39.6			37.7			28.4			31.7	
Approach LOS		D			D			C			C	

Intersection Summary				
HCM Average Control Delay	32.7	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	62.2%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-5%			0%	
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.85		1.00	0.85		1.00	1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1711	1531		1711	1531		1753	3498		1711	3407	
Flt Permitted	0.73	1.00		0.73	1.00		0.95	1.00		0.21	1.00	
Satd. Flow (perm)	1321	1531		1323	1531		1753	3498		379	3407	
Volume (vph)	18	0	31	23	0	32	27	1079	18	23	677	20
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	20	0	34	26	0	36	30	1199	20	26	752	22
RTOR Reduction (vph)	0	32	0	0	34	0	0	0	0	0	1	0
Lane Group Flow (vph)	20	2	0	26	2	0	30	1219	0	26	773	0
Turn Type	Perm			Perm			Prot			pm+pt		
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4						6		
Actuated Green, G (s)	5.0	5.0		5.2	5.2		5.1	85.9		87.8	84.3	
Effective Green, g (s)	7.2	7.2		7.2	7.2		7.3	88.1		92.2	86.5	
Actuated g/C Ratio	0.07	0.07		0.07	0.07		0.07	0.80		0.84	0.79	
Clearance Time (s)	5.2	5.2		5.0	5.0		5.2	5.2		5.2	5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	86	100		87	100		116	2802		387	2679	
v/s Ratio Prot		0.00			0.00		c0.02	c0.35		0.00	0.23	
v/s Ratio Perm	0.02			c0.02						0.05		
v/c Ratio	0.23	0.02		0.30	0.02		0.26	0.43		0.07	0.29	
Uniform Delay, d1	48.8	48.1		49.0	48.1		48.8	3.3		1.7	3.2	
Progression Factor	1.00	1.00		1.00	1.00		1.25	0.19		1.00	1.00	
Incremental Delay, d2	1.4	0.1		1.9	0.1		1.1	0.4		0.1	0.3	
Delay (s)	50.2	48.2		50.9	48.2		62.3	1.1		1.8	3.5	
Level of Service	D	D		D	D		E	A		A	A	
Approach Delay (s)		48.9			49.3			2.6			3.5	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM Average Control Delay	5.4	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.40			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	45.0%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
No Action Test1739 Long Range Background

118: SE 4th Street & 228th Ave SE
7/30/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-7%			0%			-2%			0%	
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95			0.95	
Frt	1.00	0.87		1.00	0.89		1.00	1.00			0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)	1770	1627		1711	1600		1728	3442			3387	
Flt Permitted	0.48	1.00		0.69	1.00		0.95	1.00			0.86	
Satd. Flow (perm)	897	1627		1234	1600		1728	3442			2918	
Volume (vph)	41	15	85	54	20	57	85	1027	28	30	662	40
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	46	17	94	60	22	63	94	1141	31	33	736	44
RTOR Reduction (vph)	0	72	0	0	56	0	0	1	0	0	3	0
Lane Group Flow (vph)	46	39	0	60	29	0	94	1171	0	0	810	0
Turn Type	pm+pt			Perm			Prot			Perm		
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4			8						6		
Actuated Green, G (s)	24.5	24.5		9.4	9.4		9.8	76.5			61.7	
Effective Green, g (s)	25.5	25.5		12.4	12.4		11.8	78.5			63.7	
Actuated g/C Ratio	0.23	0.23		0.11	0.11		0.11	0.71			0.58	
Clearance Time (s)	6.0	4.0		6.0	6.0		5.0	5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	288	377		139	180		185	2456			1690	
v/s Ratio Prot	c0.01	0.02			0.02		c0.05	c0.34				
v/s Ratio Perm	0.02			c0.05							0.28	
v/c Ratio	0.16	0.10		0.43	0.16		0.51	0.48			0.48	
Uniform Delay, d1	33.4	33.2		45.5	44.1		46.4	6.8			13.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			0.84	
Incremental Delay, d2	0.3	0.1		2.1	0.4		2.2	0.7			1.0	
Delay (s)	33.7	33.4		47.7	44.5		48.5	7.5			12.3	
Level of Service	C	C		D	D		D	A			B	
Approach Delay (s)		33.5			45.8			10.5			12.3	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM Average Control Delay	14.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	69.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
No Action Test1739 Long Range Background

120: SE 8th St. & 228th Ave SE
7/30/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			-2%			2%	
Total Lost time (s)		3.0			3.0	3.0				3.0	3.0	
Lane Util. Factor		1.00			1.00	1.00				1.00	0.95	
Frt		1.00			1.00	0.85				1.00	0.85	
Flt Protected		0.97			1.00	1.00				0.95	1.00	
Satd. Flow (prot)		1730			1819	1546				1694	2879	
Flt Permitted		0.81			1.00	1.00				0.73	1.00	
Satd. Flow (perm)		1441			1819	1546				1302	2879	
Volume (vph)	26	17	0	0	11	61	0	0	0	92	0	18
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	29	19	0	0	12	68	0	0	0	102	0	20
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	48	0	0	12	68	0	0	0	102	17	0
Turn Type	Perm			Perm		custom	Prot		custom	pm+pt		
Protected Phases		8			4	4	5	2	2	1	6	
Permitted Phases	8			4		1 2			1 4	6		
Actuated Green, G (s)		6.5			7.5	99.0				91.5	91.5	
Effective Green, g (s)		9.5			9.5	104.0				94.5	94.5	
Actuated g/C Ratio		0.09			0.09	0.95				0.86	0.86	
Clearance Time (s)		6.0			5.0	5.0				5.5	6.0	
Vehicle Extension (s)		3.0			3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)		124			157	1546				1151	2473	
v/s Ratio Prot					0.01	0.00				c0.01	0.01	
v/s Ratio Perm		c0.03				0.04				c0.07		
v/c Ratio		0.39			0.08	0.04				0.09	0.01	
Uniform Delay, d1		47.5			46.2	0.2				1.2	1.1	
Progression Factor		1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2		2.0			0.2	0.0				0.0	0.0	
Delay (s)		49.5			46.4	0.2				1.2	1.1	
Level of Service		D			D	A				A	A	
Approach Delay (s)		49.5			7.1			0.0			1.2	
Approach LOS		D			A			A			A	

Intersection Summary			
HCM Average Control Delay	12.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.12		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	25.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-3%	
Total Lost time (s)		3.0	3.0				3.0	3.0			3.0	
Lane Util. Factor		1.00	1.00				1.00	0.95			0.95	
Frt		1.00	0.85				1.00	1.00			0.99	
Flt Protected		0.95	1.00				0.95	1.00			1.00	
Satd. Flow (prot)		1711	1531				1711	3421			3442	
Flt Permitted		0.95	1.00				0.95	1.00			1.00	
Satd. Flow (perm)		1711	1531				1711	3421			3442	
Volume (vph)	32	0	220	0	0	0	183	1439	0	0	939	59
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	36	0	244	0	0	0	203	1599	0	0	1043	66
RTOR Reduction (vph)	0	0	218	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	36	26	0	0	0	203	1599	0	0	1106	0
Turn Type	Perm		Perm	Perm			Prot			pm+pt		
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8		8	4						6		
Actuated Green, G (s)		8.9	8.9				18.3	89.5			65.6	
Effective Green, g (s)		11.5	11.5				20.9	92.5			68.6	
Actuated g/C Ratio		0.10	0.10				0.19	0.84			0.62	
Clearance Time (s)		5.6	5.6				5.6	6.0			6.0	
Vehicle Extension (s)		3.0	3.0				3.0	3.0			3.0	
Lane Grp Cap (vph)		179	160				325	2877			2147	
v/s Ratio Prot							c0.12	c0.47			0.32	
v/s Ratio Perm		0.02	0.02									
v/c Ratio		0.20	0.16				0.62	0.56			0.52	
Uniform Delay, d1		45.0	44.8				40.9	2.6			11.5	
Progression Factor		1.00	1.00				1.00	1.00			1.00	
Incremental Delay, d2		0.6	0.5				3.7	0.8			0.9	
Delay (s)		45.6	45.3				44.7	3.4			12.4	
Level of Service		D	D				D	A			B	
Approach Delay (s)		45.4			0.0			8.0			12.4	
Approach LOS		D			A			A			B	

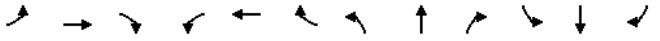
Intersection Summary			
HCM Average Control Delay	12.8	HCM Level of Service	B
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.0	3.0		3.0	3.0	3.0	3.0	
Lane Util. Factor					1.00	1.00		0.95	1.00	1.00	0.95	
Frt					1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected					0.95	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)					1711	1531		3421	1531	1711	3421	
Flt Permitted					0.95	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)					1711	1531		3421	1531	1711	3421	
Volume (vph)	0	0	0	91	0	60	0	1574	160	112	1081	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	101	0	67	0	1749	178	124	1201	0
RTOR Reduction (vph)	0	0	0	0	0	59	0	0	39	0	0	0
Lane Group Flow (vph)	0	0	0	0	101	8	0	1749	139	124	1201	0
Turn Type	Split		Perm	Split		Perm	Prot		Perm	Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases			3			4			2			
Actuated Green, G (s)					11.5	11.5		64.5	64.5	16.7	88.2	
Effective Green, g (s)					13.8	13.8		67.5	67.5	19.7	90.2	
Actuated g/C Ratio					0.13	0.13		0.61	0.61	0.18	0.82	
Clearance Time (s)					5.3	5.3		6.0	6.0	6.0	5.0	
Vehicle Extension (s)					3.0	3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)					215	192		2099	939	306	2805	
v/s Ratio Prot					c0.06			c0.51		0.07	c0.35	
v/s Ratio Perm						0.01			0.09			
v/c Ratio					0.47	0.04		0.83	0.15	0.41	0.43	
Uniform Delay, d1					44.7	42.3		16.8	9.0	40.0	2.7	
Progression Factor					1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2					1.6	0.1		4.1	0.3	0.9	0.5	
Delay (s)					46.3	42.4		20.9	9.4	40.8	3.2	
Level of Service					D	D		C	A	D	A	
Approach Delay (s)		0.0			44.8			19.8			6.7	
Approach LOS		A			D			B			A	

Intersection Summary			
HCM Average Control Delay	16.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			0%	
Total Lost time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00			1.00	0.88	1.00	0.95	1.00	0.97	1.00	
Frt	1.00	0.96			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00			0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1711	1725			1757	2721	1711	3421	1531	3319	1794	
Flt Permitted	0.47	1.00			0.48	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	848	1725			867	2721	1711	3421	1531	3319	1794	
Volume (vph)	143	145	57	133	56	750	42	587	249	574	541	14
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	159	161	63	148	62	833	47	652	277	638	601	16
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	180	0	1	0
Lane Group Flow (vph)	159	210	0	0	210	833	47	652	97	638	616	0
Turn Type	Perm			Perm		custom	Prot		Perm	Prot		
Protected Phases		4			8	1 4	5	2		1	6	
Permitted Phases	4			8		1 4			2			
Actuated Green, G (s)	27.7	27.7			27.7	62.8	5.9	35.6	35.6	29.5	60.8	
Effective Green, g (s)	30.3	30.3			30.3	65.4	6.9	38.6	38.6	32.1	63.8	
Actuated g/C Ratio	0.28	0.28			0.28	0.59	0.06	0.35	0.35	0.29	0.58	
Clearance Time (s)	5.6	5.6			5.6		4.0	6.0	6.0	5.6	6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	234	475			239	1618	107	1200	537	969	1041	
v/s Ratio Prot		0.12				0.31	0.03	c0.19		c0.19	c0.34	
v/s Ratio Perm	0.19				c0.24				0.06			
v/c Ratio	0.68	0.44			0.88	0.51	0.44	0.54	0.18	0.66	0.59	
Uniform Delay, d1	35.5	32.9			38.1	13.0	49.7	28.6	24.7	34.1	14.8	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	0.93	0.87	
Incremental Delay, d2	7.6	0.7			28.4	0.3	2.9	1.8	0.7	1.6	2.4	
Delay (s)	43.1	33.5			66.5	13.3	52.6	30.4	25.5	33.4	15.2	
Level of Service	D	C			E	B	D	C	C	C	B	
Approach Delay (s)		37.5			24.0			30.1			24.5	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	SEL	SET	NWT	NWR	SWL	SWR
Right Turn Channelized						
Volume (veh/h)	284	599	899	176	104	218
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	316	666	999	196	116	242
Approach Volume (veh/h)		981	1194		358	
Crossing Volume (veh/h)		116	316		999	
High Capacity (veh/h)		1265	1081		623	
High v/c (veh/h)		0.78	1.11		0.57	
Low Capacity (veh/h)		1053	886		483	
Low v/c (veh/h)		0.93	1.35		0.74	

Intersection Summary				
Maximum v/c High	1.11			
Maximum v/c Low	1.35			
Intersection Capacity Utilization	62.0%	ICU Level of Service	B	

HCM Signalized Intersection Capacity Analysis 142: Klahanie Blvd. & Issaquah-Pine Lk Rd
No Action Test1739 Long Range Background 7/30/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-6%	
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.89		1.00	0.89		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1711	1598		1711	1610		1711	3322		1762	3498	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1711	1598		1711	1610		1711	3322		1762	3498	
Volume (vph)	17	14	43	164	16	39	88	1171	282	61	593	31
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	19	16	48	182	18	43	98	1301	313	68	659	34
RTOR Reduction (vph)	0	44	0	0	36	0	0	14	0	0	3	0
Lane Group Flow (vph)	19	20	0	182	25	0	98	1600	0	68	690	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	5.9	5.9		14.8	14.8		23.1	55.7		3.8	36.4	
Effective Green, g (s)	7.9	7.9		16.8	16.8		26.1	58.7		6.8	39.4	
Actuated g/C Ratio	0.08	0.08		0.16	0.16		0.26	0.57		0.07	0.39	
Clearance Time (s)	5.0	5.0		5.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	132	124		281	265		437	1908		117	1349	
v/s Ratio Prot	0.01	c0.01		c0.11	0.02		0.06	c0.48		c0.04	0.20	
v/s Ratio Perm												
v/c Ratio	0.14	0.16		0.65	0.09		0.22	0.84		0.58	0.51	
Uniform Delay, d1	44.0	44.0		39.9	36.2		30.1	17.9		46.3	24.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.6		5.1	0.2		0.3	3.4		7.2	0.3	
Delay (s)	44.5	44.6		45.0	36.4		30.3	21.3		53.5	24.4	
Level of Service	D	D		D	D		C	C		D	C	
Approach Delay (s)		44.6			42.8			21.8			27.0	
Approach LOS		D			D			C			C	

Intersection Summary			
HCM Average Control Delay	25.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	102.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis 167: SE 20th Street & 212th Ave. SE
No Action Test1739 Long Range Background 7/30/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	10	21	19	72	30	72	29	97	58	150	89	17
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	23	21	80	33	80	32	108	64	167	99	19

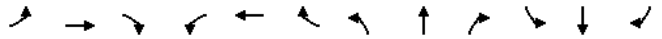
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	11	44	80	113	32	172	167	118
Volume Left (vph)	11	0	80	0	32	0	167	0
Volume Right (vph)	0	21	0	80	0	64	0	19
Hadj (s)	0.53	-0.30	0.53	-0.46	0.53	-0.23	0.53	-0.08
Departure Headway (s)	6.5	5.7	6.3	5.3	6.0	5.3	5.9	5.3
Degree Utilization, x	0.02	0.07	0.14	0.17	0.05	0.25	0.27	0.17
Capacity (veh/h)	510	582	534	632	569	653	583	648
Control Delay (s)	8.4	7.9	9.2	8.2	8.2	8.8	10.0	8.2
Approach Delay (s)	8.0		8.6		8.7		9.2	
Approach LOS	A		A		A		A	

Intersection Summary			
Delay	8.8		
HCM Level of Service	A		
Intersection Capacity Utilization	37.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	30	21	103	55	14	222
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	33	23	114	61	16	247
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	423	145			176	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	423	145			176	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	97			99	
cM capacity (veh/h)	581	902			1401	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	57	176	262
Volume Left	33	0	16
Volume Right	23	61	0
cSH	681	1700	1401
Volume to Capacity	0.08	0.10	0.01
Queue Length 95th (ft)	7	0	1
Control Delay (s)	10.8	0.0	0.5
Lane LOS	B		A
Approach Delay (s)	10.8	0.0	0.5
Approach LOS	B		

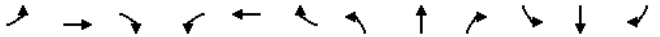
Intersection Summary			
Average Delay	1.5		
Intersection Capacity Utilization	33.2%	ICU Level of Service	A
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	134	12	139	8	10	5	110	195	12	9	309	123
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	149	13	154	9	11	6	122	217	13	10	343	137

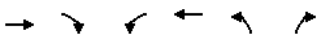
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	317	26	352	353	137
Volume Left (vph)	149	9	122	10	0
Volume Right (vph)	154	6	13	0	137
Hadj (s)	-0.16	-0.03	0.08	0.04	-0.57
Departure Headway (s)	5.7	6.6	5.6	5.6	3.2
Degree Utilization, x	0.50	0.05	0.55	0.55	0.12
Capacity (veh/h)	581	428	605	614	1121
Control Delay (s)	14.4	9.9	15.2	15.1	6.6
Approach Delay (s)	14.4	9.9	15.2	12.7	
Approach LOS	B	A	C	B	

Intersection Summary				
Delay	13.9			
HCM Level of Service	B			
Intersection Capacity Utilization	67.1%	ICU Level of Service	C	
Analysis Period (min)	15			



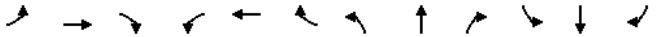
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		0.91	0.91		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	0.99		0.95	1.00	1.00
Satd. Flow (prot)	1711	3421	1531	1711	4814		3113	1564		1625	1711	1531
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	0.99		0.95	1.00	1.00
Satd. Flow (perm)	1711	3421	1531	1711	4814		3113	1564		1625	1711	1531
Volume (vph)	72	1549	776	78	863	139	676	157	67	215	600	42
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	80	1721	862	87	959	154	751	174	74	239	667	47
RTOR Reduction (vph)	0	0	21	0	14	0	0	6	0	0	0	18
Lane Group Flow (vph)	80	1721	841	87	1099	0	660	333	0	239	667	29
Turn Type	Prot		pm+ov	Prot			Split			Split		Perm
Protected Phases	7	4	2	3	8		2	2		1	1	
Permitted Phases			4									1
Actuated Green, G (s)	10.8	57.0	85.0	4.0	51.2		28.0	28.0		43.0	43.0	43.0
Effective Green, g (s)	11.8	59.0	88.0	6.0	53.2		29.0	29.0		44.0	44.0	44.0
Actuated g/C Ratio	0.08	0.39	0.59	0.04	0.35		0.19	0.19		0.29	0.29	0.29
Clearance Time (s)	4.0	5.0	4.0	5.0	5.0		4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	135	1346	898	68	1707		602	302		477	502	449
v/s Ratio Prot	0.05	c0.50	0.18	c0.05	0.23		0.21	c0.21		0.15	c0.39	
v/s Ratio Perm			0.37									0.02
v/c Ratio	0.59	1.28	0.94	1.28	0.64		1.10	1.10		0.50	1.33	0.06
Uniform Delay, d1	66.8	45.5	28.4	72.0	40.5		60.5	60.5		43.9	53.0	38.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	6.8	131.2	16.5	201.4	0.8		65.8	81.7		0.8	161.2	0.1
Delay (s)	73.6	176.7	45.0	273.4	41.3		126.3	142.2		44.7	214.2	38.2
Level of Service	E	F	D	F	D		F	F		D	F	D
Approach Delay (s)		131.0			58.1			131.7			163.0	
Approach LOS		F			E			F			F	

Intersection Summary				
HCM Average Control Delay	121.3	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.26			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	108.6%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				



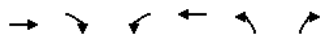
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3421	1531	1711	3421	1711	1531
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3421	1531	1711	3421	1711	1531
Volume (vph)	1665	220	24	659	115	16
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1850	244	27	732	128	18
RTOR Reduction (vph)	0	90	0	0	0	15
Lane Group Flow (vph)	1850	154	27	732	128	3
Turn Type		Perm	Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	37.8	37.8	1.3	43.1	9.8	9.8
Effective Green, g (s)	39.8	39.8	2.3	45.1	11.8	11.8
Actuated g/C Ratio	0.63	0.63	0.04	0.72	0.19	0.19
Clearance Time (s)	5.0	5.0	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2165	969	63	2453	321	287
v/s Ratio Prot	c0.54		c0.02	0.21	c0.07	
v/s Ratio Perm		0.10				0.00
v/c Ratio	0.85	0.16	0.43	0.30	0.40	0.01
Uniform Delay, d1	9.2	4.7	29.7	3.2	22.4	20.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.5	0.1	4.6	0.1	0.8	0.0
Delay (s)	12.8	4.8	34.3	3.3	23.3	20.8
Level of Service	B	A	C	A	C	C
Approach Delay (s)	11.8			4.4	23.0	
Approach LOS	B			A	C	

Intersection Summary				
HCM Average Control Delay	10.5	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	62.9	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	59.1%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	3.0	3.0	3.0		3.0		3.0			
Lane Util. Factor		1.00	1.00	1.00	1.00		1.00		1.00			
Frt		1.00	0.85	1.00	1.00		1.00		0.85			
Flt Protected		1.00	1.00	0.95	1.00		0.95		1.00			
Satd. Flow (prot)		1801	1531	1711	1801		1711		1531			
Flt Permitted		1.00	1.00	0.06	1.00		0.95		1.00			
Satd. Flow (perm)		1801	1531	112	1801		1711		1531			
Volume (vph)	0	892	918	55	466	0	497	0	48	0	0	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	991	1020	61	518	0	552	0	53	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	16	0	0	0
Lane Group Flow (vph)	0	991	1020	61	518	0	552	0	37	0	0	0
Turn Type			Free	pm+pt			custom		custom			
Protected Phases		2		1	6		8		8			
Permitted Phases			Free	6			8		8			
Actuated Green, G (s)		58.1	109.3	65.3	65.3		32.0		32.0			
Effective Green, g (s)		61.1	109.3	68.3	68.3		35.0		35.0			
Actuated g/C Ratio		0.56	1.00	0.62	0.62		0.32		0.32			
Clearance Time (s)		6.0		4.0	6.0		6.0		6.0			
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0			
Lane Grp Cap (vph)		1007	1531	131	1125		548		490			
v/s Ratio Prot		c0.55		0.02	0.29		c0.32		0.02			
v/s Ratio Perm			c0.67	0.27								
v/c Ratio		0.98	0.67	0.47	0.46		1.01		0.08			
Uniform Delay, d1		23.6	0.0	24.6	10.8		37.1		25.9			
Progression Factor		1.00	1.00	1.00	1.00		1.00		1.00			
Incremental Delay, d2		24.3	2.3	2.6	0.3		40.3		0.1			
Delay (s)		48.0	2.3	27.2	11.1		77.4		26.0			
Level of Service		D	A	C	B		E		C			
Approach Delay (s)		24.8			12.8			72.9			0.0	
Approach LOS		C			B			E			A	

Intersection Summary				
HCM Average Control Delay	31.7	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.97			
Actuated Cycle Length (s)	109.3	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	81.1%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.92	
Flt Protected	1.00	1.00	0.95	1.00	0.98	
Satd. Flow (prot)	1801	1531	1711	1801	1621	
Flt Permitted	1.00	1.00	0.95	1.00	0.98	
Satd. Flow (perm)	1801	1531	1711	1801	1621	
Volume (vph)	913	377	157	418	157	240
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1014	419	174	464	174	267
RTOR Reduction (vph)	0	189	0	0	69	0
Lane Group Flow (vph)	1014	230	174	464	372	0
Turn Type		Perm	Prot			
Protected Phases	4		3	8	2	
Permitted Phases		4				
Actuated Green, G (s)	42.0	42.0	7.0	53.0	17.0	
Effective Green, g (s)	44.0	44.0	8.0	55.0	19.0	
Actuated g/C Ratio	0.55	0.55	0.10	0.69	0.24	
Clearance Time (s)	5.0	5.0	4.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	991	842	171	1238	385	
v/s Ratio Prot	c0.56		c0.10	0.26	c0.23	
v/s Ratio Perm		0.15				
v/c Ratio	1.02	0.27	1.02	0.37	0.97	
Uniform Delay, d1	18.0	9.5	36.0	5.3	30.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	34.6	0.2	73.5	0.2	36.5	
Delay (s)	52.6	9.7	109.5	5.5	66.6	
Level of Service	D	A	F	A	E	
Approach Delay (s)	40.1			33.8	66.6	
Approach LOS	D			C	E	

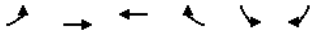
Intersection Summary				
HCM Average Control Delay	43.1	HCM Level of Service	D	
HCM Volume to Capacity ratio	1.01			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	90.2%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1711	1531	1801	1531	1711	1801
Flt Permitted	0.95	1.00	1.00	1.00	0.13	1.00
Satd. Flow (perm)	1711	1531	1801	1531	226	1801
Volume (vph)	45	343	508	61	554	684
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	50	381	564	68	616	760
RTOR Reduction (vph)	0	54	0	29	0	0
Lane Group Flow (vph)	50	327	564	39	616	760
Turn Type		pt+ov		pt+ov	pm+pt	
Protected Phases	4	4 1	2	2 4	1	6
Permitted Phases					6	
Actuated Green, G (s)	12.9	44.1	26.9	44.8	58.1	58.1
Effective Green, g (s)	14.9	46.1	28.9	46.8	60.1	60.1
Actuated g/C Ratio	0.18	0.57	0.36	0.58	0.74	0.74
Clearance Time (s)	5.0		5.0		5.0	5.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	315	871	643	885	685	1336
v/s Ratio Prot	0.03	c0.21	0.31	0.03	c0.31	0.42
v/s Ratio Perm					c0.35	
v/c Ratio	0.16	0.38	0.88	0.04	0.90	0.57
Uniform Delay, d1	27.8	9.6	24.4	7.4	19.5	4.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3	12.8	0.0	14.6	0.6
Delay (s)	28.0	9.8	37.2	7.4	34.1	5.2
Level of Service	C	A	D	A	C	A
Approach Delay (s)	11.9		34.0			18.1
Approach LOS	B		C			B

Intersection Summary				
HCM Average Control Delay	21.2	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	81.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	71.6%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

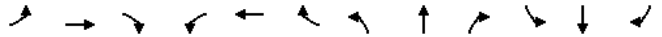
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	0.85	0.99		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1711	1531	1775		1711	1801
Flt Permitted	0.95	1.00	1.00		0.45	1.00
Satd. Flow (perm)	1711	1531	1775		812	1801
Volume (vph)	52	163	406	49	349	381
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	58	181	451	54	388	423
RTOR Reduction (vph)	0	156	5	0	0	0
Lane Group Flow (vph)	58	25	500	0	388	423
Turn Type		Perm			Perm	
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	6.9	6.9	41.5		41.5	41.5
Effective Green, g (s)	7.9	7.9	42.5		42.5	42.5
Actuated g/C Ratio	0.14	0.14	0.75		0.75	0.75
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	240	214	1338		612	1357
v/s Ratio Prot	c0.03		0.28			0.23
v/s Ratio Perm		0.02			c0.48	
v/c Ratio	0.24	0.12	0.37		0.63	0.31
Uniform Delay, d1	21.6	21.2	2.4		3.3	2.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.5	0.2	0.2		2.2	0.1
Delay (s)	22.1	21.5	2.6		5.4	2.4
Level of Service	C	C	A		A	A
Approach Delay (s)	21.6		2.6			3.8
Approach LOS	C		A			A

Intersection Summary				
HCM Average Control Delay	6.2	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	56.4	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	57.0%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.98		0.96	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1711	1801	1768		1673	
Flt Permitted	0.22	1.00	1.00		0.97	
Satd. Flow (perm)	394	1801	1768		1673	
Volume (vph)	22	342	481	74	54	21
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	24	380	534	82	60	23
RTOR Reduction (vph)	0	0	13	0	13	0
Lane Group Flow (vph)	24	380	603	0	70	0
Turn Type	Perm					
Protected Phases		4	8		6	
Permitted Phases	4					
Actuated Green, G (s)	17.3	17.3	17.3		16.2	
Effective Green, g (s)	18.3	18.3	18.3		17.2	
Actuated g/C Ratio	0.44	0.44	0.44		0.41	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	174	794	780		693	
v/s Ratio Prot		0.21	c0.34		c0.04	
v/s Ratio Perm	0.06					
v/c Ratio	0.14	0.48	0.77		0.10	
Uniform Delay, d1	6.9	8.2	9.8		7.4	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.5	4.8		0.3	
Delay (s)	7.3	8.7	14.6		7.7	
Level of Service	A	A	B		A	
Approach Delay (s)		8.6	14.6		7.7	
Approach LOS		A	B		A	

Intersection Summary				
HCM Average Control Delay	11.9	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.45			
Actuated Cycle Length (s)	41.5	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	40.7%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0					3.0	
Lane Util. Factor		1.00			1.00	1.00					1.00	
Frt		1.00			1.00	0.85					0.99	
Flt Protected		1.00			1.00	1.00					0.95	
Satd. Flow (prot)		1799			1801	1531					1709	
Flt Permitted		0.99			1.00	1.00					0.95	
Satd. Flow (perm)		1782			1801	1531					1709	
Volume (vph)	6	454	0	0	651	559	0	0	0	221	0	9
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	7	504	0	0	723	621	0	0	0	246	0	10
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	511	0	0	723	621	0	0	0	0	254	0
Turn Type	Perm					pm+ov				Split		
Protected Phases		2			6 7	8				8	8	
Permitted Phases	2					6 7						
Actuated Green, G (s)		18.8			33.8	46.2					12.4	
Effective Green, g (s)		21.3			34.8	49.7					14.9	
Actuated g/C Ratio		0.38			0.62	0.89					0.27	
Clearance Time (s)		5.5				5.5					5.5	
Vehicle Extension (s)		3.0				3.0					3.0	
Lane Grp Cap (vph)		681			1125	1531					457	
v/s Ratio Prot					c0.40	0.11					c0.15	
v/s Ratio Perm		c0.29				0.30						
v/c Ratio		0.75			0.64	0.41					0.56	
Uniform Delay, d1		14.9			6.6	0.5					17.6	
Progression Factor		1.00			1.00	1.00					1.00	
Incremental Delay, d2		4.7			1.3	0.2					1.5	
Delay (s)		19.6			7.8	0.7					19.0	
Level of Service		B			A	A					B	
Approach Delay (s)		19.6			4.5			0.0			19.0	
Approach LOS		B			A			A			B	

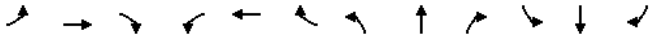
Intersection Summary				
HCM Average Control Delay	9.9	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	55.7	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	65.5%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1625	1646	1531	1711	1782		1711	3382		1711	3421	1531
Flt Permitted	0.95	0.96	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1625	1646	1531	1711	1782		1711	3382		1711	3421	1531
Volume (vph)	1248	151	480	77	207	15	291	726	60	19	683	1039
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1387	168	533	86	230	17	323	807	67	21	759	1154
RTOR Reduction (vph)	0	0	178	0	2	0	0	4	0	0	0	28
Lane Group Flow (vph)	758	797	355	86	245	0	323	870	0	21	759	1126
Turn Type	Split		Perm	Split			Prot			Prot		pm+ov
Protected Phases	4	4		3	3		5	2		1	6	4
Permitted Phases			4									6
Actuated Green, G (s)	61.0	61.0	61.0	16.0	16.0		23.0	52.6		2.4	33.0	94.0
Effective Green, g (s)	63.0	63.0	63.0	18.0	18.0		24.0	54.6		4.4	35.0	98.0
Actuated g/C Ratio	0.41	0.41	0.41	0.12	0.12		0.16	0.36		0.03	0.23	0.64
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0		4.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	674	682	635	203	211		270	1215		50	788	1017
v/s Ratio Prot	0.47	c0.48		0.05	c0.14		c0.19	0.26		0.01	0.22	c0.46
v/s Ratio Perm			0.23									0.28
v/c Ratio	1.12	1.17	0.56	0.42	1.16		1.20	0.72		0.42	0.96	1.11
Uniform Delay, d1	44.5	44.5	33.9	62.2	67.0		64.0	42.0		72.5	57.9	27.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	74.3	91.1	1.1	1.4	112.6		118.6	2.0		5.6	23.3	62.3
Delay (s)	118.8	135.6	35.0	63.6	179.6		182.6	44.1		78.2	81.1	89.3
Level of Service	F	F	C	E	F		F	D		E	F	F
Approach Delay (s)		103.8			149.7			81.4			86.0	
Approach LOS		F			F			F			F	

Intersection Summary				
HCM Average Control Delay	95.5	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.16			
Actuated Cycle Length (s)	152.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	102.3%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85		1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.98	1.00	0.95	0.95	1.00
Satd. Flow (prot)	1711	3416		1711	3421	1531		1764	1531	1625	1631	1531
Flt Permitted	0.09	1.00		0.08	1.00	1.00		0.98	1.00	0.95	0.95	1.00
Satd. Flow (perm)	167	3416		140	3421	1531		1764	1531	1625	1631	1531
Volume (vph)	213	1398	14	9	943	994	14	20	79	826	10	274
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	237	1553	16	10	1048	1104	16	22	88	918	11	304
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	50	0	0	178
Lane Group Flow (vph)	237	1569	0	10	1048	1104	0	38	38	459	470	126
Turn Type	pm+pt			pm+pt		Free	Split		Perm	Split		Perm
Protected Phases	7	4		3	8		2	2		1	1	
Permitted Phases	4			8		Free			2			1
Actuated Green, G (s)	70.3	64.6		50.0	49.3	132.4		9.0	9.0	38.1	38.1	38.1
Effective Green, g (s)	72.3	66.6		54.0	51.3	132.4		11.0	11.0	40.1	40.1	40.1
Actuated g/C Ratio	0.55	0.50		0.41	0.39	1.00		0.08	0.08	0.30	0.30	0.30
Clearance Time (s)	5.0	5.0		5.0	5.0			5.0	5.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	301	1718		89	1326	1531		147	127	492	494	464
v/s Ratio Prot	c0.11	c0.46		0.00	0.31			0.02		0.28	c0.29	
v/s Ratio Perm	0.32			0.04		c0.72			0.02			0.08
v/c Ratio	0.79	0.91		0.11	0.79	0.72		0.26	0.30	0.93	0.95	0.27
Uniform Delay, d1	32.9	30.2		28.8	35.8	0.0		56.9	57.1	44.8	45.2	35.0
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.7	7.8		0.6	3.3	3.0		0.9	1.3	24.8	28.5	0.3
Delay (s)	45.6	38.1		29.3	39.1	3.0		57.8	58.4	69.6	73.7	35.4
Level of Service	D	D		C	D	A		E	E	E	E	D
Approach Delay (s)		39.1			20.6			58.2			62.7	
Approach LOS		D			C			E			E	

Intersection Summary				
HCM Average Control Delay	37.5	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.87			
Actuated Cycle Length (s)	132.4	Sum of lost time (s)	3.0	
Intersection Capacity Utilization	82.2%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

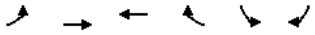


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3319	3421		3319	3401		1711	3421	1531	1711	3421	1531
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3319	3421		3319	3401		1711	3421	1531	1711	3421	1531
Volume (vph)	609	763	0	284	595	24	17	1181	983	17	555	485
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	677	848	0	316	661	27	19	1312	1092	19	617	539
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	33	0	0	46
Lane Group Flow (vph)	677	848	0	316	686	0	19	1312	1059	19	617	493
Turn Type	Prot			Prot			Prot		pm+ov	Prot		pm+ov
Protected Phases	5	2		1	6		3	8	1	7	4	5
Permitted Phases									8			4
Actuated Green, G (s)	26.4	27.0		31.6	32.2		1.6	39.6	71.2	1.5	39.5	65.9
Effective Green, g (s)	27.9	28.5		33.1	33.7		3.1	41.1	74.2	3.0	41.0	68.9
Actuated g/C Ratio	0.24	0.24		0.28	0.29		0.03	0.35	0.63	0.03	0.35	0.59
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	787	828		933	974		45	1195	965	44	1192	935
v/s Ratio Prot	0.20	c0.25		0.10	0.20		c0.01	c0.38	c0.31	0.01	0.18	0.12
v/s Ratio Perm									0.38			0.20
v/c Ratio	0.86	1.02		0.34	0.70		0.42	1.10	1.10	0.43	0.52	0.53
Uniform Delay, d1	43.0	44.6		33.6	37.5		56.4	38.3	21.8	56.5	30.5	14.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	9.5	37.6		0.2	2.3		6.3	57.1	59.4	6.7	0.4	0.5
Delay (s)	52.5	82.2		33.8	39.9		62.7	95.4	81.1	63.2	30.9	15.2
Level of Service	D	F		C	D		E	F	F	E	C	B
Approach Delay (s)		69.0			38.0			88.7			24.2	
Approach LOS		E			D			F			C	

Intersection Summary				
HCM Average Control Delay	63.1	HCM Level of Service	E	
HCM Volume to Capacity ratio	1.03			
Actuated Cycle Length (s)	117.7	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	95.3%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1711	1531	1711	1801	1801	1531
Flt Permitted	0.95	1.00	0.44	1.00	1.00	1.00
Satd. Flow (perm)	1711	1531	794	1801	1801	1531
Volume (vph)	163	51	99	780	450	126
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	181	57	110	867	500	140
RTOR Reduction (vph)	0	47	0	0	0	39
Lane Group Flow (vph)	181	10	110	867	500	101
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	10.7	10.7	45.3	45.3	45.3	45.3
Effective Green, g (s)	11.7	11.7	46.3	46.3	46.3	46.3
Actuated g/C Ratio	0.18	0.18	0.72	0.72	0.72	0.72
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	313	280	574	1303	1303	1108
v/s Ratio Prot	c0.11			c0.48	0.28	
v/s Ratio Perm		0.01	0.14			0.07
v/c Ratio	0.58	0.04	0.19	0.67	0.38	0.09
Uniform Delay, d1	23.9	21.5	2.8	4.7	3.4	2.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	0.1	0.7	2.7	0.9	0.2
Delay (s)	26.5	21.6	3.6	7.4	4.2	2.8
Level of Service	C	C	A	A	A	A
Approach Delay (s)	25.3			7.0	3.9	
Approach LOS	C			A	A	

Intersection Summary				
HCM Average Control Delay	8.3	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.65			
Actuated Cycle Length (s)	64.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	56.7%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1711	1801	1730		1711	1531
Flt Permitted	0.39	1.00	1.00		0.95	1.00
Satd. Flow (perm)	695	1801	1730		1711	1531
Volume (vph)	356	542	370	151	117	202
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	396	602	411	168	130	224
RTOR Reduction (vph)	0	0	20	0	0	179
Lane Group Flow (vph)	396	602	559	0	130	45
Turn Type	Perm					Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Actuated Green, G (s)	36.5	36.5	36.5		10.0	10.0
Effective Green, g (s)	37.5	37.5	37.5		11.0	11.0
Actuated g/C Ratio	0.69	0.69	0.69		0.20	0.20
Clearance Time (s)	4.0	4.0	4.0		4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	478	1239	1190		345	309
v/s Ratio Prot		0.33	0.32		c0.08	
v/s Ratio Perm	c0.57					0.03
v/c Ratio	0.83	0.49	0.47		0.38	0.15
Uniform Delay, d1	6.2	4.0	3.9		18.8	17.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	11.3	0.3	0.3		0.7	0.2
Delay (s)	17.5	4.3	4.2		19.5	18.1
Level of Service	B	A	A		B	B
Approach Delay (s)		9.5	4.2		18.6	
Approach LOS		A	A		B	

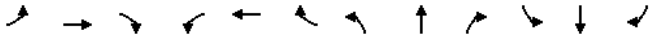
Intersection Summary				
HCM Average Control Delay	9.6	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	54.5	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	64.9%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-10%	10%	
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1711	1531	1796	1891	1711	1454
Flt Permitted	0.95	1.00	0.19	1.00	1.00	1.00
Satd. Flow (perm)	1711	1531	351	1891	1711	1454
Volume (vph)	60	41	85	441	863	70
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	67	46	94	490	959	78
RTOR Reduction (vph)	0	41	0	0	0	15
Lane Group Flow (vph)	67	5	94	490	959	63
Turn Type		Perm	pm+pt			Perm
Protected Phases	8		5	2	6	
Permitted Phases		8	2			6
Actuated Green, G (s)	8.1	8.1	68.4	66.4	57.0	57.0
Effective Green, g (s)	10.1	10.1	70.4	70.4	61.0	61.0
Actuated g/C Ratio	0.12	0.12	0.81	0.81	0.71	0.71
Clearance Time (s)	5.0	5.0	5.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	200	179	393	1539	1207	1025
v/s Ratio Prot	c0.04		0.02	c0.26	c0.56	
v/s Ratio Perm		0.00	0.18			0.04
v/c Ratio	0.34	0.03	0.24	0.32	0.79	0.06
Uniform Delay, d1	35.1	33.9	12.2	2.0	8.5	3.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.1	0.3	0.1	3.7	0.0
Delay (s)	36.1	33.9	12.5	2.1	12.2	4.0
Level of Service	D	C	B	A	B	A
Approach Delay (s)	35.2			3.8	11.6	
Approach LOS	D			A	B	

Intersection Summary				
HCM Average Control Delay	10.5	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.68			
Actuated Cycle Length (s)	86.5	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	64.3%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.89			0.96		1.00	0.96		1.00	1.00	
Flt Protected		1.00			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1601			1669		1711	1729		1711	1801	
Flt Permitted		1.00			0.78		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1601			1343		1711	1729		1711	1801	
Volume (vph)	0	8	37	95	7	50	56	411	148	88	612	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	9	41	106	8	56	62	457	164	98	680	0
RTOR Reduction (vph)	0	33	0	0	34	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	17	0	0	136	0	62	605	0	98	680	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		10.1			10.1		3.1	30.9		3.1	30.9	
Effective Green, g (s)		12.1			12.1		5.1	33.5		5.1	33.5	
Actuated g/C Ratio		0.20			0.20		0.09	0.56		0.09	0.56	
Clearance Time (s)		5.0			5.0		5.0	5.6		5.0	5.6	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		324			272		146	970		146	1011	
v/s Ratio Prot		0.01					0.04	0.35		c0.06	c0.38	
v/s Ratio Perm					c0.10							
v/c Ratio		0.05			0.50		0.42	0.62		0.67	0.67	
Uniform Delay, d1		19.2			21.1		25.9	8.8		26.5	9.2	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			1.4		2.0	1.3		11.5	1.8	
Delay (s)		19.3			22.6		27.9	10.1		38.0	11.0	
Level of Service		B			C		C	B		D	B	
Approach Delay (s)		19.3			22.6			11.7			14.4	
Approach LOS		B			C			B			B	

Intersection Summary				
HCM Average Control Delay	14.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	59.7	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	61.7%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-6%			0%	0%	
Total Lost time (s)	3.0		3.0	3.0	3.0	
Lane Util. Factor	1.00		1.00	0.95	0.95	
Frt	0.89		1.00	1.00	0.99	
Flt Protected	0.99		0.95	1.00	1.00	
Satd. Flow (prot)	1636		1711	3421	3399	
Flt Permitted	0.99		0.95	1.00	1.00	
Satd. Flow (perm)	1636		1711	3421	3399	
Volume (vph)	17	74	127	890	770	35
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	19	82	141	989	856	39
RTOR Reduction (vph)	76	0	0	0	2	0
Lane Group Flow (vph)	25	0	141	989	893	0
Turn Type			Prot			
Protected Phases	8		5	2	6	
Permitted Phases						
Actuated Green, G (s)	6.4		14.0	93.6	74.6	
Effective Green, g (s)	8.4		16.0	95.6	76.6	
Actuated g/C Ratio	0.08		0.15	0.87	0.70	
Clearance Time (s)	5.0		5.0	5.0	5.0	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	125		249	2973	2367	
v/s Ratio Prot	c0.02		c0.08	0.29	c0.26	
v/s Ratio Perm						
v/c Ratio	0.20		0.57	0.33	0.38	
Uniform Delay, d1	47.7		43.8	1.3	6.9	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.8		2.9	0.3	0.5	
Delay (s)	48.5		46.7	1.6	7.3	
Level of Service	D		D	A	A	
Approach Delay (s)	48.5			7.3	7.3	
Approach LOS	D			A	A	

Intersection Summary				
HCM Average Control Delay	9.2	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.39			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	44.9%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			2%	
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1711	1801	1531	1711	1801	1531	1711	3421	1531	1694	3361	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1711	1801	1531	1711	1801	1531	1711	3421	1531	1694	3361	
Volume (vph)	58	307	85	128	300	153	115	808	248	91	715	39
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	64	341	94	142	333	170	128	898	276	101	794	43
RTOR Reduction (vph)	0	0	56	0	0	58	0	0	117	0	3	0
Lane Group Flow (vph)	64	341	38	142	333	112	128	898	159	101	834	0
Turn Type	Prot		pm+ov	Prot		pm+ov	Prot		pm+ov	Prot		
Protected Phases	3	8	5	7	4	1	5	2	7	1	6	
Permitted Phases			8			4			2			
Actuated Green, G (s)	5.6	25.4	37.2	12.0	31.4	41.2	11.8	42.5	54.5	9.8	40.5	
Effective Green, g (s)	7.6	27.4	41.2	14.0	33.8	45.6	13.8	44.8	58.8	11.8	42.8	
Actuated g/C Ratio	0.07	0.25	0.37	0.13	0.31	0.41	0.13	0.41	0.53	0.11	0.39	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.4	5.0	5.0	5.3	5.0	5.0	5.3	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	118	449	615	218	553	676	215	1393	860	182	1308	
v/s Ratio Prot	0.04	c0.19	0.01	c0.08	0.18	0.02	c0.07	c0.26	0.02	0.06	0.25	
v/s Ratio Perm			0.02			0.06			0.08			
v/c Ratio	0.54	0.76	0.06	0.65	0.60	0.17	0.60	0.64	0.18	0.55	0.64	
Uniform Delay, d1	49.5	38.2	22.0	45.7	32.4	20.2	45.5	26.2	13.2	46.6	27.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	5.0	7.2	0.0	6.8	1.9	0.1	4.4	2.3	0.1	3.6	2.4	
Delay (s)	54.5	45.5	22.1	52.5	34.2	20.4	49.8	28.5	13.3	50.2	29.7	
Level of Service	D	D	C	D	C	C	D	C	B	D	C	
Approach Delay (s)		42.2			34.6			27.4			31.9	
Approach LOS		D			C			C			C	

Intersection Summary				
HCM Average Control Delay	32.2	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	64.0%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			-5%			0%	
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.91		1.00	0.87		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1711	1638		1711	1558		1753	3486		1711	3349	
Flt Permitted	0.43	1.00		0.72	1.00		0.95	1.00		0.15	1.00	
Satd. Flow (perm)	777	1638		1301	1558		1753	3486		277	3349	
Volume (vph)	131	19	29	60	18	159	7	1025	41	151	800	131
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	146	21	32	67	20	177	8	1139	46	168	889	146
RTOR Reduction (vph)	0	25	0	0	139	0	0	2	0	0	9	0
Lane Group Flow (vph)	146	28	0	67	58	0	8	1183	0	168	1026	0
Turn Type	Perm			Perm			Prot			pm+pt		
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4						6		
Actuated Green, G (s)	21.6	21.6		21.8	21.8		1.4	62.5		78.0	71.4	
Effective Green, g (s)	23.8	23.8		23.8	23.8		3.6	64.7		80.2	73.6	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.03	0.59		0.73	0.67	
Clearance Time (s)	5.2	5.2		5.0	5.0		5.2	5.2		5.2	5.2	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	168	354		281	337		57	2050		365	2241	
v/s Ratio Prot		0.02			0.04		0.00	c0.34		c0.05	0.31	
v/s Ratio Perm	c0.19			0.05						0.28		
v/c Ratio	0.87	0.08		0.24	0.17		0.14	0.58		0.46	0.46	
Uniform Delay, d1	41.6	34.4		35.6	35.1		51.7	14.1		8.8	8.7	
Progression Factor	1.00	1.00		1.00	1.00		0.93	0.63		1.00	1.00	
Incremental Delay, d2	34.7	0.1		0.4	0.2		0.9	1.0		0.9	0.7	
Delay (s)	76.3	34.5		36.1	35.3		49.1	9.9		9.7	9.4	
Level of Service	E	C		D	D		D	A		A	A	
Approach Delay (s)		65.2			35.5			10.2			9.4	
Approach LOS		E			D			B			A	

Intersection Summary				
HCM Average Control Delay	16.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.63			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	69.4%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — 118: SE 4th Street & 228th Ave SE
Town Center Preferred Alt 2 — 8/1/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-7%			0%			-2%			0%	
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.89		1.00	0.96		1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1651		1711	1734		1728	3414		1711	3286	
Flt Permitted	0.37	1.00		0.21	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	693	1651		373	1734		1728	3414		1711	3286	
Volume (vph)	231	116	369	65	116	38	369	805	69	76	607	217
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	257	129	410	72	129	42	410	894	77	84	674	241
RTOR Reduction (vph)	0	105	0	0	11	0	0	5	0	0	32	0
Lane Group Flow (vph)	257	434	0	72	160	0	410	966	0	84	883	0
Turn Type	pm+pt			pm+pt			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8								
Actuated Green, G (s)	38.0	30.8		19.5	16.3		25.9	50.7		8.3	32.1	
Effective Green, g (s)	39.0	31.8		23.5	19.3		27.9	52.7		9.3	34.1	
Actuated g/C Ratio	0.35	0.29		0.21	0.18		0.25	0.48		0.08	0.31	
Clearance Time (s)	6.0	4.0		4.0	6.0		5.0	5.0		4.0	5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	409	477		131	304		438	1636		145	1019	
v/s Ratio Prot	c0.10	c0.26		0.02	0.09		c0.24	0.28		0.05	c0.27	
v/s Ratio Perm	0.13			0.10								
v/c Ratio	0.63	0.91		0.55	0.53		0.94	0.59		0.58	0.87	
Uniform Delay, d1	27.3	37.7		37.0	41.2		40.2	20.8		48.5	35.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.25	0.83	
Incremental Delay, d2	3.0	21.5		4.7	1.7		27.4	1.6		5.1	9.2	
Delay (s)	30.3	59.2		41.6	42.9		67.6	22.4		65.6	38.8	
Level of Service	C	E		D	D		E	C		E	D	
Approach Delay (s)		49.9			42.5			35.8			41.1	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	41.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	89.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — 120: SE 8th St. & 228th Ave SE
Town Center Preferred Alt 2 — 8/1/2007

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		2%			-2%			-2%			2%	
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frt		0.95			1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.98			0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1665			1738	1546	1728	3455	1546	1694	3352	
Flt Permitted		0.55			0.58	1.00	0.95	1.00	1.00	0.08	1.00	
Satd. Flow (perm)		938			1055	1546	1728	3455	1546	143	3352	
Volume (vph)	84	42	64	323	27	57	46	1149	344	109	868	64
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	93	47	71	359	30	63	51	1277	382	121	964	71
RTOR Reduction (vph)	0	18	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	193	0	0	389	63	51	1277	382	121	1031	0
Turn Type	Perm			Perm		custom	Prot		custom	pm+pt		
Protected Phases		8			4	4	5	2	2	1	6	
Permitted Phases	8			4		1 2			1 4	6		
Actuated Green, G (s)		40.6			41.6	99.0	4.5	45.7	98.5	53.1	46.9	
Effective Green, g (s)		43.6			43.6	104.0	7.5	48.7	104.0	58.6	49.9	
Actuated g/C Ratio		0.40			0.40	0.95	0.07	0.44	0.95	0.53	0.45	
Clearance Time (s)		6.0			5.0	5.0	6.0	6.0	6.0	5.5	6.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		372			418	1546	118	1530	1546	199	1521	
v/s Ratio Prot						0.02	0.03	c0.37	0.11	c0.05	0.31	
v/s Ratio Perm		0.21			c0.37	0.02			0.14	0.28		
v/c Ratio		0.52			0.93	0.04	0.43	0.83	0.25	0.61	0.68	
Uniform Delay, d1		25.2			31.8	0.2	49.2	27.1	0.2	20.3	23.7	
Progression Factor		1.00			1.00	1.00	1.07	0.84	1.00	1.00	1.00	
Incremental Delay, d2		1.3			27.3	0.0	2.5	5.4	0.1	5.2	2.4	
Delay (s)		26.6			59.1	0.2	54.9	28.1	0.3	25.5	26.2	
Level of Service		C			E	A	D	C	A	C	C	
Approach Delay (s)		26.6			50.9			22.7			26.1	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM Average Control Delay	27.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-3%	
Total Lost time (s)		3.0	3.0				3.0	3.0			3.0	
Lane Util. Factor		1.00	1.00				1.00	0.95			0.95	
Frt		1.00	0.85				1.00	1.00			0.99	
Flt Protected		0.95	1.00				0.95	1.00			1.00	
Satd. Flow (prot)		1711	1531				1711	3421			3446	
Flt Permitted		0.95	1.00				0.95	1.00			1.00	
Satd. Flow (perm)		1711	1531				1711	3421			3446	
Volume (vph)	23	0	271	0	0	0	218	1506	0	0	1177	64
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	26	0	301	0	0	0	242	1673	0	0	1308	71
RTOR Reduction (vph)	0	0	222	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	26	79	0	0	0	242	1673	0	0	1376	0
Turn Type	Perm		Perm	Perm			Prot			pm+pt		
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8		8	4						6		
Actuated Green, G (s)		10.8	10.8				20.0	87.6			62.0	
Effective Green, g (s)		13.4	13.4				22.6	90.6			65.0	
Actuated g/C Ratio		0.12	0.12				0.21	0.82			0.59	
Clearance Time (s)		5.6	5.6				5.6	6.0			6.0	
Vehicle Extension (s)		3.0	3.0				3.0	3.0			3.0	
Lane Grp Cap (vph)		208	187				352	2818			2036	
v/s Ratio Prot							c0.14	0.49			c0.40	
v/s Ratio Perm		0.02	c0.05									
v/c Ratio		0.12	0.42				0.69	0.59			0.68	
Uniform Delay, d1		43.1	44.7				40.4	3.3			15.3	
Progression Factor		1.00	1.00				1.00	1.00			1.00	
Incremental Delay, d2		0.3	1.5				5.5	0.9			1.8	
Delay (s)		43.3	46.2				45.9	4.3			17.1	
Level of Service		D	D				D	A			B	
Approach Delay (s)		46.0			0.0			9.5			17.1	
Approach LOS		D			A			A			B	

Intersection Summary			
HCM Average Control Delay	15.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		

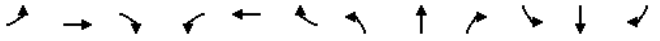
c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.0	3.0		3.0	3.0	3.0	3.0	
Lane Util. Factor					1.00	1.00		0.95	1.00	1.00	0.95	
Frt					1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected					0.95	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)					1711	1531		3421	1531	1711	3421	
Flt Permitted					0.95	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)					1711	1531		3421	1531	1711	3421	
Volume (vph)	0	0	0	84	0	92	0	1646	141	142	1344	0
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	0	0	0	93	0	102	0	1829	157	158	1493	0
RTOR Reduction (vph)	0	0	0	0	0	90	0	0	37	0	0	0
Lane Group Flow (vph)	0	0	0	0	93	12	0	1829	120	158	1493	0
Turn Type	Split		Perm	Split		Perm	Prot		Perm	Prot		
Protected Phases	3	3		4	4		5	2		1	6	
Permitted Phases			3			4			2			
Actuated Green, G (s)					11.0	11.0		59.1	59.1	22.6	88.7	
Effective Green, g (s)					13.3	13.3		62.1	62.1	25.6	90.7	
Actuated g/C Ratio					0.12	0.12		0.56	0.56	0.23	0.82	
Clearance Time (s)					5.3	5.3		6.0	6.0	6.0	5.0	
Vehicle Extension (s)					3.0	3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)					207	185		1931	864	398	2821	
v/s Ratio Prot					c0.05			c0.53		0.09	c0.44	
v/s Ratio Perm						0.01			0.08			
v/c Ratio					0.45	0.07		0.95	0.14	0.40	0.53	
Uniform Delay, d1					44.9	42.8		22.4	11.3	35.7	3.0	
Progression Factor					1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2					1.6	0.2		11.3	0.3	0.7	0.7	
Delay (s)					46.5	43.0		33.7	11.6	36.3	3.7	
Level of Service					D	D		C	B	D	A	
Approach Delay (s)		0.0			44.7			32.0			6.8	
Approach LOS		A			D			C			A	

Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis 130: Issaquah-Pine Lk Rd & 228th Ave SE
Town Center Preferred Alt 2 8/1/2007



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			0%	
Total Lost time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00			1.00	0.88	1.00	0.95	1.00	0.97	1.00	
Frt	1.00	0.96			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00			0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1711	1724			1753	2721	1711	3421	1531	3319	1796	
Flt Permitted	0.49	1.00			0.48	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	874	1724			878	2721	1711	3421	1531	3319	1796	
Volume (vph)	143	135	53	131	45	798	40	586	234	773	577	11
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	159	150	59	146	50	887	44	651	260	859	641	12
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	177	0	0	0
Lane Group Flow (vph)	159	195	0	0	196	887	44	651	83	859	653	0
Turn Type	Perm			Perm		custom	Prot		Perm	Prot		
Protected Phases		4			8	1 4	5	2		1	6	
Permitted Phases	4			8		1 4			2			
Actuated Green, G (s)	26.6	26.6			26.6	66.4	5.5	32.0	32.0	34.2	62.3	
Effective Green, g (s)	29.2	29.2			29.2	69.0	6.5	35.0	35.0	36.8	65.3	
Actuated g/C Ratio	0.27	0.27			0.27	0.63	0.06	0.32	0.32	0.33	0.59	
Clearance Time (s)	5.6	5.6			5.6		4.0	6.0	6.0	5.6	6.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	232	458			233	1707	101	1089	487	1110	1066	
v/s Ratio Prot		0.11				0.33	0.03	c0.19		c0.26	0.36	
v/s Ratio Perm	0.18				c0.22				0.05			
v/c Ratio	0.69	0.43			0.84	0.52	0.44	0.60	0.17	0.77	0.61	
Uniform Delay, d1	36.3	33.5			38.2	11.3	50.0	31.6	27.0	32.9	14.3	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	0.92	0.83	
Incremental Delay, d2	8.1	0.6			23.0	0.3	3.0	2.4	0.8	3.2	2.4	
Delay (s)	44.4	34.1			61.2	11.6	53.0	34.0	27.8	33.3	14.2	
Level of Service	D	C			E	B	D	C	C	C	B	
Approach Delay (s)		38.5			20.6			33.2			25.1	
Approach LOS		D			C			C			C	

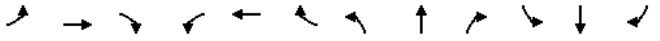
Intersection Summary			
HCM Average Control Delay	27.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis 133: Issaquah-Pine Lk Rd & SE 32nd Way
Town Center Preferred Alt 2 8/1/2007

Movement	SEL	SET	NWT	NWR	SWL	SWR
Right Turn Channelized						
Volume (veh/h)	319	751	929	131	100	215
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	354	834	1032	146	111	239
Approach Volume (veh/h)		1189	1178		350	
Crossing Volume (veh/h)		111	354		1032	
High Capacity (veh/h)		1270	1048		606	
High v/c (veh/h)		0.94	1.12		0.58	
Low Capacity (veh/h)		1057	857		469	
Low v/c (veh/h)		1.13	1.37		0.75	

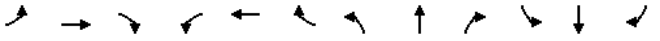
Intersection Summary			
Maximum v/c High	1.12		
Maximum v/c Low	1.37		
Intersection Capacity Utilization	63.1%	ICU Level of Service	B



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			-6%	
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.89		1.00	0.89		1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1711	1599		1711	1605		1711	3332		1762	3500	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1711	1599		1711	1605		1711	3332		1762	3500	
Volume (vph)	19	14	42	156	17	45	85	1214	255	68	729	34
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	21	16	47	173	19	50	94	1349	283	76	810	38
RTOR Reduction (vph)	0	43	0	0	42	0	0	12	0	0	2	0
Lane Group Flow (vph)	21	20	0	173	27	0	94	1620	0	76	846	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	6.0	6.0		14.5	14.5		7.6	57.8		3.9	54.1	
Effective Green, g (s)	8.0	8.0		16.5	16.5		10.6	60.8		6.9	57.1	
Actuated g/C Ratio	0.08	0.08		0.16	0.16		0.10	0.58		0.07	0.55	
Clearance Time (s)	5.0	5.0		5.0	5.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	131	123		271	254		174	1944		117	1918	
v/s Ratio Prot	c0.01	0.01		c0.10	0.02		c0.05	c0.49		c0.04	0.24	
v/s Ratio Perm												
v/c Ratio	0.16	0.16		0.64	0.11		0.54	0.83		0.65	0.44	
Uniform Delay, d1	45.0	45.0		41.1	37.5		44.5	17.6		47.5	14.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.6		4.9	0.2		3.4	3.2		11.8	0.2	
Delay (s)	45.5	45.6		45.9	37.7		47.9	20.8		59.3	14.2	
Level of Service	D	D		D	D		D	C		E	B	
Approach Delay (s)		45.6			43.6			22.3			17.9	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM Average Control Delay	23.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	104.2	Sum of lost time (s)	9.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	18	13	19	61	20	147	29	412	49	223	243	28
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	20	14	21	68	22	163	32	458	54	248	270	31

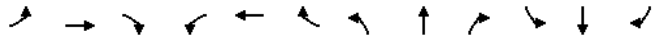
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	20	36	68	186	32	512	248	301
Volume Left (vph)	20	0	68	0	32	0	248	0
Volume Right (vph)	0	21	0	163	0	54	0	31
Hadj (s)	0.53	-0.38	0.53	-0.58	0.53	-0.04	0.53	-0.04
Departure Headway (s)	8.3	7.4	7.8	6.7	6.8	6.2	6.8	6.2
Degree Utilization, x	0.05	0.07	0.15	0.34	0.06	0.89	0.47	0.52
Capacity (veh/h)	406	452	437	510	506	566	514	562
Control Delay (s)	10.5	9.8	10.9	12.0	9.1	38.9	14.4	14.6
Approach Delay (s)	10.0		11.7		37.2		14.5	
Approach LOS	B		B		E		B	

Intersection Summary			
Delay	22.6		
HCM Level of Service	C		
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	191	84	198	373	69	313
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	212	93	220	414	77	348
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	928	427			634	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	928	427			634	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	22	85			92	
cM capacity (veh/h)	273	627			949	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	306	634	424
Volume Left	212	0	77
Volume Right	93	414	0
cSH	330	1700	949
Volume to Capacity	0.93	0.37	0.08
Queue Length 95th (ft)	232	0	7
Control Delay (s)	68.5	0.0	2.4
Lane LOS	F		A
Approach Delay (s)	68.5	0.0	2.4
Approach LOS	F		

Intersection Summary			
Average Delay	16.1		
Intersection Capacity Utilization	79.3%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	178	12	120	8	11	5	98	229	12	9	325	166
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	198	13	133	9	12	6	109	254	13	10	361	184

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	344	27	377	371	184
Volume Left (vph)	198	9	109	10	0
Volume Right (vph)	133	6	13	0	184
Hadj (s)	-0.08	-0.02	0.07	0.04	-0.57
Departure Headway (s)	6.0	7.0	5.8	5.8	3.2
Degree Utilization, x	0.57	0.05	0.61	0.60	0.16
Capacity (veh/h)	561	391	587	592	1121
Control Delay (s)	16.8	10.3	17.6	17.2	6.8
Approach Delay (s)	16.8	10.3	17.6	13.7	
Approach LOS	C	B	C	B	

Intersection Summary				
Delay	15.6			
HCM Level of Service	C			
Intersection Capacity Utilization	70.3%	ICU Level of Service	C	
Analysis Period (min)	15			

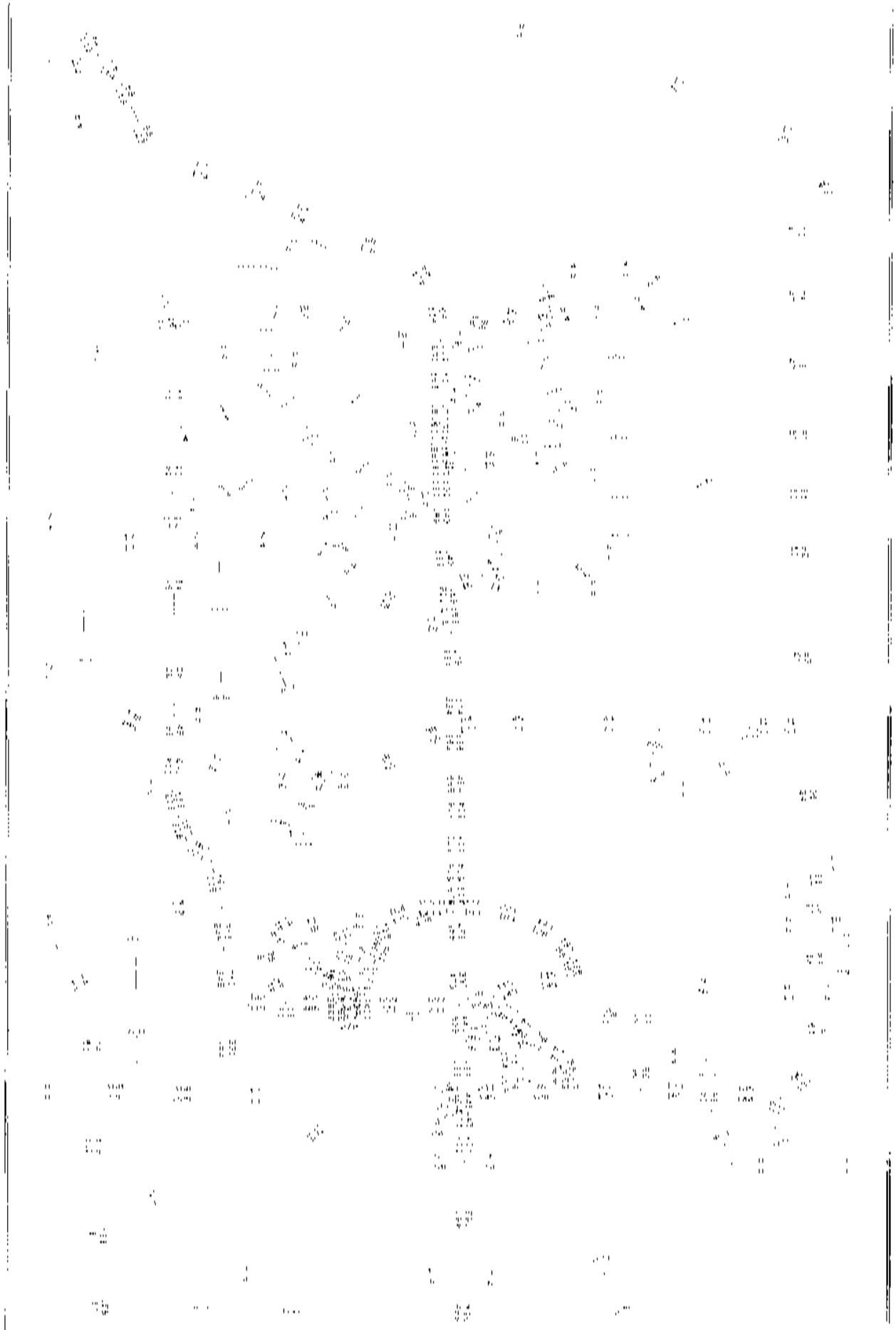
Appendix C

TMODEL 2

Town Center Trip Distribution

Sammamish Traffic Model 2030 PM Pk Hr

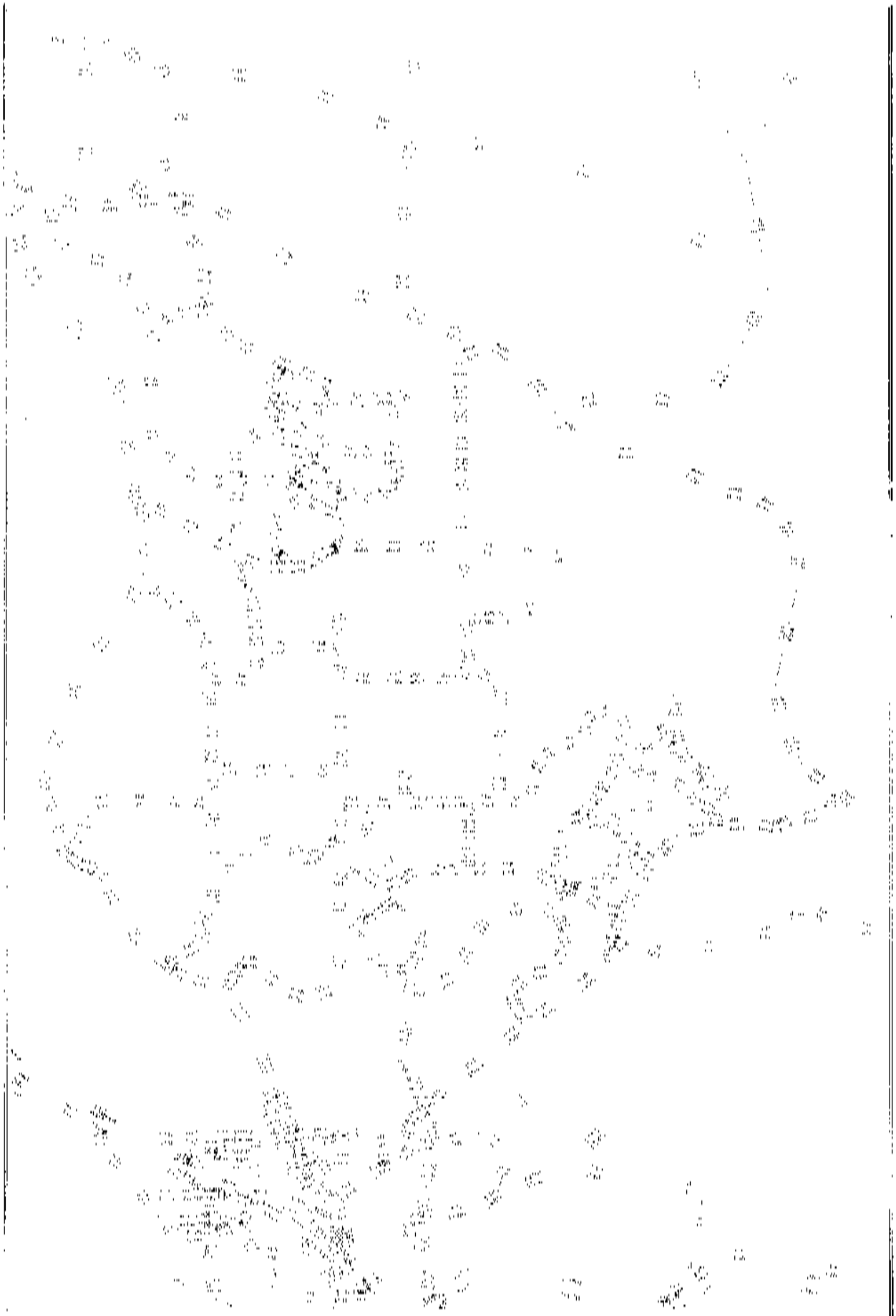
DAVID EVANS & ASSOCIATES, INC. | REVISED | WA



TMODEL 2

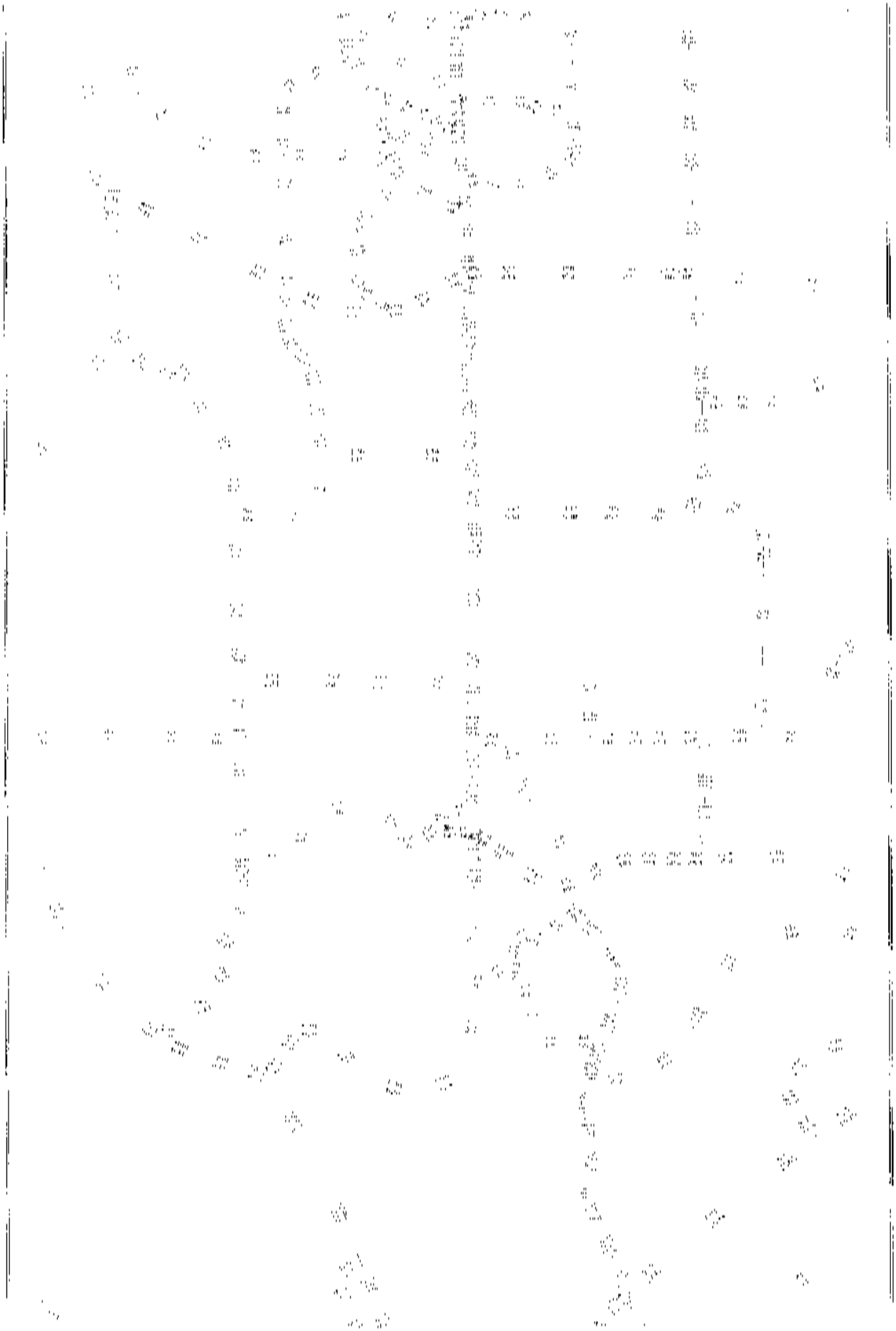
Town Center Trip Distribution

Sammamish Traffic Model 2030 PM Pk Hr



TMODEL 2 Test1739 with 2030 Bckgrnd Growth

Sammamish Traffic Model PM Pk Hr



TMODEL 2 Test1739 with 2030 Bckgrnd Growth

Commercial Traffic Model PM Pk Hr