Chapter 10 Aesthetics

This chapter addresses the existing conditions, potential impacts, mitigation measures, and unavoidable significant adverse impacts that the proposed action may have on the aesthetics and visual character of the Sammamish Town Center planning area. Impacts to aesthetics and visual character associated with buildings and infrastructure relate to views of the Town Center and the bulk, scale, height, and compatibility of development within the Town Center planning area.

10.1 Affected Environment

10.1.1 Visual Character

10.1.1.1 Sammamish Vicinity

The Town Center planning area is located on the Sammamish Plateau in the center of the City (Figure 1-2). The planning area is characterized by varied topography (Figure 3-1). The south end of the Town Center planning area slopes down toward a point near SE 4th Street. Topography in the central portion of the planning area is varied. The north end of the planning area slopes down to the north in the vicinity of E Main Street.

The visual character of the plateau is typical of western Washington foothills. It is generally defined by varied topography, forests, and rural to suburban development. Since 1970 the population living on the plateau has grown from approximately 6,000 in 1970 to more than 45,000 currently (City of Sammamish, 2003a). Growth on the plateau has transformed the rural character of the area to a more suburban residential character with high-value homes and limited commercial development (City of Sammamish, 2003a).

10.1.1.2 Existing Town Center Planning Area

Currently, the aesthetics of the 243-acre Town Center planning area is typical of residential areas in western Washington. Single-family homes on relatively large lots and small-scale pasture lands, within a matrix of conifer-hardwood forests fragmented by roads and some limited institutional developments. Figure 10-1 shows characteristic views of the Town Center planning area's current visual character. This view shows a portion of the northwest quadrant of the Town Center planning area in which some open pasture land, low-density residential development along 4th Avenue SE, and forest patches are evident.

As discussed in Chapter 5 (Streams, Fish, Wetlands, and Wildlife), forested patches are located, generally along the north and east boundaries of the Town Center planning area (Figure 2-2). These forested areas extend south and cover a large portion of the NW quadrant as well as significant areas in the NE and SE corners of the Town Center planning area.

The southwest quadrant of the Town Center planning area is dominated by the Sammamish Commons (currently under construction). The southern portion of the 30-acre Commons is located on a topographical rise and is the location of City Hall. The lower portion of the Commons site will ultimately be characterized by undeveloped grassland with large lawn areas

and mixed grass areas that will be similar to the existing pasture grasses at the site. Structures within the site will include picnic shelters, a viewing tower, and a playground (City of Sammamish, 2004).

10.1.1.3 Existing Transportation Features

228th Ave SE is the dominant transportation feature within the Town Center planning area. The five-lane principle arterial road is the primary route through the city and the Town Center planning area. The design of the street includes a vegetated/tree lined median and planter strips separating traffic and sidewalks. Several roads extend east and west from 228th Ave SE and are visible features in the Town Center area. E Main Street, along the northern boundary, and SE 8th Street along the southern boundary extend east from 228th Avenue SE. E Main Street is currently a dirt road. SE 8th Street is a two-lane minor arterial with sidewalks and grass planter strips. SE 4th extends both west and east from 228th Avenue SE at the topographical low-point of the Town Center planning area. To the west, the road is classified as a collector street. It is two-lanes with no sidewalks. To the east it is currently being developed as the primary access to the new Eastside Catholic High School (under construction).

10.1.1.4 Existing Structures

Large, non-residential buildings in the Town Center planning area include City Hall and the Sammamish Hills Lutheran Church both located at the intersection of 228th Ave SE and SE 8th Street. Both building are below 3 stories. The Sammamish Children's School is located along 228th Ave immediately north of SE 4th Street. The school occupies a 2-story building. There are also several barns located in the SW quadrant of the Town Center planning area. All other structures within the area are single-family homes.

10.1.2 Views

Views are an important consideration in assessing impacts to aesthetics. Because of the topographic conditions and vegetation in the Town Center planning area, existing public views of the site from outside the planning area boundary are relatively limited. The most "open" view of the Town Center planning area is available from the rise at 228th Ave SE and SE 8th Street. This location provides a vista overlooking both the west side of 228th Ave SE, including City Hall and the Sammamish Commons, and the east side of 228 Avenue SE (Figure 10-2). From this point, most of the Town Center planning area can be seen as well as views of the Seattle skyline and the Olympic Mountains to the west and of the Cascade foothills and Mountains to the east.

Views of the Town Center planning area from SE 8th Street near the SE corner of the planning area boundary are, for the most part, blocked by mature forest and the rise of the hill to the west (Figure 10-3).

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FIGURE 10-1

EXISTING CONDITIONS

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FIGURE 10-2

EXISTING VIEW – NORTH FROM 228TH AVE SE/SE 8TH ST

SAMMAMISH TOWN CENTER SUB-AREA PLAN DEIS

SAMMAMISH, WASHINGTON

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Reference: 25164eis

SOURCE: ESA Adolfson, 2006.

FIGURE 10-3

EXISTING VIEW – NORTHWEST FROM SE 8TH ST

SAMMAMISH TOWN CENTER SUB-AREA PLAN DEIS

SAMMAMISH, WASHINGTON

The view from west of the Town Center planning area, at SE 4th Street beyond the planning area boundary, is primarily along a relatively flat area that follows SE 4th Street (Figure 10-4). Views are primarily characterized by open lawns and pasture with scattered development and forested areas. Further east, the topography slopes down toward 228th Avenue SE. In the distance the Cascade foothills and Mountains are visible.

Views from the north beyond the northern boundary of the Town Center planning area are primarily blocked (Figure 10-5) by a hill that rises approximately 100 feet (from 350 to 450 feet above see level) in the vicinity of E Main Street.

10.1.3 Light and glare

Light and glare are typically caused by reflective exterior building materials, vehicles headlights, un-screened parking lots, or building lighting. As described above, uses in the Town Center planning area are primarily low-density residential. Structures are far apart and are relatively insignificant sources of light and glare. The primary source of light in the planning area is street lighting along 228th Ave SE and occasional structures.

10.2 Impacts

The discussion of aesthetics impacts focuses on changes in pattern, type, and scale of development resulting from the alternatives. As described in Chapter 2 (Description of the Alternatives), the alternatives represent generalized land use patterns of possible development scenarios that, under a Town Center Sub-Area Plan, could emerge over the next 25 years.

All of the alternatives, including the No-Action Alternative, would substantially change the area's character from a generally rural and residential character to a more suburban and urban character. The extent of the potential change varies with the individual alternative. The change in character is consistent with the adopted City Council vision which calls for a Town Center that:

- Offers a unique sense of place reflected on its building forms, development patterns, and public realm, which are oriented to take advantage of the City's topography and natural assets, preserve scenic views and enhance view sheds.
- Features well-designed mixed-use development, compatible with surrounding neighborhoods.
- Incorporate(s) natural resources, view corridors, and sensitive site characteristics as amenities and design elements that reflect the distinctive character of the Town Center.
- Feature(s) new buildings and structures that, while urban in their function, reflect a "Northwest character," human scale, and welcoming aspect.

The alternatives explore various options with respect to these goals and illustrate the three action alternatives using computer generated visualizations of the land use scenarios.

The intent of these visualizations is to provide an understanding of what the Town Center could look like under each alternative by presenting example building types and perspectives of the Town Center planning area from several locations. The aerial computer graphic views illustrate the relative building arrangement and massing that could be expected under each alternative. Actual constructed building locations and configurations would be different from those shown. A Final Sub-Area Plan would result in city policies, land use regulations, development standards, and capital improvements that would guide individual developer's efforts.

The aerial views do not show the details of building modulation and architectural details nor do they show all the landscape screening or vegetation in order to better illustrate, building layouts, and massing.

A series of example buildings types are provided in Figure 10-6 to provide a better sense of the types of structural styles that could be developed under each alternative. The example building types illustrate the scale of possible new buildings that could occur under the proposed action.

The visualizations and building type examples are meant as tools for the public and decision makers to understand the range of possibilities that could occur under the land use scenarios being analyzed. They do not represent actual plans for development or redevelopment by the City or any private party.

10.2.1 Impacts Common to All Action Alternatives

10.2.1.1 Visual Character

Under all of the alternatives, the visual character of the Town Center planning area would transform from its current condition to a more developed and urban setting. Depending on the future land use, the change in character may include more high intensity commercial development, more civic facilities, and/or more residential development.

Under all three of the action alternatives and the No-Action Alternative, the visual character would change from the low-scale rural to suburban residential development pattern to a more intense land use pattern featuring a mix of single-family, town house, mid-rise, or high-rise residential development. Under all of the action alternatives at least one and, possibly more areas would be converted to more intense commercial or civic use structures.

All of the alternatives retain the views across Sammamish Commons. All three of the action alternatives would require that the facades of all buildings facing the Commons or other public open spaces feature transparency (windows and doors) over a specified percentage of their surface and include uses that complement the park and add visual interest to the commons.

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FIGURE 10-4

EXISTING VIEW – EAST FROM SE 4TH ST

SAMMAMISH TOWN CENTER SUB-AREA PLAN DEIS

SAMMAMISH, WASHINGTON

ADOLFSON

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Date last updated: 12/14/06
Reference: 25164eis

SOURCE: ESA Adolfson, 2006.

FIGURE 10-5

EXISTING VIEW – FACING SOUTH FROM NORTH OF TOWN CENTER

SAMMAMISH TOWN CENTER SUB-AREA PLAN DEIS

SAMMAMISH, WASHINGTON

Residential development along 228th Avenue SE would be screened with landscaping so that the sense of a green corridor will be retained. The open area northeast of the intersection at SE 4th Street and 228th Avenue SE will remain in all alternatives, providing open views to the northeast.

10.2.1.2 Example Development Types

Several examples of building types that illustrate possible future Town Center developments are shown below, in Figure 10-6. These photographs illustrate the types of buildings envisioned in the development scenarios for the alternatives. In addition to illustrating possible development outcomes, the color codes indicated for the different land uses in Figure 10-6 serve as a key to the Town Center development scenario site plans shown in Figures 2-6 though 2-8 as well as those included in this chapter.

10.2.1.3 Light and Glare

Light and glare from building windows and surfaces would increase under all alternatives. These increases will be mitigated through guidelines calling for non-reflective glazing and building surfaces and by landscaping requirements to reduce the glare caused by the buildings in the landscape. Streetlights would be shielded to dark sky standards and the illumination of public and private signs would be limited.

10.2.2 Alternative 1 Commercial Focus

Southeast Quadrant

Redevelopment of the church property at the intersection of SE 8th Street and 228th Avenue SE would change the character of the intersection from its current landscaped institutional character to a more commercial frontage. New residential development along SE 8th Street would be largely screened from view so that views from the street would be of dense screening once the plants matured. Low-rise residential buildings on the east side of 228th Avenue SE would be set back and screened from the roadway. The visual qualities of the stream and buffer would not be significantly altered. The southeast quadrant is illustrated in Figure 10-7.

Northeast Quadrant

Views eastward from 228th Avenue SE would include a new landscaped park with new mid-rise residential development behind it. Except in the vicinity of the new Main Street, the buildings would appear in the background, separated from the roads by open fields and park vegetation. It would take park vegetation several years to mature to the extent that it screens or buffers the views of new residential buildings. The northeast quadrant is illustrated in Figure 10-7.

Southwest Quadrant

The tops of new residential buildings at the northwest corner of 228th Ave. SE and SE 8th St. would likely be visible from the intersection, although the buildings would be situated down slope from the streets. Views northward across the Sammamish Commons would include new 2

to 5 story public and commercial buildings with uses oriented toward park activities. Park landscaping would be integrated with the new development.

Views from SE 4th Street would remain largely of vegetation on the hillside as it rises west of 228th Ave. SE. The character of this street would change dramatically as it reaches the crest of the hill. In this area, SE 4th Street would be a relatively intensely developed pedestrian oriented street with 1 to 5-story commercial and mixed-use development visible from the street. Guidelines would require pedestrian oriented facades that include display windows, entrances, small-scale architectural details, weather protection and pedestrian amenities along principle streets.

The potential exists for visual impacts to residential properties immediately west of the Town Center planning area. These potential impacts would be minimized by establishing low-density single-family residential development along the western periphery of the Southwest Quadrant. As noted above, new development would be buffered and screened from existing single-family residences. The southwest quadrant is illustrated in Figure 10-8.

Northwest Quadrant

Alternative 1 includes urban scale development in the Northwest Quadrant with a mix of mid and high-rise (3 to 12 story) buildings clustered around communal open space and heavily landscaped areas. There would be views of this development from SE 4 the Street. The 12-story buildings would likely not be visible from 228th Avenue SE or from residences closer than approximately 500 feet. The tops of these high-rise buildings may be visible from selected locations further to the north and west.

Views of the Town Center planning area from the north are largely blocked by the forested hill located roughly along E. Main Street. Views of new development would be very limited from residences west of the project area. Under Alternative 1 existing vegetation in the wetland and buffer system along the planning area's western margin would be preserved.

Although this alternative features the most intense development in the Northwest Quadrant, the general visual quality would be greatly enhanced because this alternative features the most structured parking (in lieu of surface lots), landscaping, and communal open space linked to trails and natural areas. The northwest quadrant is illustrated in Figure 10-8.

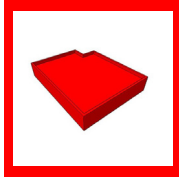
10.2.3 Alternative 2 – Low Intensity

Southeast Quadrant

Alternative 2 causes minimal impacts to views from existing Southeast Quadrant roadways. The only major new development that would be visible form SE 8th Street or 228th Avenue SE would be townhouses on the hill east of 228th Avenue SE. These new units could be screened from the roadway by natural vegetation. The visual character on the interior roads will be predominantly homogenous single-family residences and townhouses. The southwest quadrant is illustrated in Figure 10-9.

Commercial

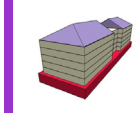
- Commercial
  - Small to medium size retail and office uses



General Commercial

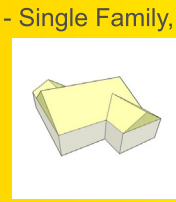
Mixed Use

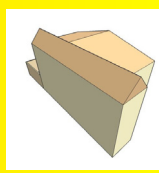
- Mixed-Use (3 - 6 stories)
  - Residential or office over pedestrian oriented retail



Residential

- Low Intensity Residential
  - Single Family, cottage housing and townhomes



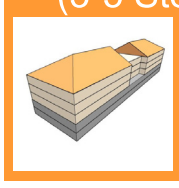


Single Family

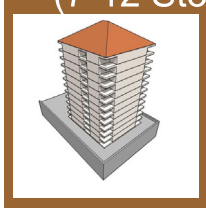
Cottage Housing

Townhomes

- Medium Intensity Residential (3-5 Stories)

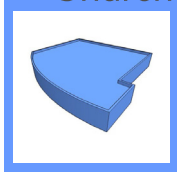


- High Intensity Residential (7-12 Stories)



Civic & Institutional

- Governmental Buildings, Schools, Churches, Hospitals, etc.



City Hall

School

Hospital

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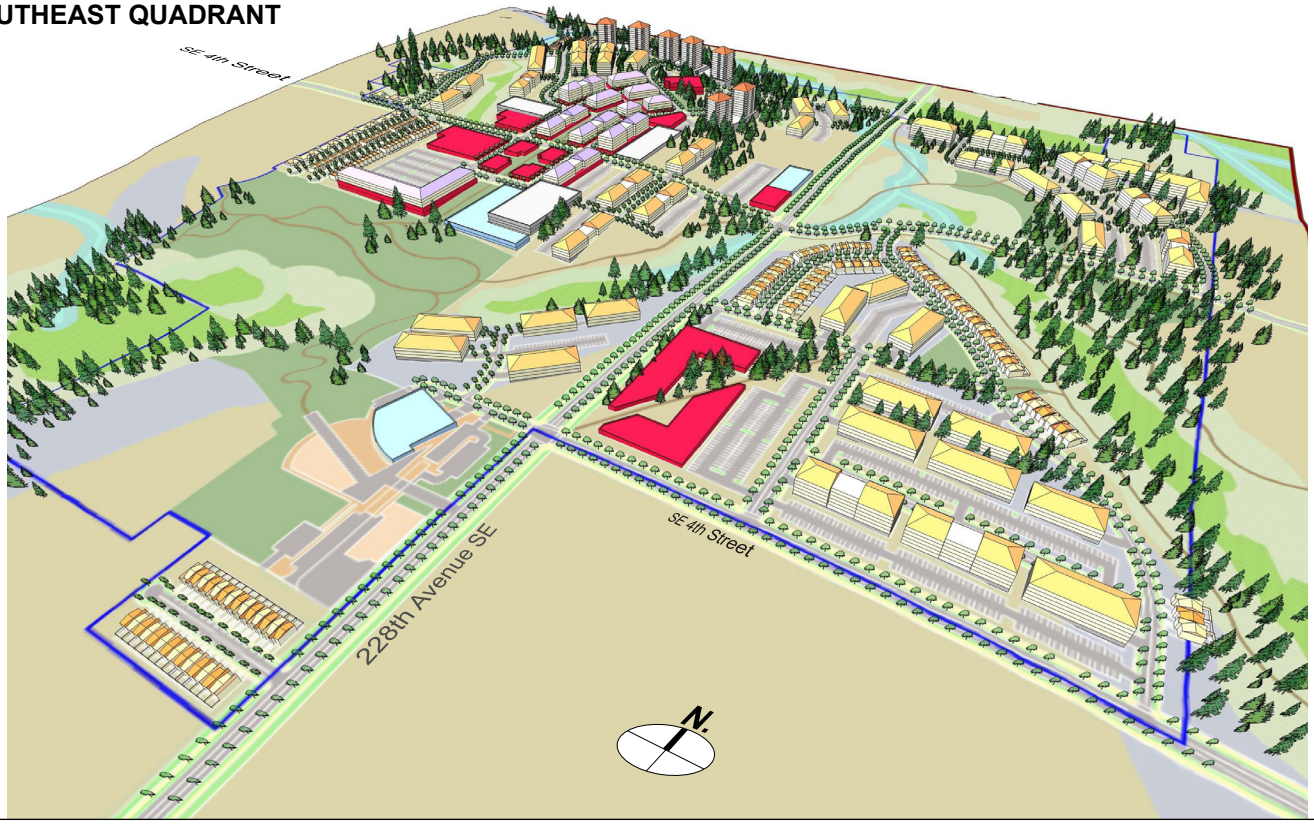
FIGURE 10-6

SAMMAMISH TOWN CENTER BUILDING TYPE EXAMPLES

SAMMAMISH TOWN CENTER SUB-AREA PLAN DEIS

SAMMAMISH, WASHINGTON

SOUTHEAST QUADRANT



NORTHEAST QUADRANT

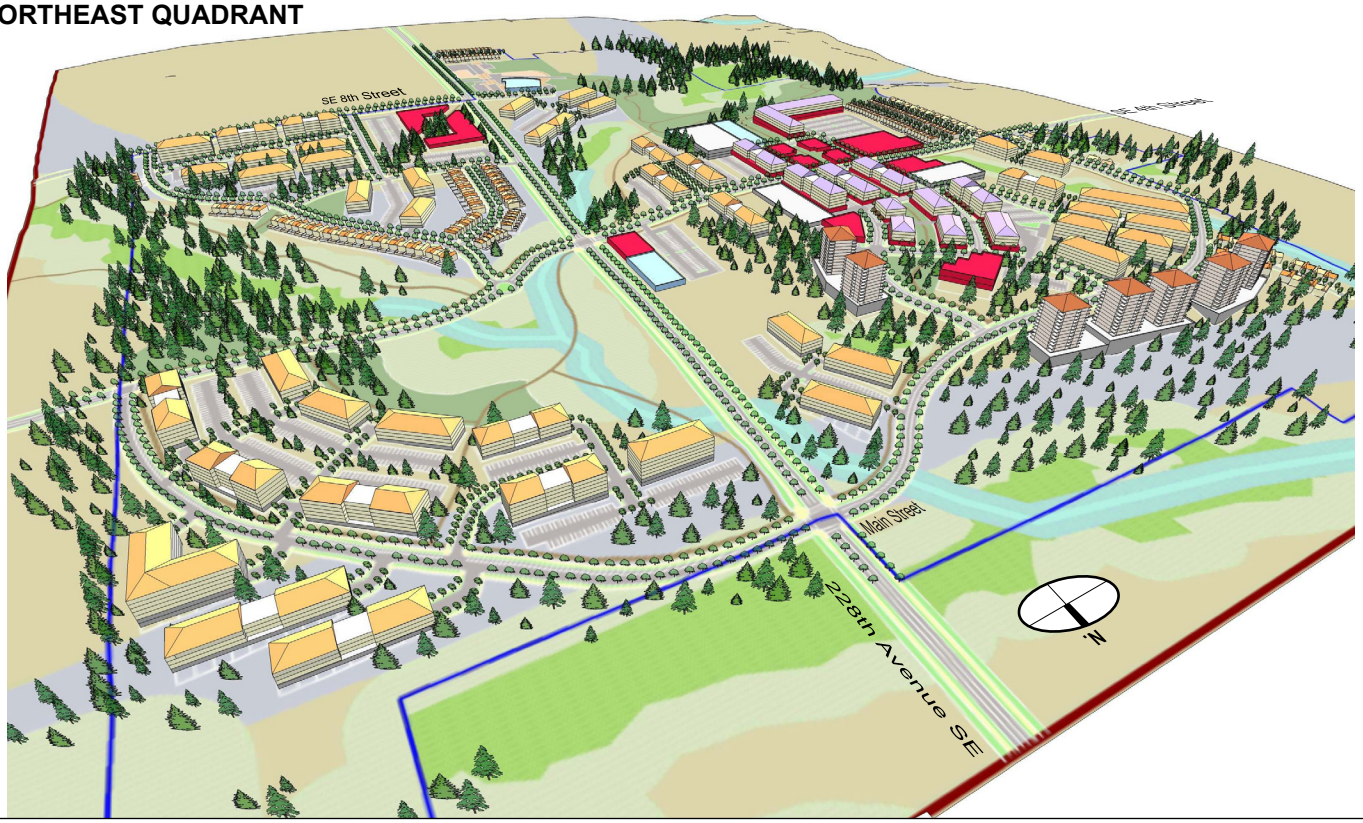


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FIGURE 10-7

ALTERNATIVE 1 SOUTHEAST AND NORTHEAST QUADRANTS

SAMMAMISH TOWN CENTER SUB-AREA PLAN DEIS

SAMMAMISH, WASHINGTON

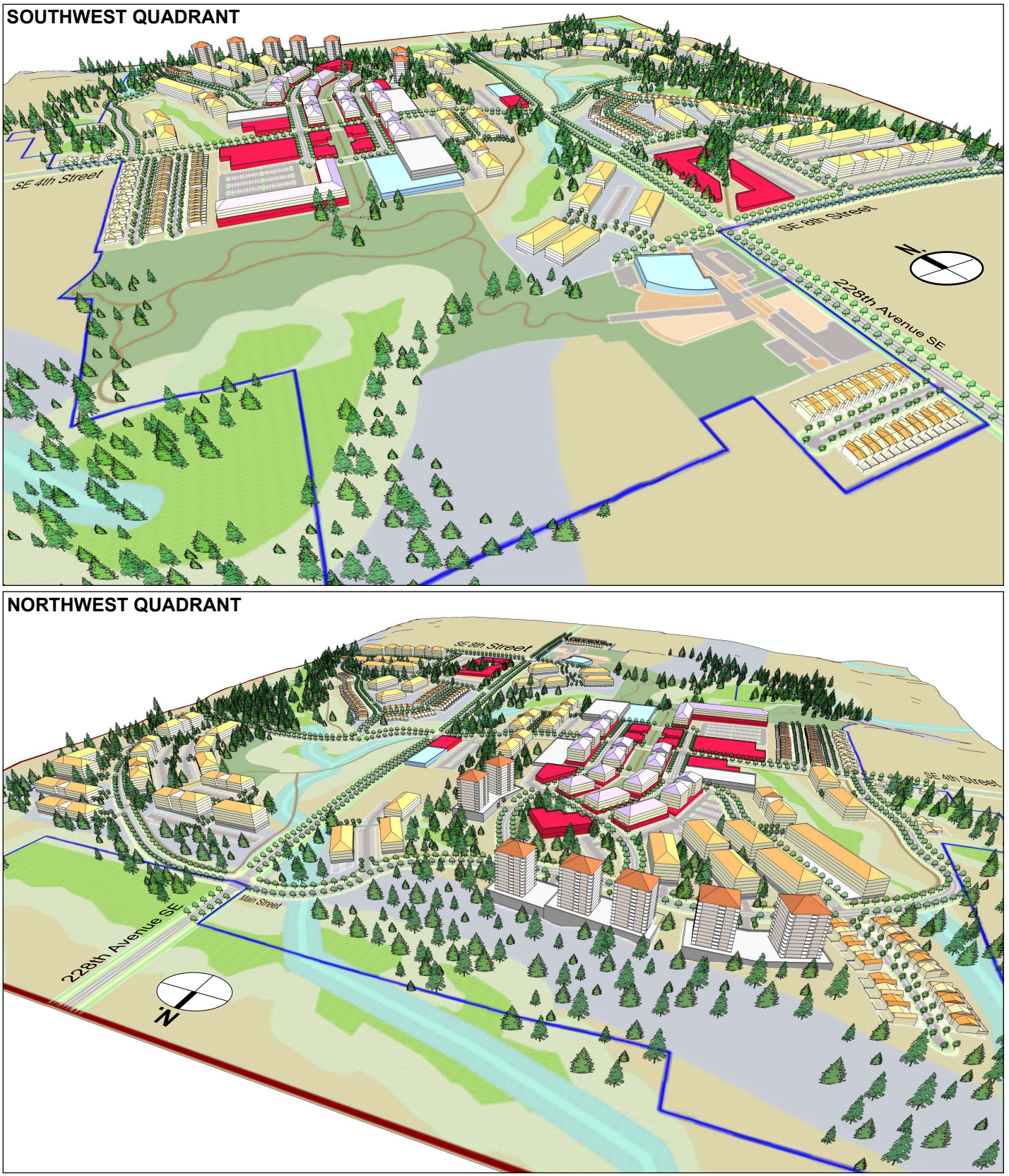

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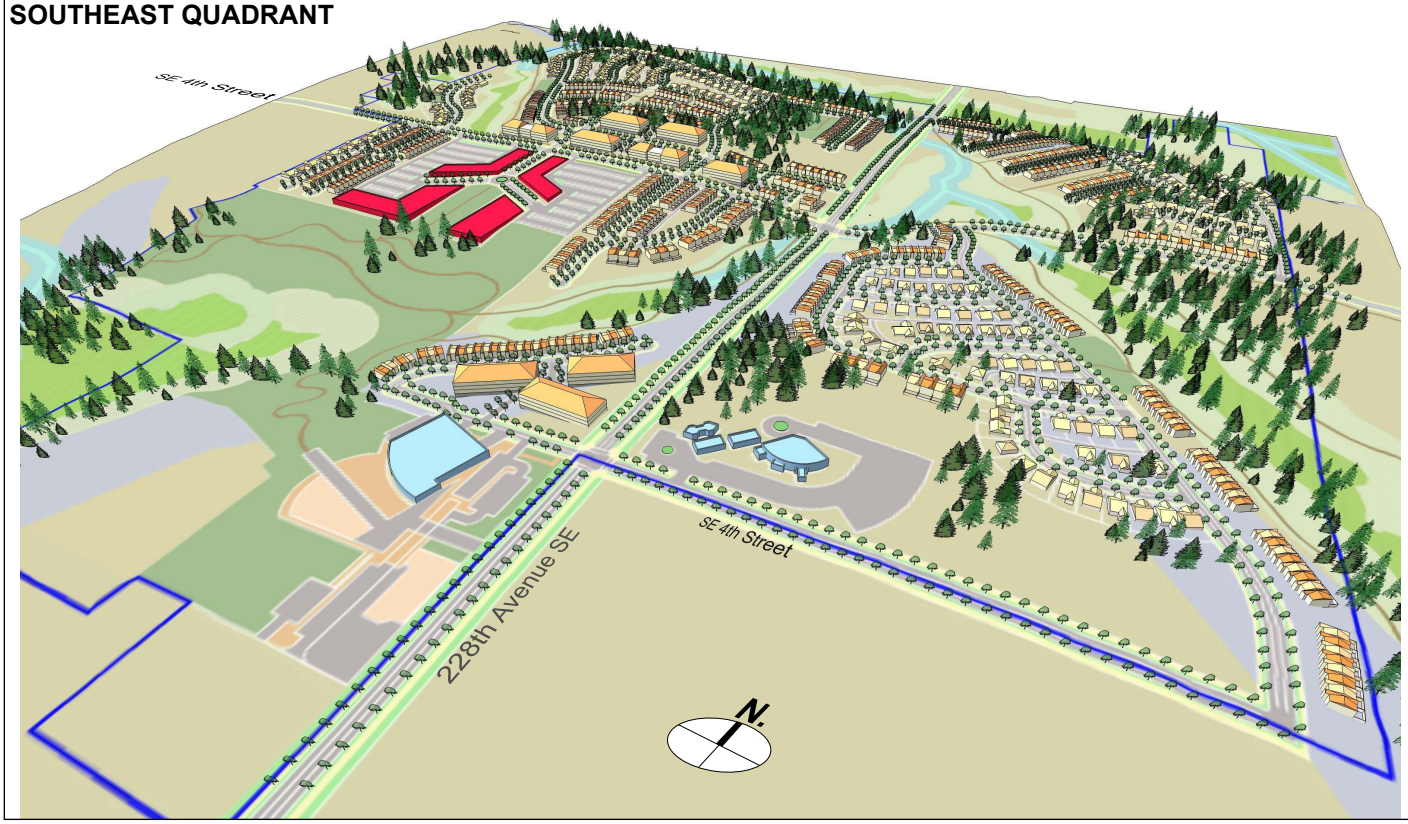
FIGURE 10-8

ALTERNATIVE 1 SOUTHWEST AND NORTHWEST QUADRANTS

SAMMAMISH TOWN CENTER SUB-AREA PLAN DEIS

SAMMAMISH, WASHINGTON

SOUTHEAST QUADRANT



NORTHEAST QUADRANT

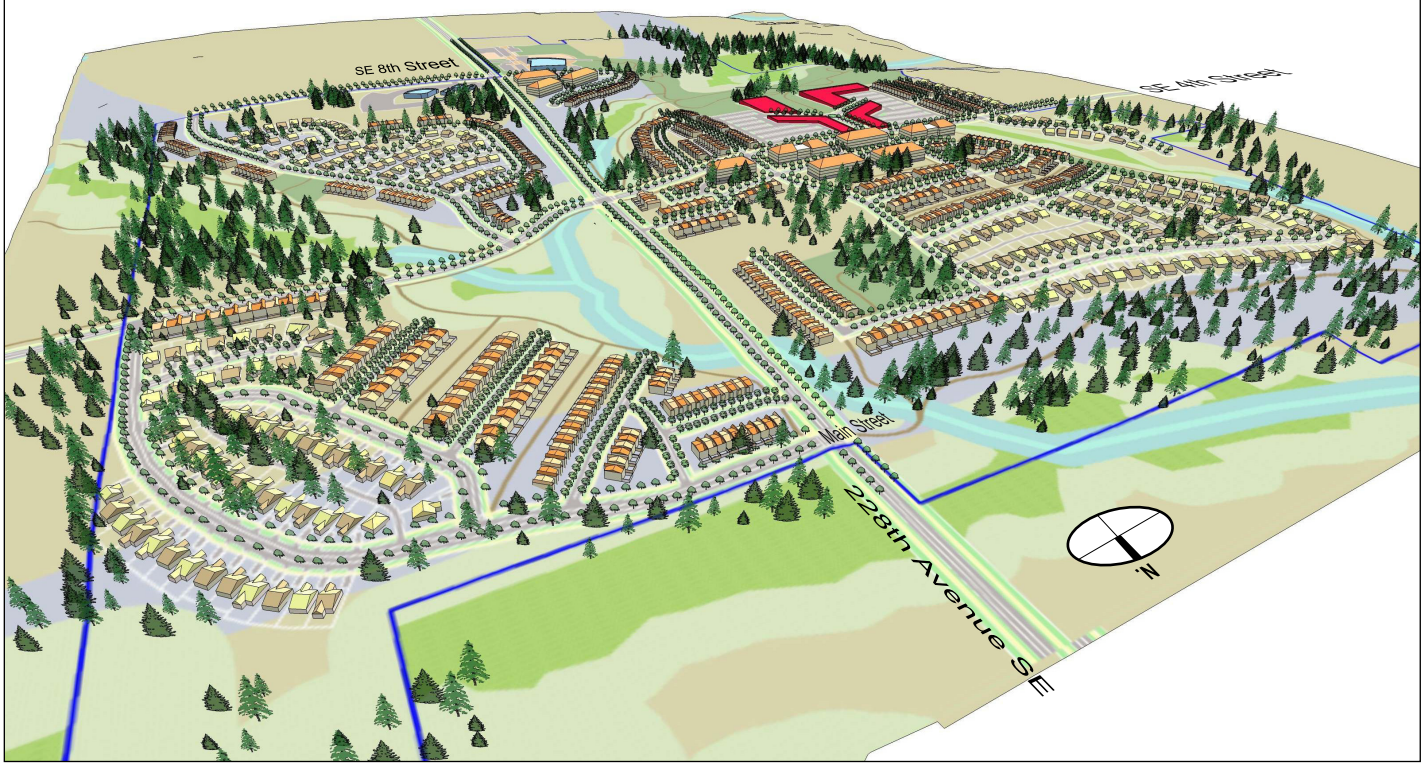


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FIGURE 10-9

ALTERNATIVE 2 SOUTHEAST AND NORTHEAST QUADRANTS

SAMMAMISH TOWN CENTER SUB-AREA PLAN DEIS

SAMMAMISH, WASHINGTON

Northeast Quadrant

Alternative 2 includes new single-family and townhouse development in the Northeast Quadrant. These will be relatively far from existing roads and residences. The illustration (in Figure 10-8) shows rows of townhouses perpendicular to the South Fork George Davis Creek east of 228th Avenue SE, which would allow green open spaces between townhouse rows leading to the stream. The Northeast Quadrant is illustrated in Figure 10-9.

Southwest Quadrant

Development in the Southwest Quadrant would include low-intensity commercial uses north of the Sammamish Commons. This will give the area a small scale, suburban character. Guidelines would require buildings to include pedestrian orientation, especially toward public roadways and the Commons so that views from public spaces would be of attractive, small scale commercial buildings.

The commercial area would include more surface parking relative to the development than featured in other alternatives. The rest of the quadrant would be dominated by town homes and some single-family homes. This type of development will result in a relatively homogenous visual quality. Impacts to views from existing properties west of the Town Center planning area boundary would be minimal because of the low-rise single-family residences located along the western boundary of the Town Center planning area. These would provide a buffer between higher-intensity uses.

Mid-rise (3 story) multifamily development on the northwest corner of SE 8th Street and 228th Avenue SE would be visible from the intersection but could be set back from the street and screened with substantial landscaping. The southwest quadrant is illustrated in Figure 10-10.

Northwest Quadrant

The primary visual impacts in the northwest quadrant would be due to the mid-rise (3 story) buildings envisioned on the north side of SE 4th Street. Guidelines would be established requiring these buildings to provide a well-landscaped frontage along SE 4th Street. Visual impacts to the properties directly west of the northwest quadrant would be minimal because adjacent development would be predominantly single-family and would be set back from the wetlands along the western periphery. The northwest quadrant is illustrated in Figure 10-10.

10.2.4 Alternative 3 – Civic Focus

Southeast Quadrant

Mid-rise (3-story) multi-family buildings would be visible north of SE 8th Street, unless screened with vegetation. Views along 228th Avenue SE would be significantly affected by 1 and 2-story commercial and residential buildings. Because the commercial buildings would be oriented away from 228th Avenue SE, the views would be of the backsides of these buildings. Some screening could be installed, but the topography would likely require substantial regrading of the site and potentially the construction of retaining walls and other structures.

The interior of this quadrant would be characterized by mid-rise (3 to 5-story) residential buildings. This alternative would include guidelines requiring architectural treatments to increase visual interest, decrease building bulk and scale, ensure pedestrian orientation and include landscaping to integrate the buildings into their surroundings. The southeast quadrant is illustrated in Figure 10-11.

Northeast Quadrant

Alternative 3 includes substantial development in the northeast quadrant with mid-rise, mixed use (5 and 6-story) and residential (3 to 5-story) buildings. Views of these buildings from a proposed Main Street extension east of 228th Avenue SE would be urban in scale and character. Landscaping standards and design guidelines would be necessary to direct development in this quadrant to present an attractive face westward to 228th Ave SE.

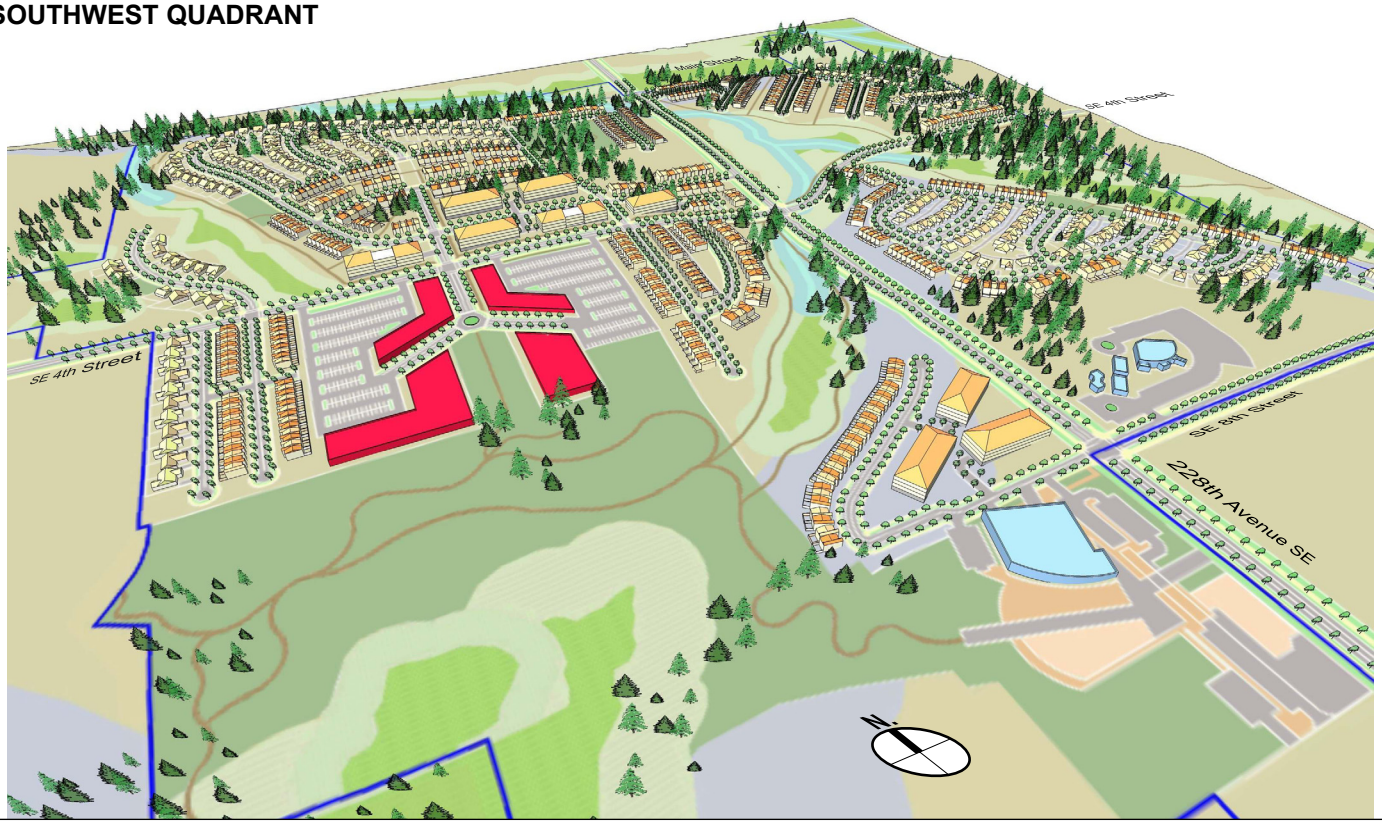
Because of the slope south of the Main Street extension, building fronts would likely be dominated by parking garages on the bottom floors. The visual impacts associated with the parking garages could be minimized through landscape screening.

There is a large wetland directly north of the Main Street extension, which would serve as a visual buffer between properties north of the Town Center planning area boundary. Therefore, impacts to views from existing homes would be minimal. The aerial illustration also shows a large mixed-use structure along the eastern boundary of the planning area. While this would be a large new element, changes to views from the east would not affect residential properties because the Eastside Catholic High School borders this quadrant to the east. The northeast quadrant is illustrated in Figure 10-11.

Southwest Quadrant

The commercial building shown at the northwest corner of 228th Avenue SE and SE 8th Street (Figure 10-12) would be the primary visual impact in the southwest quadrant under Alternative 3. Because of the site's visual prominence, it would be important to establish strong design guidelines to ensure that this building presents an attractive, pedestrian oriented façade to the street. Mid-rise (3 to 4-story) multi-family residential buildings would be visible from the Sammamish Common's open spaces. Views north across the Commons from City Hall would include civic buildings such as a senior center or community center facing the Commons open space.

SOUTHWEST QUADRANT



NORTHWEST QUADRANT

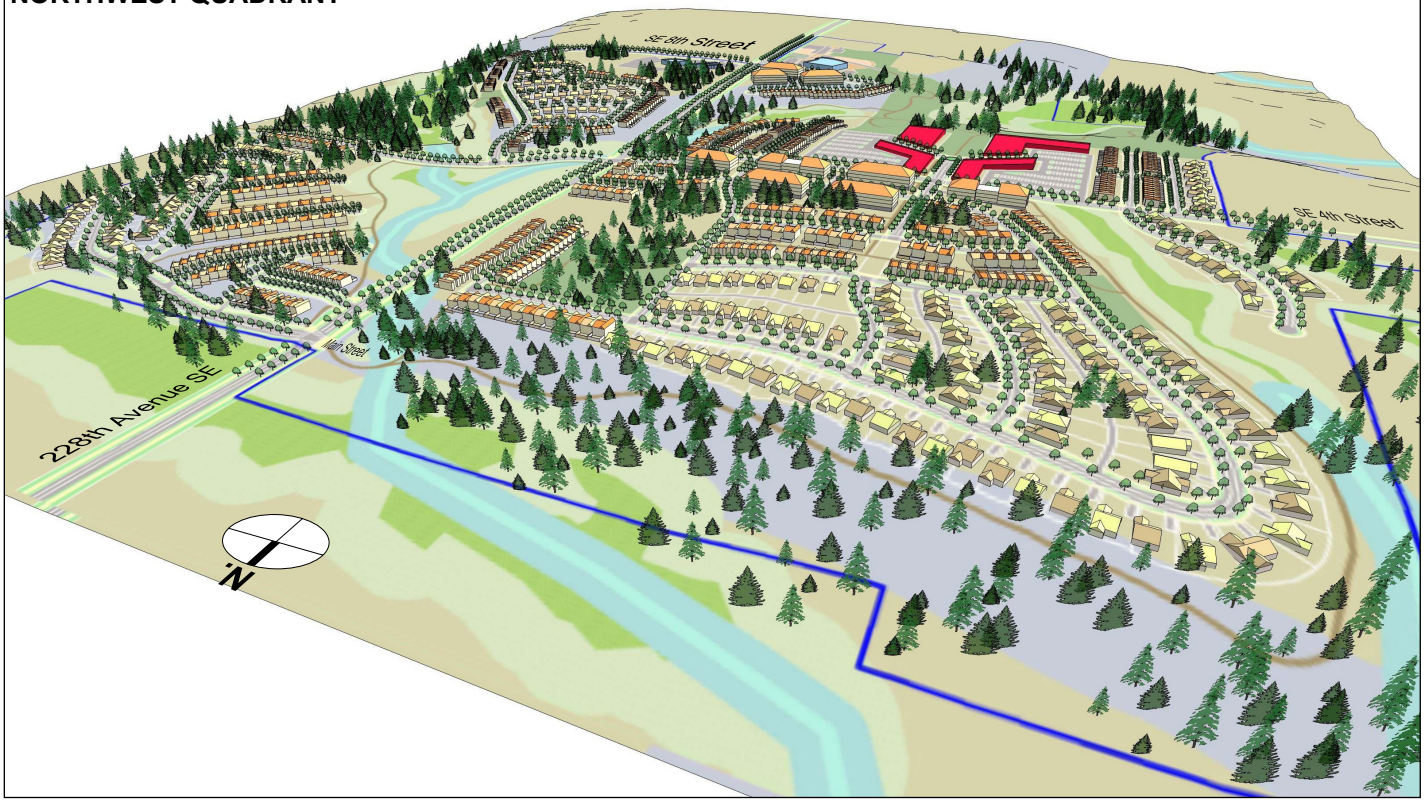


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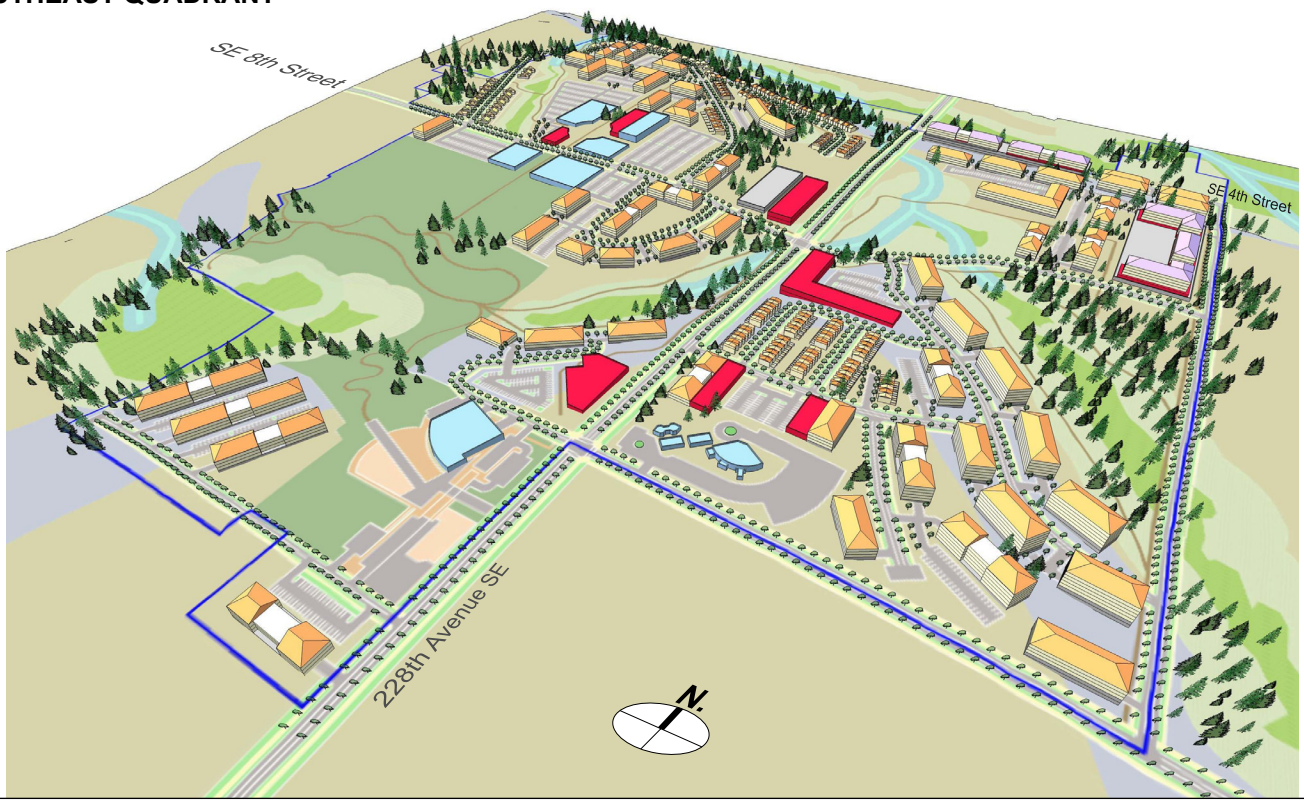
FIGURE 10-10

ALTERNATIVE 2 SOUTHWEST AND NORTHWEST QUADRANTS

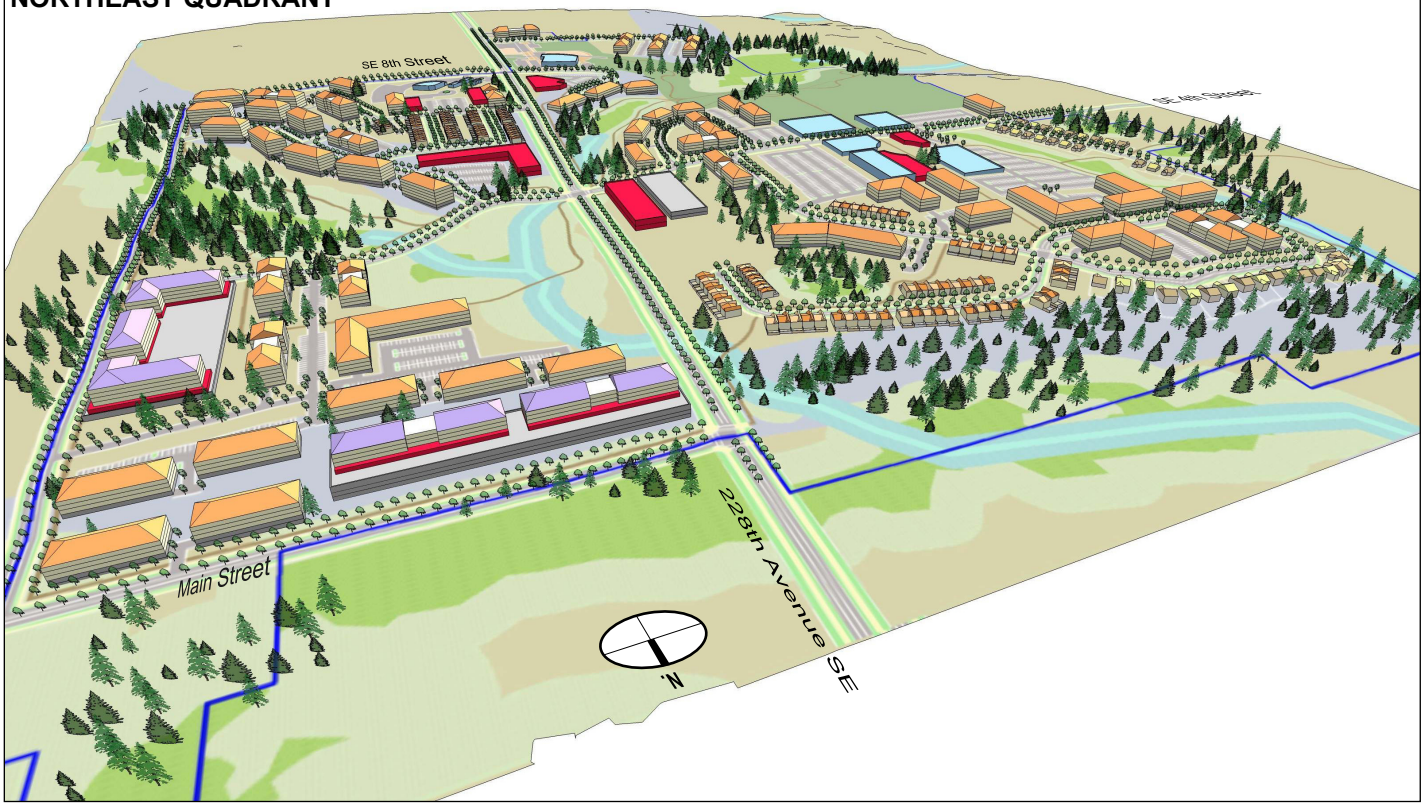
SAMMAMISH TOWN CENTER SUB-AREA PLAN DEIS

SAMMAMISH, WASHINGTON

SOUTHEAST QUADRANT



NORTHEAST QUADRANT



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Reference: 25164eis

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FIGURE 10-11

ALTERNATIVE 3 SOUTHEAST AND NORTHEAST QUADRANTS

SAMMAMISH TOWN CENTER SUB-AREA PLAN DEIS

SAMMAMISH, WASHINGTON

Alternative 3 also includes mid-rise residential buildings on the western edge of the southwest quadrant to provide more security and use along the edge of the Commons. This taller structure could be visible from adjacent single-family residences beyond the Town Center planning area boundary. Setbacks from the western property line and landscape screening would be important to protect the privacy and character of the existing residential neighborhood. The southwest quadrant is illustrated in Figure 10-12.

Northwest Quadrant

The commercial buildings shown at the northwest corner of 228th Avenue SE and SE 4th Street would be the primary visual impact in the northwest quadrant. Because of the location's visual prominence from SE 228th Avenue, it would be important to establish strong design guidelines to ensure that this development would be attractive from both SE 4th Street and 228th Avenue SE and would be oriented toward the intersection for pedestrians. Views along SE 4th Street would feature a complex of public buildings such as a senior center, swimming pool or public performing arts center. The northwest quadrant is illustrated in Figure 10-12.

10.2.5 Alternative 4 – No-Action

The No-Action alternative would be characterized by a relatively homogenous single-family residential development pattern similar to one illustrated in Figures 10-13. Because the No-Action alternative would not include substantial regulatory changes, the design guidelines and street improvements described in the other alternatives above would to be applied.

While higher-intensity uses such as mid-rise and mixed-use buildings would not be permitted under the No-Action Alternative, visual character and views are likely to change. Under current Comprehensive Plan land use designations much of the Town Center planning area would be converted to single-family homes, at a density of approximately four homes per acre. The current rural/suburban character of very low-density single-family homes and large open spaces would be likely transformed into a more dense suburban character with limited open space.

10.3 Mitigation

Two types of mitigation measures are proposed to reduce the potential aesthetics impacts: 1) Regulatory standards, including zoning standards and design guidelines; and 2) public improvements such as streetscape landscaping, open space acquisition, and public facilities.

Under all of the action alternatives, development would be directed by standards that would guide the form and character of the buildings, quality and quantity of landscaping, treatment of parking lots, setbacks and open space, and environmental restoration. Street and park landscaping, accomplished as part of public works projects, would further increase the amount of "green infrastructure" and soften the visual character of all the action alternatives. The No-Action Alternative does not include the application of guidelines beyond existing regulations.

Design guidelines are particularly effective in addressing aesthetic, as well as functional, issues and in making new development a positive visual addition to the landscape. Because design guidelines are very flexible in addressing specific concerns, the primary issues to be addressed in each quadrant for each alternative are summarized in the Impact discussion above.

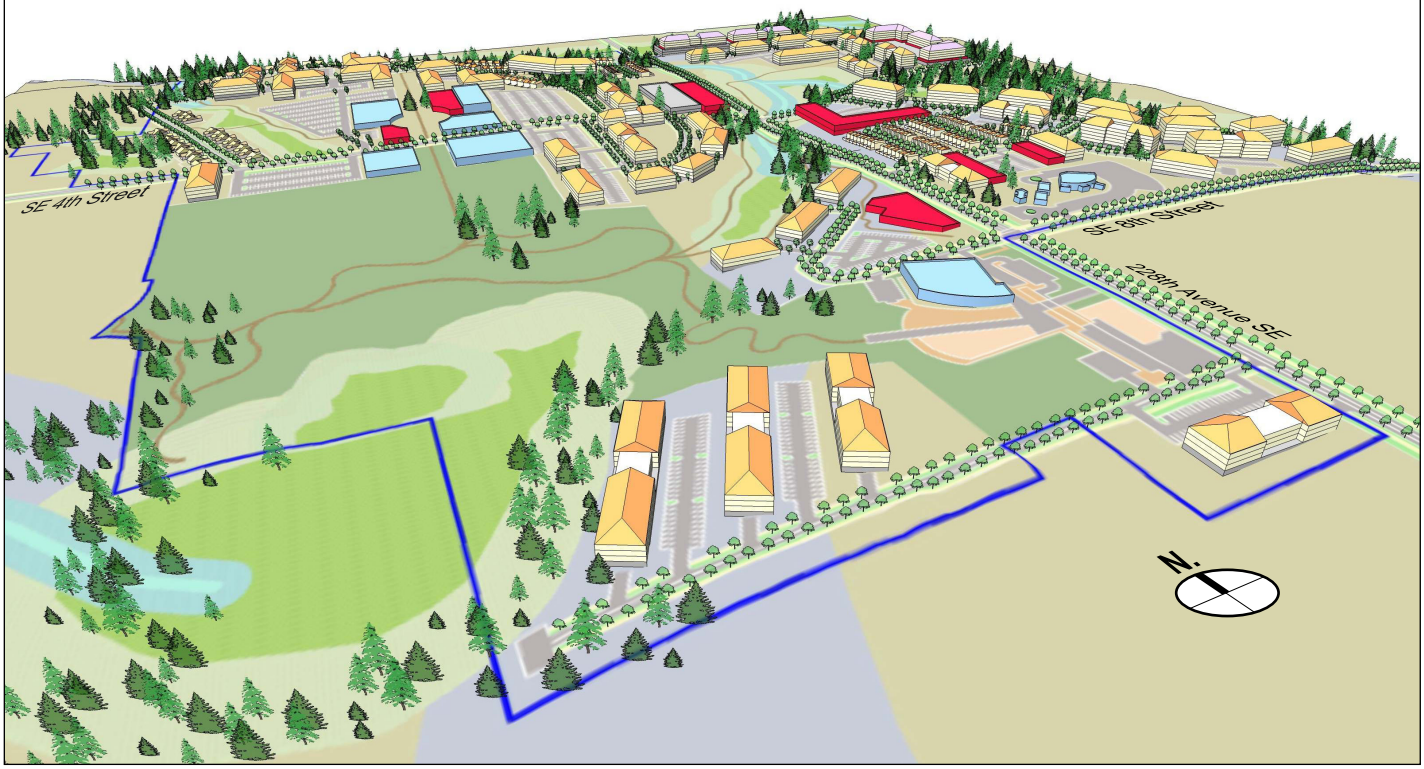
In general, new development would be required to mitigate impacts to existing residences or other uses through additional setbacks and/or landscaping, vegetation retention, or screening. For commercial developments, guidelines could require pedestrian oriented facades that include display windows, entrances, small-scale architectural details, weather protection and pedestrian amenities along principle streets. Guidelines could also include parking lot landscaping and screening requirements.

Public improvements, especially street improvements along SE 4th St. and new roadways, will also be very useful in upgrading the visual qualities in all of the action alternatives.

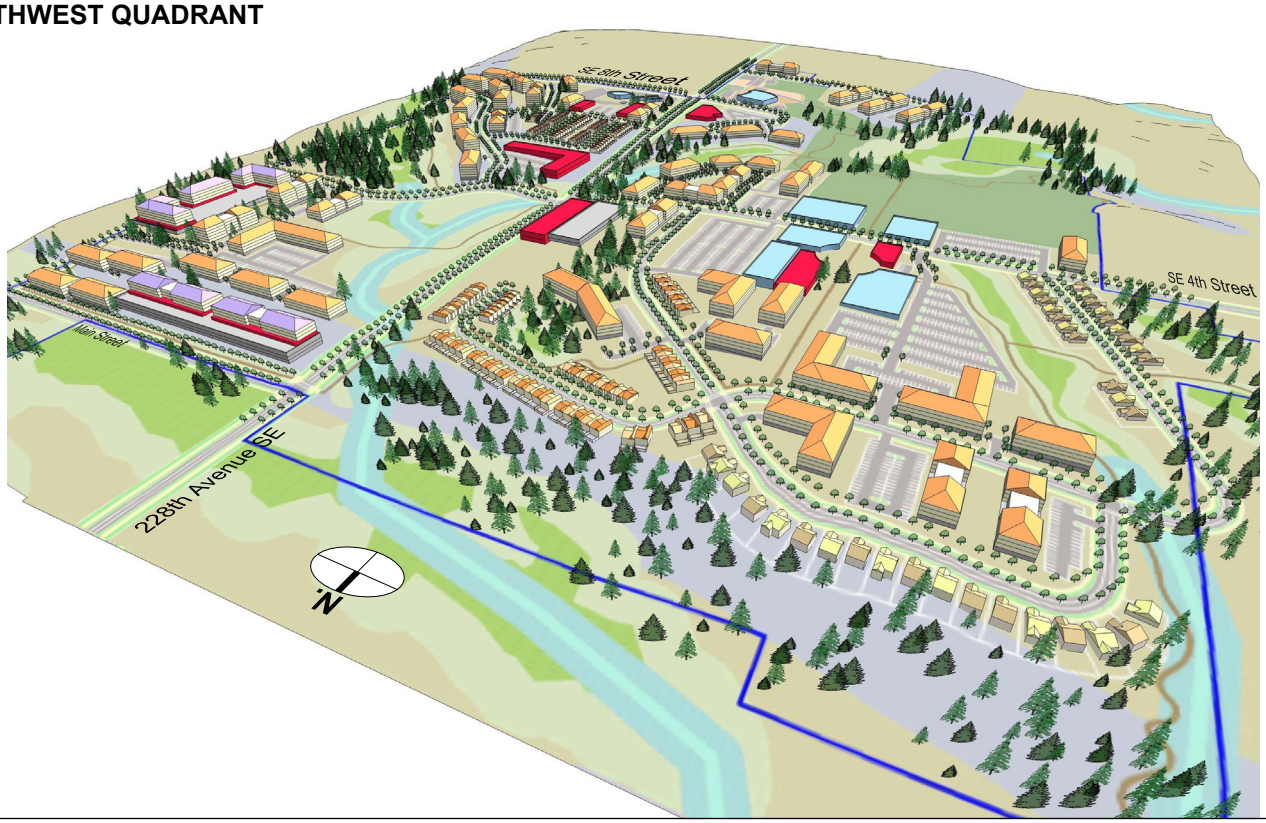
10.4 Significant Unavoidable Adverse Impacts

Changes in the visual character and views of the Town Center will be significant under any of the four alternatives. Although the change may 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 and possible Town Center development guidelines and design standards, would likely be sufficient to mitigate most of the potential impacts.

SOUTHWEST QUADRANT



NORTHWEST QUADRANT



ADOLFSON

File name: Fig10-12_alt3SWNW.ai
Created/last edited by: JAB
Date last updated: 12/14/06
Reference: 25164eis

Map data are the property of the sources listed below.
Inaccuracies may exist, and Adolfson Associates, Inc. implies no warranties or guarantees regarding any aspect of data depiction.
SOURCE: MAKERS Architecture and Urban Design, 2006.

FIGURE 10-12

ALTERNATIVE 3 SOUTHWEST AND NORTHWEST QUADRANTS

SAMMAMISH TOWN CENTER SUB-AREA PLAN DEIS

SAMMAMISH, WASHINGTON

ADOLFSON

File name: Fig10-13_photo_dev.ai
Created/last edited by: JAB
Date last updated: 01/26/07
Reference: 25164eis

SOURCE: Makers, 2006.

FIGURE 10-13

TYPICAL EXPECTED SUBURBAN DEVELOPMENT

SAMMAMISH TOWN CENTER SUB-AREA PLAN DEIS

SAMMAMISH, WASHINGTON

Chapter 11 References

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Chapter 12 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

KING COUNTY AGENCIES/OFFICES

Sound Transit

CITIES

City of Issaquah
City of Snoqualmie

UTILITIES/SERVICES

Eastside Fire & Rescue District
Issaquah School District #411
Lake Washington School District #414
NE Sammamish Sewer & Water District
Sammamish Plateau Sewer & Water District

LIBRARIES

Issaquah Public Library
Redmond Public Library
Sammamish Public Library

COUNCIL, PLANNING COMMISSIONERS & COMMITTEE MEMBERS

City of Sammamish City Council

Jack Barry
Mark Cross
Lee Fellinge
Don Gerend
Kathy Huckabay
Michele Petitti
Nancy Whitten

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

Seattle-King County Economic Development Council
Washington Environmental Council
Puget Sound Clean Air Agency
Puget Sound Regional Council
Seattle-King County Department of Public Health

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 Redmond

UTILITIES/SERVICES

Milleniuum
Comcast
City of Seattle Water Department
Puget Sound Energy
Qwest
Rabanco Connections
Sammamish Chamber of Commerce
Sno-King Waste Management
Verizon
Williams Pipeline Corporation

LIBRARIES

Bellevue Public Library
King County Library System
Muckleshoot 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

COUNCIL, PLANNING COMMISSIONERS & COMMITTEE MEMBERS

City of Sammamish Planning Commision

Ron Brown
Robert Conger
Scott Hamilton
Scot Jarvis
Robert Keller
Karen Moran
Erica Tiliacos

City of Sammamish Town Center Committee

Hank Klein
Kelly Jensen
Richard Amidei
Sharon Peaslee
Vin Santoro
Viral Saraiya
Will Sadler
Bob Abbott

Appendix A

Highway Capacity Manual, 2000

Signalized intersection level of service (LOS) is defined in terms of the average total vehicle delay of all movements through an intersection. Vehicle delay is a method of quantifying several intangible factors, including driver discomfort, frustration, and lost travel time. Specifically, LOS criteria are stated in terms of average delay per vehicle during a specified time period (for example, the PM peak hour). Vehicle delay is a complex measure based on many variables, including signal phasing (i.e., progression of movements through the intersection), signal cycle length, and traffic volumes with respect to intersection capacity. Table 1 shows LOS criteria for signalized intersections, as described in the *Highway Capacity Manual* (Transportation Research Board, Special Report 209, 2000).

Table 1. Level of Service Criteria for Signalized Intersections

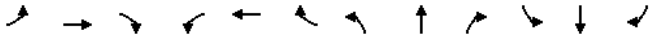
Level of Service	Average Control Delay (sec/veh)	General Description (Signalized Intersections)
A	≤10	Free Flow
B	>10 - 20	Stable Flow (slight delays)
C	>20 - 35	Stable flow (acceptable delays)
D	>35 - 55	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	>55 - 80	Unstable flow (intolerable delay)
F	>80	Forced flow (jammed)

Unsignalized intersection LOS criteria can be further reduced into two intersection types: all-way stop-controlled and two-way stop-controlled. All-way, stop-controlled intersection LOS is expressed in terms of the average vehicle delay of all of the movements, much like that of a signalized intersection. Two-way, stop-controlled intersection LOS is defined in terms of the average vehicle delay of an individual movement(s). This is because the performance of a two-way, stop-controlled intersection is more closely reflected in terms of its individual movements, rather than its performance overall. For this reason, LOS for a two-way, stop-controlled intersection is defined in terms of its individual movements. With this in mind, total average vehicle delay (i.e., average delay of all movements) for a two-way, stop-controlled intersection should be viewed with discretion. Table 2 shows LOS criteria for unsignalized intersections (both all-way and two-way, stop-controlled).

Table 2. Level of Service Criteria for Unsignalized Intersections

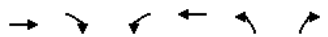
Level of Service	Average Control Delay (sec/veh)
A	0 - 10
B	>10 - 15
C	>15 - 25
D	>25 - 35
E	>35 - 50
F	>50

Appendix B



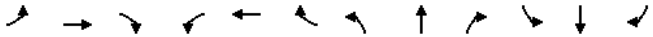
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1711	3421	1531	1711	3336		3319	1801	1531	1711	1801	
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.64	1.00	
Satd. Flow (perm)	1711	3421	1531	1711	3336		3319	1801	1531	1156	1801	
Volume (vph)	467	1533	1192	64	863	173	569	165	30	181	496	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)	519	1703	1324	71	959	192	632	183	33	201	551	0
RTOR Reduction (vph)	0	0	19	0	13	0	0	0	28	0	0	0
Lane Group Flow (vph)	519	1703	1305	71	1138	0	632	183	5	201	551	0
Turn Type	Prot		custom	Prot			custom		custom	Perm		Perm
Protected Phases	7	4	4 5	3	8		5	5	5		6	
Permitted Phases			3				5		5	6		6
Actuated Green, G (s)	28.0	56.0	84.0	4.0	33.0		19.0	19.0	19.0	32.0	32.0	
Effective Green, g (s)	29.0	58.0	88.0	6.0	35.0		21.0	21.0	21.0	33.0	33.0	
Actuated g/C Ratio	0.22	0.45	0.68	0.05	0.27		0.16	0.16	0.16	0.25	0.25	
Clearance Time (s)	4.0	5.0		5.0	5.0		5.0	5.0	5.0	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	
Lane Grp Cap (vph)	382	1526	1072	79	898		536	291	247	293	457	
v/s Ratio Prot	c0.30	0.50	c0.77	0.04	0.34		0.19	0.10	0.00		c0.31	
v/s Ratio Perm			0.08							0.17		
v/c Ratio	1.36	1.12	1.22	0.90	1.27		1.18	0.63	0.02	0.69	1.21	
Uniform Delay, d1	50.5	36.0	21.0	61.7	47.5		54.5	50.9	45.9	43.8	48.5	
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	177.6	61.8	106.3	67.3	129.0		98.7	4.2	0.0	6.5	111.7	
Delay (s)	228.1	97.8	127.3	129.0	176.5		153.2	55.1	45.9	50.3	160.2	
Level of Service	F	F	F	F	F		F	E	D	D	F	
Approach Delay (s)		127.9			173.8			127.8			130.8	
Approach LOS		F			F			F			F	

Intersection Summary				
HCM Average Control Delay	137.0	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.24			
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	113.5%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				



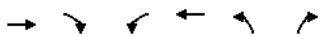
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	1801	1531	1711	1801	1711	1531
Flt Permitted	1.00	1.00	0.07	1.00	0.95	1.00
Satd. Flow (perm)	1801	1531	127	1801	1711	1531
Volume (vph)	1327	76	3	745	25	9
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1474	84	3	828	28	10
RTOR Reduction (vph)	0	11	0	0	0	9
Lane Group Flow (vph)	1474	73	3	828	28	1
Turn Type		Perm	Perm			Perm
Protected Phases	4			8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	104.0	104.0	104.0	104.0	7.5	7.5
Effective Green, g (s)	106.0	106.0	106.0	106.0	9.5	9.5
Actuated g/C Ratio	0.87	0.87	0.87	0.87	0.08	0.08
Clearance Time (s)	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
Lane Grp Cap (vph)	1571	1336	111	1571	134	120
v/s Ratio Prot	c0.82			0.46	c0.02	
v/s Ratio Perm		0.05	0.02			0.00
v/c Ratio	0.94	0.05	0.03	0.53	0.21	0.01
Uniform Delay, d1	5.4	1.0	1.0	1.8	52.5	51.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.1	0.0	0.1	0.3	0.8	0.0
Delay (s)	16.5	1.1	1.1	2.2	53.3	51.7
Level of Service	B	A	A	A	D	D
Approach Delay (s)	15.7			2.1	52.8	
Approach LOS	B			A	D	

Intersection Summary				
HCM Average Control Delay	11.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.88			
Actuated Cycle Length (s)	121.5	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	79.8%	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			
Lane Util. Factor		1.00		1.00	1.00		1.00		1.00			
Frt		0.92		1.00	1.00		1.00		0.85			
Flt Protected		1.00		0.95	1.00		0.95		1.00			
Satd. Flow (prot)		1664		1711	1801		1711		1531			
Flt Permitted		1.00		0.04	1.00		0.95		1.00			
Satd. Flow (perm)		1664		69	1801		1711		1531			
Volume (vph)	0	611	785	36	298	0	408	0	32	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	679	872	40	331	0	453	0	36	0	0	0
RTOR Reduction (vph)	0	30	0	0	0	0	0	0	9	0	0	0
Lane Group Flow (vph)	0	1521	0	40	331	0	453	0	27	0	0	0
Turn Type				pm+pt			custom		custom			
Protected Phases		2		1	6		8					
Permitted Phases				6			8		8			
Actuated Green, G (s)		99.1		108.0	108.0		29.0		29.0			
Effective Green, g (s)		102.1		111.0	111.0		32.0		32.0			
Actuated g/C Ratio		0.69		0.74	0.74		0.21		0.21			
Clearance Time (s)		6.0		5.0	6.0		6.0		6.0			
Vehicle Extension (s)		3.0		3.0	3.0		3.0		3.0			
Lane Grp Cap (vph)		1140		116	1342		367		329			
v/s Ratio Prot		c0.91		c0.01	0.18		c0.26					
v/s Ratio Perm				0.24					0.02			
v/c Ratio		1.33		0.34	0.25		1.23		0.08			
Uniform Delay, d1		23.4		70.4	5.9		58.5		46.7			
Progression Factor		1.00		1.00	1.00		1.00		1.00			
Incremental Delay, d2		156.4		1.8	0.1		126.9		0.1			
Delay (s)		179.8		72.1	6.0		185.4		46.9			
Level of Service		F		E	A		F		D			
Approach Delay (s)		179.8			13.2			175.2			0.0	
Approach LOS		F			B			F			A	

Intersection Summary			
HCM Average Control Delay	153.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	149.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	109.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Volume (veh/h)	562	100	78	268	74	109
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	624	111	87	298	82	121
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			736		1096	624
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			736		1096	624
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			90		61	75
cM capacity (veh/h)			870		213	485

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	624	111	87	298	203
Volume Left	0	0	87	0	82
Volume Right	0	111	0	0	121
cSH	1700	1700	870	1700	320
Volume to Capacity	0.37	0.07	0.10	0.18	0.64
Queue Length 95th (ft)	0	0	8	0	102
Control Delay (s)	0.0	0.0	9.6	0.0	34.0
Lane LOS			A		D
Approach Delay (s)	0.0		2.2		34.0
Approach LOS					D

Intersection Summary			
Average Delay	5.9		
Intersection Capacity Utilization	54.7%	ICU Level of Service	A
Analysis Period (min)	15		

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)	1728	1546	1801	1531	1728	1818
Flt Permitted	0.95	1.00	1.00	1.00	0.24	1.00
Satd. Flow (perm)	1728	1546	1801	1531	437	1818
Volume (vph)	73	244	356	192	667	530
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	78	260	379	204	710	564
RTOR Reduction (vph)	0	220	0	49	0	0
Lane Group Flow (vph)	78	40	379	155	710	564
Heavy Vehicles (%)	1%	1%	2%	2%	1%	1%
Turn Type		Perm		pt+ov	pm+pt	
Protected Phases	4		2	2 4	1	6
Permitted Phases		4			6	
Actuated Green, G (s)	9.5	9.5	20.6	35.1	56.1	56.1
Effective Green, g (s)	11.5	11.5	22.6	37.1	58.1	58.1
Actuated g/C Ratio	0.15	0.15	0.30	0.49	0.77	0.77
Clearance Time (s)	5.0	5.0	5.0		5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	263	235	538	751	891	1397
v/s Ratio Prot	c0.05		0.21	0.10	c0.34	0.31
v/s Ratio Perm		0.03			c0.27	
v/c Ratio	0.30	0.17	0.70	0.21	0.80	0.40
Uniform Delay, d1	28.5	27.9	23.5	10.9	10.9	2.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.3	4.2	0.1	5.0	0.2
Delay (s)	29.1	28.2	27.7	11.0	15.9	3.1
Level of Service	C	C	C	B	B	A
Approach Delay (s)	28.4		21.9			10.2
Approach LOS	C		C			B

Intersection Summary			
HCM Average Control Delay	16.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	75.6	Sum of lost time (s)	6.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

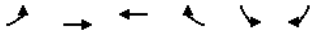
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	18	85	483	22	240	380
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	19	91	519	24	258	409
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1456	531			543	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1456	531			543	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	82	83			75	
cM capacity (veh/h)	108	552			1031	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total	19	91	543	258	409
Volume Left	19	0	0	258	0
Volume Right	0	91	24	0	0
cSH	108	552	1700	1031	1700
Volume to Capacity	0.18	0.17	0.32	0.25	0.24
Queue Length 95th (ft)	15	15	0	25	0
Control Delay (s)	45.3	12.8	0.0	9.7	0.0
Lane LOS	E	B		A	
Approach Delay (s)	18.5		0.0	3.7	
Approach LOS	C				

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	53.4%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
55: E Lk Sammamish Pk Wy 1 & SE 24th Way

2006 Existing
Baseline



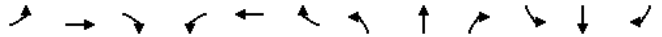
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	8	468	479	30	34	22
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Hourly flow rate (vph)	9	498	510	32	36	23
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	541				1040	526
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	541				1040	526
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				86	96
cM capacity (veh/h)	1017				255	556

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	506	541	60
Volume Left	9	0	36
Volume Right	0	32	23
cSH	1017	1700	324
Volume to Capacity	0.01	0.32	0.18
Queue Length 95th (ft)	1	0	17
Control Delay (s)	0.2	0.0	18.6
Lane LOS	A		C
Approach Delay (s)	0.2	0.0	18.6
Approach LOS			C

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	41.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
61: E Lk Sammamish Pk Wy 1 & 212th Way SE

2006 Existing
Baseline



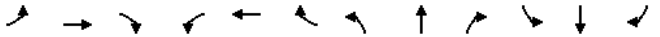
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0					3.0	
Lane Util. Factor		1.00			1.00	1.00					1.00	
Frt		1.00			1.00	0.85					0.99	
Flt Protected		1.00			1.00	1.00					0.95	
Satd. Flow (prot)		1835			1818	1546					1709	
Flt Permitted		1.00			1.00	1.00					0.95	
Satd. Flow (perm)		1829			1815	1546					1709	
Volume (vph)	8	504	0	2	262	280	0	0	0	117	0	5
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	8	520	0	2	270	289	0	0	0	121	0	5
RTOR Reduction (vph)	0	0	0	0	0	64	0	0	0	0	3	0
Lane Group Flow (vph)	0	528	0	0	272	225	0	0	0	0	123	0
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Turn Type	Perm					Perm				Split		
Protected Phases		2			6					4	4	
Permitted Phases	2					6						
Actuated Green, G (s)		62.4			62.4	62.4					10.5	
Effective Green, g (s)		64.9			64.9	64.9					12.5	
Actuated g/C Ratio		0.78			0.78	0.78					0.15	
Clearance Time (s)		5.5			5.5	5.5					5.0	
Vehicle Extension (s)		3.0			3.0	3.0					3.0	
Lane Grp Cap (vph)		1423			1412	1203					256	
v/s Ratio Prot											c0.07	
v/s Ratio Perm		c0.29			0.15	0.15						
v/c Ratio		0.37			0.19	0.19					0.48	
Uniform Delay, d1		2.9			2.4	2.4					32.5	
Progression Factor		1.00			1.00	1.00					1.00	
Incremental Delay, d2		0.2			0.1	0.1					1.4	
Delay (s)		3.0			2.5	2.5					33.9	
Level of Service		A			A	A					C	
Approach Delay (s)		3.0			2.5			0.0			33.9	
Approach LOS		A			A			A			C	

Intersection Summary			
HCM Average Control Delay	6.0	HCM Level of Service	A
HCM Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	83.4	Sum of lost time (s)	6.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
69: SE 56th St & E Lk Sammamish Pk Wy 1

2006 Existing
Baseline



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	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	0.97	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1625	1654	1531	1711	1769		1711	3374		1711	3421	1531
Flt Permitted	0.95	0.97	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1625	1654	1531	1711	1769		1711	3374		1711	3421	1531
Volume (vph)	897	171	426	82	113	15	275	425	43	24	433	607
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)	997	190	473	91	126	17	306	472	48	27	481	674
RTOR Reduction (vph)	0	0	303	0	5	0	0	7	0	0	0	134
Lane Group Flow (vph)	578	609	170	91	138	0	306	513	0	27	481	540
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)	32.1	32.1	32.1	12.2	12.2		16.0	30.8		2.3	18.1	50.2
Effective Green, g (s)	34.1	34.1	34.1	14.2	14.2		17.0	32.8		4.3	20.1	54.2
Actuated g/C Ratio	0.35	0.35	0.35	0.15	0.15		0.17	0.34		0.04	0.21	0.56
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)	569	579	536	249	258		299	1136		76	706	899
v/s Ratio Prot	0.36	c0.37		0.05	c0.08		c0.18	0.15		0.02	c0.14	0.21
v/s Ratio Perm			0.11									0.14
v/c Ratio	1.02	1.05	0.32	0.37	0.53		1.02	0.45		0.36	0.68	0.60
Uniform Delay, d1	31.6	31.6	23.1	37.5	38.5		40.2	25.3		45.2	35.7	14.4
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	41.8	51.7	0.3	0.9	2.1		58.2	0.3		2.8	2.7	1.1
Delay (s)	73.4	83.4	23.5	38.4	40.7		98.4	25.5		48.0	38.4	15.5
Level of Service	E	F	C	D	D		F	C		D	D	B
Approach Delay (s)		62.8			39.8			52.5			25.6	
Approach LOS		E			D			D			C	

Intersection Summary				
HCM Average Control Delay	48.0	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.87			
Actuated Cycle Length (s)	97.4	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	76.7%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
72: E Lk Sammamish Pk Wy 1 & Issaquah-Fall City Rd

2006 Existing
Baseline

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	1.00		1.00	0.95	0.95		1.00	1.00	0.95	0.95	1.00
Frt	1.00	1.00		1.00	0.97	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	1798		1711	1664	1454		1761	1531	1625	1630	1531
Flt Permitted	0.06	1.00		0.06	1.00	1.00		0.98	1.00	0.95	0.95	1.00
Satd. Flow (perm)	112	1798		116	1664	1454		1761	1531	1625	1630	1531
Volume (vph)	88	815	8	13	629	1585	23	29	94	645	4	54
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)	98	906	9	14	699	1761	26	32	104	717	4	60
RTOR Reduction (vph)	0	0	0	0	5	138	0	0	91	0	0	38
Lane Group Flow (vph)	98	915	0	14	848	1469	0	58	13	359	362	22
Turn Type	pm+pt			pm+pt		pm+ov	Split		Perm	Split		Perm
Protected Phases	7	4		3	8	1	2	2		1	1	
Permitted Phases	4			8		8			2			1
Actuated Green, G (s)	66.5	62.5		61.7	60.1	112.1		10.0	10.0	52.0	52.0	52.0
Effective Green, g (s)	70.5	64.5		65.7	62.1	116.1		12.0	12.0	54.0	54.0	54.0
Actuated g/C Ratio	0.48	0.44		0.45	0.43	0.79		0.08	0.08	0.37	0.37	0.37
Clearance Time (s)	5.0	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	3.0
Lane Grp Cap (vph)	120	794		91	707	1185		145	126	601	602	566
v/s Ratio Prot	c0.03	0.51		0.00	0.51	c0.46		c0.03		0.22	0.22	
v/s Ratio Perm	0.36			0.07		0.55			0.01			0.01
v/c Ratio	0.82	1.15		0.15	1.20	1.24		0.40	0.10	0.60	0.60	0.04
Uniform Delay, d1	71.3	40.8		70.1	42.0	15.0		63.6	62.1	37.3	37.3	29.5
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	33.2	82.8		0.8	103.0	115.3		1.8	0.4	1.6	1.7	0.0
Delay (s)	104.4	123.6		70.9	145.0	130.3		65.4	62.4	38.9	39.0	29.5
Level of Service	F	F		E	F	F		E	E	D	D	C
Approach Delay (s)		121.7			135.0			63.5			38.2	
Approach LOS		F			F			E			D	

Intersection Summary				
HCM Average Control Delay	112.3	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.17			
Actuated Cycle Length (s)	146.1	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	104.4%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
80: Issaquah-Fall City Rd. & Issaquah-Pine Lk Rd

2006 Existing
Baseline

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	1.00		0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	
Frt	1.00	0.88		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00		0.95	0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1711	1586		1625	1633	1531	1711	1801	1531	1711	3410	
Flt Permitted	0.95	1.00		0.95	0.95	1.00	0.48	1.00	1.00	0.11	1.00	
Satd. Flow (perm)	1711	1586		1625	1633	1531	870	1801	1531	191	3410	
Volume (vph)	7	6	24	401	12	51	50	814	1007	44	376	8
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)	8	7	27	446	13	57	56	904	1119	49	418	9
RTOR Reduction (vph)	0	24	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	8	10	0	223	236	57	56	904	1119	49	426	0
Turn Type	Split			Split		custom	Perm		custom	Perm		
Protected Phases	2	2		1	1	1		8	8 1		4	
Permitted Phases						2 8	8		2	4		
Actuated Green, G (s)	6.4	6.4		15.2	15.2	70.2	44.1	44.1	70.2	44.1	44.1	
Effective Green, g (s)	7.9	7.9		16.7	16.7	73.2	45.6	45.6	73.2	45.6	45.6	
Actuated g/C Ratio	0.10	0.10		0.21	0.21	0.92	0.58	0.58	0.92	0.58	0.58	
Clearance Time (s)	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	
Lane Grp Cap (vph)	171	158		343	344	1531	501	1037	1531	110	1963	
v/s Ratio Prot	0.00	0.01		0.14	0.14	0.01		c0.50	c0.60		0.12	
v/s Ratio Perm						0.03	0.06		0.13	0.26		
v/c Ratio	0.05	0.06		0.65	0.69	0.04	0.11	0.87	0.73	0.45	0.22	
Uniform Delay, d1	32.2	32.3		28.6	28.8	0.2	7.6	14.3	0.7	9.6	8.1	
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	0.1	0.2		4.4	5.6	0.0	0.1	8.2	1.8	2.9	0.1	
Delay (s)	32.4	32.5		32.9	34.4	0.2	7.7	22.5	2.5	12.4	8.2	
Level of Service	C	C		C	C	A	A	C	A	B	A	
Approach Delay (s)		32.4			30.0			11.4			8.6	
Approach LOS		C			C			B			A	

Intersection Summary				
HCM Average Control Delay	14.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	79.2	Sum of lost time (s)	3.0	
Intersection Capacity Utilization	79.0%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
85: SE Issaquah Beaver Lake Rd & Duthie Hill Rd.

2006 Existing
Baseline

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	147	46	85	587	294	113
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	160	50	92	638	320	123
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)					1254	
pX, platoon unblocked						
vC, conflicting volume	1204	381	442			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1204	381	442			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	15	93	92			
cM capacity (veh/h)	188	668	1128			

Direction, Lane #	EB 1	NB 1	NB 2	SB 1
Volume Total	210	92	638	442
Volume Left	160	92	0	0
Volume Right	50	0	0	123
cSH	226	1128	1700	1700
Volume to Capacity	0.93	0.08	0.38	0.26
Queue Length 95th (ft)	197	7	0	0
Control Delay (s)	87.4	8.5	0.0	0.0
Lane LOS	F	A		
Approach Delay (s)	87.4	1.1		0.0
Approach LOS	F			

Intersection Summary				
Average Delay	13.8			
Intersection Capacity Utilization	48.5%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Unsignalized Intersection Capacity Analysis
89: Duthie Hill Rd. & Trossachs Blvd SE

2006 Existing
Baseline

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	271	300	4	0	151	36	10	1	2	27	0	205
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)	301	333	4	0	168	40	11	1	2	30	0	228
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	208			338			1353	1146	336	1126	1128	188
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	208			338			1353	1146	336	1126	1128	188
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	78			100			86	99	100	80	100	73
cM capacity (veh/h)	1363			1205			78	157	711	150	160	857

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1	SB 2
Volume Total	301	338	208	14	30	228
Volume Left	301	0	0	11	30	0
Volume Right	0	4	40	2	0	228
cSH	1363	1700	1700	95	150	857
Volume to Capacity	0.22	0.20	0.12	0.15	0.20	0.27
Queue Length 95th (ft)	21	0	0	13	18	27
Control Delay (s)	8.4	0.0	0.0	49.7	34.8	10.7
Lane LOS	A			E	D	B
Approach Delay (s)	4.0		0.0	49.7	13.5	
Approach LOS				E	B	

Intersection Summary				
Average Delay	6.0			
Intersection Capacity Utilization	42.5%	ICU Level of Service	A	
Analysis Period (min)	15			

HCM Signalized Intersection Capacity Analysis
101: NE 37th Way & Sahalee Way NE

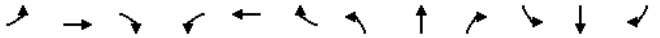
2006 Existing
Baseline

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	0%			-5%	5%	
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	1771	1864	1756	1492
Flt Permitted	0.95	1.00	0.24	1.00	1.00	1.00
Satd. Flow (perm)	1711	1531	442	1864	1756	1492
Volume (vph)	86	66	92	394	657	151
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	96	73	102	438	730	168
RTOR Reduction (vph)	0	62	0	0	0	38
Lane Group Flow (vph)	96	11	102	438	730	130
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type		Perm	pm+pt			Perm
Protected Phases	8		5	2	6	
Permitted Phases		8	2			6
Actuated Green, G (s)	7.9	7.9	53.6	52.6	39.3	39.3
Effective Green, g (s)	10.9	10.9	55.6	55.6	42.3	42.3
Actuated g/C Ratio	0.15	0.15	0.77	0.77	0.58	0.58
Clearance Time (s)	6.0	6.0	5.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	257	230	528	1429	1025	871
v/s Ratio Prot	c0.06		0.03	c0.23	c0.42	
v/s Ratio Perm		0.01	0.12			0.09
v/c Ratio	0.37	0.05	0.19	0.31	0.71	0.15
Uniform Delay, d1	27.7	26.4	9.6	2.6	10.8	6.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.1	0.2	0.1	2.4	0.1
Delay (s)	28.6	26.4	9.7	2.7	13.1	7.0
Level of Service	C	C	A	A	B	A
Approach Delay (s)	27.7			4.0	12.0	
Approach LOS	C			A	B	

Intersection Summary				
HCM Average Control Delay	11.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	72.5	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	54.4%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
105: NE 25th Way & 228th Avenue

2006 Existing
Baseline



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		0.93			0.94		1.00	0.96		1.00	0.99	
Flt Protected		0.99			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1645			1651		1711	1734		1711	1791	
Flt Permitted		0.90			0.83		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1504			1408		1711	1734		1711	1791	
Volume (vph)	15	9	29	78	11	74	41	370	121	127	460	17
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)	17	10	32	87	12	82	46	411	134	141	511	19
RTOR Reduction (vph)	0	25	0	0	48	0	0	19	0	0	2	0
Lane Group Flow (vph)	0	34	0	0	133	0	46	526	0	141	528	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2			6								
Actuated Green, G (s)		10.1			10.1		1.5	20.3		5.1	23.9	
Effective Green, g (s)		11.1			11.1		2.5	21.3		6.1	24.9	
Actuated g/C Ratio		0.23			0.23		0.05	0.45		0.13	0.52	
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)		351			329		90	778		220	939	
v/s Ratio Prot							0.03	c0.30		c0.08	0.29	
v/s Ratio Perm		0.02			c0.09							
v/c Ratio		0.10			0.40		0.51	0.68		0.64	0.56	
Uniform Delay, d1		14.3			15.4		21.9	10.4		19.7	7.6	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			0.8		4.8	2.3		6.2	0.8	
Delay (s)		14.4			16.2		26.7	12.7		25.9	8.4	
Level of Service		B			B		C	B		C	A	
Approach Delay (s)		14.4			16.2			13.8			12.1	
Approach LOS		B			B			B			B	

Intersection Summary				
HCM Average Control Delay	13.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.59			
Actuated Cycle Length (s)	47.5	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	59.8%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

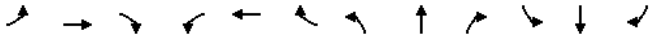
HCM Unsignalized Intersection Capacity Analysis
110: NE 12th Place & 228th Avenue

2006 Existing
Baseline

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Volume (veh/h)	12	77	45	842	610	27
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	13	81	47	886	642	28
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	1637	656	671			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1637	656	671			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	88	83	95			
cM capacity (veh/h)	105	465	925			

Direction, Lane #	EB 1	NB 1	SB 1
Volume Total	94	934	671
Volume Left	13	47	0
Volume Right	81	0	28
cSH	318	925	1700
Volume to Capacity	0.29	0.05	0.39
Queue Length 95th (ft)	30	4	0
Control Delay (s)	21.0	1.4	0.0
Lane LOS	C	A	
Approach Delay (s)	21.0	1.4	0.0
Approach LOS	C		

Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
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
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	1.00	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	0.98	
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)	1728	1818	1546	1728	1818	1546	1728	1818	1546	1710	3355	
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)	1728	1818	1546	1728	1818	1546	1728	1818	1546	1710	3355	
Volume (vph)	128	211	369	219	142	150	246	624	234	247	509	75
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	132	218	380	226	146	155	254	643	241	255	525	77
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	70	0	7	0
Lane Group Flow (vph)	132	218	380	226	146	155	254	643	171	255	595	0
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Prot		custom	Prot		custom	Prot		Perm	Prot		
Protected Phases	3	8	5 8	7	4	1 4	5	2		1	6	
Permitted Phases			6 7			2 3			2			
Actuated Green, G (s)	14.6	20.2	113.6	20.7	26.3	113.6	21.6	40.9	40.9	21.8	41.1	
Effective Green, g (s)	16.6	22.2	117.6	22.7	28.3	117.6	23.6	42.9	42.9	23.8	43.1	
Actuated g/C Ratio	0.13	0.18	0.95	0.18	0.23	0.95	0.19	0.35	0.35	0.19	0.35	
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)	232	327	1546	317	416	1546	330	631	537	329	1170	
v/s Ratio Prot	0.08	c0.12	c0.10	c0.13	0.08	0.04	0.15	c0.35		c0.15	0.18	
v/s Ratio Perm			0.15			0.06			0.11			
v/c Ratio	0.57	0.67	0.25	0.71	0.35	0.10	0.77	1.02	0.32	0.78	0.51	
Uniform Delay, d1	50.1	47.3	0.2	47.4	40.0	0.2	47.4	40.4	29.6	47.4	31.9	
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	3.2	5.1	0.1	7.4	0.5	0.0	10.3	40.7	0.3	10.9	0.4	
Delay (s)	53.3	52.3	0.3	54.8	40.5	0.2	57.8	81.0	30.0	58.2	32.2	
Level of Service	D	D	A	D	D	A	E	F	C	E	C	
Approach Delay (s)		25.4			34.8			65.0			40.0	
Approach LOS		C			C			E			D	

Intersection Summary				
HCM Average Control Delay	44.6	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	123.6	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	83.1%	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
Lane Util. Factor	1.00	1.00	0.95		1.00	0.95
Frt	1.00	0.85	1.00		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1745	1561	3455		1745	3490
Flt Permitted	0.95	1.00	1.00		0.95	1.00
Satd. Flow (perm)	1745	1561	3455		1745	3490
Volume (vph)	2	2	1133	0	4	1004
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	2	2	1180	0	4	1046
RTOR Reduction (vph)	0	2	0	0	0	0
Lane Group Flow (vph)	2	0	1180	0	4	1046
Heavy Vehicles (%)	0%	0%	1%	1%	0%	0%
Turn Type		Perm			Prot	
Protected Phases	8		2		1	6
Permitted Phases		8				
Actuated Green, G (s)	1.7	1.7	99.4		1.1	105.7
Effective Green, g (s)	3.9	3.9	101.6		3.3	107.9
Actuated g/C Ratio	0.03	0.03	0.86		0.03	0.92
Clearance Time (s)	5.2	5.2	5.2		5.2	5.2
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	58	52	2980		49	3197
v/s Ratio Prot	c0.00		c0.34		0.00	c0.30
v/s Ratio Perm		0.00				
v/c Ratio	0.03	0.00	0.40		0.08	0.33
Uniform Delay, d1	55.1	55.1	1.7		55.8	0.6
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.2	0.0	0.1		0.7	0.1
Delay (s)	55.4	55.1	1.8		56.5	0.7
Level of Service	E	E	A		E	A
Approach Delay (s)	55.2		1.8			0.9
Approach LOS	E		A			A

Intersection Summary				
HCM Average Control Delay	1.4	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.38			
Actuated Cycle Length (s)	117.8	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	41.3%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
118: SE 4th Street & 228th Avenue

2006 Existing
Baseline

Movement	EBL	EBR	NBL	NBT	SBU	SBT	SBR
Lane Configurations							
Ideal Flow (vphpl)	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	0.95		0.95	
Frt	0.95		1.00	1.00		1.00	
Flt Protected	0.97		0.95	1.00		1.00	
Satd. Flow (prot)	1663		1728	3455		3483	
Flt Permitted	0.97		0.95	1.00		0.89	
Satd. Flow (perm)	1663		1728	3455		3113	
Volume (vph)	32	16	18	1075	36	989	0
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	33	17	19	1120	38	1030	0
RTOR Reduction (vph)	15	0	0	0	0	0	0
Lane Group Flow (vph)	35	0	19	1120	0	1068	0
Heavy Vehicles (%)	2%	2%	1%	1%	0%	0%	0%
Turn Type			Prot		Perm		
Protected Phases	8		5	2		6	
Permitted Phases	8				6		
Actuated Green, G (s)	1.9		0.4	22.8		17.4	
Effective Green, g (s)	4.9		2.4	24.8		19.4	
Actuated g/C Ratio	0.14		0.07	0.69		0.54	
Clearance Time (s)	6.0		5.0	5.0		5.0	
Vehicle Extension (s)	3.0		3.0	3.0		3.0	
Lane Grp Cap (vph)	228		116	2400		1692	
v/s Ratio Prot	c0.02		0.01	c0.32			
v/s Ratio Perm						c0.34	
v/c Ratio	0.15		0.16	0.47		0.63	
Uniform Delay, d1	13.6		15.7	2.5		5.7	
Progression Factor	1.00		1.00	1.00		1.00	
Incremental Delay, d2	0.3		0.7	0.1		0.8	
Delay (s)	13.9		16.4	2.6		6.4	
Level of Service	B		B	A		A	
Approach Delay (s)	13.9			2.8		6.4	
Approach LOS	B			A		A	

Intersection Summary			
HCM Average Control Delay	4.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	35.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
120: SE 8th St. & 228th Avenue

2006 Existing
Baseline

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	
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)					1710	1530		3490	1561	1727	3455	
Flt Permitted					0.76	1.00		1.00	1.00	0.19	1.00	
Satd. Flow (perm)					1363	1530		3490	1561	354	3455	
Volume (vph)	0	0	0	125	0	152	0	954	292	251	705	0
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	0	0	0	137	0	167	0	1048	321	276	775	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	137	167	0	1048	321	276	775	0
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	1%	1%	1%	0%	0%	0%
Turn Type	Perm			Perm		custom	pm+pt		custom	pm+pt		
Protected Phases		8			4	4	5	2	2	1	6	
Permitted Phases	8			4		1 2	2		1 4	6		
Actuated Green, G (s)					17.0	98.8		62.5	98.5	81.8	81.8	
Effective Green, g (s)					19.2	104.0		65.5	104.0	84.8	84.8	
Actuated g/C Ratio					0.17	0.95		0.60	0.95	0.77	0.77	
Clearance Time (s)					5.2	5.2		6.0	6.0	5.5	6.0	
Vehicle Extension (s)					2.0	2.0		2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)					238	1530		2078	1561	476	2663	
v/s Ratio Prot						0.02		0.30	0.12	c0.09	0.22	
v/s Ratio Perm					c0.10	0.09			0.08	c0.36		
v/c Ratio					0.58	0.11		0.50	0.21	0.58	0.29	
Uniform Delay, d1					41.7	0.2		12.9	0.2	7.4	3.7	
Progression Factor					1.00	1.00		0.49	1.00	1.00	1.00	
Incremental Delay, d2					2.1	0.0		0.2	0.0	1.1	0.3	
Delay (s)					43.8	0.2		6.5	0.2	8.5	4.0	
Level of Service					D	A		A	A	A	A	
Approach Delay (s)		0.0			19.8			5.0			5.2	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM Average Control Delay	6.7	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
125: SE 20th Street & 228th Avenue

2006 Existing
Baseline

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)		1728	1546				1728	3455			3472	
Flt Permitted		0.95	1.00				0.25	1.00			1.00	
Satd. Flow (perm)		1728	1546				450	3455			3472	
Volume (vph)	75	0	203	0	0	0	136	1219	0	0	847	60
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	81	0	218	0	0	0	146	1311	0	0	911	65
RTOR Reduction (vph)	0	0	192	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	81	26	0	0	0	146	1311	0	0	973	0
Heavy Vehicles (%)	1%	1%	1%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Turn Type	Perm		Perm	Perm			pm+pt			pm+pt		
Protected Phases		8			3		5	2		1	6	
Permitted Phases	8		8	3			2			6		
Actuated Green, G (s)		10.4	10.4				88.0	88.0			75.0	
Effective Green, g (s)		13.0	13.0				91.0	91.0			78.0	
Actuated g/C Ratio		0.12	0.12				0.83	0.83			0.71	
Clearance Time (s)		5.6	5.6				5.6	6.0			6.0	
Vehicle Extension (s)		2.0	2.0				3.0	3.0			2.0	
Lane Grp Cap (vph)		204	183				488	2858			2462	
v/s Ratio Prot							0.03	c0.38			0.28	
v/s Ratio Perm		0.05	0.02				0.22					
v/c Ratio		0.40	0.14				0.30	0.46			0.40	
Uniform Delay, d1		44.9	43.5				2.8	2.6			6.5	
Progression Factor		1.00	1.00				1.00	1.00			1.00	
Incremental Delay, d2		0.5	0.1				0.3	0.5			0.5	
Delay (s)		45.3	43.6				3.2	3.2			6.9	
Level of Service		D	D				A	A			A	
Approach Delay (s)		44.1			0.0			3.2			6.9	
Approach LOS		D			A			A			A	

Intersection Summary				
HCM Average Control Delay	9.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.45			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	55.4%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
127: SE 24th St. & 228th Avenue

2006 Existing
Baseline

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)		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	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	0.85	1.00	1.00	
Flt Protected		0.96	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1770	1561		1711	1531	1728	3455	1546	1728	3453	
Flt Permitted		0.96	1.00		0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1770	1561		1711	1531	1728	3455	1546	1728	3453	
Volume (vph)	6	2	5	83	0	146	7	1250	191	241	852	4
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	6	2	5	88	0	155	7	1330	203	256	906	4
RTOR Reduction (vph)	0	0	5	0	0	140	0	0	78	0	0	0
Lane Group Flow (vph)	0	8	0	0	88	16	7	1330	125	256	910	0
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	1%	1%	1%
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)		6.5	6.5		9.7	9.7	1.2	44.3	44.3	26.2	69.3	
Effective Green, g (s)		8.5	8.5		11.0	11.0	3.2	46.3	46.3	28.2	71.3	
Actuated g/C Ratio		0.08	0.08		0.10	0.10	0.03	0.42	0.42	0.26	0.65	
Clearance Time (s)		6.0	6.0		5.3	5.3	6.0	6.0	6.0	6.0	6.0	
Vehicle Extension (s)		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)		137	121		171	153	50	1454	651	443	2238	
v/s Ratio Prot		c0.00			c0.05		0.00	c0.38		c0.15	0.26	
v/s Ratio Perm			0.00			0.01			0.08			
v/c Ratio		0.06	0.00		0.51	0.10	0.14	0.91	0.19	0.58	0.41	
Uniform Delay, d1		47.0	46.8		47.0	45.0	52.1	30.0	20.1	35.7	9.2	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.1	0.0		1.1	0.1	0.5	10.4	0.7	1.1	0.5	
Delay (s)		47.1	46.8		48.1	45.1	52.5	40.4	20.7	36.8	9.8	
Level of Service		D	D		D	D	D	D	C	D	A	
Approach Delay (s)		47.0			46.2			37.9			15.7	
Approach LOS		D			D			D			B	

Intersection Summary				
HCM Average Control Delay	29.9	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.69			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	16.0	
Intersection Capacity Utilization	74.4%	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
Grade (%)		2%			-2%			0%			0%	
Total Lost time (s)				3.0		3.0		3.0	3.0	3.0	3.0	
Lane Util. Factor				1.00		0.88		0.95	1.00	0.97	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)				1745		2748		3490	1561	3385	1837	
Flt Permitted				0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)				1745		2748		3490	1561	3385	1837	
Volume (vph)	0	0	0	163	0	491	0	913	175	617	375	0
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	0	173	0	522	0	971	186	656	399	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	94	0	0	0
Lane Group Flow (vph)	0	0	0	173	0	522	0	971	92	656	399	0
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Turn Type				custom		custom			Perm	Prot		
Protected Phases				4		4		2		1	6	
Permitted Phases				4		4 1			2			
Actuated Green, G (s)				18.2		43.0		49.4	49.4	24.8	80.2	
Effective Green, g (s)				20.8		48.6		52.4	52.4	27.8	83.2	
Actuated g/C Ratio				0.19		0.44		0.48	0.48	0.25	0.76	
Clearance Time (s)				5.6		5.6		6.0	6.0	6.0	6.0	
Vehicle Extension (s)				2.0		2.0		2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)				330		1289		1663	744	855	1389	
v/s Ratio Prot				c0.10		0.08		c0.28		c0.19	0.22	
v/s Ratio Perm						0.11			0.06			
v/c Ratio				0.52		0.40		0.58	0.12	0.77	0.29	
Uniform Delay, d1				40.1		20.9		20.9	16.0	38.1	4.2	
Progression Factor				1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2				0.7		0.1		1.5	0.3	3.8	0.5	
Delay (s)				40.8		20.9		22.4	16.4	41.9	4.7	
Level of Service				D		C		C	B	D	A	
Approach Delay (s)		0.0			25.9			21.4			27.8	
Approach LOS		A			C			C			C	

Intersection Summary				
HCM Average Control Delay	24.8	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.62			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	61.9%	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	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	0.31	1.00
Satd. Flow (perm)	1711	1531	1801	1531	566	1801
Volume (vph)	87	72	541	175	87	328
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	97	80	601	194	97	364
RTOR Reduction (vph)	0	67	0	45	0	0
Lane Group Flow (vph)	97	13	601	149	97	364
Turn Type		Perm		Perm	pm+pt	
Protected Phases	4		2		1	6
Permitted Phases		4		2	6	
Actuated Green, G (s)	9.3	9.3	43.2	43.2	52.9	52.9
Effective Green, g (s)	11.3	11.3	45.2	45.2	54.9	54.9
Actuated g/C Ratio	0.16	0.16	0.63	0.63	0.76	0.76
Clearance Time (s)	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
Lane Grp Cap (vph)	268	240	1127	958	537	1369
v/s Ratio Prot	c0.06		c0.33		0.02	c0.20
v/s Ratio Perm		0.01		0.10	0.12	
v/c Ratio	0.36	0.05	0.53	0.16	0.18	0.27
Uniform Delay, d1	27.2	25.9	7.6	5.6	3.6	2.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1	0.5	0.1	0.2	0.1
Delay (s)	28.1	26.0	8.1	5.7	3.8	2.7
Level of Service	C	C	A	A	A	A
Approach Delay (s)	27.1		7.5			2.9
Approach LOS	C		A			A

Intersection Summary				
HCM Average Control Delay	8.4	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.48			
Actuated Cycle Length (s)	72.2	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	48.1%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis
167: SE 20th Street & 212th Ave. SE

2006 Existing
Baseline

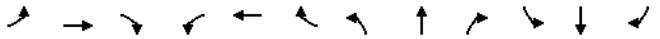
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	65	37	105	76	126	89
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	72	41	117	84	140	99
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None					
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	538	159			201	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	538	159			201	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	84	95			90	
cM capacity (veh/h)	453	886			1371	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	113	201	239
Volume Left	72	0	140
Volume Right	41	84	0
cSH	550	1700	1371
Volume to Capacity	0.21	0.12	0.10
Queue Length 95th (ft)	19	0	9
Control Delay (s)	13.2	0.0	5.0
Lane LOS	B		A
Approach Delay (s)	13.2	0.0	5.0
Approach LOS	B		

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	37.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
227: NE 8th Street & 244th Ave NE

2006 Existing
Baseline



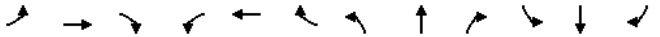
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	212	26	3	0	24	4	2	1	2	7	3	149
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	236	29	3	0	27	4	2	1	2	8	3	166

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	268	31	6	11	166
Volume Left (vph)	236	0	2	8	0
Volume Right (vph)	3	4	2	0	166
Hadj (s)	0.20	-0.05	-0.13	0.38	-0.67
Departure Headway (s)	4.6	4.6	4.8	5.6	4.6
Degree Utilization, x	0.34	0.04	0.01	0.02	0.21
Capacity (veh/h)	755	733	688	604	744
Control Delay (s)	9.9	7.8	7.9	7.5	7.6
Approach Delay (s)	9.9	7.8	7.9	7.6	
Approach LOS	A	A	A	A	

Intersection Summary			
Delay	8.9		
HCM Level of Service	A		
Intersection Capacity Utilization	30.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis — Town Center Alt1

1: SR 202 (Redmond Fall City Road) & E Lk Sammamish Pkwy — 05/06 Committed Improvements 2007-2013

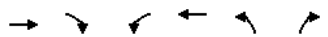


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		0.91	0.91		0.95	0.95	1.00
Frt	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	4796		3113	1563		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	4796		3113	1563		1625	1711	1531
Volume (vph)	71	1558	815	75	813	158	692	159	69	221	622	41
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)	79	1731	906	83	903	176	769	177	77	246	691	46
RTOR Reduction (vph)	0	0	20	0	22	0	0	8	0	0	0	20
Lane Group Flow (vph)	79	1731	886	83	1057	0	675	340	0	246	691	26
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)	8.5	48.8	72.8	4.0	45.3		24.0	24.0		36.0	36.0	36.0
Effective Green, g (s)	9.5	50.8	75.8	6.0	47.3		25.0	25.0		37.0	37.0	37.0
Actuated g/C Ratio	0.07	0.39	0.58	0.05	0.36		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)	124	1329	887	78	1734		595	299		460	484	433
v/s Ratio Prot	c0.05	c0.51	0.19	c0.05	0.22		0.22	c0.22		0.15	c0.40	
v/s Ratio Perm			0.39									0.02
v/c Ratio	0.64	1.30	1.00	1.06	0.61		1.13	1.14		0.53	1.43	0.06
Uniform Delay, d1	59.0	40.0	27.5	62.4	34.2		52.9	52.9		39.6	46.9	34.2
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	10.3	141.7	29.8	120.5	0.6		79.8	94.2		1.2	204.2	0.1
Delay (s)	69.2	181.7	57.2	182.9	34.8		132.7	147.1		40.8	251.1	34.3
Level of Service	E	F	E	F	C		F	F		D	F	C
Approach Delay (s)		136.9			45.4			137.6			188.3	
Approach LOS		F			D			F			F	

Intersection Summary				
HCM Average Control Delay	127.6	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.27			
Actuated Cycle Length (s)	130.8	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	110.3%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Town Center Alt1

4: SR 202 (Redmond Fall City Road) & 192nd Dr. NE — 05/06 Committed Improvements 2007-2013

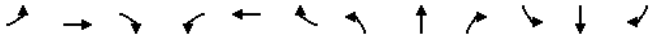


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3421	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)	1689	180	23	630	115	16
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1877	200	26	700	128	18
RTOR Reduction (vph)	0	71	0	0	0	15
Lane Group Flow (vph)	1877	129	26	700	128	3
Turn Type		Perm	Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	40.1	40.1	1.3	45.4	10.1	10.1
Effective Green, g (s)	42.1	42.1	2.3	47.4	12.1	12.1
Actuated g/C Ratio	0.64	0.64	0.04	0.72	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)	2199	984	60	2476	316	283
v/s Ratio Prot	c0.55		c0.02	0.20	c0.07	
v/s Ratio Perm		0.08				0.00
v/c Ratio	0.85	0.13	0.43	0.28	0.41	0.01
Uniform Delay, d1	9.3	4.6	31.0	3.1	23.5	21.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	0.1	5.0	0.1	0.9	0.0
Delay (s)	12.7	4.6	35.9	3.2	24.4	21.8
Level of Service	B	A	D	A	C	C
Approach Delay (s)	11.9			4.4	24.1	
Approach LOS	B			A	C	

Intersection Summary			
HCM Average Control Delay	10.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	65.5	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis — Town Center Alt1

10: SR 202 (Redmond Fall City Road) & Sahalee Way NE — 05/06 Committed Improvements 2007-2013

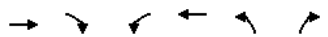


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0	3.0	3.0	3.0		3.0		3.0			
Lane Util. Factor		1.00	1.00	1.00	1.00		1.00		1.00			
Frt		1.00	0.85	1.00	1.00		1.00		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	0.07	1.00		0.95		1.00			
Satd. Flow (perm)		1801	1531	126	1801		1711		1531			
Volume (vph)	0	872	966	56	459	0	494	0	47	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	969	1073	62	510	0	549	0	52	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	17	0	0	0
Lane Group Flow (vph)	0	969	1073	62	510	0	549	0	35	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)		51.1	99.2	58.2	58.2		29.0		29.0			
Effective Green, g (s)		54.1	99.2	61.2	61.2		32.0		32.0			
Actuated g/C Ratio		0.55	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)		982	1531	143	1111		552		494			
v/s Ratio Prot		c0.54		0.02	0.28		c0.32		0.02			
v/s Ratio Perm			c0.70	0.25								
v/c Ratio		0.99	0.70	0.43	0.46		0.99		0.07			
Uniform Delay, d1		22.2	0.0	22.1	10.2		33.5		23.3			
Progression Factor		1.00	1.00	1.00	1.00		1.00		1.00			
Incremental Delay, d2		25.2	2.7	2.1	0.3		36.7		0.1			
Delay (s)		47.4	2.7	24.2	10.5		70.2		23.4			
Level of Service		D	A	C	B		E		C			
Approach Delay (s)		23.9			11.9			66.2			0.0	
Approach LOS		C			B			E			A	

Intersection Summary				
HCM Average Control Delay	29.7	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.97			
Actuated Cycle Length (s)	99.2	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	80.6%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Town Center Alt1

14: SR 202 (Redmond Fall City Road) & 244th Ave. NE — 05/06 Committed Improvements 2007-2013



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)	877	396	167	414	153	240
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	974	440	186	460	170	267
RTOR Reduction (vph)	0	204	0	0	71	0
Lane Group Flow (vph)	974	237	186	460	366	0
Turn Type		Perm	Prot			
Protected Phases	4		3	8	2	
Permitted Phases		4				
Actuated Green, G (s)	41.0	41.0	8.0	53.0	17.0	
Effective Green, g (s)	43.0	43.0	9.0	55.0	19.0	
Actuated g/C Ratio	0.54	0.54	0.11	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)	968	823	192	1238	385	
v/s Ratio Prot	c0.54		c0.11	0.26	c0.23	
v/s Ratio Perm		0.15				
v/c Ratio	1.01	0.29	0.97	0.37	0.95	
Uniform Delay, d1	18.5	10.1	35.4	5.2	30.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	30.4	0.2	55.2	0.2	33.2	
Delay (s)	48.9	10.3	90.6	5.4	63.3	
Level of Service	D	B	F	A	E	
Approach Delay (s)	36.9			29.9	63.3	
Approach LOS	D			C	E	

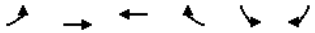
Intersection Summary				
HCM Average Control Delay	39.7	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.99			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	88.6%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

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	0.11	1.00
Satd. Flow (perm)	1711	1531	1801	1531	200	1801
Volume (vph)	46	353	522	61	655	640
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	51	392	580	68	728	711
RTOR Reduction (vph)	0	43	0	31	0	0
Lane Group Flow (vph)	51	349	580	37	728	711
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)	14.5	55.5	31.1	50.6	72.1	72.1
Effective Green, g (s)	16.5	57.5	33.1	52.6	74.1	74.1
Actuated g/C Ratio	0.17	0.60	0.34	0.54	0.77	0.77
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)	292	911	617	834	748	1382
v/s Ratio Prot	0.03	c0.23	0.32	0.02	c0.38	0.39
v/s Ratio Perm					c0.36	
v/c Ratio	0.17	0.38	0.94	0.04	0.97	0.51
Uniform Delay, d1	34.2	10.3	30.8	10.3	24.3	4.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.3	22.5	0.0	26.2	0.3
Delay (s)	34.5	10.5	53.3	10.3	50.5	4.7
Level of Service	C	B	D	B	D	A
Approach Delay (s)	13.3		48.8			27.8
Approach LOS	B		D			C

Intersection Summary				
HCM Average Control Delay	30.7	HCM Level of Service		C
HCM Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	96.6	Sum of lost time (s)		6.0
Intersection Capacity Utilization	77.9%	ICU Level of Service		D
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	0.98		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1711	1531	1772		1711	1801
Flt Permitted	0.95	1.00	1.00		0.45	1.00
Satd. Flow (perm)	1711	1531	1772		808	1801
Volume (vph)	53	192	391	52	328	358
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	59	213	434	58	364	398
RTOR Reduction (vph)	0	176	6	0	0	0
Lane Group Flow (vph)	59	37	486	0	364	398
Turn Type		Perm			Perm	
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	7.6	7.6	33.5		33.5	33.5
Effective Green, g (s)	8.6	8.6	34.5		34.5	34.5
Actuated g/C Ratio	0.18	0.18	0.70		0.70	0.70
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)	300	268	1245		568	1265
v/s Ratio Prot	c0.03		0.27			0.22
v/s Ratio Perm		0.02			c0.45	
v/c Ratio	0.20	0.14	0.39		0.64	0.31
Uniform Delay, d1	17.3	17.1	3.0		3.9	2.8
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.3	0.2	0.2		2.5	0.1
Delay (s)	17.6	17.4	3.2		6.4	2.9
Level of Service	B	B	A		A	A
Approach Delay (s)	17.4		3.2			4.6
Approach LOS	B		A			A

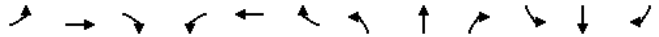
Intersection Summary				
HCM Average Control Delay	6.4	HCM Level of Service		A
HCM Volume to Capacity ratio	0.55			
Actuated Cycle Length (s)	49.1	Sum of lost time (s)		6.0
Intersection Capacity Utilization	55.2%	ICU Level of Service		B
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	21	320	468	74	53	21
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	23	356	520	82	59	23
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	602				963	561
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	602				963	561
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				79	96
cM capacity (veh/h)	975				277	527

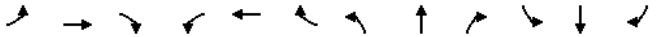
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	379	602	82
Volume Left	23	0	59
Volume Right	0	82	23
cSH	975	1700	320
Volume to Capacity	0.02	0.35	0.26
Queue Length 95th (ft)	2	0	25
Control Delay (s)	0.8	0.0	20.1
Lane LOS	A		C
Approach Delay (s)	0.8	0.0	20.1
Approach LOS			C

Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	45.0%	ICU Level of Service	A
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	
Lane Util. Factor		1.00			1.00	1.00					1.00	
Frt		1.00			1.00	0.85					1.00	
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)		1781			1801	1531					1709	
Volume (vph)	6	430	0	0	637	603	0	0	0	234	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	478	0	0	708	670	0	0	0	260	0	10
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	485	0	0	708	670	0	0	0	0	268	0
Turn Type	Perm					pm+ov				Split		
Protected Phases		2			6 7	8				8	8	
Permitted Phases	2					6 7						
Actuated Green, G (s)		18.2			33.0	45.5					12.5	
Effective Green, g (s)		20.7			34.0	49.0					15.0	
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)		670			1113	1531					466	
v/s Ratio Prot					c0.39	0.12					c0.16	
v/s Ratio Perm		c0.27				0.32						
v/c Ratio		0.72			0.64	0.44					0.57	
Uniform Delay, d1		14.7			6.6	0.5					17.2	
Progression Factor		1.00			1.00	1.00					1.00	
Incremental Delay, d2		3.9			1.2	0.2					1.7	
Delay (s)		18.6			7.8	0.7					19.0	
Level of Service		B			A	A					B	
Approach Delay (s)		18.6			4.4			0.0			19.0	
Approach LOS		B			A			A			B	

Intersection Summary					
HCM Average Control Delay	9.4	HCM Level of Service		A	
HCM Volume to Capacity ratio	0.65				
Actuated Cycle Length (s)	55.0	Sum of lost time (s)		6.0	
Intersection Capacity Utilization	67.0%	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	1783		1711	3383		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	1783		1711	3383		1711	3421	1531
Volume (vph)	1266	153	455	80	212	15	297	747	59	18	676	1092
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)	1407	170	506	89	236	17	330	830	66	20	751	1213
RTOR Reduction (vph)	0	0	167	0	2	0	0	4	0	0	0	29
Lane Group Flow (vph)	768	809	339	89	251	0	330	892	0	20	751	1184
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)	62.0	62.0	62.0	16.0	16.0		24.0	51.6		2.4	31.0	93.0
Effective Green, g (s)	64.0	64.0	64.0	18.0	18.0		25.0	53.6		4.4	33.0	97.0
Actuated g/C Ratio	0.42	0.42	0.42	0.12	0.12		0.16	0.35		0.03	0.22	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)	684	693	645	203	211		281	1193		50	743	1007
v/s Ratio Prot	0.47	0.49		0.05	c0.14		c0.19	0.26		0.01	0.22	c0.50
v/s Ratio Perm			0.22									0.28
v/c Ratio	1.12	1.17	0.53	0.44	1.19		1.17	0.75		0.40	1.01	1.18
Uniform Delay, d1	44.0	44.0	32.7	62.3	67.0		63.5	43.3		72.5	59.5	27.5
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	73.4	90.4	0.8	1.5	123.0		109.4	2.6		5.2	35.7	89.8
Delay (s)	117.4	134.4	33.5	63.8	190.0		172.9	45.9		77.7	95.2	117.3
Level of Service	F	F	C	E	F		F	D		E	F	F
Approach Delay (s)		103.6			157.1			80.1			108.5	
Approach LOS		F			F			F			F	

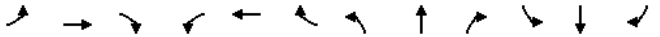
Intersection Summary				
HCM Average Control Delay	103.5	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.18			
Actuated Cycle Length (s)	152.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	106.1%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

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	0.08	1.00		0.08	1.00	1.00		0.98	1.00	0.95	0.95	1.00
Satd. Flow (perm)	152	3416		143	3421	1531		1764	1531	1625	1631	1531
Volume (vph)	258	1379	14	9	944	1027	14	20	79	838	10	283
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)	287	1532	16	10	1049	1141	16	22	88	931	11	314
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	50	0	0	182
Lane Group Flow (vph)	287	1548	0	10	1049	1141	0	38	38	466	476	132
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)	71.2	65.4		49.0	48.2	133.3		9.0	9.0	38.1	38.1	38.1
Effective Green, g (s)	73.2	67.4		53.0	50.2	133.3		11.0	11.0	40.1	40.1	40.1
Actuated g/C Ratio	0.55	0.51		0.40	0.38	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)	317	1727		90	1288	1531		146	126	489	491	461
v/s Ratio Prot	c0.14	0.45		0.00	0.31			0.02		0.29	c0.29	
v/s Ratio Perm	c0.36			0.04		c0.75			0.02			0.09
v/c Ratio	0.91	0.90		0.11	0.81	0.75		0.26	0.30	0.95	0.97	0.29
Uniform Delay, d1	39.2	29.8		28.8	37.4	0.0		57.3	57.5	45.7	46.0	35.6
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	27.7	6.5		0.5	4.1	3.3		1.0	1.3	29.0	32.4	0.3
Delay (s)	66.9	36.3		29.4	41.4	3.3		58.3	58.8	74.6	78.4	36.0
Level of Service	E	D		C	D	A		E	E	E	E	D
Approach Delay (s)		41.1			21.6			58.7			66.4	
Approach LOS		D			C			E			E	

Intersection Summary				
HCM Average Control Delay	39.5	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.89			
Actuated Cycle Length (s)	133.3	Sum of lost time (s)	3.0	
Intersection Capacity Utilization	82.0%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
80: SE Issaquah Fall City Rd. & Issaquah-Pine Lk Rd

Town Center Alt1
05/06 Committed Improvements 2007-2013



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)	636	795	0	281	600	24	12	1088	1078	17	583	510
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)	707	883	0	312	667	27	13	1209	1198	19	648	567
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	28	0	0	58
Lane Group Flow (vph)	707	883	0	312	692	0	13	1209	1170	19	648	509
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)	29.6	29.0		41.5	40.9		1.5	37.5	79.0	1.5	37.5	67.1
Effective Green, g (s)	31.1	30.5		43.0	42.4		3.0	39.0	82.0	3.0	39.0	70.1
Actuated g/C Ratio	0.24	0.24		0.34	0.33		0.02	0.31	0.64	0.02	0.31	0.55
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)	810	818		1119	1131		40	1046	985	40	1046	878
v/s Ratio Prot	0.21	c0.26		0.09	0.20		0.01	0.35	c0.40	c0.01	0.19	0.14
v/s Ratio Perm									0.36			0.19
v/c Ratio	0.87	1.08		0.28	0.61		0.32	1.16	1.19	0.48	0.62	0.58
Uniform Delay, d1	46.3	48.5		30.9	35.7		61.3	44.2	22.7	61.5	37.9	19.0
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	10.2	55.1		0.1	1.0		4.7	81.2	94.7	8.6	1.1	1.0
Delay (s)	56.5	103.6		31.0	36.6		65.9	125.4	117.5	70.1	39.0	20.0
Level of Service	E	F		C	D		E	F	F	E	D	B
Approach Delay (s)		82.7			34.9			121.2			30.7	
Approach LOS		F			C			F			C	

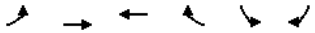
Intersection Summary				
HCM Average Control Delay	79.6	HCM Level of Service	E	
HCM Volume to Capacity ratio	1.11			
Actuated Cycle Length (s)	127.5	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	102.1%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
85: Issaquah Beaver Lake Rd. & Duthie Hill Rd

Town Center Alt1
05/06 Committed Improvements 2007-2013

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	0.43	1.00	1.00	1.00
Satd. Flow (perm)	1711	1531	781	1801	1801	1531
Volume (vph)	179	55	194	785	447	128
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	199	61	216	872	497	142
RTOR Reduction (vph)	0	48	0	0	0	43
Lane Group Flow (vph)	199	13	216	872	497	99
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	12.2	12.2	42.6	42.6	42.6	42.6
Effective Green, g (s)	13.2	13.2	43.6	43.6	43.6	43.6
Actuated g/C Ratio	0.21	0.21	0.69	0.69	0.69	0.69
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)	360	322	542	1250	1250	1063
v/s Ratio Prot	c0.12			c0.48	0.28	
v/s Ratio Perm		0.01	0.28			0.06
v/c Ratio	0.55	0.04	0.40	0.70	0.40	0.09
Uniform Delay, d1	22.2	19.8	4.1	5.7	4.1	3.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	0.1	2.2	3.2	0.9	0.2
Delay (s)	24.0	19.8	6.2	8.9	5.0	3.3
Level of Service	C	B	A	A	A	A
Approach Delay (s)	23.0			8.4	4.6	
Approach LOS	C			A	A	

Intersection Summary				
HCM Average Control Delay	9.1	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	62.8	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	57.9%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

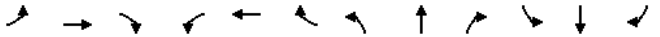


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1711	1801	1732		1711	1531
Flt Permitted	0.40	1.00	1.00		0.95	1.00
Satd. Flow (perm)	714	1801	1732		1711	1531
Volume (vph)	363	555	363	144	117	207
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	403	617	403	160	130	230
RTOR Reduction (vph)	0	0	19	0	0	184
Lane Group Flow (vph)	403	617	544	0	130	46
Turn Type	Perm					Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Actuated Green, G (s)	36.3	36.3	36.3		9.8	9.8
Effective Green, g (s)	37.3	37.3	37.3		10.8	10.8
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)	492	1242	1194		342	306
v/s Ratio Prot		0.34	0.31		c0.08	
v/s Ratio Perm	c0.56					0.03
v/c Ratio	0.82	0.50	0.46		0.38	0.15
Uniform Delay, d1	6.0	4.0	3.8		18.8	17.9
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	10.2	0.3	0.3		0.7	0.2
Delay (s)	16.2	4.3	4.1		19.5	18.1
Level of Service	B	A	A		B	B
Approach Delay (s)		9.0	4.1		18.6	
Approach LOS		A	A		B	

Intersection Summary				
HCM Average Control Delay	9.4	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.72			
Actuated Cycle Length (s)	54.1	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	64.5%	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	0.18	1.00	1.00	1.00
Satd. Flow (perm)	1711	1531	333	1891	1711	1454
Volume (vph)	59	41	82	440	911	71
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	66	46	91	489	1012	79
RTOR Reduction (vph)	0	41	0	0	0	13
Lane Group Flow (vph)	66	5	91	489	1012	66
Turn Type		Perm	pm+pt			Perm
Protected Phases	8		5	2	6	
Permitted Phases		8	2			6
Actuated Green, G (s)	8.2	8.2	77.0	75.0	65.7	65.7
Effective Green, g (s)	10.2	10.2	79.0	79.0	69.7	69.7
Actuated g/C Ratio	0.11	0.11	0.83	0.83	0.73	0.73
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)	183	164	373	1569	1253	1065
v/s Ratio Prot	c0.04		0.02	c0.26	c0.59	
v/s Ratio Perm		0.00	0.19			0.05
v/c Ratio	0.36	0.03	0.24	0.31	0.81	0.06
Uniform Delay, d1	39.5	38.1	13.2	1.9	8.4	3.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.1	0.3	0.1	3.9	0.0
Delay (s)	40.7	38.1	13.6	2.0	12.3	3.6
Level of Service	D	D	B	A	B	A
Approach Delay (s)	39.6			3.8	11.7	
Approach LOS	D			A	B	

Intersection Summary				
HCM Average Control Delay	10.9	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	95.2	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	66.7%	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			0.95		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)		1602			1666		1711	1728		1711	1801	
Flt Permitted		1.00			0.79		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1602			1349		1711	1728		1711	1801	
Volume (vph)	0	8	36	93	7	53	55	401	147	91	655	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	40	103	8	59	61	446	163	101	728	0
RTOR Reduction (vph)	0	32	0	0	34	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	17	0	0	136	0	61	593	0	101	728	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		10.0			10.0		2.9	33.0		4.3	34.4	
Effective Green, g (s)		12.0			12.0		4.9	35.6		6.3	37.0	
Actuated g/C Ratio		0.19			0.19		0.08	0.57		0.10	0.59	
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)		306			257		133	978		171	1059	
v/s Ratio Prot		0.01					0.04	0.34		c0.06	c0.40	
v/s Ratio Perm					c0.10							
v/c Ratio		0.05			0.53		0.46	0.61		0.59	0.69	
Uniform Delay, d1		20.8			22.9		27.7	9.0		27.1	9.0	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			2.0		2.5	1.1		5.4	1.9	
Delay (s)		20.9			24.9		30.2	10.1		32.4	10.8	
Level of Service		C			C		C	B		C	B	
Approach Delay (s)		20.9			24.9			11.9			13.5	
Approach LOS		C			C			B			B	

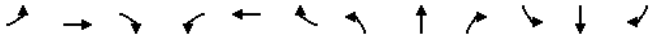
Intersection Summary				
HCM Average Control Delay	14.2	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	62.9	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	64.1%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-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	3400	
Flt Permitted	0.99		0.95	1.00	1.00	
Satd. Flow (perm)	1636		1711	3421	3400	
Volume (vph)	17	74	126	874	802	35
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	19	82	140	971	891	39
RTOR Reduction (vph)	76	0	0	0	2	0
Lane Group Flow (vph)	25	0	140	971	928	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	2368	
v/s Ratio Prot	c0.02		c0.08	0.28	c0.27	
v/s Ratio Perm						
v/c Ratio	0.20		0.56	0.33	0.39	
Uniform Delay, d1	47.7		43.7	1.3	7.0	
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		46.6	1.6	7.5	
Level of Service	D		D	A	A	
Approach Delay (s)	48.5			7.3	7.5	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	9.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
112: NE 8th Street & 228th Ave SE

Town Center Alt1
05/06 Committed Improvements 2007-2013



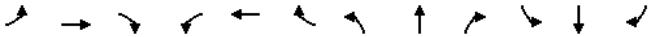
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			2%	
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	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	3364	
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	3364	
Volume (vph)	66	302	99	144	307	168	101	768	244	90	751	36
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)	73	336	110	160	341	187	112	853	271	100	834	40
RTOR Reduction (vph)	0	0	63	0	0	61	0	0	115	0	3	0
Lane Group Flow (vph)	73	336	47	160	341	126	112	853	156	100	871	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)	6.4	24.9	35.1	13.5	31.6	41.4	10.2	41.5	55.0	9.8	41.1	
Effective Green, g (s)	8.4	26.9	39.1	15.5	34.0	45.8	12.2	43.8	59.3	11.8	43.4	
Actuated g/C Ratio	0.08	0.24	0.36	0.14	0.31	0.42	0.11	0.40	0.54	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)	131	440	586	241	557	679	190	1362	867	182	1327	
v/s Ratio Prot	0.04	c0.19	0.01	c0.09	0.19	0.02	c0.07	0.25	0.03	0.06	c0.26	
v/s Ratio Perm			0.02			0.06			0.08			
v/c Ratio	0.56	0.76	0.08	0.66	0.61	0.19	0.59	0.63	0.18	0.55	0.66	
Uniform Delay, d1	49.0	38.6	23.5	44.8	32.4	20.3	46.5	26.5	12.9	46.6	27.2	
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	5.1	7.7	0.1	6.7	2.0	0.1	4.6	2.2	0.1	3.4	2.5	
Delay (s)	54.1	46.3	23.6	51.5	34.4	20.4	51.1	28.7	13.0	49.9	29.8	
Level of Service	D	D	C	D	C	C	D	C	B	D	C	
Approach Delay (s)		42.6			34.6			27.3			31.8	
Approach LOS		D			C			C			C	

Intersection Summary				
HCM Average Control Delay	32.4	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.68			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	64.7%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
117: E Main Street & 228th Ave SE

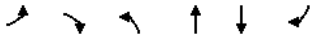
Town Center Alt1
05/06 Committed Improvements 2007-2013



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	0.88		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1711	1647		1711	1577		1753	3484		1711	3335	
Flt Permitted	0.52	1.00		0.69	1.00		0.95	1.00		0.17	1.00	
Satd. Flow (perm)	939	1647		1242	1577		1753	3484		306	3335	
Volume (vph)	155	29	38	47	24	116	30	973	43	133	846	172
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)	172	32	42	52	27	129	33	1081	48	148	940	191
RTOR Reduction (vph)	0	33	0	0	100	0	0	2	0	0	12	0
Lane Group Flow (vph)	172	41	0	52	56	0	33	1127	0	148	1119	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)	22.4	22.4		22.6	22.6		4.8	62.8		76.4	67.2	
Effective Green, g (s)	24.6	24.6		24.6	24.6		7.0	65.0		79.4	69.4	
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.06	0.59		0.72	0.63	
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)	210	368		278	353		112	2059		366	2104	
v/s Ratio Prot		0.03			0.04		0.02	0.32		c0.04	c0.34	
v/s Ratio Perm	c0.18			0.04						0.25		
v/c Ratio	0.82	0.11		0.19	0.16		0.29	0.55		0.40	0.53	
Uniform Delay, d1	40.6	34.0		34.6	34.4		49.1	13.6		8.0	11.3	
Progression Factor	1.00	1.00		1.00	1.00		1.08	0.75		1.00	1.00	
Incremental Delay, d2	21.4	0.1		0.3	0.2		1.4	1.0		0.7	1.0	
Delay (s)	62.0	34.1		34.9	34.6		54.3	11.2		8.7	12.2	
Level of Service	E	C		C	C		D	B		A	B	
Approach Delay (s)		53.6			34.7			12.4			11.8	
Approach LOS		D			C			B			B	

Intersection Summary				
HCM Average Control Delay	17.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	66.0%	ICU Level of Service	C	
Analysis Period (min)	15			

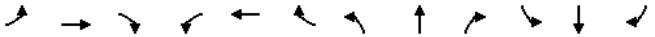
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-7%			-2%	0%	
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	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1584	1728	3455	3302	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1584	1728	3455	3302	
Volume (vph)	204	460	390	826	675	204
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	227	511	433	918	750	227
RTOR Reduction (vph)	0	407	0	0	23	0
Lane Group Flow (vph)	227	104	433	918	954	0
Turn Type		Perm	Prot			
Protected Phases	8		5	2	6	
Permitted Phases	4	8				
Actuated Green, G (s)	19.3	19.3	30.1	79.7	44.6	
Effective Green, g (s)	22.3	22.3	32.1	81.7	46.6	
Actuated g/C Ratio	0.20	0.20	0.29	0.74	0.42	
Clearance Time (s)	6.0	6.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	359	321	504	2566	1399	
v/s Ratio Prot	c0.13		c0.25	0.27	c0.29	
v/s Ratio Perm		0.07				
v/c Ratio	0.63	0.32	0.86	0.36	0.68	
Uniform Delay, d1	40.1	37.4	36.8	5.0	25.7	
Progression Factor	1.00	1.00	1.00	1.00	0.71	
Incremental Delay, d2	3.6	0.6	13.6	0.4	2.4	
Delay (s)	43.7	38.0	50.4	5.3	20.6	
Level of Service	D	D	D	A	C	
Approach Delay (s)	39.8			19.8	20.6	
Approach LOS	D			B	C	

Intersection Summary				
HCM Average Control Delay	24.9	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	68.1%	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 (%)		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			0.95	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1656			1736	1546	1728	3455	1546	1694	3369	
Flt Permitted		0.65			0.63	1.00	0.95	1.00	1.00	0.09	1.00	
Satd. Flow (perm)		1089			1149	1546	1728	3455	1546	152	3369	
Volume (vph)	41	30	49	435	19	71	38	1258	388	146	1000	36
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	33	54	483	21	79	42	1398	431	162	1111	40
RTOR Reduction (vph)	0	23	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	110	0	0	504	79	42	1398	431	162	1149	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)		45.0			46.0	99.0	3.0	42.5	98.5	49.0	44.0	
Effective Green, g (s)		48.0			48.0	104.0	6.0	45.5	104.0	54.5	47.0	
Actuated g/C Ratio		0.44			0.44	0.95	0.05	0.41	0.95	0.50	0.43	
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)		475			501	1546	94	1429	1546	180	1439	
v/s Ratio Prot						0.02	0.02	c0.40	0.12	c0.06	0.34	
v/s Ratio Perm		0.10			c0.44	0.03			0.16	0.38		
v/c Ratio		0.23			1.01	0.05	0.45	0.98	0.28	0.90	0.80	
Uniform Delay, d1		19.4			31.0	0.2	50.4	31.8	0.2	26.4	27.4	
Progression Factor		1.00			1.00	1.00	1.05	0.86	1.00	1.00	1.00	
Incremental Delay, d2		0.3			41.7	0.0	3.3	19.0	0.1	40.0	4.7	
Delay (s)		19.7			72.7	0.2	56.4	46.3	0.3	66.4	32.1	
Level of Service		B			E	A	E	D	A	E	C	
Approach Delay (s)		19.7			62.9			35.9			36.3	
Approach LOS		B			E			D			D	

Intersection Summary				
HCM Average Control Delay	39.5	HCM Level of Service	D	
HCM Volume to Capacity ratio	1.02			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	84.6%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
125: SE 20th Street & 228th Ave SE

Town Center Alt1
05/06 Committed Improvements 2007-2013

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			3422	
Flt Permitted		0.95	1.00				0.95	1.00			1.00	
Satd. Flow (perm)		1711	1531				1711	3421			3422	
Volume (vph)	24	0	246	0	0	0	206	1524	0	0	1333	142
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)	27	0	273	0	0	0	229	1693	0	0	1481	158
RTOR Reduction (vph)	0	0	155	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	27	118	0	0	0	229	1693	0	0	1633	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)		12.9	12.9				18.9	85.5			61.0	
Effective Green, g (s)		15.5	15.5				21.5	88.5			64.0	
Actuated g/C Ratio		0.14	0.14				0.20	0.80			0.58	
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)		241	216				334	2752			1991	
v/s Ratio Prot							c0.13	0.49			c0.48	
v/s Ratio Perm		0.02	c0.08									
v/c Ratio		0.11	0.54				0.69	0.62			0.82	
Uniform Delay, d1		41.2	44.0				41.1	4.2			18.4	
Progression Factor		1.00	1.00				1.00	1.00			1.00	
Incremental Delay, d2		0.2	2.8				5.7	1.0			3.9	
Delay (s)		41.5	46.7				46.8	5.2			22.3	
Level of Service		D	D				D	A			C	
Approach Delay (s)		46.3			0.0			10.2			22.3	
Approach LOS		D			A			B			C	

Intersection Summary				
HCM Average Control Delay	18.1	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.75			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	78.0%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
127: SE 24th St. & 228th Ave SE

Town Center Alt1
05/06 Committed Improvements 2007-2013

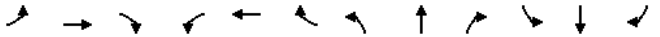
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.0	3.0		3.0	3.0	3.0	3.0	
Lane Util. Factor					1.00	1.00		0.95	1.00	1.00	0.95	
Frt					1.00	0.85		1.00	0.85	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	87	0	86	0	1655	154	190	1424	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	97	0	96	0	1839	171	211	1582	0
RTOR Reduction (vph)	0	0	0	0	0	84	0	0	47	0	0	0
Lane Group Flow (vph)	0	0	0	0	97	12	0	1839	124	211	1582	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)					11.2	11.2		50.7	50.7	30.8	88.5	
Effective Green, g (s)					13.5	13.5		53.7	53.7	33.8	90.5	
Actuated g/C Ratio					0.12	0.12		0.49	0.49	0.31	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)					210	188		1670	747	526	2815	
v/s Ratio Prot					c0.06			c0.54		0.12	c0.46	
v/s Ratio Perm						0.01			0.08			
v/c Ratio					0.46	0.06		1.10	0.17	0.40	0.56	
Uniform Delay, d1					44.9	42.7		28.1	15.7	30.1	3.2	
Progression Factor					1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2					1.6	0.1		55.2	0.5	0.5	0.8	
Delay (s)					46.5	42.8		83.4	16.2	30.6	4.0	
Level of Service					D	D		F	B	C	A	
Approach Delay (s)		0.0			44.6			77.6			7.2	
Approach LOS		A			D			E			A	

Intersection Summary				
HCM Average Control Delay	44.4	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.84			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	71.6%	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 Alt1
05/06 Committed Improvements 2007-2013



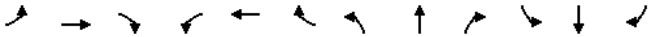
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			0%	
Total Lost time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00			1.00	0.88	1.00	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	1726			1754	2721	1711	3421	1531	3319	1796	
Flt Permitted	0.49	1.00			0.49	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	880	1726			888	2721	1711	3421	1531	3319	1796	
Volume (vph)	144	133	51	126	46	791	38	601	229	798	629	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)	160	148	57	140	51	879	42	668	254	887	699	12
RTOR Reduction (vph)	0	13	0	0	0	0	0	0	174	0	0	0
Lane Group Flow (vph)	160	192	0	0	191	879	42	668	80	887	711	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)	26.0	26.0			26.0	66.9	3.6	31.5	31.5	35.3	64.8	
Effective Green, g (s)	28.6	28.6			28.6	69.5	4.6	34.5	34.5	37.9	67.8	
Actuated g/C Ratio	0.26	0.26			0.26	0.63	0.04	0.31	0.31	0.34	0.62	
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)	229	449			231	1719	72	1073	480	1144	1107	
v/s Ratio Prot		0.11				0.32	0.02	c0.20		c0.27	0.40	
v/s Ratio Perm	0.18				c0.22				0.05			
v/c Ratio	0.70	0.43			0.83	0.51	0.58	0.62	0.17	0.78	0.64	
Uniform Delay, d1	36.8	33.9			38.4	11.0	51.8	32.2	27.3	32.2	13.4	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	0.91	0.80	
Incremental Delay, d2	9.0	0.7			20.9	0.3	11.5	2.7	0.7	3.1	2.6	
Delay (s)	45.8	34.5			59.3	11.3	63.2	34.9	28.1	32.4	13.4	
Level of Service	D	C			E	B	E	C	C	C	B	
Approach Delay (s)		39.5			19.8			34.4			23.9	
Approach LOS		D			B			C			C	

Intersection Summary				
HCM Average Control Delay	26.8	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	72.2%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
142: Klahanie Blvd. & Issaquah-Pine Lk Rd

Town Center Alt1
05/06 Committed Improvements 2007-2013



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	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.89		1.00	0.89		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1711	1599		1711	1608		1711	1801	1531	1762	1843	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1711	1599		1711	1608		1711	1801	1531	1762	1843	
Volume (vph)	18	14	42	159	17	42	86	1163	235	66	775	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)	20	16	47	177	19	47	96	1292	261	73	861	38
RTOR Reduction (vph)	0	44	0	0	40	0	0	0	28	0	1	0
Lane Group Flow (vph)	20	19	0	177	26	0	96	1292	233	73	898	0
Turn Type	Split			Split			Prot		Perm	Prot		
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	6.4	6.4		16.8	16.8		8.7	83.4	83.4	5.0	79.7	
Effective Green, g (s)	8.4	8.4		18.8	18.8		11.7	86.4	86.4	8.0	82.7	
Actuated g/C Ratio	0.06	0.06		0.14	0.14		0.09	0.65	0.65	0.06	0.62	
Clearance Time (s)	5.0	5.0		5.0	5.0		6.0	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	3.0	
Lane Grp Cap (vph)	108	101		241	226		150	1165	990	106	1141	
v/s Ratio Prot	0.01	c0.01		c0.10	0.02		c0.06	c0.72		c0.04	0.49	
v/s Ratio Perm									0.15			
v/c Ratio	0.19	0.19		0.73	0.11		0.64	1.11	0.24	0.69	0.79	
Uniform Delay, d1	59.4	59.4		55.0	50.1		58.9	23.6	9.8	61.6	18.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.8	0.9		11.0	0.2		9.0	61.6	0.1	17.0	3.7	
Delay (s)	60.2	60.3		66.0	50.3		67.9	85.2	10.0	78.6	22.6	
Level of Service	E	E		E	D		E	F	A	E	C	
Approach Delay (s)		60.2			61.8			72.3			26.8	
Approach LOS		E			E			E			C	

Intersection Summary				
HCM Average Control Delay	56.1	HCM Level of Service	E	
HCM Volume to Capacity ratio	0.94			
Actuated Cycle Length (s)	133.6	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	90.9%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	75	201	462	49	202	245
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	83	223	513	54	224	272
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	1262	541			568	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1262	541			568	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	43	59			78	
cM capacity (veh/h)	146	541			1004	

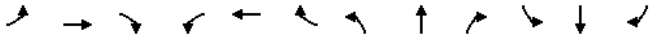
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	307	568	497
Volume Left	83	0	224
Volume Right	223	54	0
cSH	312	1700	1004
Volume to Capacity	0.98	0.33	0.22
Queue Length 95th (ft)	261	0	21
Control Delay (s)	84.7	0.0	5.7
Lane LOS	F		A
Approach Delay (s)	84.7	0.0	5.7
Approach LOS	F		

Intersection Summary			
Average Delay		21.0	
Intersection Capacity Utilization		77.9%	ICU Level of Service D
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)	195	82	233	442	75	289
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	217	91	259	491	83	321
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	992	504			750	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	992	504			750	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	12	84			90	
cM capacity (veh/h)	246	567			859	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	308	750	404
Volume Left	217	0	83
Volume Right	91	491	0
cSH	296	1700	859
Volume to Capacity	1.04	0.44	0.10
Queue Length 95th (ft)	288	0	8
Control Delay (s)	102.6	0.0	2.9
Lane LOS	F		A
Approach Delay (s)	102.6	0.0	2.9
Approach LOS	F		

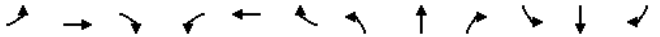
Intersection Summary			
Average Delay		22.4	
Intersection Capacity Utilization		84.6%	ICU Level of Service E
Analysis Period (min)		15	



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	171	13	138	8	11	4	129	232	12	9	330	187
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)	190	14	153	9	12	4	143	258	13	10	367	208

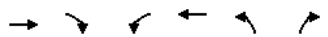
Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	358	26	414	377	208
Volume Left (vph)	190	9	143	10	0
Volume Right (vph)	153	4	13	0	208
Hadj (s)	-0.12	0.00	0.08	0.04	-0.57
Departure Headway (s)	6.1	7.3	6.0	6.0	3.2
Degree Utilization, x	0.61	0.05	0.69	0.63	0.18
Capacity (veh/h)	552	377	581	568	1121
Control Delay (s)	18.2	10.6	20.9	18.4	6.9
Approach Delay (s)	18.2	10.6	20.9	14.3	
Approach LOS	C	B	C	B	

Intersection Summary				
Delay	17.2			
HCM Level of Service	C			
Intersection Capacity Utilization	73.2%	ICU Level of Service	D	
Analysis Period (min)	15			



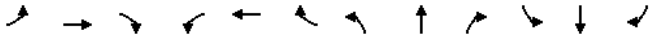
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		0.91	0.91		0.95	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.96		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	4799		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	4799		3113	1564		1625	1711	1531
Volume (vph)	72	1497	734	74	871	165	640	165	70	242	612	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	1663	816	82	968	183	711	183	78	269	680	47
RTOR Reduction (vph)	0	0	24	0	20	0	0	8	0	0	0	20
Lane Group Flow (vph)	80	1663	792	82	1131	0	641	323	0	269	680	27
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)	10.6	52.0	77.0	4.0	46.4		25.0	25.0		41.0	41.0	41.0
Effective Green, g (s)	11.6	54.0	80.0	6.0	48.4		26.0	26.0		42.0	42.0	42.0
Actuated g/C Ratio	0.08	0.39	0.57	0.04	0.35		0.19	0.19		0.30	0.30	0.30
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)	142	1320	875	73	1659		578	290		488	513	459
v/s Ratio Prot	0.05	c0.49	0.17	c0.05	0.24		0.21	c0.21		0.17	c0.40	
v/s Ratio Perm			0.35									0.02
v/c Ratio	0.56	1.26	0.91	1.12	0.68		1.11	1.11		0.55	1.33	0.06
Uniform Delay, d1	61.8	43.0	26.6	67.0	39.2		57.0	57.0		41.1	49.0	34.9
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	5.0	123.2	12.8	142.8	1.2		71.0	86.8		1.4	159.6	0.1
Delay (s)	66.8	166.2	39.4	209.8	40.4		128.0	143.8		42.4	208.6	35.0
Level of Service	E	F	D	F	D		F	F		D	F	C
Approach Delay (s)		122.7			51.6			133.4			155.5	
Approach LOS		F			D			F			F	

Intersection Summary				
HCM Average Control Delay	114.9	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.24			
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	107.2%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				



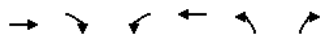
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3421	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)	1620	220	23	687	120	16
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1800	244	26	763	133	18
RTOR Reduction (vph)	0	92	0	0	0	15
Lane Group Flow (vph)	1800	152	26	763	133	3
Turn Type		Perm	Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	36.6	36.6	1.3	41.9	10.0	10.0
Effective Green, g (s)	38.6	38.6	2.3	43.9	12.0	12.0
Actuated g/C Ratio	0.62	0.62	0.04	0.71	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)	2133	955	64	2426	332	297
v/s Ratio Prot	c0.53		c0.02	0.22	c0.08	
v/s Ratio Perm		0.10				0.00
v/c Ratio	0.84	0.16	0.41	0.31	0.40	0.01
Uniform Delay, d1	9.3	4.9	29.1	3.4	21.8	20.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.2	0.1	4.2	0.1	0.8	0.0
Delay (s)	12.5	4.9	33.3	3.4	22.6	20.2
Level of Service	B	A	C	A	C	C
Approach Delay (s)	11.6			4.4	22.3	
Approach LOS	B			A	C	

Intersection Summary				
HCM Average Control Delay	10.2	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.72			
Actuated Cycle Length (s)	61.9	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	58.1%	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	113	1801		1711		1531			
Volume (vph)	0	884	865	58	461	0	493	0	50	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	982	961	64	512	0	548	0	56	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	17	0	0	0
Lane Group Flow (vph)	0	982	961	64	512	0	548	0	39	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)		57.8	108.9	64.9	64.9		32.0		32.0			
Effective Green, g (s)		60.8	108.9	67.9	67.9		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)		1006	1531	131	1123		550		492			
v/s Ratio Prot		c0.55		0.02	0.28		c0.32		0.03			
v/s Ratio Perm			c0.63	0.29								
v/c Ratio		0.98	0.63	0.49	0.46		1.00		0.08			
Uniform Delay, d1		23.3	0.0	24.2	10.8		36.9		25.7			
Progression Factor		1.00	1.00	1.00	1.00		1.00		1.00			
Incremental Delay, d2		22.5	2.0	2.9	0.3		37.2		0.1			
Delay (s)		45.9	2.0	27.1	11.1		74.1		25.8			
Level of Service		D	A	C	B		E		C			
Approach Delay (s)		24.1			12.9			69.6			0.0	
Approach LOS		C			B			E			A	

Intersection Summary				
HCM Average Control Delay	30.9	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.96			
Actuated Cycle Length (s)	108.9	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	82.2%	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	0.93	
Flt Protected	1.00	1.00	0.95	1.00	0.98	
Satd. Flow (prot)	1801	1531	1711	1801	1631	
Flt Permitted	1.00	1.00	0.95	1.00	0.98	
Satd. Flow (perm)	1801	1531	1711	1801	1631	
Volume (vph)	896	369	139	403	169	202
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	996	410	154	448	188	224
RTOR Reduction (vph)	0	179	0	0	53	0
Lane Group Flow (vph)	996	231	154	448	359	0
Turn Type		Perm	Prot			
Protected Phases	4		3	8	2	
Permitted Phases		4				
Actuated Green, G (s)	43.0	43.0	7.0	54.0	16.0	
Effective Green, g (s)	45.0	45.0	8.0	56.0	18.0	
Actuated g/C Ratio	0.56	0.56	0.10	0.70	0.22	
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)	1013	861	171	1261	367	
v/s Ratio Prot	c0.55		c0.09	0.25	c0.22	
v/s Ratio Perm		0.15				
v/c Ratio	0.98	0.27	0.90	0.36	0.98	
Uniform Delay, d1	17.1	9.0	35.6	4.8	30.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	24.1	0.2	41.5	0.2	40.4	
Delay (s)	41.2	9.2	77.1	5.0	71.2	
Level of Service	D	A	E	A	E	
Approach Delay (s)	31.9			23.4	71.2	
Approach LOS	C			C	E	

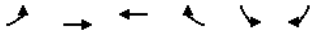
Intersection Summary				
HCM Average Control Delay	36.5	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.97			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	86.6%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

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	0.15	1.00
Satd. Flow (perm)	1711	1531	1801	1531	264	1801
Volume (vph)	44	330	475	61	505	697
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	49	367	528	68	561	774
RTOR Reduction (vph)	0	56	0	28	0	0
Lane Group Flow (vph)	49	311	528	40	561	774
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)	11.7	37.4	22.3	39.0	48.0	48.0
Effective Green, g (s)	13.7	39.4	24.3	41.0	50.0	50.0
Actuated g/C Ratio	0.20	0.57	0.35	0.59	0.72	0.72
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)	336	865	628	901	661	1292
v/s Ratio Prot	0.03	c0.20	0.29	0.03	c0.28	0.43
v/s Ratio Perm					c0.33	
v/c Ratio	0.15	0.36	0.84	0.04	0.85	0.60
Uniform Delay, d1	23.2	8.3	20.9	6.1	15.5	4.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3	9.9	0.0	9.9	0.8
Delay (s)	23.4	8.5	30.8	6.1	25.4	5.6
Level of Service	C	A	C	A	C	A
Approach Delay (s)	10.3		28.0			14.0
Approach LOS	B		C			B

Intersection Summary				
HCM Average Control Delay	16.9	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	69.7	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	67.1%	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		0.47	1.00
Satd. Flow (perm)	1711	1531	1775		850	1801
Volume (vph)	44	157	380	44	377	363
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	49	174	422	49	419	403
RTOR Reduction (vph)	0	151	4	0	0	0
Lane Group Flow (vph)	49	23	467	0	419	403
Turn Type		Perm			Perm	
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	6.7	6.7	42.6		42.6	42.6
Effective Green, g (s)	7.7	7.7	43.6		43.6	43.6
Actuated g/C Ratio	0.13	0.13	0.76		0.76	0.76
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)	230	206	1351		647	1370
v/s Ratio Prot	c0.03		0.26			0.22
v/s Ratio Perm		0.02			c0.49	
v/c Ratio	0.21	0.11	0.35		0.65	0.29
Uniform Delay, d1	22.1	21.8	2.2		3.2	2.1
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)	22.6	22.0	2.4		5.5	2.2
Level of Service	C	C	A		A	A
Approach Delay (s)	22.2		2.4			3.9
Approach LOS	C		A			A

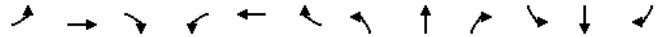
Intersection Summary				
HCM Average Control Delay	6.1	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	57.3	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	56.9%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	21	328	459	76	55	20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	23	364	510	84	61	22
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	594				963	552
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	594				963	552
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				78	96
cM capacity (veh/h)	982				277	533

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	388	594	83
Volume Left	23	0	61
Volume Right	0	84	22
cSH	982	1700	317
Volume to Capacity	0.02	0.35	0.26
Queue Length 95th (ft)	2	0	26
Control Delay (s)	0.8	0.0	20.3
Lane LOS	A		C
Approach Delay (s)	0.8	0.0	20.3
Approach LOS			C

Intersection Summary			
Average Delay		1.9	
Intersection Capacity Utilization		45.4%	ICU Level of Service A
Analysis Period (min)		15	

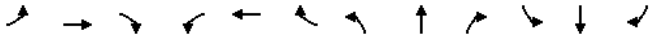


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0					3.0	
Lane Util. Factor		1.00			1.00	1.00					1.00	
Frt		1.00			1.00	0.85					1.00	
Flt Protected		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	444	0	0	634	503	0	0	0	216	0	8
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	493	0	0	704	559	0	0	0	240	0	9
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	500	0	0	704	559	0	0	0	0	247	0
Turn Type	Perm					pm+ov				Split		
Protected Phases		2			6 7	8				8	8	
Permitted Phases	2					6 7						
Actuated Green, G (s)		18.5			33.2	45.5					12.3	
Effective Green, g (s)		21.0			34.2	49.0					14.8	
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)		680			1120	1531					460	
v/s Ratio Prot					c0.39	0.10					c0.14	
v/s Ratio Perm		c0.28				0.27						
v/c Ratio		0.74			0.63	0.37					0.54	
Uniform Delay, d1		14.6			6.5	0.5					17.2	
Progression Factor		1.00			1.00	1.00					1.00	
Incremental Delay, d2		4.1			1.1	0.1					1.2	
Delay (s)		18.7			7.6	0.6					18.4	
Level of Service		B			A	A					B	
Approach Delay (s)		18.7			4.5			0.0			18.4	
Approach LOS		B			A			A			B	

Intersection Summary				
HCM Average Control Delay	9.8	HCM Level of Service		A
HCM Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	55.0	Sum of lost time (s)		6.0
Intersection Capacity Utilization	61.5%	ICU Level of Service		B
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
69: SE 56th St. & E Lk Sammamish Pkwy

Town Center Alt 2
05/06 Committed Improvements 2007-2013

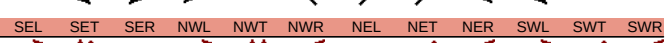


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00		1.00	0.95		1.00	0.95	1.00
Frt	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	1781		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	1781		1711	3382		1711	3421	1531
Volume (vph)	1210	153	491	61	210	16	298	701	58	18	694	1029
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)	1344	170	546	68	233	18	331	779	64	20	771	1143
RTOR Reduction (vph)	0	0	188	0	2	0	0	4	0	0	0	31
Lane Group Flow (vph)	738	776	358	68	249	0	331	839	0	20	771	1112
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)	60.0	60.0	60.0	16.0	16.0		25.0	53.6		2.4	32.0	92.0
Effective Green, g (s)	62.0	62.0	62.0	18.0	18.0		26.0	55.6		4.4	34.0	96.0
Actuated g/C Ratio	0.41	0.41	0.41	0.12	0.12		0.17	0.37		0.03	0.22	0.63
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)	663	671	624	203	211		293	1237		50	765	997
v/s Ratio Prot	0.45	0.47		0.04	c0.14		c0.19	0.25		0.01	0.23	c0.45
v/s Ratio Perm			0.23									0.27
v/c Ratio	1.11	1.16	0.57	0.33	1.18		1.13	0.68		0.40	1.01	1.12
Uniform Delay, d1	45.0	45.0	34.8	61.5	67.0		63.0	40.7		72.5	59.0	28.0
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	70.3	86.5	1.3	1.0	119.5		92.2	1.5		5.2	34.5	65.6
Delay (s)	115.3	131.5	36.1	62.5	186.5		155.2	42.2		77.7	93.5	93.6
Level of Service	F	F	D	E	F		F	D		E	F	F
Approach Delay (s)		100.4			160.1			74.0			93.4	
Approach LOS		F			F			E			F	

Intersection Summary				
HCM Average Control Delay	95.8	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.13			
Actuated Cycle Length (s)	152.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	102.2%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
72: E Lk Sammamish Pkwy & SE Issaquah Fall City Rd.

Town Center Alt 2
05/06 Committed Improvements 2007-2013

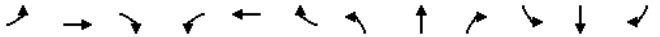


Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00
Frt	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)	193	3416		154	3421	1531		1766	1531	1625	1631	1531
Volume (vph)	220	1371	14	9	905	981	13	20	79	780	10	286
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	1523	16	10	1006	1090	14	22	88	867	11	318
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	55	0	0	213
Lane Group Flow (vph)	244	1539	0	10	1006	1090	0	36	33	434	444	105
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)	65.1	59.4		45.6	44.9	121.7		8.5	8.5	33.1	33.1	33.1
Effective Green, g (s)	67.1	61.4		49.6	46.9	121.7		10.5	10.5	35.1	35.1	35.1
Actuated g/C Ratio	0.55	0.50		0.41	0.39	1.00		0.09	0.09	0.29	0.29	0.29
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)	321	1723		97	1318	1531		152	132	469	470	442
v/s Ratio Prot	0.11	c0.45		0.00	0.29			0.02		0.27	c0.27	
v/s Ratio Perm	0.31			0.04		c0.71			0.02			0.07
v/c Ratio	0.76	0.89		0.10	0.76	0.71		0.24	0.25	0.93	0.94	0.24
Uniform Delay, d1	27.1	27.2		25.7	32.6	0.0		51.9	51.9	42.0	42.4	33.1
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	10.1	6.3		0.5	2.7	2.8		0.8	1.0	24.1	27.9	0.3
Delay (s)	37.2	33.5		26.2	35.2	2.8		52.7	52.9	66.2	70.2	33.4
Level of Service	D	C		C	D	A		D	D	E	E	C
Approach Delay (s)		34.0			18.4			52.9			59.0	
Approach LOS		C			B			D			E	

Intersection Summary				
HCM Average Control Delay	33.9	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.88			
Actuated Cycle Length (s)	121.7	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	80.2%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
80: SE Issaquah Fall City Rd. & Issaquah-Pine Lk Rd

Town Center Alt 2
05/06 Committed Improvements 2007-2013



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)	607	766	0	281	597	23	12	1159	978	16	527	452
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)	674	851	0	312	663	26	13	1288	1087	18	586	502
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	26	0	0	48
Lane Group Flow (vph)	674	851	0	312	687	0	13	1288	1061	18	586	454
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)	30.2	31.6		39.6	41.0		1.5	46.9	86.5	1.5	46.9	77.1
Effective Green, g (s)	31.7	33.1		41.1	42.5		3.0	48.4	89.5	3.0	48.4	80.1
Actuated g/C Ratio	0.23	0.24		0.30	0.31		0.02	0.35	0.65	0.02	0.35	0.58
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)	765	823		991	1051		37	1203	996	37	1203	925
v/s Ratio Prot	0.20	c0.25		0.09	0.20		0.01	c0.38	c0.32	c0.01	0.17	0.11
v/s Ratio Perm									0.37			0.18
v/c Ratio	0.88	1.03		0.31	0.65		0.35	1.07	1.07	0.49	0.49	0.49
Uniform Delay, d1	51.1	52.2		37.4	41.2		66.3	44.6	24.1	66.5	34.9	16.8
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	11.6	40.5		0.2	1.5		5.7	47.1	47.5	9.7	0.3	0.4
Delay (s)	62.7	92.7		37.5	42.6		72.0	91.7	71.6	76.3	35.2	17.2
Level of Service	E	F		D	D		E	F	E	E	D	B
Approach Delay (s)		79.5			41.1			82.4			27.7	
Approach LOS		E			D			F			C	

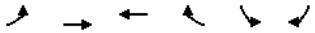
Intersection Summary				
HCM Average Control Delay	64.7	HCM Level of Service	E	
HCM Volume to Capacity ratio	1.04			
Actuated Cycle Length (s)	137.6	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	95.1%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
85: Issaquah Beaver Lake Rd. & Duthie Hill Rd

Town Center Alt 2
05/06 Committed Improvements 2007-2013

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	805	1801	1801	1531
Volume (vph)	142	52	101	772	445	115
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	158	58	112	858	494	128
RTOR Reduction (vph)	0	48	0	0	0	33
Lane Group Flow (vph)	158	10	112	858	494	95
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	10.8	10.8	49.3	49.3	49.3	49.3
Effective Green, g (s)	11.8	11.8	50.3	50.3	50.3	50.3
Actuated g/C Ratio	0.17	0.17	0.74	0.74	0.74	0.74
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)	296	265	595	1330	1330	1131
v/s Ratio Prot	c0.09			c0.48	0.27	
v/s Ratio Perm		0.01	0.14			0.06
v/c Ratio	0.53	0.04	0.19	0.65	0.37	0.08
Uniform Delay, d1	25.6	23.4	2.7	4.4	3.2	2.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	0.1	0.7	2.4	0.8	0.1
Delay (s)	27.5	23.5	3.4	6.9	4.0	2.6
Level of Service	C	C	A	A	A	A
Approach Delay (s)	26.4			6.5	3.7	
Approach LOS	C			A	A	

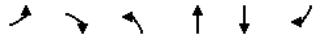
Intersection Summary				
HCM Average Control Delay	7.9	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.62			
Actuated Cycle Length (s)	68.1	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	55.2%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



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	1729		1711	1531
Flt Permitted	0.40	1.00	1.00		0.95	1.00
Satd. Flow (perm)	725	1801	1729		1711	1531
Volume (vph)	359	509	348	146	116	206
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	399	566	387	162	129	229
RTOR Reduction (vph)	0	0	21	0	0	182
Lane Group Flow (vph)	399	566	528	0	129	47
Turn Type	Perm					Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Actuated Green, G (s)	34.4	34.4	34.4		9.7	9.7
Effective Green, g (s)	35.4	35.4	35.4		10.7	10.7
Actuated g/C Ratio	0.68	0.68	0.68		0.21	0.21
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)	493	1224	1175		351	314
v/s Ratio Prot		0.31	0.31		c0.08	
v/s Ratio Perm	c0.55					0.03
v/c Ratio	0.81	0.46	0.45		0.37	0.15
Uniform Delay, d1	5.9	3.9	3.9		17.8	17.0
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	9.5	0.3	0.3		0.7	0.2
Delay (s)	15.4	4.2	4.1		18.4	17.2
Level of Service	B	A	A		B	B
Approach Delay (s)		8.8	4.1		17.6	
Approach LOS		A	A		B	

Intersection Summary				
HCM Average Control Delay	9.1	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.71			
Actuated Cycle Length (s)	52.1	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	63.5%	ICU Level of Service	B	
Analysis Period (min)	15			

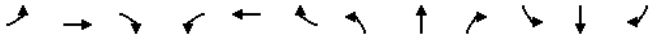
c Critical Lane Group



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	0.22	1.00	1.00	1.00
Satd. Flow (perm)	1711	1531	414	1891	1711	1454
Volume (vph)	62	38	76	437	801	82
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	69	42	84	486	890	91
RTOR Reduction (vph)	0	37	0	0	0	19
Lane Group Flow (vph)	69	5	84	486	890	72
Turn Type		Perm	pm+pt			Perm
Protected Phases	8		5	2	6	
Permitted Phases		8	2			6
Actuated Green, G (s)	8.2	8.2	68.5	66.5	57.1	57.1
Effective Green, g (s)	10.2	10.2	70.5	70.5	61.1	61.1
Actuated g/C Ratio	0.12	0.12	0.81	0.81	0.70	0.70
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)	201	180	439	1538	1206	1025
v/s Ratio Prot	c0.04		0.01	c0.26	c0.52	
v/s Ratio Perm		0.00	0.14			0.05
v/c Ratio	0.34	0.03	0.19	0.32	0.74	0.07
Uniform Delay, d1	35.2	33.9	9.7	2.0	7.9	4.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.1	0.2	0.1	2.4	0.0
Delay (s)	36.2	33.9	9.9	2.2	10.3	4.0
Level of Service	D	C	A	A	B	A
Approach Delay (s)	35.3			3.3	9.7	
Approach LOS	D			A	A	

Intersection Summary				
HCM Average Control Delay	9.2	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	86.7	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	60.5%	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)		1604			1663		1711	1727		1711	1801	
Flt Permitted		1.00			0.79		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1604			1356		1711	1727		1711	1801	
Volume (vph)	0	8	34	88	6	54	52	376	140	94	529	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	38	98	7	60	58	418	156	104	588	0
RTOR Reduction (vph)	0	30	0	0	40	0	0	17	0	0	0	0
Lane Group Flow (vph)	0	17	0	0	125	0	58	557	0	104	588	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		9.6			9.6		3.0	29.4		3.0	29.4	
Effective Green, g (s)		11.6			11.6		5.0	32.0		5.0	32.0	
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)		323			273		149	959		149	1001	
v/s Ratio Prot		0.01					0.03	0.32		c0.06	c0.33	
v/s Ratio Perm					c0.09							
v/c Ratio		0.05			0.46		0.39	0.58		0.70	0.59	
Uniform Delay, d1		18.6			20.2		24.9	8.4		25.6	8.4	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			1.2		1.7	0.9		13.3	0.9	
Delay (s)		18.6			21.5		26.5	9.3		38.9	9.3	
Level of Service		B			C		C	A		D	A	
Approach Delay (s)		18.6			21.5			10.9			13.8	
Approach LOS		B			C			B			B	

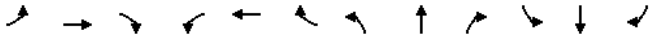
Intersection Summary				
HCM Average Control Delay	13.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	57.6	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	58.7%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

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	3395	
Flt Permitted	0.99		0.95	1.00	1.00	
Satd. Flow (perm)	1636		1711	3421	3395	
Volume (vph)	16	69	129	818	660	35
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	77	143	909	733	39
RTOR Reduction (vph)	71	0	0	0	2	0
Lane Group Flow (vph)	24	0	143	909	770	0
Turn Type			Prot			
Protected Phases	8		5	2	6	
Permitted Phases						
Actuated Green, G (s)	6.2		14.1	93.8	74.7	
Effective Green, g (s)	8.2		16.1	95.8	76.7	
Actuated g/C Ratio	0.07		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)	122		250	2979	2367	
v/s Ratio Prot	c0.01		c0.08	0.27	c0.23	
v/s Ratio Perm						
v/c Ratio	0.19		0.57	0.31	0.33	
Uniform Delay, d1	47.8		43.7	1.2	6.5	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.8		3.1	0.3	0.4	
Delay (s)	48.6		46.9	1.5	6.9	
Level of Service	D		D	A	A	
Approach Delay (s)	48.6			7.7	6.9	
Approach LOS	D			A	A	

Intersection Summary				
HCM Average Control Delay	9.4	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.35			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	41.6%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
112: NE 8th Street & 228th Ave SE

Town Center Alt 2
05/06 Committed Improvements 2007-2013



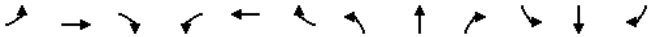
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			2%	
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	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	3357	
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	3357	
Volume (vph)	58	307	48	108	308	115	81	776	220	103	591	37
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	53	120	342	128	90	862	244	114	657	41
RTOR Reduction (vph)	0	0	35	0	0	55	0	0	117	0	3	0
Lane Group Flow (vph)	64	341	18	120	342	73	90	862	127	114	695	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	25.6	33.9	11.5	31.1	42.4	8.3	41.3	52.8	11.3	44.3	
Effective Green, g (s)	7.6	27.6	37.9	13.5	33.5	46.8	10.3	43.6	57.1	13.3	46.6	
Actuated g/C Ratio	0.07	0.25	0.34	0.12	0.30	0.43	0.09	0.40	0.52	0.12	0.42	
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	452	569	210	548	693	160	1356	836	205	1422	
v/s Ratio Prot	0.04	c0.19	0.00	c0.07	0.19	0.01	0.05	c0.25	0.02	c0.07	c0.21	
v/s Ratio Perm			0.01			0.04			0.06			
v/c Ratio	0.54	0.75	0.03	0.57	0.62	0.11	0.56	0.64	0.15	0.56	0.49	
Uniform Delay, d1	49.5	38.1	23.9	45.5	32.8	19.0	47.7	26.8	13.8	45.6	23.0	
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	7.0	0.0	3.7	2.2	0.1	4.5	2.3	0.1	3.2	1.2	
Delay (s)	54.5	45.1	23.9	49.2	35.1	19.1	52.2	29.1	13.9	48.8	24.2	
Level of Service	D	D	C	D	D	B	D	C	B	D	C	
Approach Delay (s)		44.0			34.5			27.7			27.7	
Approach LOS		D			C			C			C	

Intersection Summary				
HCM Average Control Delay	31.4	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	15.0	
Intersection Capacity Utilization	62.6%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
117: E Main Street & 228th Ave SE

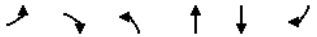
Town Center Alt 2
05/06 Committed Improvements 2007-2013



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	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
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			3477		1711	3421	
Flt Permitted				0.95	1.00			1.00		0.19	1.00	
Satd. Flow (perm)				1711	1531			3477		340	3421	
Volume (vph)	0	0	0	71	0	112	0	1017	62	86	753	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	79	0	124	0	1130	69	96	837	0
RTOR Reduction (vph)	0	0	0	0	109	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	0	0	79	15	0	0	1197	0	96	837	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)				11.1	11.1			77.6		88.7	88.7	
Effective Green, g (s)				13.1	13.1			79.8		90.9	90.9	
Actuated g/C Ratio				0.12	0.12			0.73		0.83	0.83	
Clearance Time (s)				5.0	5.0			5.2		5.2	5.2	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				204	182			2522		382	2827	
v/s Ratio Prot					0.01			c0.34		0.02	c0.24	
v/s Ratio Perm				c0.05						0.19		
v/c Ratio				0.39	0.08			0.47		0.25	0.30	
Uniform Delay, d1				44.7	43.1			6.3		3.3	2.2	
Progression Factor				1.00	1.00			0.75		1.00	1.00	
Incremental Delay, d2				1.2	0.2			0.6		0.3	0.3	
Delay (s)				46.0	43.3			5.4		3.7	2.5	
Level of Service				D	D			A		A	A	
Approach Delay (s)		0.0			44.3			5.4			2.6	
Approach LOS		A			D			A			A	

Intersection Summary				
HCM Average Control Delay	7.6	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.45			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	51.8%	ICU Level of Service	A	
Analysis Period (min)	15			

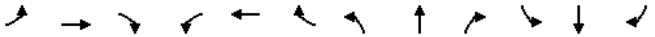
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-7%			-2%	0%	
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	0.95	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1584	1728	3455	3250	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1584	1728	3455	3250	
Volume (vph)	254	252	217	810	536	269
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	282	280	241	900	596	299
RTOR Reduction (vph)	0	216	0	0	45	0
Lane Group Flow (vph)	282	64	241	900	850	0
Turn Type		Perm	Prot			
Protected Phases	8		5	2	6	
Permitted Phases	4	8				
Actuated Green, G (s)	22.0	22.0	19.9	77.0	52.1	
Effective Green, g (s)	25.0	25.0	21.9	79.0	54.1	
Actuated g/C Ratio	0.23	0.23	0.20	0.72	0.49	
Clearance Time (s)	6.0	6.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	402	360	344	2481	1598	
v/s Ratio Prot	c0.16		c0.14	0.26	c0.26	
v/s Ratio Perm		0.04				
v/c Ratio	0.70	0.18	0.70	0.36	0.53	
Uniform Delay, d1	39.1	34.2	41.0	5.9	19.2	
Progression Factor	1.00	1.00	1.00	1.00	0.96	
Incremental Delay, d2	5.5	0.2	6.3	0.4	1.2	
Delay (s)	44.5	34.5	47.3	6.3	19.7	
Level of Service	D	C	D	A	B	
Approach Delay (s)	39.5			15.0	19.7	
Approach LOS	D			B	B	

Intersection Summary				
HCM Average Control Delay	21.9	HCM Level of Service		C
HCM Volume to Capacity ratio	0.61			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		9.0
Intersection Capacity Utilization	59.5%	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 (%)		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		0.93			1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99			0.96	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1635			1737	1546	1728	3455	1546	1694	3378	
Flt Permitted		0.91			0.64	1.00	0.95	1.00	1.00	0.15	1.00	
Satd. Flow (perm)		1503			1156	1546	1728	3455	1546	274	3378	
Volume (vph)	18	24	51	263	16	55	35	975	413	107	705	13
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	27	57	292	18	61	39	1083	459	119	783	14
RTOR Reduction (vph)	0	40	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	64	0	0	310	61	39	1083	459	119	796	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)		30.7			31.7	99.0	4.2	53.5	98.5	65.4	57.1	
Effective Green, g (s)		33.7			33.7	104.0	7.2	56.5	104.0	70.3	60.1	
Actuated g/C Ratio		0.31			0.31	0.95	0.07	0.51	0.95	0.64	0.55	
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)		460			354	1546	113	1775	1546	315	1846	
v/s Ratio Prot						0.01	0.02	c0.31	c0.15	c0.04	0.24	
v/s Ratio Perm		0.04			c0.27	0.03			0.14	0.20		
v/c Ratio		0.14			0.88	0.04	0.35	0.61	0.30	0.38	0.43	
Uniform Delay, d1		27.6			36.2	0.2	49.1	18.9	0.2	11.4	14.8	
Progression Factor		1.00			1.00	1.00	1.08	0.73	1.00	1.00	1.00	
Incremental Delay, d2		0.1			20.7	0.0	1.8	1.5	0.1	0.8	0.7	
Delay (s)		27.8			56.9	0.2	55.1	15.4	0.3	12.2	15.5	
Level of Service		C			E	A	E	B	A	B	B	
Approach Delay (s)		27.8			47.6			12.0			15.1	
Approach LOS		C			D			B			B	

Intersection Summary				
HCM Average Control Delay	18.0	HCM Level of Service		B
HCM Volume to Capacity ratio	0.66			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)		6.0
Intersection Capacity Utilization	65.0%	ICU Level of Service		C
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
125: SE 20th Street & 228th Ave SE

Town Center Alt 2
05/06 Committed Improvements 2007-2013

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			3450	
Flt Permitted		0.95	1.00				0.95	1.00			1.00	
Satd. Flow (perm)		1711	1531				1711	3421			3450	
Volume (vph)	20	0	301	0	0	0	235	1454	0	0	1035	46
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)	22	0	334	0	0	0	261	1616	0	0	1150	51
RTOR Reduction (vph)	0	0	290	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	22	44	0	0	0	261	1616	0	0	1199	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)		9.4	9.4				21.7	89.0			61.7	
Effective Green, g (s)		12.0	12.0				24.3	92.0			64.7	
Actuated g/C Ratio		0.11	0.11				0.22	0.84			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)		187	167				378	2861			2029	
v/s Ratio Prot							c0.15	0.47			c0.35	
v/s Ratio Perm		0.01	c0.03									
v/c Ratio		0.12	0.27				0.69	0.56			0.59	
Uniform Delay, d1		44.2	45.0				39.4	2.8			14.3	
Progression Factor		1.00	1.00				1.00	1.00			1.00	
Incremental Delay, d2		0.3	0.9				5.4	0.8			1.3	
Delay (s)		44.5	45.8				44.8	3.6			15.6	
Level of Service		D	D				D	A			B	
Approach Delay (s)		45.7			0.0			9.3			15.6	
Approach LOS		D			A			A			B	

Intersection Summary				
HCM Average Control Delay	15.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	71.7%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
127: SE 24th St. & 228th Ave SE

Town Center Alt 2
05/06 Committed Improvements 2007-2013

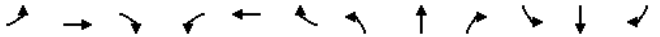
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.0	3.0		3.0	3.0	3.0	3.0	
Lane Util. Factor					1.00	1.00		0.95	1.00	1.00	0.95	
Frt					1.00	0.85		1.00	0.85	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	81	0	1621	158	149	1222	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	90	0	1801	176	166	1358	0
RTOR Reduction (vph)	0	0	0	0	0	79	0	0	44	0	0	0
Lane Group Flow (vph)	0	0	0	0	101	11	0	1801	132	166	1358	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		57.1	57.1	24.1	88.2	
Effective Green, g (s)					13.8	13.8		60.1	60.1	27.1	90.2	
Actuated g/C Ratio					0.13	0.13		0.55	0.55	0.25	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		1869	836	422	2805	
v/s Ratio Prot					c0.06			c0.53		0.10	c0.40	
v/s Ratio Perm						0.01			0.09			
v/c Ratio					0.47	0.06		0.96	0.16	0.39	0.48	
Uniform Delay, d1					44.7	42.4		23.9	12.4	34.6	3.0	
Progression Factor					1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2					1.6	0.1		13.8	0.4	0.6	0.6	
Delay (s)					46.3	42.5		37.7	12.8	35.2	3.6	
Level of Service					D	D		D	B	D	A	
Approach Delay (s)		0.0			44.5			35.5			7.0	
Approach LOS		A			D			D			A	

Intersection Summary				
HCM Average Control Delay	24.2	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.77			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	68.1%	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 Alt 2
05/06 Committed Improvements 2007-2013



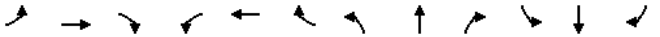
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			0%	
Total Lost time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00			1.00	0.88	1.00	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	1723			1753	2721	1711	3421	1531	3319	1795	
Flt Permitted	0.49	1.00			0.48	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	873	1723			868	2721	1711	3421	1531	3319	1795	
Volume (vph)	144	137	55	132	45	782	41	592	242	672	574	13
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)	160	152	61	147	50	869	46	658	269	747	638	14
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	177	0	1	0
Lane Group Flow (vph)	160	198	0	0	197	869	46	658	92	747	651	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)	26.8	26.8			26.8	63.9	5.5	34.5	34.5	31.5	62.1	
Effective Green, g (s)	29.4	29.4			29.4	66.5	6.5	37.5	37.5	34.1	65.1	
Actuated g/C Ratio	0.27	0.27			0.27	0.60	0.06	0.34	0.34	0.31	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)	233	461			232	1645	101	1166	522	1029	1062	
v/s Ratio Prot		0.12				0.32	0.03	c0.19		c0.23	c0.36	
v/s Ratio Perm	0.18				c0.23				0.06			
v/c Ratio	0.69	0.43			0.85	0.53	0.46	0.56	0.18	0.73	0.61	
Uniform Delay, d1	36.2	33.4			38.2	12.6	50.0	29.6	25.4	33.8	14.4	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	0.92	0.85	
Incremental Delay, d2	8.1	0.6			24.0	0.3	3.2	2.0	0.7	2.4	2.5	
Delay (s)	44.3	34.0			62.2	12.9	53.3	31.6	26.1	33.7	14.7	
Level of Service	D	C			E	B	D	C	C	C	B	
Approach Delay (s)		38.4			22.0			31.1			24.8	
Approach LOS		D			C			C			C	

Intersection Summary				
HCM Average Control Delay	27.0	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.73			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	69.1%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
142: Klahanie Blvd. & Issaquah-Pine Lk Rd

Town Center Alt 2
05/06 Committed Improvements 2007-2013



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	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.89		1.00	0.90		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1711	1598		1711	1612		1711	1801	1531	1762	1841	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1711	1598		1711	1612		1711	1801	1531	1762	1841	
Volume (vph)	17	14	43	161	17	40	87	1171	262	63	652	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)	19	16	48	179	19	44	97	1301	291	70	724	36
RTOR Reduction (vph)	0	45	0	0	38	0	0	0	30	0	1	0
Lane Group Flow (vph)	19	19	0	179	25	0	97	1301	261	70	759	0
Turn Type	Split			Split			Prot		Perm	Prot		
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	6.3	6.3		16.7	16.7		8.7	84.0	84.0	3.8	79.1	
Effective Green, g (s)	8.3	8.3		18.7	18.7		11.7	87.0	87.0	6.8	82.1	
Actuated g/C Ratio	0.06	0.06		0.14	0.14		0.09	0.66	0.66	0.05	0.62	
Clearance Time (s)	5.0	5.0		5.0	5.0		6.0	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	3.0	
Lane Grp Cap (vph)	107	100		241	227		151	1180	1003	90	1138	
v/s Ratio Prot	0.01	c0.01		c0.10	0.02		c0.06	c0.72		c0.04	0.41	
v/s Ratio Perm									0.17			
v/c Ratio	0.18	0.19		0.74	0.11		0.64	1.10	0.26	0.78	0.67	
Uniform Delay, d1	59.0	59.1		54.7	49.8		58.5	22.9	9.5	62.3	16.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.8	0.9		11.7	0.2		9.0	59.0	0.1	33.5	1.5	
Delay (s)	59.8	60.0		66.4	50.0		67.5	81.9	9.7	95.7	18.0	
Level of Service	E	E		E	D		E	F	A	F	B	
Approach Delay (s)		59.9			62.1			68.6			24.5	
Approach LOS		E			E			E			C	

Intersection Summary				
HCM Average Control Delay	54.9	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.94			
Actuated Cycle Length (s)	132.8	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	91.4%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	60	147	327	49	248	214
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	67	163	363	54	276	238
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	1179	391			418	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1179	391			418	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	58	75			76	
cM capacity (veh/h)	160	658			1141	

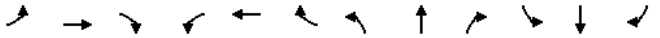
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	230	418	513
Volume Left	67	0	276
Volume Right	163	54	0
cSH	345	1700	1141
Volume to Capacity	0.67	0.25	0.24
Queue Length 95th (ft)	114	0	24
Control Delay (s)	33.9	0.0	6.1
Lane LOS	D		A
Approach Delay (s)	33.9	0.0	6.1
Approach LOS	D		

Intersection Summary				
Average Delay		9.4		
Intersection Capacity Utilization		67.5%	ICU Level of Service	C
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)	153	64	190	288	52	341
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	170	71	211	320	58	379
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	866	371			531	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	866	371			531	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	44	89			94	
cM capacity (veh/h)	306	675			1036	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	241	531	437
Volume Left	170	0	58
Volume Right	71	320	0
cSH	365	1700	1036
Volume to Capacity	0.66	0.31	0.06
Queue Length 95th (ft)	113	0	4
Control Delay (s)	32.2	0.0	1.7
Lane LOS	D		A
Approach Delay (s)	32.2	0.0	1.7
Approach LOS	D		

Intersection Summary				
Average Delay		7.0		
Intersection Capacity Utilization		70.9%	ICU Level of Service	C
Analysis Period (min)		15		

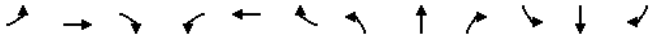


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	164	13	143	8	11	4	111	212	12	9	305	155
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	182	14	159	9	12	4	123	236	13	10	339	172

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	356	26	372	349	172
Volume Left (vph)	182	9	123	10	0
Volume Right (vph)	159	4	13	0	172
Hadj (s)	-0.13	0.00	0.08	0.04	-0.57
Departure Headway (s)	5.9	6.9	5.8	5.8	3.2
Degree Utilization, x	0.58	0.05	0.60	0.56	0.15
Capacity (veh/h)	574	400	589	588	1121
Control Delay (s)	16.7	10.2	17.2	16.1	6.8
Approach Delay (s)	16.7	10.2	17.2	13.0	
Approach LOS	C	B	C	B	

Intersection Summary					
Delay			15.2		
HCM Level of Service			C		
Intersection Capacity Utilization			69.8%	ICU Level of Service	C
Analysis Period (min)			15		

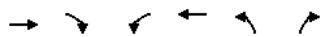
HCM Signalized Intersection Capacity Analysis — Town Center Alt3 rev011107
1: SR 202 (Redmond Fall City Road) & E Lk Sammamish Pkwy — 05/04 Committed Improvements 2006-2012



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	4799		3113	1565		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	4799		3113	1565		1625	1711	1531
Volume (vph)	72	1537	759	75	866	163	663	164	68	221	625	41
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	1708	843	83	962	181	737	182	76	246	694	46
RTOR Reduction (vph)	0	0	21	0	18	0	0	7	0	0	0	18
Lane Group Flow (vph)	80	1708	822	83	1125	0	657	331	0	246	694	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	56.0	84.0	4.0	50.2		28.0	28.0		44.0	44.0	44.0
Effective Green, g (s)	11.8	58.0	87.0	6.0	52.2		29.0	29.0		45.0	45.0	45.0
Actuated g/C Ratio	0.08	0.39	0.58	0.04	0.35		0.19	0.19		0.30	0.30	0.30
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	1323	888	68	1670		602	303		488	513	459
v/s Ratio Prot	0.05	c0.50	0.18	c0.05	0.23		0.21	c0.21		0.15	c0.41	
v/s Ratio Perm			0.36									0.02
v/c Ratio	0.59	1.29	0.93	1.22	0.67		1.09	1.09		0.50	1.35	0.06
Uniform Delay, d1	66.8	46.0	28.6	72.0	41.6		60.5	60.5		43.3	52.5	37.4
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	136.7	15.2	180.0	1.1		64.0	78.4		0.8	171.2	0.1
Delay (s)	73.6	182.7	43.7	252.0	42.7		124.5	138.9		44.1	223.7	37.5
Level of Service	E	F	D	F	D		F	F		D	F	D
Approach Delay (s)		134.9			56.9			129.4			170.2	
Approach LOS		F			E			F			F	

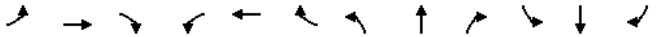
Intersection Summary				
HCM Average Control Delay	123.5	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.27			
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	109.4%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Town Center Alt3 rev011107
4: SR 202 (Redmond Fall City Road) & 192nd Dr. NE — 05/04 Committed Improvements 2006-2012



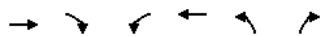
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3421	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)	1641	219	23	681	121	16
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1823	243	26	757	134	18
RTOR Reduction (vph)	0	90	0	0	0	15
Lane Group Flow (vph)	1823	153	26	757	134	3
Turn Type		Perm	Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	37.3	37.3	1.3	42.6	10.0	10.0
Effective Green, g (s)	39.3	39.3	2.3	44.6	12.0	12.0
Actuated g/C Ratio	0.63	0.63	0.04	0.71	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)	2148	961	63	2437	328	293
v/s Ratio Prot	c0.53		c0.02	0.22	c0.08	
v/s Ratio Perm		0.10				0.00
v/c Ratio	0.85	0.16	0.41	0.31	0.41	0.01
Uniform Delay, d1	9.3	4.8	29.5	3.3	22.2	20.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.3	0.1	4.3	0.1	0.8	0.0
Delay (s)	12.6	4.9	33.8	3.4	23.0	20.5
Level of Service	B	A	C	A	C	C
Approach Delay (s)	11.7			4.4	22.7	
Approach LOS	B			A	C	

Intersection Summary			
HCM Average Control Delay	10.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	62.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.7%	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	0.07	1.00		0.95		1.00			
Satd. Flow (perm)		1801	1531	126	1801		1711		1531			
Volume (vph)	0	872	930	58	461	0	501	0	50	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	969	1033	64	512	0	557	0	56	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	18	0	0	0
Lane Group Flow (vph)	0	969	1033	64	512	0	557	0	38	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)		51.1	99.2	58.2	58.2		29.0		29.0			
Effective Green, g (s)		54.1	99.2	61.2	61.2		32.0		32.0			
Actuated g/C Ratio		0.55	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)		982	1531	143	1111		552		494			
v/s Ratio Prot		c0.54		0.02	0.28		c0.33		0.02			
v/s Ratio Perm			c0.67	0.26								
v/c Ratio		0.99	0.67	0.45	0.46		1.01		0.08			
Uniform Delay, d1		22.2	0.0	22.1	10.2		33.6		23.3			
Progression Factor		1.00	1.00	1.00	1.00		1.00		1.00			
Incremental Delay, d2		25.2	2.4	2.2	0.3		40.6		0.1			
Delay (s)		47.4	2.4	24.3	10.5		74.2		23.4			
Level of Service		D	A	C	B		E		C			
Approach Delay (s)		24.2			12.0			69.5			0.0	
Approach LOS		C			B			E			A	

Intersection Summary				
HCM Average Control Delay	30.7	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.97			
Actuated Cycle Length (s)	99.2	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	82.6%	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	0.93	
Flt Protected	1.00	1.00	0.95	1.00	0.98	
Satd. Flow (prot)	1801	1531	1711	1801	1630	
Flt Permitted	1.00	1.00	0.95	1.00	0.98	
Satd. Flow (perm)	1801	1531	1711	1801	1630	
Volume (vph)	885	382	149	401	167	204
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	983	424	166	446	186	227
RTOR Reduction (vph)	0	191	0	0	55	0
Lane Group Flow (vph)	983	233	166	446	358	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	387	
v/s Ratio Prot	c0.55		c0.10	0.25	c0.22	
v/s Ratio Perm		0.15				
v/c Ratio	0.99	0.28	0.97	0.36	0.93	
Uniform Delay, d1	17.8	9.6	35.9	5.2	29.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	26.5	0.2	59.9	0.2	27.6	
Delay (s)	44.3	9.7	95.8	5.4	57.4	
Level of Service	D	A	F	A	E	
Approach Delay (s)	33.9			29.9	57.4	
Approach LOS	C			C	E	

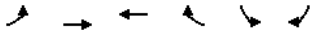
Intersection Summary				
HCM Average Control Delay	36.9	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.97			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	86.6%	ICU Level of Service	E	
Analysis Period (min)	15			
c Critical Lane Group				

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	0.14	1.00
Satd. Flow (perm)	1711	1531	1801	1531	254	1801
Volume (vph)	47	354	468	61	554	687
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	52	393	520	68	616	763
RTOR Reduction (vph)	0	58	0	29	0	0
Lane Group Flow (vph)	52	335	520	39	616	763
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)	12.8	43.9	25.1	42.9	56.2	56.2
Effective Green, g (s)	14.8	45.9	27.1	44.9	58.2	58.2
Actuated g/C Ratio	0.19	0.58	0.34	0.57	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)	321	890	618	870	705	1327
v/s Ratio Prot	0.03	c0.22	0.29	0.03	c0.31	0.42
v/s Ratio Perm					c0.33	
v/c Ratio	0.16	0.38	0.84	0.04	0.87	0.57
Uniform Delay, d1	26.9	8.9	24.0	7.6	17.7	4.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.3	10.1	0.0	11.6	0.6
Delay (s)	27.1	9.1	34.0	7.6	29.3	5.4
Level of Service	C	A	C	A	C	A
Approach Delay (s)	11.2		31.0			16.1
Approach LOS	B		C			B

Intersection Summary				
HCM Average Control Delay	18.8	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.77			
Actuated Cycle Length (s)	79.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	69.5%	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		0.47	1.00
Satd. Flow (perm)	1711	1531	1775		852	1801
Volume (vph)	46	152	377	44	368	365
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	51	169	419	49	409	406
RTOR Reduction (vph)	0	146	4	0	0	0
Lane Group Flow (vph)	51	23	464	0	409	406
Turn Type		Perm			Perm	
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	6.9	6.9	42.9		42.9	42.9
Effective Green, g (s)	7.9	7.9	43.9		43.9	43.9
Actuated g/C Ratio	0.14	0.14	0.76		0.76	0.76
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)	234	209	1348		647	1368
v/s Ratio Prot	c0.03		0.26			0.23
v/s Ratio Perm		0.02			c0.48	
v/c Ratio	0.22	0.11	0.34		0.63	0.30
Uniform Delay, d1	22.2	21.9	2.3		3.2	2.2
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.5	0.2	0.2		2.0	0.1
Delay (s)	22.7	22.1	2.4		5.2	2.3
Level of Service	C	C	A		A	A
Approach Delay (s)	22.2		2.4			3.8
Approach LOS	C		A			A

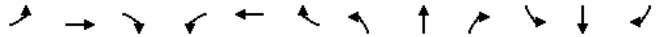
Intersection Summary				
HCM Average Control Delay	6.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	57.8	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	56.2%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	28	324	456	76	65	20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	31	360	507	84	72	22
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	591				971	549
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	591				971	549
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				73	96
cM capacity (veh/h)	985				272	536

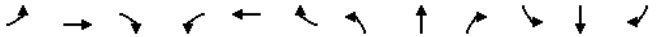
Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	391	591	94
Volume Left	31	0	72
Volume Right	0	84	22
cSH	985	1700	307
Volume to Capacity	0.03	0.35	0.31
Queue Length 95th (ft)	2	0	32
Control Delay (s)	1.0	0.0	21.8
Lane LOS	A		C
Approach Delay (s)	1.0	0.0	21.8
Approach LOS			C

Intersection Summary				
Average Delay		2.3		
Intersection Capacity Utilization		51.7%	ICU Level of Service	A
Analysis Period (min)		15		



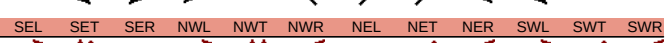
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0					3.0	
Lane Util. Factor		1.00			1.00	1.00					1.00	
Frt		1.00			1.00	0.85					0.99	
Flt Protected		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	443	0	0	631	545	0	0	0	213	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	492	0	0	701	606	0	0	0	237	0	10
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	499	0	0	701	606	0	0	0	0	245	0
Turn Type	Perm					pm+ov				Split		
Protected Phases		2			6 7	8				8	8	
Permitted Phases	2					6 7						
Actuated Green, G (s)		18.5			33.2	45.5					12.3	
Effective Green, g (s)		21.0			34.2	49.0					14.8	
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)		680			1120	1531					460	
v/s Ratio Prot					c0.39	0.11					c0.14	
v/s Ratio Perm		c0.28				0.29						
v/c Ratio		0.73			0.63	0.40					0.53	
Uniform Delay, d1		14.6			6.4	0.5					17.1	
Progression Factor		1.00			1.00	1.00					1.00	
Incremental Delay, d2		4.1			1.1	0.2					1.2	
Delay (s)		18.7			7.5	0.7					18.3	
Level of Service		B			A	A					B	
Approach Delay (s)		18.7			4.4			0.0			18.3	
Approach LOS		B			A			A			B	

Intersection Summary				
HCM Average Control Delay	9.5	HCM Level of Service		A
HCM Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	55.0	Sum of lost time (s)		6.0
Intersection Capacity Utilization	64.1%	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	1645	1531	1711	1781		1711	3381		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	1645	1531	1711	1781		1711	3381		1711	3421	1531
Volume (vph)	1268	151	450	80	210	16	299	712	60	18	673	1063
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)	1409	168	500	89	233	18	332	791	67	20	748	1181
RTOR Reduction (vph)	0	0	165	0	2	0	0	4	0	0	0	29
Lane Group Flow (vph)	768	809	335	89	249	0	332	854	0	20	748	1152
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)	62.0	62.0	62.0	16.0	16.0		24.0	51.6		2.4	31.0	93.0
Effective Green, g (s)	64.0	64.0	64.0	18.0	18.0		25.0	53.6		4.4	33.0	97.0
Actuated g/C Ratio	0.42	0.42	0.42	0.12	0.12		0.16	0.35		0.03	0.22	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)	684	693	645	203	211		281	1192		50	743	1007
v/s Ratio Prot	0.47	0.49		0.05	c0.14		c0.19	0.25		0.01	0.22	c0.48
v/s Ratio Perm			0.22									0.27
v/c Ratio	1.12	1.17	0.52	0.44	1.18		1.18	0.72		0.40	1.01	1.14
Uniform Delay, d1	44.0	44.0	32.6	62.3	67.0		63.5	42.6		72.5	59.5	27.5
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	73.4	90.4	0.7	1.5	119.5		112.1	2.1		5.2	34.7	76.9
Delay (s)	117.4	134.4	33.3	63.8	186.5		175.6	44.7		77.7	94.2	104.4
Level of Service	F	F	C	E	F		F	D		E	F	F
Approach Delay (s)		103.8			154.4			81.2			100.2	
Approach LOS		F			F			F			F	

Intersection Summary				
HCM Average Control Delay	100.8	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.16			
Actuated Cycle Length (s)	152.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	104.4%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

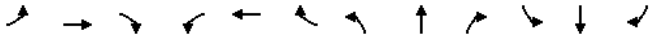


Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		1.00	1.00	0.95	0.95	1.00
Frt	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	0.10	1.00		0.09	1.00	1.00		0.98	1.00	0.95	0.95	1.00
Satd. Flow (perm)	176	3416		156	3421	1531		1764	1531	1625	1631	1531
Volume (vph)	260	1364	15	9	917	1180	14	20	79	783	10	285
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)	289	1516	17	10	1019	1311	16	22	88	870	11	317
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	55	0	0	211
Lane Group Flow (vph)	289	1533	0	10	1019	1311	0	38	33	435	446	106
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)	65.2	59.5		44.9	44.2	121.8		8.5	8.5	33.1	33.1	33.1
Effective Green, g (s)	67.2	61.5		48.9	46.2	121.8		10.5	10.5	35.1	35.1	35.1
Actuated g/C Ratio	0.55	0.50		0.40	0.38	1.00		0.09	0.09	0.29	0.29	0.29
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)	324	1725		97	1298	1531		152	132	468	470	441
v/s Ratio Prot	c0.13	0.45		0.00	0.30			0.02		0.27	c0.27	
v/s Ratio Perm	c0.36			0.04		c0.86			0.02			0.07
v/c Ratio	0.89	0.89		0.10	0.79	0.86		0.25	0.25	0.93	0.95	0.24
Uniform Delay, d1	33.2	27.1		25.9	33.4	0.0		52.0	52.0	42.1	42.5	33.2
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	25.0	6.0		0.5	3.2	6.4		0.9	1.0	24.8	28.6	0.3
Delay (s)	58.2	33.1		26.4	36.6	6.4		52.8	53.0	67.0	71.1	33.4
Level of Service	E	C		C	D	A		D	D	E	E	C
Approach Delay (s)		37.1			19.6			52.9			59.6	
Approach LOS		D			B			D			E	

Intersection Summary				
HCM Average Control Delay	34.9	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.90			
Actuated Cycle Length (s)	121.8	Sum of lost time (s)	3.0	
Intersection Capacity Utilization	80.1%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
80: SE Issaquah Fall City Rd. & Issaquah-Pine Lk Rd

Town Center Alt3 rev011107
05/04 Committed Improvements 2006-2012



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)	674	904	0	284	598	24	12	1111	890	17	527	456
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)	749	1004	0	316	664	27	13	1234	989	19	586	507
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	30	0	0	49
Lane Group Flow (vph)	749	1004	0	316	689	0	13	1234	959	19	586	458
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)	31.3	34.8		31.6	35.1		1.5	41.7	73.3	1.5	41.7	73.0
Effective Green, g (s)	32.8	36.3		33.1	36.6		3.0	43.2	76.3	3.0	43.2	76.0
Actuated g/C Ratio	0.26	0.28		0.26	0.29		0.02	0.34	0.60	0.02	0.34	0.60
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)	853	973		861	976		40	1158	915	40	1158	948
v/s Ratio Prot	0.23	c0.29		0.10	0.20		0.01	c0.36	c0.27	c0.01	0.17	0.12
v/s Ratio Perm									0.35			0.18
v/c Ratio	0.88	1.03		0.37	0.71		0.32	1.07	1.05	0.48	0.51	0.48
Uniform Delay, d1	45.5	45.6		38.7	40.7		61.3	42.2	25.6	61.5	33.7	14.7
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	10.2	37.3		0.3	2.3		4.7	45.8	43.2	8.6	0.3	0.4
Delay (s)	55.6	83.0		38.9	43.0		66.0	88.0	68.9	70.2	34.0	15.0
Level of Service	E	F		D	D		E	F	E	E	C	B
Approach Delay (s)		71.3			41.7			79.4			26.0	
Approach LOS		E			D			E			C	

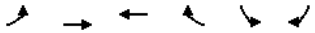
Intersection Summary				
HCM Average Control Delay	61.2	HCM Level of Service	E	
HCM Volume to Capacity ratio	1.03			
Actuated Cycle Length (s)	127.6	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	93.4%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
85: Issaquah Beaver Lake Rd. & Duthie Hill Rd

Town Center Alt3 rev011107
05/04 Committed Improvements 2006-2012

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	800	1801	1801	1531
Volume (vph)	145	52	152	809	448	119
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	161	58	169	899	498	132
RTOR Reduction (vph)	0	48	0	0	0	35
Lane Group Flow (vph)	161	10	169	899	498	97
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	10.7	10.7	48.6	48.6	48.6	48.6
Effective Green, g (s)	11.7	11.7	49.6	49.6	49.6	49.6
Actuated g/C Ratio	0.17	0.17	0.74	0.74	0.74	0.74
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)	297	266	590	1327	1327	1128
v/s Ratio Prot	c0.09			c0.50	0.28	
v/s Ratio Perm		0.01	0.21			0.06
v/c Ratio	0.54	0.04	0.29	0.68	0.38	0.09
Uniform Delay, d1	25.4	23.1	3.0	4.6	3.2	2.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	0.1	1.2	2.8	0.8	0.2
Delay (s)	27.4	23.2	4.2	7.4	4.0	2.6
Level of Service	C	C	A	A	A	A
Approach Delay (s)	26.3			6.9	3.7	
Approach LOS	C			A	A	

Intersection Summary				
HCM Average Control Delay	8.1	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.65			
Actuated Cycle Length (s)	67.3	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	57.3%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

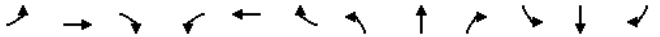


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0	3.0
Lane Util. Factor	1.00	1.00	1.00		1.00	1.00
Frt	1.00	1.00	0.96		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1711	1801	1730		1711	1531
Flt Permitted	0.40	1.00	1.00		0.95	1.00
Satd. Flow (perm)	716	1801	1730		1711	1531
Volume (vph)	358	549	357	147	115	205
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	398	610	397	163	128	228
RTOR Reduction (vph)	0	0	20	0	0	182
Lane Group Flow (vph)	398	610	540	0	128	46
Turn Type	Perm					Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Actuated Green, G (s)	35.4	35.4	35.4		9.7	9.7
Effective Green, g (s)	36.4	36.4	36.4		10.7	10.7
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)	491	1235	1186		345	309
v/s Ratio Prot		0.34	0.31		c0.07	
v/s Ratio Perm	c0.56					0.03
v/c Ratio	0.81	0.49	0.46		0.37	0.15
Uniform Delay, d1	5.9	4.0	3.8		18.3	17.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	9.8	0.3	0.3		0.7	0.2
Delay (s)	15.7	4.3	4.1		19.0	17.7
Level of Service	B	A	A		B	B
Approach Delay (s)		8.8	4.1		18.1	
Approach LOS		A	A		B	

Intersection Summary				
HCM Average Control Delay	9.2	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.71			
Actuated Cycle Length (s)	53.1	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	63.9%	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	0.18	1.00	1.00	1.00
Satd. Flow (perm)	1711	1531	348	1891	1711	1454
Volume (vph)	62	38	76	446	866	82
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	69	42	84	496	962	91
RTOR Reduction (vph)	0	37	0	0	0	17
Lane Group Flow (vph)	69	5	84	496	962	74
Turn Type		Perm	pm+pt			Perm
Protected Phases	8		5	2	6	
Permitted Phases		8	2			6
Actuated Green, G (s)	8.2	8.2	68.8	66.8	57.4	57.4
Effective Green, g (s)	10.2	10.2	70.8	70.8	61.4	61.4
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)	201	179	390	1539	1208	1026
v/s Ratio Prot	c0.04		0.02	c0.26	c0.56	
v/s Ratio Perm		0.00	0.16			0.05
v/c Ratio	0.34	0.03	0.22	0.32	0.80	0.07
Uniform Delay, d1	35.3	34.0	12.2	2.0	8.6	4.0
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)	36.3	34.1	12.4	2.2	12.3	4.0
Level of Service	D	C	B	A	B	A
Approach Delay (s)	35.5			3.7	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)	87.0	Sum of lost time (s)	6.0	
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
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)		1603			1662		1711	1727		1711	1801	
Flt Permitted		1.00			0.79		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1603			1358		1711	1727		1711	1801	
Volume (vph)	0	8	35	88	7	56	53	385	143	93	600	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	39	98	8	62	59	428	159	103	667	0
RTOR Reduction (vph)	0	31	0	0	41	0	0	17	0	0	0	0
Lane Group Flow (vph)	0	17	0	0	127	0	59	570	0	103	667	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		9.7			9.7		3.1	30.6		3.1	30.6	
Effective Green, g (s)		11.7			11.7		5.1	33.2		5.1	33.2	
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)		318			269		148	972		148	1013	
v/s Ratio Prot		0.01					0.03	0.33		c0.06	c0.37	
v/s Ratio Perm					c0.09							
v/c Ratio		0.05			0.47		0.40	0.59		0.70	0.66	
Uniform Delay, d1		19.2			20.9		25.5	8.4		26.2	9.0	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			1.3		1.8	0.9		13.3	1.6	
Delay (s)		19.2			22.2		27.3	9.3		39.5	10.5	
Level of Service		B			C		C	A		D	B	
Approach Delay (s)		19.2			22.2			11.0			14.4	
Approach LOS		B			C			B			B	

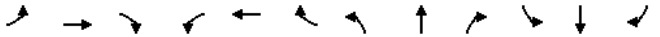
Intersection Summary				
HCM Average Control Delay	14.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.62			
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	61.1%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

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	3398	
Flt Permitted	0.99		0.95	1.00	1.00	
Satd. Flow (perm)	1636		1711	3421	3398	
Volume (vph)	16	71	131	842	734	35
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	79	146	936	816	39
RTOR Reduction (vph)	73	0	0	0	2	0
Lane Group Flow (vph)	24	0	146	936	853	0
Turn Type			Prot			
Protected Phases	8		5	2	6	
Permitted Phases						
Actuated Green, G (s)	6.3		14.3	93.7	74.4	
Effective Green, g (s)	8.3		16.3	95.7	76.4	
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)	123		254	2976	2360	
v/s Ratio Prot	c0.01		c0.09	0.27	c0.25	
v/s Ratio Perm						
v/c Ratio	0.19		0.57	0.31	0.36	
Uniform Delay, d1	47.7		43.6	1.3	6.9	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.8		3.1	0.3	0.4	
Delay (s)	48.5		46.8	1.6	7.3	
Level of Service	D		D	A	A	
Approach Delay (s)	48.5			7.7	7.3	
Approach LOS	D			A	A	

Intersection Summary				
HCM Average Control Delay	9.4	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.38			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	43.9%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
112: NE 8th Street & 228th Ave SE

Town Center Alt3 rev011107
05/04 Committed Improvements 2006-2012



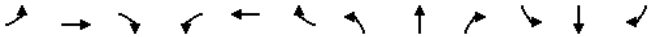
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			0%			0%			2%	
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	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)	67	313	76	107	307	117	109	791	218	102	666	38
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)	74	348	84	119	341	130	121	879	242	113	740	42
RTOR Reduction (vph)	0	0	53	0	0	62	0	0	115	0	4	0
Lane Group Flow (vph)	74	348	31	119	341	68	121	879	127	113	778	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)	6.4	25.6	37.1	10.9	29.7	40.3	11.5	42.6	53.5	10.6	41.7	
Effective Green, g (s)	8.4	27.6	41.1	12.9	32.1	44.7	13.5	44.9	57.8	12.6	44.0	
Actuated g/C Ratio	0.08	0.25	0.37	0.12	0.29	0.41	0.12	0.41	0.53	0.11	0.40	
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)	131	452	614	201	526	664	210	1396	846	194	1344	
v/s Ratio Prot	0.04	c0.19	0.01	c0.07	0.19	0.01	c0.07	c0.26	0.02	0.07	0.23	
v/s Ratio Perm			0.01			0.03			0.07			
v/c Ratio	0.56	0.77	0.05	0.59	0.65	0.10	0.58	0.63	0.15	0.58	0.58	
Uniform Delay, d1	49.0	38.3	22.0	46.1	34.0	20.2	45.5	25.9	13.4	46.2	25.8	
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	5.5	7.7	0.0	4.6	2.8	0.1	3.8	2.2	0.1	4.4	1.8	
Delay (s)	54.5	46.0	22.0	50.7	36.8	20.3	49.3	28.1	13.5	50.6	27.6	
Level of Service	D	D	C	D	D	C	D	C	B	D	C	
Approach Delay (s)		43.3			35.9			27.3			30.5	
Approach LOS		D			D			C			C	

Intersection Summary				
HCM Average Control Delay	32.3	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	63.3%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
117: E Main Street & 228th Ave SE

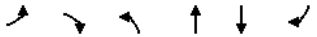
Town Center Alt3 rev011107
05/04 Committed Improvements 2006-2012



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	
Lane Util. Factor				1.00	1.00			0.95		1.00	0.95	
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			3479		1711	3421	
Flt Permitted				0.95	1.00			1.00		0.17	1.00	
Satd. Flow (perm)				1711	1531			3479		309	3421	
Volume (vph)	0	0	0	109	0	165	0	1025	58	134	837	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	121	0	183	0	1139	64	149	930	0
RTOR Reduction (vph)	0	0	0	0	156	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	0	0	121	27	0	0	1201	0	149	930	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)				14.4	14.4			70.6		85.4	85.4	
Effective Green, g (s)				16.4	16.4			72.8		87.6	87.6	
Actuated g/C Ratio				0.15	0.15			0.66		0.80	0.80	
Clearance Time (s)				5.0	5.0			5.2		5.2	5.2	
Vehicle Extension (s)				3.0	3.0			3.0		3.0	3.0	
Lane Grp Cap (vph)				255	228			2302		396	2724	
v/s Ratio Prot					0.02			c0.35		c0.04	0.27	
v/s Ratio Perm				c0.07						0.26		
v/c Ratio				0.47	0.12			0.52		0.38	0.34	
Uniform Delay, d1				42.9	40.5			9.6		5.4	3.1	
Progression Factor				1.00	1.00			0.69		1.00	1.00	
Incremental Delay, d2				1.4	0.2			0.8		0.6	0.3	
Delay (s)				44.2	40.8			7.5		6.0	3.5	
Level of Service				D	D			A		A	A	
Approach Delay (s)		0.0			42.2			7.5			3.8	
Approach LOS		A			D			A			A	

Intersection Summary				
HCM Average Control Delay	10.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.50			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	57.8%	ICU Level of Service	B	
Analysis Period (min)	15			

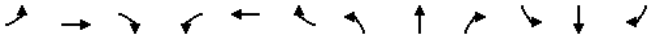
c Critical Lane Group



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-7%			-2%	0%	
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	0.95	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1770	1584	1728	3455	3253	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1584	1728	3455	3253	
Volume (vph)	262	246	284	749	533	261
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	291	273	316	832	592	290
RTOR Reduction (vph)	0	211	0	0	47	0
Lane Group Flow (vph)	291	62	316	832	835	0
Turn Type		Perm	Prot			
Protected Phases	8		5	2	6	
Permitted Phases	4	8				
Actuated Green, G (s)	22.1	22.1	24.0	76.9	47.9	
Effective Green, g (s)	25.1	25.1	26.0	78.9	49.9	
Actuated g/C Ratio	0.23	0.23	0.24	0.72	0.45	
Clearance Time (s)	6.0	6.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	404	361	408	2478	1476	
v/s Ratio Prot	c0.16		c0.18	0.24	c0.26	
v/s Ratio Perm		0.04				
v/c Ratio	0.72	0.17	0.77	0.34	0.57	
Uniform Delay, d1	39.2	34.1	39.3	5.8	22.1	
Progression Factor	1.00	1.00	1.00	1.00	1.04	
Incremental Delay, d2	6.2	0.2	8.9	0.4	1.5	
Delay (s)	45.4	34.3	48.1	6.2	24.5	
Level of Service	D	C	D	A	C	
Approach Delay (s)	40.1			17.7	24.5	
Approach LOS	D			B	C	

Intersection Summary				
HCM Average Control Delay	24.9	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	63.3%	ICU Level of Service	B	
Analysis Period (min)	15			

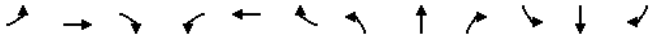
c Critical Lane Group



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 (%)		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)		1660			1742	1546	1728	3455	1546	1694	3352	
Flt Permitted		0.61			0.56	1.00	0.95	1.00	1.00	0.12	1.00	
Satd. Flow (perm)		1025			1011	1546	1728	3455	1546	206	3352	
Volume (vph)	79	58	86	321	41	29	61	992	456	72	698	52
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)	88	64	96	357	46	32	68	1102	507	80	776	58
RTOR Reduction (vph)	0	23	0	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	225	0	0	403	32	68	1102	507	80	829	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)		43.4			44.4	99.0	6.4	44.1	98.5	47.2	42.2	
Effective Green, g (s)		46.4			46.4	104.0	9.4	47.1	104.0	52.7	45.2	
Actuated g/C Ratio		0.42			0.42	0.95	0.09	0.43	0.95	0.48	0.41	
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)		432			426	1546	148	1479	1546	200	1377	
v/s Ratio Prot						0.01	c0.04	c0.32	c0.14	0.03	0.25	
v/s Ratio Perm		0.22			c0.40	0.01			0.19	0.16		
v/c Ratio		0.52			0.95	0.02	0.46	0.75	0.33	0.40	0.60	
Uniform Delay, d1		23.6			30.6	0.2	47.9	26.4	0.2	19.1	25.4	
Progression Factor		1.00			1.00	1.00	1.07	0.84	1.00	1.00	1.00	
Incremental Delay, d2		1.1			30.0	0.0	2.2	3.4	0.1	1.3	2.0	
Delay (s)		24.7			60.6	0.2	53.4	25.7	0.4	20.4	27.3	
Level of Service		C			E	A	D	C	A	C	C	
Approach Delay (s)		24.7			56.1			19.2			26.7	
Approach LOS		C			E			B			C	

Intersection Summary				
HCM Average Control Delay	26.6	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.80			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	77.5%	ICU Level of Service	D	
Analysis Period (min)	15			

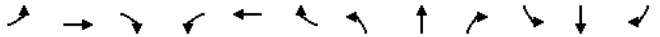
c Critical Lane Group



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			3453	
Flt Permitted		0.95	1.00				0.95	1.00			1.00	
Satd. Flow (perm)		1711	1531				1711	3421			3453	
Volume (vph)	24	0	296	0	0	0	227	1536	0	0	1061	41
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)	27	0	329	0	0	0	252	1707	0	0	1179	46
RTOR Reduction (vph)	0	0	273	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	27	56	0	0	0	252	1707	0	0	1223	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)		9.9	9.9				21.0	88.5			61.9	
Effective Green, g (s)		12.5	12.5				23.6	91.5			64.9	
Actuated g/C Ratio		0.11	0.11				0.21	0.83			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)		194	174				367	2846			2037	
v/s Ratio Prot							c0.15	c0.50			0.35	
v/s Ratio Perm		0.02	c0.04									
v/c Ratio		0.14	0.32				0.69	0.60			0.60	
Uniform Delay, d1		43.9	44.9				39.8	3.1			14.3	
Progression Factor		1.00	1.00				1.00	1.00			1.00	
Incremental Delay, d2		0.3	1.1				5.3	0.9			1.3	
Delay (s)		44.2	45.9				45.1	4.0			15.6	
Level of Service		D	D				D	A			B	
Approach Delay (s)		45.8			0.0			9.3			15.6	
Approach LOS		D			A			A			B	

Intersection Summary				
HCM Average Control Delay	15.2	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	71.5%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group



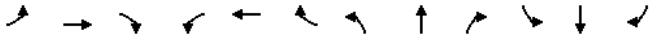
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					3.0	3.0		3.0	3.0	3.0	3.0	
Lane Util. Factor					1.00	1.00		0.95	1.00	1.00	0.95	
Frt					1.00	0.85		1.00	0.85	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	88	0	82	0	1692	150	131	1261	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	98	0	91	0	1880	167	146	1401	0
RTOR Reduction (vph)	0	0	0	0	0	80	0	0	37	0	0	0
Lane Group Flow (vph)	0	0	0	0	98	11	0	1880	130	146	1401	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)					11.3	11.3		60.9	60.9	20.5	88.4	
Effective Green, g (s)					13.6	13.6		63.9	63.9	23.5	90.4	
Actuated g/C Ratio					0.12	0.12		0.58	0.58	0.21	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)					212	189		1987	889	366	2811	
v/s Ratio Prot					c0.06			c0.55		0.09	c0.41	
v/s Ratio Perm						0.01			0.08			
v/c Ratio					0.46	0.06		0.95	0.15	0.40	0.50	
Uniform Delay, d1					44.8	42.6		21.4	10.6	37.2	3.0	
Progression Factor					1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2					1.6	0.1		11.0	0.3	0.7	0.6	
Delay (s)					46.4	42.7		32.4	10.9	37.9	3.6	
Level of Service					D	D		C	B	D	A	
Approach Delay (s)		0.0			44.6			30.7			6.8	
Approach LOS		A			D			C			A	

Intersection Summary				
HCM Average Control Delay	21.6	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 Alt3 rev011107
05/04 Committed Improvements 2006-2012



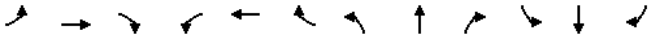
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-2%			0%			0%	
Total Lost time (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Util. Factor	1.00	1.00			1.00	0.88	1.00	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			1754	2721	1711	3421	1531	3319	1795	
Flt Permitted	0.49	1.00			0.48	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	876	1724			879	2721	1711	3421	1531	3319	1795	
Volume (vph)	143	136	54	131	46	808	41	628	237	672	609	13
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	151	60	146	51	898	46	698	263	747	677	14
RTOR Reduction (vph)	0	14	0	0	0	0	0	0	173	0	0	0
Lane Group Flow (vph)	159	197	0	0	197	898	46	698	90	747	691	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)	27.0	27.0			27.0	63.7	5.1	34.7	34.7	31.1	62.3	
Effective Green, g (s)	29.6	29.6			29.6	66.3	6.1	37.7	37.7	33.7	65.3	
Actuated g/C Ratio	0.27	0.27			0.27	0.60	0.06	0.34	0.34	0.31	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)	236	464			237	1640	95	1172	525	1017	1066	
v/s Ratio Prot		0.11				0.33	0.03	c0.20		c0.23	c0.38	
v/s Ratio Perm	0.18				c0.22				0.06			
v/c Ratio	0.67	0.42			0.83	0.55	0.48	0.60	0.17	0.73	0.65	
Uniform Delay, d1	35.9	33.2			37.8	13.0	50.4	29.9	25.2	34.1	14.8	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	0.92	0.84	
Incremental Delay, d2	7.4	0.6			21.3	0.4	3.8	2.2	0.7	2.6	2.9	
Delay (s)	43.3	33.8			59.1	13.3	54.3	32.1	26.0	34.1	15.3	
Level of Service	D	C			E	B	D	C	C	C	B	
Approach Delay (s)		37.9			21.6			31.5			25.1	
Approach LOS		D			C			C			C	

Intersection Summary				
HCM Average Control Delay	27.0	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.74			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	70.0%	ICU Level of Service	C	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
142: Klahanie Blvd. & Issaquah-Pine Lk Rd

Town Center Alt3 rev011107
05/04 Committed Improvements 2006-2012



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	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.89		1.00	0.89		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1711	1598		1711	1610		1711	1801	1531	1762	1842	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1711	1598		1711	1610		1711	1801	1531	1762	1842	
Volume (vph)	18	14	43	160	17	41	87	1194	262	63	659	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)	20	16	48	178	19	46	97	1327	291	70	732	36
RTOR Reduction (vph)	0	45	0	0	40	0	0	0	30	0	1	0
Lane Group Flow (vph)	20	19	0	178	25	0	97	1327	261	70	767	0
Turn Type	Split			Split			Prot		Perm	Prot		
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	6.3	6.3		16.7	16.7		8.7	84.0	84.0	3.8	79.1	
Effective Green, g (s)	8.3	8.3		18.7	18.7		11.7	87.0	87.0	6.8	82.1	
Actuated g/C Ratio	0.06	0.06		0.14	0.14		0.09	0.66	0.66	0.05	0.62	
Clearance Time (s)	5.0	5.0		5.0	5.0		6.0	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	3.0	
Lane Grp Cap (vph)	107	100		241	227		151	1180	1003	90	1139	
v/s Ratio Prot	0.01	c0.01		c0.10	0.02		c0.06	c0.74		c0.04	0.42	
v/s Ratio Perm									0.17			
v/c Ratio	0.19	0.19		0.74	0.11		0.64	1.12	0.26	0.78	0.67	
Uniform Delay, d1	59.0	59.1		54.7	49.8		58.5	22.9	9.5	62.3	16.6	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.8	0.9		11.2	0.2		9.0	67.5	0.1	33.5	1.6	
Delay (s)	59.9	60.0		65.9	50.0		67.5	90.4	9.7	95.7	18.2	
Level of Service	E	E		E	D		E	F	A	F	B	
Approach Delay (s)		60.0			61.7			75.4			24.6	
Approach LOS		E			E			E			C	

Intersection Summary				
HCM Average Control Delay	59.0	HCM Level of Service	E	
HCM Volume to Capacity ratio	0.96			
Actuated Cycle Length (s)	132.8	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	92.5%	ICU Level of Service	F	
Analysis Period (min)	15			

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	56	138	369	52	242	211
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	62	153	410	58	269	234
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	1211	439			468	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1211	439			468	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	59	75			75	
cM capacity (veh/h)	152	618			1094	

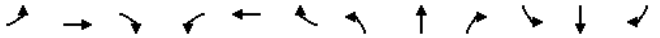
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	216	468	503
Volume Left	62	0	269
Volume Right	153	58	0
cSH	328	1700	1094
Volume to Capacity	0.66	0.28	0.25
Queue Length 95th (ft)	110	0	24
Control Delay (s)	34.8	0.0	6.2
Lane LOS	D		A
Approach Delay (s)	34.8	0.0	6.2
Approach LOS	D		

Intersection Summary				
Average Delay		9.0		
Intersection Capacity Utilization		68.7%	ICU Level of Service	C
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)	154	70	184	328	52	332
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	171	78	204	364	58	369
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	871	387			569	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	871	387			569	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	44	88			94	
cM capacity (veh/h)	303	661			1003	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	249	569	427
Volume Left	171	0	58
Volume Right	78	364	0
cSH	365	1700	1003
Volume to Capacity	0.68	0.33	0.06
Queue Length 95th (ft)	121	0	5
Control Delay (s)	33.6	0.0	1.8
Lane LOS	D		A
Approach Delay (s)	33.6	0.0	1.8
Approach LOS	D		

Intersection Summary				
Average Delay		7.3		
Intersection Capacity Utilization		73.0%	ICU Level of Service	C
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)	158	12	136	8	10	4	104	219	12	9	331	154
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)	176	13	151	9	11	4	116	243	13	10	368	171

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	340	24	372	378	171
Volume Left (vph)	176	9	116	10	0
Volume Right (vph)	151	4	13	0	171
Hadj (s)	-0.13	0.00	0.07	0.04	-0.57
Departure Headway (s)	5.9	6.9	5.8	5.8	3.2
Degree Utilization, x	0.56	0.05	0.60	0.61	0.15
Capacity (veh/h)	565	385	589	598	1121
Control Delay (s)	16.3	10.3	17.2	17.2	6.8
Approach Delay (s)	16.3	10.3	17.2	14.0	
Approach LOS	C	B	C	B	

Intersection Summary					
Delay			15.4		
HCM Level of Service			C		
Intersection Capacity Utilization			70.3%	ICU Level of Service	C
Analysis Period (min)			15		

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
1: SR 202 (Redmond Fall City Road) & E Lk Sammamish Pkwy — Town Center Alt 4

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	4828		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	4828		3113	1568		1625	1711	1531
Volume (vph)	57	1478	629	60	773	104	565	140	53	203	504	33
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)	63	1642	699	67	859	116	628	156	59	226	560	37
RTOR Reduction (vph)	0	0	34	0	13	0	0	7	0	0	0	20
Lane Group Flow (vph)	63	1642	665	67	962	0	555	281	0	226	560	17
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)	7.1	52.8	73.8	4.0	50.7		21.0	21.0		35.0	35.0	35.0
Effective Green, g (s)	8.1	54.8	76.8	6.0	52.7		22.0	22.0		36.0	36.0	36.0
Actuated g/C Ratio	0.06	0.42	0.59	0.05	0.40		0.17	0.17		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)	106	1433	899	78	1945		524	264		447	471	421
v/s Ratio Prot	0.04	c0.48	0.12	c0.04	0.20		0.18	c0.18		0.14	c0.33	
v/s Ratio Perm			0.31									0.01
v/c Ratio	0.59	1.15	0.74	0.86	0.49		1.06	1.06		0.51	1.19	0.04
Uniform Delay, d1	59.7	38.0	19.7	62.0	29.1		54.4	54.4		39.9	47.4	34.7
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	8.6	74.3	3.2	56.5	0.2		55.9	72.9		0.9	104.6	0.0
Delay (s)	68.4	112.3	22.9	118.5	29.3		110.3	127.3		40.8	152.0	34.8
Level of Service	E	F	C	F	C		F	F		D	F	C
Approach Delay (s)		85.2			35.1			116.1			116.2	
Approach LOS		F			D			F			F	

Intersection Summary				
HCM Average Control Delay	85.1	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.10			
Actuated Cycle Length (s)	130.8	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	98.0%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
4: SR 202 (Redmond Fall City Road) & 192nd Dr. NE — Town Center Alt 4

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)	1537	237	21	650	124	15
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	1708	263	23	722	138	17
RTOR Reduction (vph)	0	105	0	0	0	14
Lane Group Flow (vph)	1708	158	23	722	138	3
Turn Type		Perm	Prot			Perm
Protected Phases	4		3	8	2	
Permitted Phases		4				2
Actuated Green, G (s)	32.8	32.8	1.3	38.1	9.8	9.8
Effective Green, g (s)	34.8	34.8	2.3	40.1	11.8	11.8
Actuated g/C Ratio	0.60	0.60	0.04	0.69	0.20	0.20
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)	2056	920	68	2369	349	312
v/s Ratio Prot	c0.50		0.01	c0.21	c0.08	
v/s Ratio Perm		0.10				0.00
v/c Ratio	0.83	0.17	0.34	0.30	0.40	0.01
Uniform Delay, d1	9.2	5.1	27.1	3.5	20.0	18.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.0	0.1	2.9	0.1	0.7	0.0
Delay (s)	12.2	5.2	30.0	3.5	20.7	18.4
Level of Service	B	A	C	A	C	B
Approach Delay (s)	11.3			4.4	20.4	
Approach LOS	B			A	C	

Intersection Summary				
HCM Average Control Delay	10.0	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.70			
Actuated Cycle Length (s)	57.9	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	56.0%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
10: SR 202 (Redmond Fall City Road) & Sahalee Way NE — Town Center Alt 4

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	0.09	1.00		0.95		1.00			
Satd. Flow (perm)		1801	1531	155	1801		1711		1531			
Volume (vph)	0	790	858	53	400	0	414	0	44	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	878	953	59	444	0	460	0	49	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	21	0	0	0
Lane Group Flow (vph)	0	878	953	59	444	0	460	0	28	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)		40.6	81.6	47.5	47.5		22.1		22.1			
Effective Green, g (s)		43.6	81.6	50.5	50.5		25.1		25.1			
Actuated g/C Ratio		0.53	1.00	0.62	0.62		0.31		0.31			
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)		962	1531	170	1115		526		471			
v/s Ratio Prot		c0.49		0.02	0.25		c0.27		0.02			
v/s Ratio Perm			c0.62	0.20								
v/c Ratio		0.91	0.62	0.35	0.40		0.87		0.06			
Uniform Delay, d1		17.3	0.0	14.9	7.9		26.8		19.9			
Progression Factor		1.00	1.00	1.00	1.00		1.00		1.00			
Incremental Delay, d2		12.7	1.9	1.2	0.2		14.9		0.1			
Delay (s)		29.9	1.9	16.1	8.1		41.7		20.0			
Level of Service		C	A	B	A		D		B			
Approach Delay (s)		15.4			9.0			39.6			0.0	
Approach LOS		B			A			D			A	

Intersection Summary				
HCM Average Control Delay	18.6	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.87			
Actuated Cycle Length (s)	81.6	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	73.6%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
14: SR 202 (Redmond Fall City Road) & 244th Ave. NE — Town Center Alt 4

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	1650	
Flt Permitted	1.00	1.00	0.95	1.00	0.97	
Satd. Flow (perm)	1801	1531	1711	1801	1650	
Volume (vph)	705	361	102	346	142	106
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	783	401	113	384	158	118
RTOR Reduction (vph)	0	199	0	0	43	0
Lane Group Flow (vph)	783	202	113	384	233	0
Turn Type		Perm	Prot			
Protected Phases	4		3	8	2	
Permitted Phases		4				
Actuated Green, G (s)	26.4	26.4	3.6	34.0	12.4	
Effective Green, g (s)	28.4	28.4	4.6	36.0	14.4	
Actuated g/C Ratio	0.50	0.50	0.08	0.64	0.26	
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)	907	771	140	1150	421	
v/s Ratio Prot	c0.43		c0.07	0.21	c0.14	
v/s Ratio Perm		0.13				
v/c Ratio	0.86	0.26	0.81	0.33	0.55	
Uniform Delay, d1	12.3	8.0	25.5	4.7	18.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	8.5	0.2	27.7	0.2	1.6	
Delay (s)	20.8	8.2	53.2	4.9	19.8	
Level of Service	C	A	D	A	B	
Approach Delay (s)	16.6			15.9	19.8	
Approach LOS	B			B	B	

Intersection Summary				
HCM Average Control Delay	16.8	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.76			
Actuated Cycle Length (s)	56.4	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	67.1%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
40: Inglewood Hill & E Lk Sammamish Pkwy — Town Center Alt 4

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	0.27	1.00
Satd. Flow (perm)	1711	1531	1801	1531	493	1801
Volume (vph)	67	312	340	105	481	514
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	74	347	378	117	534	571
RTOR Reduction (vph)	0	89	0	50	0	0
Lane Group Flow (vph)	74	258	378	67	534	571
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)	9.2	29.3	15.2	29.4	35.3	35.3
Effective Green, g (s)	11.2	31.3	17.2	31.4	37.3	37.3
Actuated g/C Ratio	0.21	0.57	0.32	0.58	0.68	0.68
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)	352	879	568	882	720	1233
v/s Ratio Prot	0.04	c0.17	0.21	0.04	c0.23	0.32
v/s Ratio Perm					c0.28	
v/c Ratio	0.21	0.29	0.67	0.08	0.74	0.46
Uniform Delay, d1	18.0	5.9	16.2	5.1	6.7	4.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.2	2.9	0.0	4.1	0.3
Delay (s)	18.3	6.1	19.1	5.2	10.8	4.3
Level of Service	B	A	B	A	B	A
Approach Delay (s)	8.3		15.8			7.4
Approach LOS	A		B			A

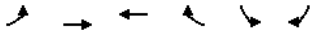
Intersection Summary				
HCM Average Control Delay	9.6	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.64			
Actuated Cycle Length (s)	54.5	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	58.7%	ICU Level of Service	B	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
43: Louis Thompson Rd & E Lk Sammamish Pkwy — Town Center Alt 4

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	0.98		1.00	1.00
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1711	1531	1769		1711	1801
Flt Permitted	0.95	1.00	1.00		0.48	1.00
Satd. Flow (perm)	1711	1531	1769		861	1801
Volume (vph)	37	91	355	54	230	350
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	41	101	394	60	256	389
RTOR Reduction (vph)	0	86	6	0	0	0
Lane Group Flow (vph)	41	15	448	0	256	389
Turn Type		Perm			Perm	
Protected Phases	8		2			6
Permitted Phases		8			6	
Actuated Green, G (s)	7.7	7.7	41.9		41.9	41.9
Effective Green, g (s)	8.7	8.7	42.9		42.9	42.9
Actuated g/C Ratio	0.15	0.15	0.74		0.74	0.74
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)	258	231	1318		641	1341
v/s Ratio Prot	c0.02		0.25			0.22
v/s Ratio Perm		0.01			c0.30	
v/c Ratio	0.16	0.07	0.34		0.40	0.29
Uniform Delay, d1	21.3	21.0	2.5		2.7	2.4
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.3	0.1	0.2		0.4	0.1
Delay (s)	21.6	21.1	2.7		3.1	2.5
Level of Service	C	C	A		A	A
Approach Delay (s)	21.2		2.7			2.7
Approach LOS	C		A			A

Intersection Summary				
HCM Average Control Delay	4.8	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.36			
Actuated Cycle Length (s)	57.6	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	48.0%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Unsignalized Intersection Capacity Analysis — Committed Improvements 2006-2012
55: E Lk Sammamish Pkwy & 24th Way — Town Center Alt 4

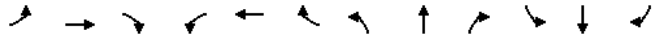


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	29	318	466	98	76	19
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	32	353	518	109	84	21
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	627				990	572
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	627				990	572
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				68	96
cM capacity (veh/h)	955				264	519

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	386	627	106
Volume Left	32	0	84
Volume Right	0	109	21
cSH	955	1700	293
Volume to Capacity	0.03	0.37	0.36
Queue Length 95th (ft)	3	0	40
Control Delay (s)	1.1	0.0	24.1
Lane LOS	A		C
Approach Delay (s)	1.1	0.0	24.1
Approach LOS			C

Intersection Summary			
Average Delay	2.6		
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

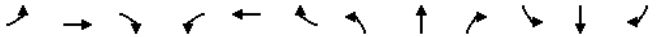
HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
61: E Lk Sammamish Pkwy & 212th Ave. SE — Town Center Alt 4



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)		1778			1801	1531					1707	
Volume (vph)	7	443	0	0	667	283	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)	8	492	0	0	741	314	0	0	0	150	0	8
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	500	0	0	741	314	0	0	0	0	155	0
Turn Type	Perm					pm+ov				Split		
Protected Phases		2			6 7	8				8	8	
Permitted Phases	2					6 7						
Actuated Green, G (s)		20.1			35.1	45.0					9.9	
Effective Green, g (s)		22.6			36.1	48.5					12.4	
Actuated g/C Ratio		0.41			0.66	0.89					0.23	
Clearance Time (s)		5.5				5.5					5.5	
Vehicle Extension (s)		3.0				3.0					3.0	
Lane Grp Cap (vph)		737			1193	1531					388	
v/s Ratio Prot					c0.41	0.05					c0.09	
v/s Ratio Perm		c0.28				0.16						
v/c Ratio		0.68			0.62	0.21					0.40	
Uniform Delay, d1		13.0			5.3	0.4					17.9	
Progression Factor		1.00			1.00	1.00					1.00	
Incremental Delay, d2		2.5			1.0	0.1					0.7	
Delay (s)		15.5			6.3	0.5					18.6	
Level of Service		B			A	A					B	
Approach Delay (s)		15.5			4.6			0.0			18.6	
Approach LOS		B			A			A			B	

Intersection Summary					
HCM Average Control Delay	9.0	HCM Level of Service		A	
HCM Volume to Capacity ratio	0.58				
Actuated Cycle Length (s)	54.5	Sum of lost time (s)		6.0	
Intersection Capacity Utilization	49.7%	ICU Level of Service		A	
Analysis Period (min)	15				
c Critical Lane Group					

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
69: SE 56th St. & E Lk Sammamish Pkwy — Town Center Alt 4



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	0.98		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	1772		1711	3379		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	1772		1711	3379		1711	3421	1531
Volume (vph)	1097	133	420	75	120	14	438	458	41	18	619	881
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)	1219	148	467	83	133	16	487	509	46	20	688	979
RTOR Reduction (vph)	0	0	177	0	3	0	0	4	0	0	0	59
Lane Group Flow (vph)	666	701	290	83	146	0	487	551	0	20	688	920
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)	53.0	53.0	53.0	14.8	14.8		35.0	60.7		2.4	29.1	82.1
Effective Green, g (s)	55.0	55.0	55.0	16.8	16.8		36.0	62.7		4.4	31.1	86.1
Actuated g/C Ratio	0.36	0.36	0.36	0.11	0.11		0.24	0.42		0.03	0.21	0.57
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)	592	600	558	190	197		408	1404		50	705	904
v/s Ratio Prot	0.41	c0.43		0.05	c0.08		c0.28	0.16		0.01	0.20	c0.37
v/s Ratio Perm			0.19									0.23
v/c Ratio	1.12	1.17	0.52	0.44	0.74		1.19	0.39		0.40	0.98	1.02
Uniform Delay, d1	48.0	48.0	37.6	62.6	65.0		57.5	30.8		72.0	59.5	32.4
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	76.4	92.8	0.9	1.6	14.0		108.9	0.2		5.2	27.7	34.4
Delay (s)	124.3	140.7	38.5	64.2	79.0		166.3	31.0		77.1	87.2	66.8
Level of Service	F	F	D	E	E		F	C		E	F	E
Approach Delay (s)		108.7			73.7			94.2			75.2	
Approach LOS		F			E			F			E	

Intersection Summary				
HCM Average Control Delay	92.1	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.09			
Actuated Cycle Length (s)	150.9	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	96.0%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
72: E Lk Sammamish Pkwy & SE Issaquah Fall City Rd. — Town Center Alt 4

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	3415		1711	3421	1531		1766	1531	1625	1632	1531
Flt Permitted	0.16	1.00		0.13	1.00	1.00		0.98	1.00	0.95	0.95	1.00
Satd. Flow (perm)	283	3415		238	3421	1531		1766	1531	1625	1632	1531
Volume (vph)	168	1185	14	9	785	926	13	20	79	677	11	279
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)	187	1317	16	10	872	1029	14	22	88	752	12	310
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	78	0	0	233
Lane Group Flow (vph)	187	1332	0	10	872	1029	0	36	10	376	388	77
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)	40.3	34.6		29.0	28.3	80.6		7.2	7.2	18.1	18.1	18.1
Effective Green, g (s)	42.3	36.6		33.0	30.3	80.6		9.2	9.2	20.1	20.1	20.1
Actuated g/C Ratio	0.52	0.45		0.41	0.38	1.00		0.11	0.11	0.25	0.25	0.25
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)	308	1551		147	1286	1531		202	175	405	407	382
v/s Ratio Prot	0.07	c0.39		0.00	0.25			0.02		0.23	c0.24	
v/s Ratio Perm	0.25			0.03		c0.67			0.01			0.05
v/c Ratio	0.61	0.86		0.07	0.68	0.67		0.18	0.06	0.93	0.95	0.20
Uniform Delay, d1	12.9	19.7		16.4	21.1	0.0		32.3	31.8	29.5	29.8	23.9
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	3.4	5.0		0.2	1.4	2.4		0.4	0.1	27.2	32.6	0.3
Delay (s)	16.3	24.7		16.6	22.5	2.4		32.7	32.0	56.8	62.4	24.2
Level of Service	B	C		B	C	A		C	C	E	E	C
Approach Delay (s)		23.6			11.6			32.2			49.4	
Approach LOS		C			B			C			D	

Intersection Summary				
HCM Average Control Delay	24.9	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.82			
Actuated Cycle Length (s)	80.6	Sum of lost time (s)	3.0	
Intersection Capacity Utilization	72.2%	ICU Level of Service	C	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
80: SE Issaquah Fall City Rd. & Issaquah-Pine Lk Rd — Town Center Alt 4

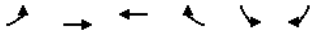
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	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	3403		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	3403		1711	3421	1531	1711	3421	1531
Volume (vph)	592	737	0	193	579	22	8	988	699	16	359	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)	658	819	0	214	643	24	9	1098	777	18	399	500
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	65	0	0	85
Lane Group Flow (vph)	658	819	0	214	664	0	9	1098	712	18	399	415
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)	17.6	22.0		16.6	21.0		0.7	29.0	45.6	1.5	29.8	47.4
Effective Green, g (s)	19.1	23.5		18.1	22.5		2.2	30.5	48.6	3.0	31.3	50.4
Actuated g/C Ratio	0.22	0.27		0.21	0.26		0.03	0.35	0.56	0.03	0.36	0.58
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)	728	923		690	879		43	1198	854	59	1229	939
v/s Ratio Prot	0.20	c0.24		0.06	c0.20		0.01	c0.32	0.17	c0.01	0.12	0.10
v/s Ratio Perm									0.29			0.17
v/c Ratio	0.90	0.89		0.31	0.76		0.21	0.92	0.83	0.31	0.32	0.44
Uniform Delay, d1	33.1	30.5		29.2	29.8		41.6	27.1	15.9	41.0	20.2	10.4
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	14.6	10.3		0.3	3.7		2.4	10.9	7.0	2.9	0.2	0.3
Delay (s)	47.7	40.8		29.5	33.5		44.0	38.0	22.9	44.0	20.4	10.7
Level of Service	D	D		C	C		D	D	C	D	C	B
Approach Delay (s)		43.9			32.5			31.8			15.6	
Approach LOS		D			C			C			B	

Intersection Summary				
HCM Average Control Delay	32.5	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	87.1	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	77.0%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
85: Issaquah Beaver Lake Rd. & Duthie Hill Rd — Town Center Alt 4

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	0.49	1.00	1.00	1.00
Satd. Flow (perm)	1711	1531	888	1801	1801	1531
Volume (vph)	94	47	103	626	381	88
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	104	52	114	696	423	98
RTOR Reduction (vph)	0	43	0	0	0	25
Lane Group Flow (vph)	104	9	114	696	423	73
Turn Type		Perm	Perm			Perm
Protected Phases	4			2	6	
Permitted Phases		4	2			6
Actuated Green, G (s)	9.3	9.3	45.6	45.6	45.6	45.6
Effective Green, g (s)	10.3	10.3	46.6	46.6	46.6	46.6
Actuated g/C Ratio	0.16	0.16	0.74	0.74	0.74	0.74
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)	280	251	658	1334	1334	1134
v/s Ratio Prot	c0.06			c0.39	0.23	
v/s Ratio Perm		0.01	0.13			0.05
v/c Ratio	0.37	0.03	0.17	0.52	0.32	0.06
Uniform Delay, d1	23.4	22.1	2.4	3.4	2.8	2.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1	0.6	1.5	0.6	0.1
Delay (s)	24.3	22.2	3.0	4.9	3.4	2.3
Level of Service	C	C	A	A	A	A
Approach Delay (s)	23.6			4.6	3.2	
Approach LOS	C			A	A	

Intersection Summary				
HCM Average Control Delay	6.1	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.49			
Actuated Cycle Length (s)	62.9	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	44.8%	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	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	1732		1711	1531
Flt Permitted	0.49	1.00	1.00		0.95	1.00
Satd. Flow (perm)	883	1801	1732		1711	1531
Volume (vph)	337	332	267	104	38	191
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	374	369	297	116	42	212
RTOR Reduction (vph)	0	0	24	0	0	164
Lane Group Flow (vph)	374	369	389	0	42	48
Turn Type	Perm					Perm
Protected Phases		4	8		6	
Permitted Phases	4					6
Actuated Green, G (s)	21.8	21.8	21.8		7.5	7.5
Effective Green, g (s)	22.8	22.8	22.8		8.5	8.5
Actuated g/C Ratio	0.61	0.61	0.61		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)	540	1101	1059		390	349
v/s Ratio Prot		0.20	0.22		0.02	
v/s Ratio Perm	c0.42					c0.03
v/c Ratio	0.69	0.34	0.37		0.11	0.14
Uniform Delay, d1	4.9	3.5	3.6		11.4	11.5
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	3.8	0.2	0.2		0.1	0.2
Delay (s)	8.7	3.7	3.9		11.5	11.7
Level of Service	A	A	A		B	B
Approach Delay (s)		6.2	3.9		11.6	
Approach LOS		A	A		B	

Intersection Summary				
HCM Average Control Delay	6.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	37.3	Sum of lost time (s)	6.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
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	0.23	1.00	1.00	1.00
Satd. Flow (perm)	1711	1531	427	1891	1711	1454
Volume (vph)	64	36	70	355	787	86
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	71	40	78	394	874	96
RTOR Reduction (vph)	0	35	0	0	0	20
Lane Group Flow (vph)	71	5	78	394	874	76
Turn Type		Perm	pm+pt			Perm
Protected Phases	8		5	2	6	
Permitted Phases		8	2			6
Actuated Green, G (s)	8.3	8.3	68.1	66.1	56.7	56.7
Effective Green, g (s)	10.3	10.3	70.1	70.1	60.7	60.7
Actuated g/C Ratio	0.12	0.12	0.81	0.81	0.70	0.70
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)	204	183	448	1534	1202	1022
v/s Ratio Prot	c0.04		0.01	c0.21	c0.51	
v/s Ratio Perm		0.00	0.13			0.05
v/c Ratio	0.35	0.03	0.17	0.26	0.73	0.07
Uniform Delay, d1	35.0	33.6	9.3	1.9	7.8	4.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.1	0.2	0.1	2.2	0.0
Delay (s)	36.0	33.7	9.5	2.0	10.0	4.1
Level of Service	D	C	A	A	B	A
Approach Delay (s)	35.2			3.3	9.4	
Approach LOS	D			A	A	

Intersection Summary				
HCM Average Control Delay	9.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	86.4	Sum of lost time (s)	6.0
Intersection Capacity Utilization	59.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
105: NE 25th Way & 228th Ave SE — Town Center Alt 4

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	0.95		1.00	1.00	
Flt Protected		1.00			0.97		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1605			1656		1711	1710		1711	1801	
Flt Permitted		1.00			0.81		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1605			1371		1711	1710		1711	1801	
Volume (vph)	0	8	33	81	6	59	54	265	134	100	486	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	90	7	66	60	294	149	111	540	0
RTOR Reduction (vph)	0	30	0	0	48	0	0	24	0	0	0	0
Lane Group Flow (vph)	0	16	0	0	115	0	60	419	0	111	540	0
Turn Type	Perm			Perm			Prot			Prot		
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4								
Actuated Green, G (s)		9.0			9.0		3.0	27.7		3.0	27.7	
Effective Green, g (s)		11.0			11.0		5.0	30.3		5.0	30.3	
Actuated g/C Ratio		0.20			0.20		0.09	0.55		0.09	0.55	
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)		319			273		155	937		155	987	
v/s Ratio Prot		0.01					0.04	0.25		c0.06	c0.30	
v/s Ratio Perm					c0.08							
v/c Ratio		0.05			0.42		0.39	0.45		0.72	0.55	
Uniform Delay, d1		17.9			19.4		23.7	7.5		24.5	8.1	
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.1			1.1		1.6	0.3		14.6	0.6	
Delay (s)		18.0			20.4		25.3	7.8		39.0	8.7	
Level of Service		B			C		C	A		D	A	
Approach Delay (s)		18.0			20.4			9.9			13.9	
Approach LOS		B			C			A			B	

Intersection Summary				
HCM Average Control Delay	13.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.54			
Actuated Cycle Length (s)	55.3	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	54.8%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
110: NE 12th Place & 228th Ave SE — Town Center Alt 4

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	3392	
Flt Permitted	0.99		0.95	1.00	1.00	
Satd. Flow (perm)	1633		1711	3421	3392	
Volume (vph)	16	79	131	693	605	36
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	18	88	146	770	672	40
RTOR Reduction (vph)	81	0	0	0	2	0
Lane Group Flow (vph)	25	0	146	770	710	0
Turn Type			Prot			
Protected Phases	8		5	2	6	
Permitted Phases						
Actuated Green, G (s)	6.3		14.3	93.7	74.4	
Effective Green, g (s)	8.3		16.3	95.7	76.4	
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)	123		254	2976	2356	
v/s Ratio Prot	c0.02		c0.09	0.23	c0.21	
v/s Ratio Perm						
v/c Ratio	0.20		0.57	0.26	0.30	
Uniform Delay, d1	47.7		43.6	1.2	6.5	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	0.8		3.1	0.2	0.3	
Delay (s)	48.5		46.8	1.4	6.8	
Level of Service	D		D	A	A	
Approach Delay (s)	48.5			8.6	6.8	
Approach LOS	D			A	A	

Intersection Summary				
HCM Average Control Delay	10.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.34			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	40.9%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
112: NE 8th Street & 228th Ave SE — Town Center Alt 4

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	289	99	51	320	114	167	666	156	99	555	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)	53	321	110	57	356	127	186	740	173	110	617	34
RTOR Reduction (vph)	0	0	63	0	0	77	0	0	85	0	3	0
Lane Group Flow (vph)	53	321	47	57	356	50	186	740	88	110	648	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	26.5	42.7	7.4	27.2	38.5	16.2	44.5	51.9	11.3	39.6	
Effective Green, g (s)	8.3	28.5	46.7	9.4	29.6	42.9	18.2	46.8	56.2	13.3	41.9	
Actuated g/C Ratio	0.08	0.26	0.42	0.09	0.27	0.39	0.17	0.43	0.51	0.12	0.38	
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	467	692	146	485	639	283	1455	824	205	1280	
v/s Ratio Prot	0.03	0.18	0.01	c0.03	c0.20	0.01	c0.11	c0.22	0.01	0.06	0.19	
v/s Ratio Perm			0.02			0.02			0.05			
v/c Ratio	0.41	0.69	0.07	0.39	0.73	0.08	0.66	0.51	0.11	0.54	0.51	
Uniform Delay, d1	48.5	36.7	18.8	47.6	36.6	21.1	43.0	23.2	13.9	45.5	26.1	
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	4.2	0.0	1.7	5.7	0.1	5.4	1.3	0.1	2.7	1.4	
Delay (s)	50.6	40.9	18.8	49.3	42.3	21.2	48.4	24.4	14.0	48.1	27.5	
Level of Service	D	D	B	D	D	C	D	C	B	D	C	
Approach Delay (s)		37.0			38.1			26.8			30.5	
Approach LOS		D			D			C			C	

Intersection Summary				
HCM Average Control Delay	31.6	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.57			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	59.9%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
117: E Main Street & 228th Ave SE — Town Center Alt 4

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	3497		1711	3407	
Flt Permitted	0.73	1.00		0.74	1.00		0.95	1.00		0.25	1.00	
Satd. Flow (perm)	1323	1531		1325	1531		1753	3497		450	3407	
Volume (vph)	18	0	30	23	0	31	28	948	18	23	687	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	33	26	0	34	31	1053	20	26	763	22
RTOR Reduction (vph)	0	31	0	0	32	0	0	0	0	0	1	0
Lane Group Flow (vph)	20	2	0	26	2	0	31	1073	0	26	784	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)	87	100		87	100		116	2801		443	2679	
v/s Ratio Prot		0.00			0.00		c0.02	c0.31		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		0.27	0.38		0.06	0.29	
Uniform Delay, d1	48.8	48.1		49.0	48.1		48.8	3.1		1.6	3.3	
Progression Factor	1.00	1.00		1.00	1.00		0.99	0.93		1.00	1.00	
Incremental Delay, d2	1.4	0.1		1.9	0.1		1.2	0.4		0.1	0.3	
Delay (s)	50.1	48.2		50.9	48.2		49.4	3.3		1.7	3.5	
Level of Service	D	D		D	D		D	A		A	A	
Approach Delay (s)		48.9			49.4			4.6			3.5	
Approach LOS		D			D			A			A	

Intersection Summary				
HCM Average Control Delay	6.6	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.36			
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	41.4%	ICU Level of Service	A	
Analysis Period (min)	15			

c Critical Lane Group

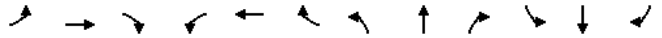
HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
118: SE 4th Street & 228th Ave SE — Town Center Alt 4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Grade (%)	-7%			-2%	0%	
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)	1770	1584	1728	3455	3393	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1770	1584	1728	3455	3393	
Volume (vph)	42	74	79	896	671	39
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	47	82	88	996	746	43
RTOR Reduction (vph)	0	75	0	0	2	0
Lane Group Flow (vph)	47	7	88	996	787	0
Turn Type		Perm	Prot			
Protected Phases	8		5	2	6	
Permitted Phases	4	8				
Actuated Green, G (s)	6.9	6.9	9.4	92.1	77.7	
Effective Green, g (s)	9.9	9.9	11.4	94.1	79.7	
Actuated g/C Ratio	0.09	0.09	0.10	0.86	0.72	
Clearance Time (s)	6.0	6.0	5.0	5.0	5.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	159	143	179	2956	2458	
v/s Ratio Prot	c0.03		c0.05	c0.29	0.23	
v/s Ratio Perm		0.00				
v/c Ratio	0.30	0.05	0.49	0.34	0.32	
Uniform Delay, d1	46.8	45.8	46.6	1.6	5.4	
Progression Factor	1.00	1.00	1.00	1.00	0.55	
Incremental Delay, d2	1.0	0.2	2.1	0.3	0.3	
Delay (s)	47.8	45.9	48.7	1.9	3.3	
Level of Service	D	D	D	A	A	
Approach Delay (s)	46.6			5.7	3.3	
Approach LOS	D			A	A	

Intersection Summary			
HCM Average Control Delay	7.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
120: SE 8th St. & 228th Ave SE — Town Center Alt 4



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)		1729			1819	1546				1694	2879	
Flt Permitted		0.80			1.00	1.00				0.73	1.00	
Satd. Flow (perm)		1430			1819	1546				1303	2879	
Volume (vph)	27	16	0	0	12	63	0	0	0	87	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)	30	18	0	0	13	70	0	0	0	97	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	13	70	0	0	0	97	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				1147	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	0.05				0.08	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			46.5	0.2				1.2	1.1	
Level of Service		D			D	A				A	A	
Approach Delay (s)		49.5			7.4			0.0			1.2	
Approach LOS		D			A			A			A	

Intersection Summary			
HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.11		
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

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
125: SE 20th Street & 228th Ave SE — Town Center Alt 4

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)	34	0	173	0	0	0	171	1267	0	0	917	58
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)	38	0	192	0	0	0	190	1408	0	0	1019	64
RTOR Reduction (vph)	0	0	172	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	38	20	0	0	0	190	1408	0	0	1080	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)		8.6	8.6				17.2	89.8			67.0	
Effective Green, g (s)		11.2	11.2				19.8	92.8			70.0	
Actuated g/C Ratio		0.10	0.10				0.18	0.84			0.64	
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)		174	156				308	2886			2190	
v/s Ratio Prot							c0.11	c0.41			0.31	
v/s Ratio Perm		0.02	0.01									
v/c Ratio		0.22	0.13				0.62	0.49			0.49	
Uniform Delay, d1		45.4	44.9				41.6	2.3			10.6	
Progression Factor		1.00	1.00				1.00	1.00			1.00	
Incremental Delay, d2		0.6	0.4				3.6	0.6			0.8	
Delay (s)		46.0	45.3				45.3	2.9			11.4	
Level of Service		D	D				D	A			B	
Approach Delay (s)		45.4			0.0			7.9			11.4	
Approach LOS		D			A			A			B	

Intersection Summary			
HCM Average Control Delay	12.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
127: SE 24th St. & 228th Ave SE — Town Center Alt 4

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	92	0	60	0	1392	154	95	1028	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	102	0	67	0	1547	171	106	1142	0
RTOR Reduction (vph)	0	0	0	0	0	59	0	0	40	0	0	0
Lane Group Flow (vph)	0	0	0	0	102	8	0	1547	131	106	1142	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)					11.6	11.6		67.2	67.2	13.9	88.1	
Effective Green, g (s)					13.9	13.9		70.2	70.2	16.9	90.1	
Actuated g/C Ratio					0.13	0.13		0.64	0.64	0.15	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)					216	193		2183	977	263	2802	
v/s Ratio Prot					c0.06			c0.45		0.06	c0.33	
v/s Ratio Perm						0.01			0.09			
v/c Ratio					0.47	0.04		0.71	0.13	0.40	0.41	
Uniform Delay, d1					44.6	42.2		13.1	7.9	42.0	2.7	
Progression Factor					1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2					1.6	0.1		2.0	0.3	1.0	0.4	
Delay (s)					46.3	42.3		15.1	8.2	43.0	3.1	
Level of Service					D	D		B	A	D	A	
Approach Delay (s)		0.0			44.7			14.4			6.5	
Approach LOS		A			D			B			A	

Intersection Summary			
HCM Average Control Delay	12.9	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	58.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
130: Issaquah-Pine Lk Rd & 228th Ave SE — Town Center Alt 4

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	1727			1753	2721	1711	3421	1531	3319	1794	
Flt Permitted	0.43	1.00			0.49	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	776	1727			892	2721	1711	3421	1531	3319	1794	
Volume (vph)	141	148	55	172	57	596	40	557	222	536	494	12
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)	157	164	61	191	63	662	44	619	247	596	549	13
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	158	0	0	0
Lane Group Flow (vph)	157	210	0	0	254	662	44	619	89	596	562	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)	31.0	31.0			31.0	61.8	6.2	36.6	36.6	25.2	57.2	
Effective Green, g (s)	33.6	33.6			33.6	64.4	7.2	39.6	39.6	27.8	60.2	
Actuated g/C Ratio	0.31	0.31			0.31	0.59	0.07	0.36	0.36	0.25	0.55	
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)	237	528			272	1593	112	1232	551	839	982	
v/s Ratio Prot		0.12				0.24	0.03	c0.18		c0.18	c0.31	
v/s Ratio Perm	0.20				c0.28				0.06			
v/c Ratio	0.66	0.40			0.93	0.42	0.39	0.50	0.16	0.71	0.57	
Uniform Delay, d1	33.3	30.2			37.1	12.5	49.3	27.5	23.9	37.4	16.4	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00	1.00	0.94	0.90	
Incremental Delay, d2	6.8	0.5			37.0	0.2	2.3	1.5	0.6	2.8	2.3	
Delay (s)	40.1	30.7			74.1	12.7	51.6	29.0	24.5	38.1	17.1	
Level of Service	D	C			E	B	D	C	C	D	B	
Approach Delay (s)		34.5			29.7			28.9			27.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	29.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis — Committed Improvements 2006-2012
142: Klahanie Blvd. & Issaquah-Pine Lk Rd — Town Center Alt 4

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	3.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.89		1.00	0.89		1.00	1.00	0.85	1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1711	1599		1711	1607		1711	1801	1531	1762	1837	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1711	1599		1711	1607		1711	1801	1531	1762	1837	
Volume (vph)	18	14	42	156	16	41	88	1023	283	63	519	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)	20	16	47	173	18	46	98	1137	314	70	577	38
RTOR Reduction (vph)	0	44	0	0	40	0	0	0	37	0	1	0
Lane Group Flow (vph)	20	19	0	173	24	0	98	1137	277	70	614	0
Turn Type	Split			Split			Prot		Perm	Prot		
Protected Phases	8	8		4	4		5	2		1	6	
Permitted Phases									2			
Actuated Green, G (s)	6.4	6.4		16.5	16.5		9.6	85.1	85.1	3.8	79.3	
Effective Green, g (s)	8.4	8.4		18.5	18.5		12.6	88.1	88.1	6.8	82.3	
Actuated g/C Ratio	0.06	0.06		0.14	0.14		0.09	0.66	0.66	0.05	0.62	
Clearance Time (s)	5.0	5.0		5.0	5.0		6.0	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	3.0	
Lane Grp Cap (vph)	107	100		237	222		161	1186	1008	90	1130	
v/s Ratio Prot	0.01	c0.01		c0.10	0.02		c0.06	c0.63		c0.04	0.33	
v/s Ratio Perm									0.18			
v/c Ratio	0.19	0.19		0.73	0.11		0.61	0.96	0.27	0.78	0.54	
Uniform Delay, d1	59.5	59.5		55.3	50.4		58.2	21.2	9.5	62.8	14.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.8	0.9		10.7	0.2		6.4	16.9	0.1	33.5	0.5	
Delay (s)	60.3	60.4		66.0	50.7		64.6	38.1	9.7	96.2	15.4	
Level of Service	E	E		E	D		E	D	A	F	B	
Approach Delay (s)		60.4			61.8			34.0			23.7	
Approach LOS		E			E			C			C	

Intersection Summary			
HCM Average Control Delay	34.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	133.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Volume (veh/h)	70	63	88	57	104	87
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	78	70	98	63	116	97
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	457	129			161	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	457	129			161	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	85	92			92	
cM capacity (veh/h)	516	920			1418	

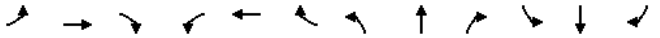
Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	148	161	212
Volume Left	78	0	116
Volume Right	70	63	0
cSH	651	1700	1418
Volume to Capacity	0.23	0.09	0.08
Queue Length 95th (ft)	22	0	7
Control Delay (s)	12.1	0.0	4.5
Lane LOS	B		A
Approach Delay (s)	12.1	0.0	4.5
Approach LOS	B		

Intersection Summary			
Average Delay		5.3	
Intersection Capacity Utilization		36.2%	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)	29	20	93	47	14	176
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	32	22	103	52	16	196
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	356	129			156	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	356	129			156	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	95	98			99	
cM capacity (veh/h)	635	920			1425	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	54	156	211
Volume Left	32	0	16
Volume Right	22	52	0
cSH	727	1700	1425
Volume to Capacity	0.07	0.09	0.01
Queue Length 95th (ft)	6	0	1
Control Delay (s)	10.4	0.0	0.6
Lane LOS	B		A
Approach Delay (s)	10.4	0.0	0.6
Approach LOS	B		

Intersection Summary			
Average Delay		1.7	
Intersection Capacity Utilization		30.8%	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)	103	11	122	8	11	4	106	152	12	10	298	114
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)	114	12	136	9	12	4	118	169	13	11	331	127

Direction, Lane #	EB 1	WB 1	NB 1	SB 1	SB 2
Volume Total (vph)	262	26	300	342	127
Volume Left (vph)	114	9	118	11	0
Volume Right (vph)	136	4	13	0	127
Hadj (s)	-0.19	0.00	0.09	0.04	-0.57
Departure Headway (s)	5.4	6.1	5.3	5.2	3.2
Degree Utilization, x	0.40	0.04	0.44	0.50	0.11
Capacity (veh/h)	605	476	631	655	1121
Control Delay (s)	12.0	9.4	12.5	13.3	6.6
Approach Delay (s)	12.0	9.4	12.5	11.5	
Approach LOS	B	A	B	B	

Intersection Summary				
Delay	11.9			
HCM Level of Service	B			
Intersection Capacity Utilization	60.6%	ICU Level of Service	B	
Analysis Period (min)	15			