



UNIVERSITY OF WASHINGTON

2018 SEATTLE CAMPUS MASTER PLAN

FINAL TRANSPORTATION DISCIPLINE REPORT

APPENDICES

JULY 2017



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APPENDIX A: GLOSSARY – DEFINITIONS OR DESCRIPTIONS

BMP – Bicycle Master Plan – A citywide plan for Seattle, the Bicycle Master Plan identifies priorities for investments to make improvements to bicycle facilities. (http://www.seattle.gov/transportation/bikemaster_materials.htm)

CMP – Campus Master Plan – The University of Washington’s Campus Master Plan guides development on campus and within the Major Institution Overlay (MIO), determining how the campus can grow in the coming years while minimizing impacts to the community. The most recent University of Washington CMP for the Seattle campus was completed in 2003 and is being updated for 2018.

CTR – Commute Trip Reduction – Washington’s Commute Trip Reduction Act adopted in 1991 encourages employers to reduce single occupant, drive alone behavior through incentives and other programs. The act passes regulations requiring local governments to develop programs that reduce drive alone trips and vehicle miles traveled to reduce traffic congestion, air pollution, and fuel consumption levels.

CUA – City University Agreement – An agreement between the City of Seattle and the University of Washington, signed in 1998 and updated in 2004, that defines maximum parking and peak period trip thresholds. Currently, the PM peak period (3–6 PM) trip cap is approximately 10,500 trips from the University District (U District), and approximately 8,500 trips from the University of Washington campus. The current AM peak period (7–9 AM) trip cap is approximately 10,100 inbound trips to the U District and approximately 7,900 inbound trips to the University of Washington campus. The maximum parking threshold is 12,300 spaces.

FMP – Freight Master Plan – The Draft Freight Master Plan is a citywide Seattle plan that identifies priorities for investments to make improvements to freight and loading facilities. (http://www.seattle.gov/transportation/freight_fmp.htm)

FTE – Full Time Equivalent – A Full Time Equivalent converts actual campus headcounts of students, faculty, and staff to a full time equivalency based on eight-hour days and a 40-hour work week.

GMA – Growth Management Act – Washington’s Growth Management Act establishes regulations for local governments to prepare plans that will track and manage growth and impacts on natural resources. The GMA also defines concurrency as a tool to ensure investments in infrastructure are in place to address the impacts of growth and development.

GSF – Gross Square Footage – Includes the entire building footprint in addition to walls and other non-usable space.

HCM – Highway Capacity Manual (HCM) – The Highway Capacity Manual defines methodology used to calculate level of service (LOS) for study area intersections and corridors. For this report, HCM 2000 methodology and HCM 2010 methodology were used. HCM 2000 was applied to intersections limited by HCM 2010’s inability to model five-legged intersections as well as intersections with restricted signal timing.

HCT – High Capacity Transit – High-capacity transit is intended to move more people than a car or standard bus, and typically has fewer stops, higher speeds, and more frequent service than local bus service.

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HOV – High Occupancy Vehicle – A high occupancy vehicle carries one driver and at least one other passenger.

ITS – Intelligent Transportation Systems – Technology that can prioritize modes and reduce overall delay for vehicles as well as optimize to meet key objectives such as moving people (for example prioritizing higher occupancy vehicles).

LOS – Level of Service – Traffic operations for an intersection or corridor can be described alphabetically with a range of LOS values (LOS A through F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. Intersection LOS incorporates intersection signal timing, signal phasing, channelization, traffic volumes, and pedestrian volumes for both signalized and unsignalized intersections, as applicable.

Move Seattle – A citywide strategic vision and levy for transportation investments in the City of Seattle.

MIO – Major Institution Overlay – The Major Institution Overlay is a boundary defined by the City of Seattle Land Use and Zoning Code, noting the extents of the University of Washington.

NEPA – National Environmental Policy Act – Enacted on January 1, 1970, the National Environmental Policy Act is a U.S. environmental law that promotes the enhancement of the environment.

OCC – One Center City – A coordinated and multimodal planning effort for the Downtown Seattle neighborhoods that includes assessment of the end of joint bus and light rail operations in the Downtown Seattle Transit Tunnel.

PBL – Protected Bike Lane – A protected bike lane separates bicycles from pedestrians and vehicles on a roadway, creating safe facilities for all modes of travel.

PMP – Pedestrian Master Plan – A Pedestrian Master Plan identifies priorities for investments to make improvements within the pedestrian realm. The City of Seattle’s Pedestrian Master Plan is in the process of being updated at the time of this writing. (http://www.seattle.gov/transportation/pedestrian_masterplan/)

SDOT – Seattle Department of Transportation – A division within City of Seattle government that is responsible for planning, managing, and delivering a high-quality transportation system for Seattle.

SEPA – State Environmental Policy Act – The National Environmental Policy Act is a state environmental process that identifies and analyzes environmental impacts from governmental decisions.

SOV – Single Occupancy Vehicle – A single occupancy vehicle carries one driver.

Synchro 9 – A software program that uses HCM methodology to evaluate intersection LOS and average vehicle delays.

TMP – Transit Master Plan – A Transit Master Plan identifies priorities for investments to make improvements to transit service and facilities. (<http://www.seattle.gov/transportation/docs/TMP/final/TMPSupplmtALL2-16FINAL.pdf>)

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TMP – Transportation (Demand) Management Program – A transportation management program provides strategies for limiting traffic impacts and promoting active communities by managing vehicle trips and parking, as well as accommodating transit and non-motorized travel modes.

TNC – Transportation Network Company – A Transportation Network Company includes companies such as Lyft and Uber that offer convenient transportation or mobility as a service that connects drivers and their private automobiles for hire through a web/app connection.

U-PASS – U-PASS Program – The University of Washington’s U-PASS Program provides students, faculty, and staff with subsidized access to transit. Participating local agencies include King County Metro, Sound Transit, Community Transit, Pierce Transit, Kitsap Transit, and Everett Transit, as well as the King County Water Taxis and Seattle Streetcar. Unlimited rides on these transit agencies are free with the Student U-PASS, and discounts for Zipcar, car2go, and Pronto memberships are also included. The Student U-PASS includes an \$80 per student mandatory fee incorporated into quarterly tuition. The University’s Employee U-PASS includes the same benefits as the Student U-PASS for \$150 per calendar quarter.

UWTS – University of Washington Transportation Services – A University service that, in part, administers and monitors transportation demand management and operation programs such as the U-PASS.

V/C – Volume to Capacity ratio – A ratio typically relating demand to capacity.

APPENDIX B: METHODOLOGY AND ASSUMPTIONS

This section provides technical details, of the methodology for evaluating the proposed alternatives effects on transportation systems.

It includes:

- A description of the study area and context
- A discussion of measures of effectiveness and thresholds
- Horizon Years, Background Improvements, and Analysis Periods
- Trip Generation by Mode
- Analysis Methods and Assumptions for each mode (Pedestrians, Bicycle, Transit, Auto and Freight) including:
 - Data Collected
 - Methods and Assumptions for evaluating each Measure of Effectiveness (MOE)
 - Estimation of Background Growth
 - Trip Generation, Distribution, Assignment
 - Analysis Results

1 STUDY AREA AND CONTEXT

To evaluate impacts of an updated Campus Master Plan, the affected area is assumed to be consistent with the City-University Agreement¹ (CUA), which defines the primary and secondary impact zones associated with the evaluation and monitoring of the transportation related impacts of the University. Thus, the primary and secondary impacts zone boundaries serve as the project study limits. As the names suggest, growth at the University of Washington is expected to have greater impacts in the primary impact zone with lesser impacts in the secondary impact zone. For this reason, the analysis conducted in the primary impact zone is more detailed, while analysis in the secondary impact zone will be less detailed. The boundaries are shown in Figure 1.1.

¹ 1998, amended November 29, 2004

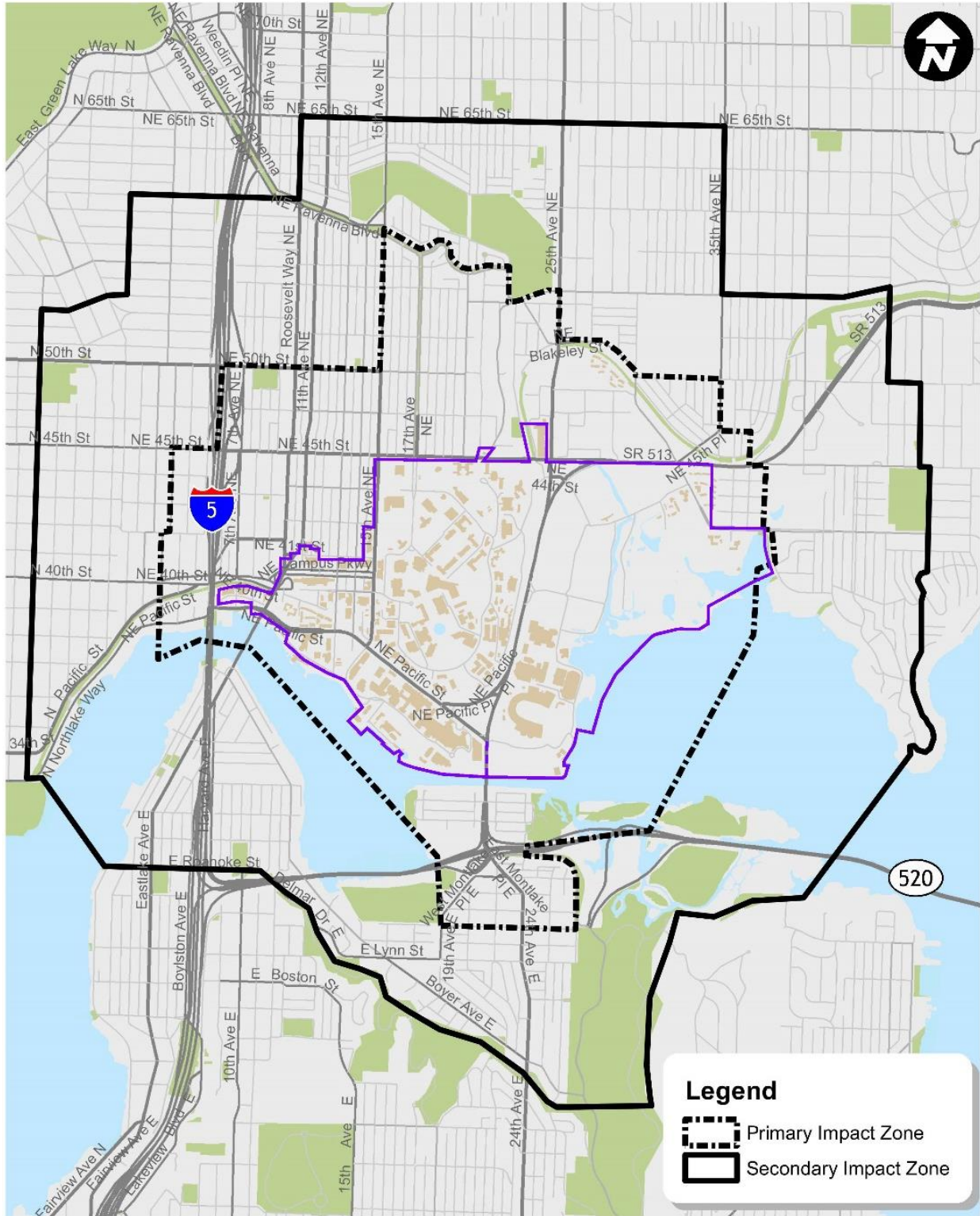


Figure 1.1 University of Washington Primary/Secondary Transportation Impact Zones

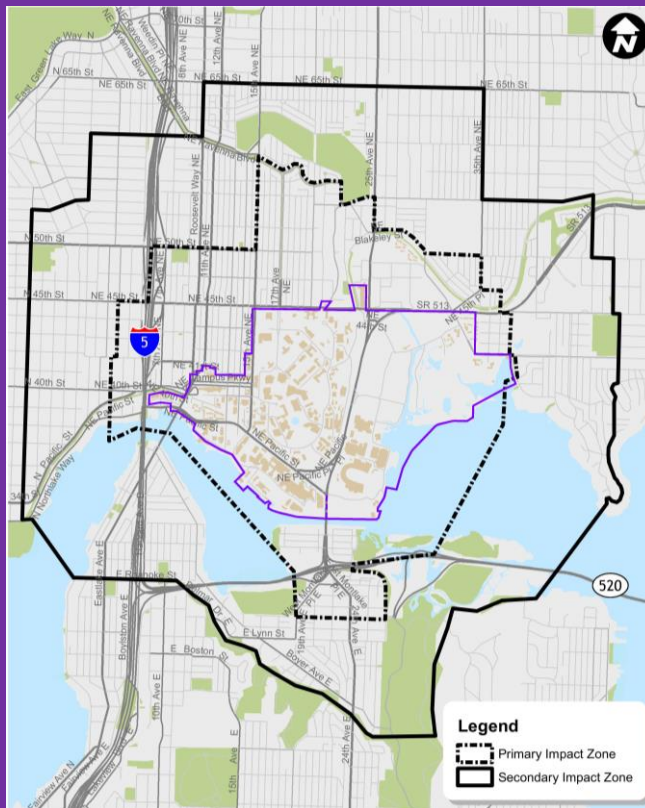
2 MEASURES OF EFFECTIVENESS AND THRESHOLDS

Impact to transportation systems is generally assessed as a comparison between the No Action Alternative (with permitted development and background growth) and each action alternative (Alternatives 1-4). As noted in Section 1 Introduction, the CMP action alternatives consist of up to 6 million gross square feet of net new development allocated to different sectors of the campus. Even though the amount of development is the same between all action alternatives, the impacts may vary for transportation depending on where development occurs on campus (i.e., depending on sector development). The City has a variety of measurements for assessing impact including screenlines as part of concurrency and the comprehensive plan. A variety of performance measures are used to analyze the effects and impacts of the proposed CMP alternatives. These performance measures are defined for the Primary and Secondary Impact zones, apply to different transportation modes with different potential thresholds, and may measure cumulative impacts.

Primary and Secondary Impact zones – As noted in Section 2.1 Study Area, the CUA identifies a Primary and Secondary Impact Zone to be monitored related to campus growth and development. The Primary Impact zone includes within it an area also defined as the Major Institutions Overlay or MIO. The impact zones suggest that impacts dissipate as you get farther away from the campus. It is expected that there will be greater impacts identified in the Primary Impact zone and thus more fine-grained analysis is conducted within this area. In the Secondary Impact zone impacts are expected to dissipate and thus more aggregate analysis is applied.

Thresholds – For some performance areas there are defined and established measures of impact or thresholds such as intersection operational analysis (Level of Service), demand versus

Major Institution Overlay (MIO): The Major Institution Overlay is a boundary defined by the City of Seattle Land Use and Zoning Code, noting the extents of the University of Washington. It is shown below in reference to the Primary and Secondary Impact Zones



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capacity, and parking utilization. Thresholds specific to the University are described in the CUA and include maximum allowable caps for vehicle trips to the University facilities in the MIO (University Cap), to University area facilities (U District Cap) and University parking facilities in the MIO (Parking Cap). Where this is the case the thresholds are noted.

The measures applied in this Transportation Discipline Report are summarized in Table 2.1.

**Table 2.1
PERFORMANCE MEASURES**

Mode	Measure	Period Evaluated	Description	Impact Zone	Threshold
Pedestrian	Proportion of Development within 1/4 mile of Multifamily Housing	All Day	Measures amount/proportion of development in a quarter mile proximity to multifamily housing	MIO/ Primary	Alternative comparison only
	Proportion of Development within 1/4 mile of University of Washington Residence Halls	All Day	Measures amount/proportion of development in a quarter mile proximity to University of Washington Residence Halls housing	MIO/ Primary	Alternative comparison only
	Quality of Pedestrian Environment	All Day	Qualitative assessment of the existing walking environment based on the Landscape Framework Plan	Primary/ Secondary	Information only
	Pedestrian Screenline Demand and Capacity	PM Peak Hour	Quantitative assessment of existing and future capacity and demand for screenlines along 15th, 45th, Montlake, and Pacific	MIO/ Primary	Demand to Capacity
	Pedestrian Station/Stop area LOS	PM Peak Hour	Capacity of the station and stop (and HUB) areas to accommodate pedestrians/waiting customers	MIO/Primary	Level of Service
Pedestrian & Bikes	Burke-Gilman Trail Capacity	PM Peak Hour	Pedestrian & bicycle level of service analysis based on findings from the Burke-Gilman Trail Corridor Study	MIO/ Primary	Information only
Bike	Bicycle Parking & Utilization	Mid-day Peak	Bicycle parking utilization	MIO/ Primary	Information only
	Bike Share Utilization and Distribution	All day	Pronto Travel Patterns		Information only
	Quality of Bicycle Environment	All Day	Qualitative assessment of bicycle environment	Primary/ Secondary	Information only

Mode	Measure	Period Evaluated	Description	Impact Zone	Threshold
			based on demand, network connectivity, and safety		
Transit	Proportion of Development within 1/4 mile of Rapid Ride	All Day	Measures amount/proportion of new development in a quarter mile proximity to proposed rapid ride	MIO/ Primary	Alternative comparison only
	Proportion of Development within 1/2 mile of Light Rail	All Day	Measures amount/proportion of new development in a half mile proximity to proposed rapid ride	MIO/ Primary	Alternative comparison only
	Transit travel times and delay	PM Peak hour	Same as arterial operations validated and normed with AVL data		Alternative Comparison
	Transit screenline demands and Capacity	PM Peak hour	Estimation of Transit passengers		Transit LOS
	Stop Capacity	PM Peak Hour	Capacity of the stop area (or curb length) to accommodate bus activity	Primary	Metro Stop Capacity
Auto/Vehicles	Arterial Operations	PM Peak Hour	Measures travel times for various modes along adjacent corridors	Primary/ Secondary	Speed Travel Time
	Intersection Operations	PM Peak Hour	Measures delay and operations at intersections	Primary/ Secondary	Intersection Capacity and LOS
	Comp Plan Screenlines	PM Peak Hour	Measures aggregate demand crossing a screenline as compared to the capacity	Primary/ Secondary	Comp Plan Screenline Capacity
	Secondary Impact Zone Analysis	PM Peak Hour	Measures change in volumes due to University development in the Secondary Impact Zone	Secondary	Baseline to development delta comparison and operational analysis
	University Trip Cap ¹	AM Peak and PM Peak hour	Measures aggregate number of vehicle trips assumed to enter / exit	MIO	Trip Cap ¹

Mode	Measure	Period Evaluated	Description	Impact Zone	Threshold
			parking areas on campus within the MIO		
	University District Trip Cap ¹	AM Peak and PM Peak hour	Measures aggregate number of vehicle trips assumed to enter / exit campus parking areas in the University District	MIO/ Primary	Trip Cap ¹
Auto Parking	Parking Supply & Utilization	Mid-day	Measures the amount parking supply needs to accommodate alternative development scenarios assuming an 85% parking utilization	MIO	85% Utilization
	Parking Cap ¹	Mid-day	Maximum number of stalls permitted within the MIO	MIO	Parking Cap ¹

1. Caps as defined by the CUA agreement
2. All vehicles include vehicles, carpools, freight, and transit

CUA (City-University Agreement): An agreement between the City of Seattle and the University of Washington, that among other things defines maximum parking and peak period trip thresholds.

Cordon: A hypothetical boundary where trips are measured crossing in and or out of that boundary is measured and compared.

Screenline: A hypothetical line where the aggregate of trips crossing the line is measured and compared.

3 HORIZON YEAR/BACKGROUND IMPROVEMENTS/ANALYSIS PERIODS

The Campus Master Plan reflects a 10-year planning horizon with a base year for development to begin in 2018 and extending to 2028. A general list of the City and regional investments anticipated between today (2016) and 2028 are noted in Table 3.1. These investments are considered as part of the background conditions for the different transportation modes noted in the introduction of this report.

Guiding future city infrastructure investments, the City of Seattle has developed modal plans (Pedestrian Mobility Plan, Bike Mobility Plan, Transit Mobility Plan, and Freight Mobility Plan) that identify projects and corridor needs. These plans support an aspirational long range, often 20-year, horizon and may not include implementation timelines nor details on how infrastructure could change.

Additionally, King County Metro has developed Metro Connects, their long-range plan for transit investments to the year 2040. Sound Transit completed work on their Long-Range Transit Plan, ST 3, which identifies the next range of transit investments. Finally, Community Transit is updating their long-range transit plan, which continues the service concept of delivering Seattle bound passengers to Sound Transit's Link light rail as it extends to Lynnwood and Everett.

OCC (One City Center) – In partnership with the Downtown Seattle Association, King County Metro and Sound Transit, the City of Seattle are evaluating mobility options for the 10 City Center neighborhoods (<https://www.seattle.gov/transportation/onecentercity.htm>). As part of this study the City and their partners are evaluating options for advancing the end of joint bus and rail operations in the Downtown Seattle Transit Tunnel as early as the fall of 2018. Ending joint operations has been planned to accommodate expansion of light rail service at the same time as light rail is extended to Northgate in 2021. Ending joint operations in 2018 would accommodate the Convention Place station closure needed to support expansion of the Washington State Convention Center. Options being studied as part of ending joint operations include the re-routing of transit service from the eastside currently using SR 520 and bound for downtown and the tunnel to the University of Washington Light Rail station located adjacent to University of Washington's Husky Stadium. This re-routing may have the impact of increasing transit passenger travel time, resulting in potentially reducing ridership. Additionally, this rerouting increases passenger and bus interactions around the station including adding up to 6 routes with an increase of over 40 buses during peak hours. It should be noted that this condition may be temporary and that as the City evaluates this option the University will work with the City to evaluate impacts and potential solutions to ensure safe and efficient transit transfers.

Mobility Hubs – As part of the development of the OCC multi-modal planning effort, the City is exploring the development and establishment of Shared Mobility Hubs, where planning for modes is integrated to meet City objectives of reducing the proportion of drive alone trips and improve the efficiency of connecting people to transit. Common elements include connections and amenities, travel experience, demonstrations and partnerships. The City is in the process of establishing how these will function, what constitutes a hub and how they will be developed, evaluated and monitored.

**Table 3.1
BACKGROUND IMPROVEMENTS BY 2028**

Type of Improvements	Description
Pedestrians	<p>New multiuse trail across the Montlake Cut connecting the University of Washington with the Washington Park Arboretum as part of the Move Seattle Levy.</p> <p>Continued modifications of the regional Burke Gilman trail through the University of Washington.</p> <p>Green streets are intended to enhance and expand public open space give priority to pedestrian circulation and open space over other transportation uses. Green streets use treatments that may include sidewalk widening, landscaping, traffic calming, and other pedestrian-oriented features. Brooklyn Avenue, NE 43rd Street and NE 42nd Street are designated green streets in the University District.</p>
Bicycles	<p>As part of the Move Seattle Levy, protected bicycle lanes (PBL) on N 50th Street, 35th Avenue NE and bicycle lanes on Brooklyn Ave N are proposed. PBLs have also been identified along 15th Avenue; however, concepts have not been developed, making it unclear how these lanes would be implemented. PBLs have not been identified in the Seattle Bicycle Master Plan 2016-2020 Implementation Plan.</p>
Transit	<p>The Seattle Transit Master Plan identifies Multimodal Transit Corridor enhancements along Roosevelt Way NE/11th Avenue NE/Eastlake Avenue NE, 15th Avenue NE/NE Pacific Street/23rd Avenue NE (extension of Montlake) and Market Street/NE 45th Street.</p> <p>Completion of Sound Transit 2 extension of Link Light Rail from the University of Washington Station to Lynnwood including an additional light rail station near campus (University District at Brooklyn Avenue).</p> <p>Expansion of King County Metro Express, Frequent/Rapid Ride and Local service identified in Metro Connects the King County Metro Long Range Plan.</p> <p>The extension of Sound Transit’s light rail extension north to Lynnwood by 2023 would result in the end of redundant direct bus service from Snohomish County to University District, currently provided by Community Transit.</p>
Vehicle	<p>A second Montlake Boulevard Bascule Bridge has been identified as part of the SR 520 Bridge Replacement, which is funded as part of the Connecting Washington Partners “Rest of the West SR 520” project and is expected to be completed by 2028. That project also provides a new lid over SR 520 at Montlake with new transit stops.</p>
Freight	<p>The draft Seattle Freight Master Plan includes designation of a network prioritized for use by freight. This plan identifies 45th Street, Pacific Street, and Montlake Avenue, and the Roosevelt 11th Avenue couplet as Minor Truck Streets. There are not planned infrastructure investments identified in the project area.</p>

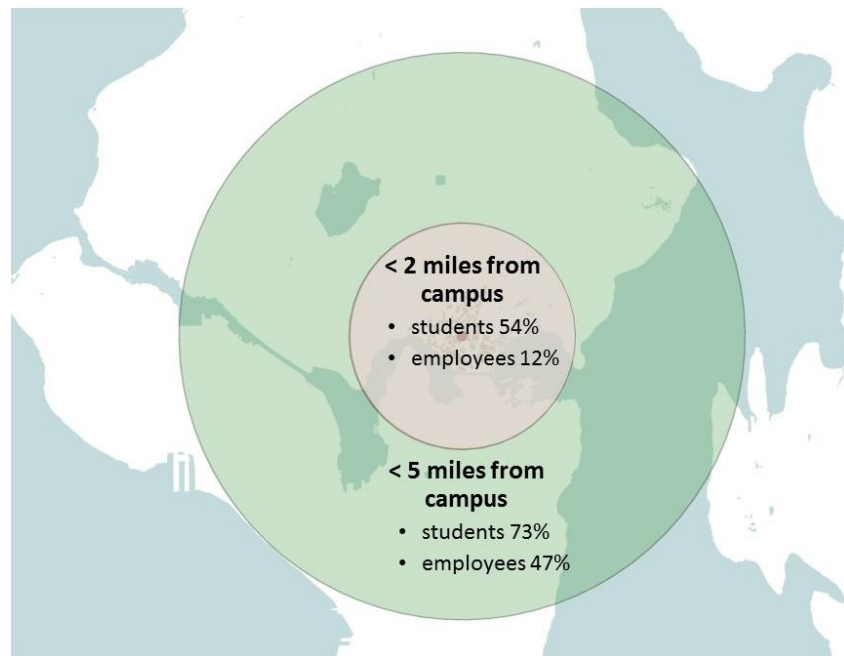
Source: State Route 520 Bridge Replacement and HOV Project High Capacity Transit Plan (2008), King County Metro Draft Long-Range Plan Summary (2016), Sound Transit 2 (2008), City of Seattle Draft Pedestrian Master Plan (2016), City of Seattle Bicycle Master Plan (2015), City of Seattle Transit Master Plan (2016), and City of Seattle Draft Freight Master Plan, U District Green Streets Concept Plan (2015).

4 CAMPUS TRANSPORTATION ANALYSIS CONTEXT

4.1 TRAVEL PATTERNS

The campus is a unique environment as a large number of students live near and on campus. General distribution patterns for students, faculty, and staff were estimated based on the City Travel Demand Model, census data, and campus surveys.

Data from the University of Washington indicates that more than half of the students and over 10 percent of the employees (faculty and staff) currently live within 2 miles of the campus, as shown in Figure 4.1. These amounts increase to almost 75 percent for students and almost half of employees when the distance increased to 5 miles. The 2035 City of Seattle travel demand model provides distribution patterns based on regional growth, changing modes, and expansion of transit.



Source: Transpo 2016.

Figure 4.1 Proportion of Students and Employees within 5 Miles of Campus

Information from the City of Seattle Comprehensive Plan (Seattle 2035) travel demand model suggests a distribution of trips as noted below:

4.2 OTHER TRENDS

Other assumptions that support this transportation analysis include:

Technology	Effectiveness and Impact for the UW CMP
<p>Changing Behavior of Millennials – Changing travel behavior among millennials (defined as those reaching adulthood in the early 21st Century) suggests this generation may be choosing alternatives to driving alone for travel. A study by the University of Michigan Transportation Research Institute indicates that driver licensing for teens and young adults is declining (for example the number of 19 year olds with driver’s licenses dropped from 87% in 1983 to 69% today¹)</p>	<p><i>This trend may result in an overall increased dependence on shared use mobility options in lieu of auto ownership and may increase demand for transit and other modes, while diminishing drive alone modes. As noted below, increased dependence on shared use mobility is emerging. While overall auto ownership may decline, increased use of automobiles by Transportation Network Companies (TNC)s may increase and compete with transit.</i></p>
<p>Smart Traffic Signal Technology – Traffic signal operations and control are being improved through better real time information, data fusion that improves understanding of travel patterns, and improved operations of traffic signals to better respond to actual traffic patterns and vehicle types. The City of Seattle owns, manages and operates traffic signals around the City and would take the lead in implementing new adaptive signal control technology.</p>	<p><i>This technology is being piloted as part of the Next Generation ITS (Intelligent Transportation System) plans of the City of Seattle. This technology can prioritize modes and reduce overall delay for vehicles as well as optimize to meet key objectives such as moving people (for example prioritizing higher occupancy vehicles).</i></p>
<p>Shared Use Auto Mobility Ride-hail and Transportation Network Companies (TNCs)– While ride share programs through TNCs like Lyft and Uber and car share programs like Car2Go, Zipcar and ReachNow are popular now and gaining in popularity, there is limited data related to the impact or effectiveness in reducing drive alone behavior. Car share is operated near the University and is available for student use and is included in the Campus Transportation Management Plan as potential options to support commuting. Parking and passenger loading areas are available throughout the campus and will be assessed as needs arise.</p>	<p><i>This technology supports student, and employee ability to rely less on auto ownership and reduce drive alone behavior. Effectiveness has been mostly positive when combined with other travel choices such as transit; however, increased circulation and travel of empty ride-hail/Transportation Network Company vehicles has not been fully evaluated.</i></p>
<p>Bike Share – Pronto, a not for profit bike share system was implemented in 2015 with mixed success. The program, which included memberships for short and long term bike rental, ended in March 2017. The future of bike share is uncertain; however, there is interest in attempting to create a bike share program in the future as the bike share technology improves. Pronto stations have been located at several locations within and near the campus. As a new bike share program evolves, the University would participate in locating and supporting that program.</p>	<p><i>These emerging technologies where people can use transport options temporarily such as bike share and ride-share are being implemented today. Outcomes of these transport technologies are emerging. While efficacy of bike share, specifically Pronto in Seattle, has been mixed and the program is ended in March 2017, bike share has been identified as desirable by the City if it can be made to be successful in the future.</i></p>
<p>Autonomous and Semi-Autonomous Vehicles – There are projections that in the next 20 years, autonomous</p>	<p><i>This emerging technology has tremendous support and growing advocacy, specifically</i></p>

<p>vehicles may broadly replace the automobile fleet. Semi-autonomous vehicles are already on the market assisting drivers and helping avoid crashes. In the future, these vehicles could be completely autonomous and potentially reduce congestion (vehicles are expected to operate safely with reduced distance between vehicles and potentially higher speeds). Autonomous vehicles have been proposed to operate cleanly (potentially electrically), for a variety of vehicle types – buses, trucks, and passenger vehicles and potentially for shared use, further reducing the need for auto ownership. As the technology evolves, autonomous vehicles may become part of the campus fleet to support mobility of people and goods. Additionally, space may be needed to accommodate drop-offs and storage.</p>	<p><i>for the potential of reducing crashes. With added benefits for electrified vehicles and combination with shared use and driver-less mobility, the use and application of autonomous vehicles is expansive. In addition to improving safety, they could</i></p> <ul style="list-style-type: none"> <i>- increase flexibility of working hours (workers can include commute time in their work time)</i> <i>- reduce desire for auto ownership,</i> <i>- accommodate ride share/car and vanpooling</i> <i>- support mobility options for those with disabilities or older drivers</i> <i>- reduce overall parking needs including at residences as vehicles are circulating and only need parking in times of low use</i> <i>- potentially reduce jobs (drivers).</i> <p><i>Untested is whether autonomous vehicles could reduce congestion especially if vehicles are circulating empty or with few passengers and compete with higher occupancy modes such as transit.</i></p>
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<http://www.umtri.umich.edu/what-were-doing/news/more-americans-all-ages-spurning-drivers-licenses>, 2016.

5 TRIP GENERATION BY MODE

MIO (Major Institution Overlay): The Major Institution Overlay is a boundary defined by the City of Seattle Land Use and Zoning Code, noting the extents of the University of Washington.

The development of up to 6 million square feet has been identified to reflect a projected growth in head count (or population) anticipated and associated University space needs between 2018 and 2028. The population headcount has been used as a basis for estimating the anticipated increase in campus related trip generation by mode. The population forecasts used in the analysis are summarized below in Table 5.1 where the 2028 population is reflected per the full build

out of a net new 6 million gross square feet. As shown, total growth in development for the 10-year planning horizon and related to the 6 million square feet of growth, population is expected to increase by approximately 15,676 people over population from 2014. This growth includes an additional 211,000 gross square feet of net new development that is permitted under the current 2008 Campus Master Plan. This 211,000 gross square feet is assumed as the future No Action case.

**Table 5.1
EXISTING (2014) AND ESTIMATED FUTURE (2028) UNIVERSITY POPULATION**

Population	2014 (Actual)	2028 (Estimated)	Growth (Estimated)
Students	45,213	54,183	8,970
Faculty	7,951	9,528	1,577
Staff	17,333	22,462	5,129
Total	70,497	86,173	15,676

Source: Sasaki Architects, Inc., 2016.

In general, this transportation analysis evaluates the growth in campus population for these three components – Students, Faculty, and Staff – to fully analyze transportation impacts. This method takes into account that each university population group (students, faculty, and staff) have different travel behaviors.

The Table 5.2 below provides a summary of the growth in campus population resulting from this level of development.

Headcount: A quantifiable count of individuals within the University of Washington population. Headcount differs from a Full Time Equivalent (FTE) count, which converts actual campus enrolled and employed students, faculty, and staff to a full-time equivalency based on eight hour days and 40-hour work week.

Table 5.2
UNIVERSITY POPULATION AND FUTURE GROWTH

Population	Existing (2014) Headcount¹	No Action 2028	Growth over Existing with No Action Alternative	All Action Alternatives 2028²	Total Growth Over Existing with Action Alternatives²
Students	45,213	46,152	939	54,183	8,970
Faculty	7,951	8,117	166	9,528	1,577
Staff	17,333	17,693	360	22,462	5,129
Total Population	70,497	71,962	1,465	86,173	15,676

1. (2014 was the most recent available information)

2. Population numbers include No Action growth (211,000 gross square feet)

Population or headcount as noted in the table above reflects actual enrolled students and employed faculty and staff. These are projected forward and converted to trips applying factors for full time equivalency to create trips by mode for each Campus population.

5.1 CMP DEVELOPMENT TRIP GENERATION

Growth in traffic and visitors related to the proposed Campus Master Plan alternatives, including No Action, were developed based on growth in campus population and reflective of the anticipated development patterns of buildings apportioned by campus sectors of West, South, Central, and East. Anticipated development patterns for Alternatives 1-4 are shown below.

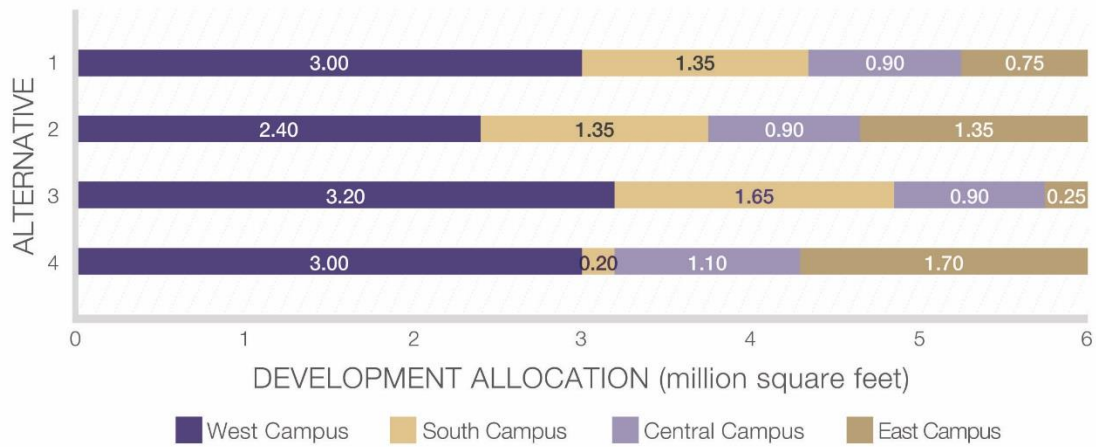
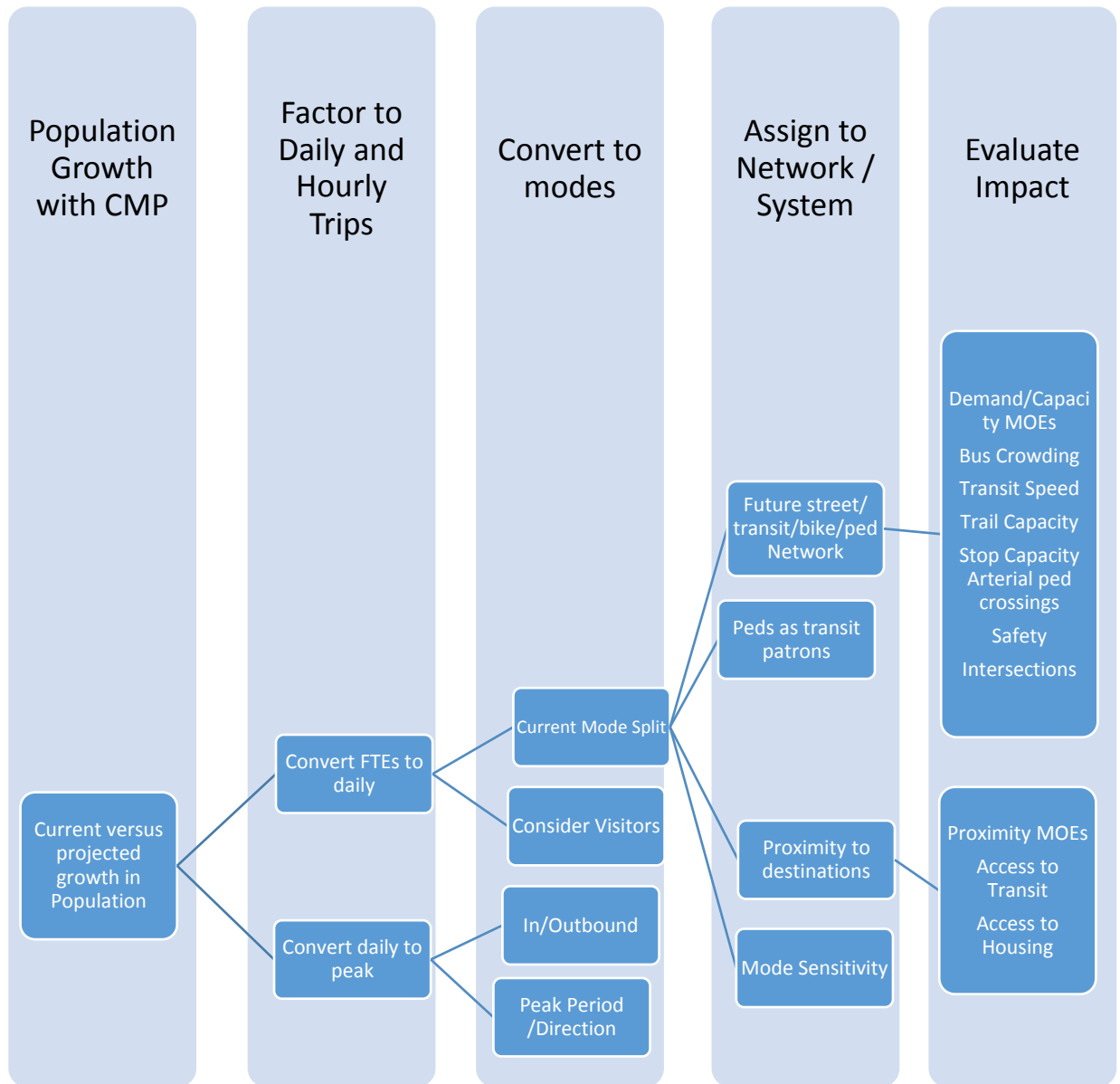


Figure 5.1 Alternative Development Allocation

Recognizing that the campus is fluid with people moving across the campus throughout the day, for the purposes of evaluating trip impacts and growth in different sectors, new trips were assigned to campus sectors based on the proportion of overall development growth in each sector, anticipated driveway locations, and transportation patterns.

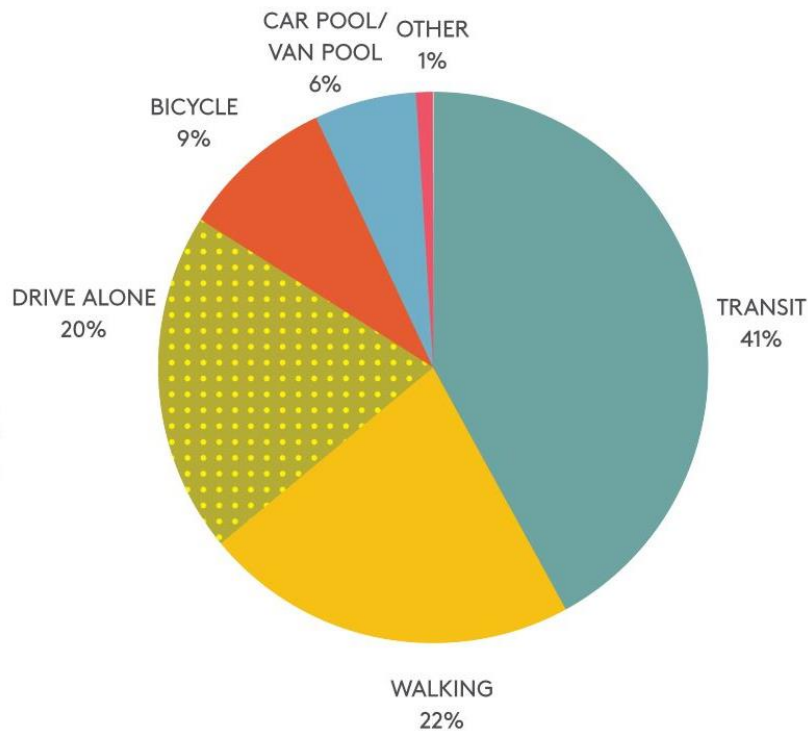
An overview of campus growth as proposed by the CMP and methods for evaluating impacts for the various transportation modes is outlined in the hierarchy below:



Campus population, specifically students, is a more reliable measure of growth and thus, future growth was tied to the trip generation. Through mode choice surveys and understanding of the campus population, campus population in terms of headcount was used to generate future trips and converting those headcounts to regular weekly weekday trips. For example, currently faculty headcounts are higher than the full time equivalent (FTE) as many faculty do not work on campus every day. The final campus population growth was used to generate trips assuming all of them arrive in the AM peak period and leave in the PM peak period and roughly 65 percent of the PM peak period occurs in a single peak hour. Modes were applied to campus population (student, faculty, and staff based on current proportions from the campus wide survey. For example, a higher walk mode percentage by students is assumed in the future for students).

5.1 MODE SPLIT

The mode split, or proportion of trips using a mode of transportation, is an important factor in evaluating the effects of growth. It is desirable to have students, faculty, and staff use lower impacting and more sustainable modes such as walking, biking or taking transit. The University of Washington has a strong record of achieving an aggressive mode split with drive alone trips to the campus accounting for just 20 percent of all trips (See Figure 5.2). This is significantly lower than other areas, employers and communities. The drive alone percentage has stayed near 20 percent for several years. While mode split could fluctuate with the increased access to rail transit or other emerging trends, **for the purposes of the Transportation Discipline Report and this EIS, mode split is assumed to remain at a conservative 20 percent drive alone mode (arriving at campus in a Single Occupant Vehicle) through the year 2028 and for all alternatives.** Recent (2016) surveys of the Campus indicate that this drive alone percentage dropped to 17.3% which can be attributed to the availability of fast reliable light rail transit service that was extended to the University of Washington in March of 2016. Transit modes increased and drive alone decreased overall.



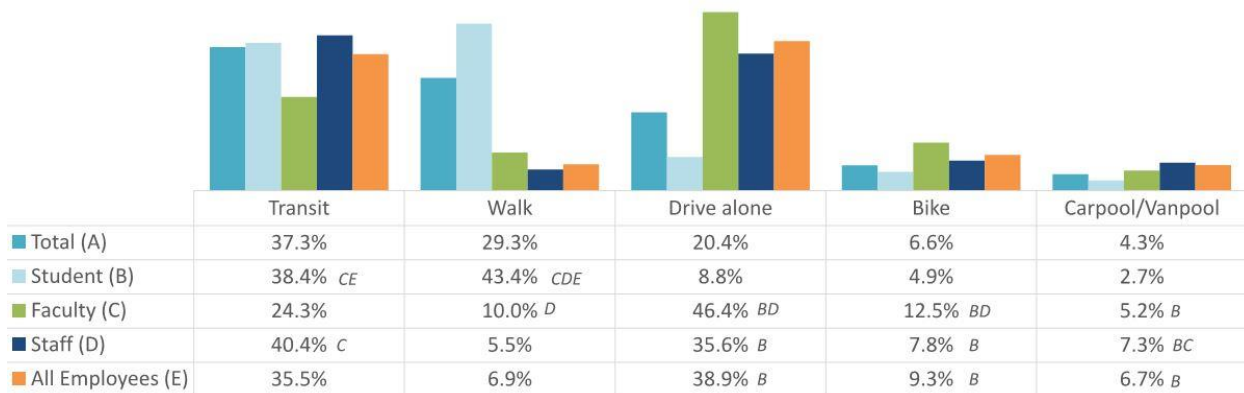
Source: University of Washington Transportation Services and Sasaki Architects, July 2017 CMP

Figure 5.2 Existing (2015) Mode Split

Mode split for faculty, student, and staff are provided from the University of Washington annual survey and are shown in the following table.

Table 5.3
2015 MODE SPLIT FOR STUDENTS, FACULTY, AND STAFF

Population	Transit	Drive Alone	Carpool/Vanpool	Bike	Walk	Other
Students	38%	9%	3%	5%	43%	2%
Faculty	24%	46%	5%	13%	6%	2%
Staff	40%	36%	5%	13%	6%	1%



Letters note significant differences between sub-groups at 95% confidence.

Figure 5.3 2015 Transportation Survey Results

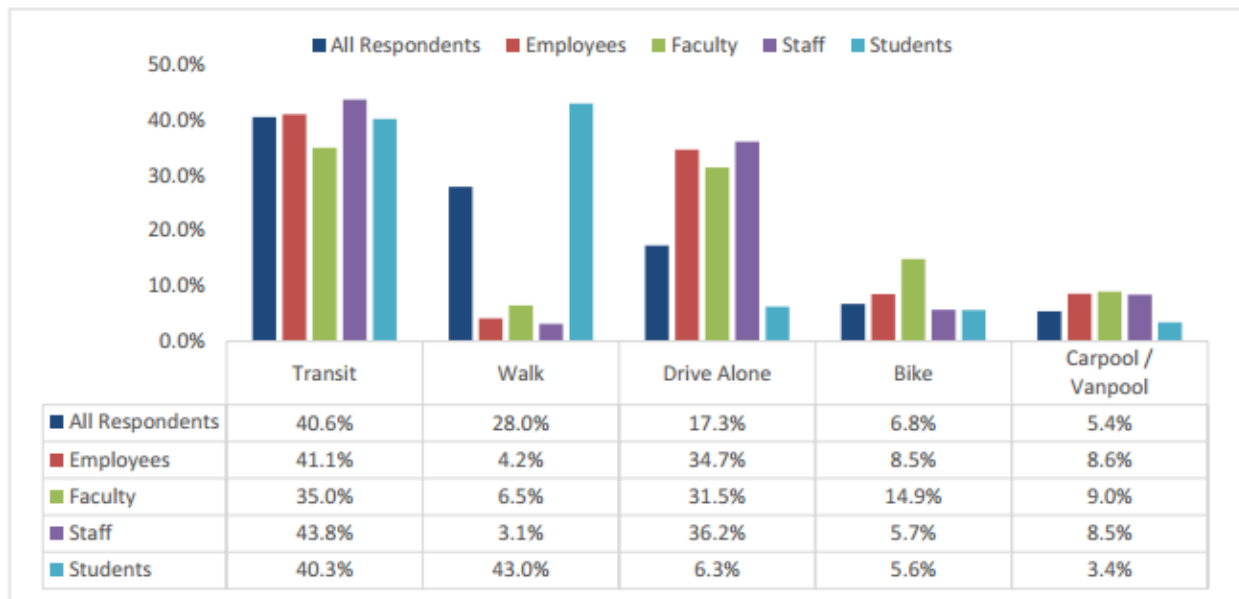


Figure 5.4 2016 Transportation Survey Results

5.2 TRIP GENERATION BY MODE

While mode split could change, to assess the most conservative analysis, the mode split was analyzed at the current 20 percent SOV rate. Assuming a consistent mode split and the campus growth in headcount, the anticipated trips to and from the campus by mode are noted in the three tables below. In addition to students, faculty, and staff, trip generation associated with development of approximately 150,000 square feet of partner space development is anticipated in West Campus and visitors to campus were considered. For trip generation purposes, it was assumed that trips associated with the partner space would follow a similar travel pattern as University of Washington staff. The first table describes the vehicle trips for daily, AM, and PM and includes trips associated with the partner space development. The second describes assumptions of vehicle visitor trips. With campus growth, there is an anticipated level of growth in visitors related to the Campus Master Plan growth of up to 6 million net new gross square feet. Based on campus parking data and anecdotal data from other universities, trips from visitors range from 5 to 10 percent. For the purposes of this methodology, trips from visitors were assumed to be 10 percent of the total increased trips.

**Table 5.4
ESTIMATED VEHICLE TRIPS (WEEKDAY)**

Trip Type	Daily Trips	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
No Action							
Student	8,710	1,485	635	2,120	670	955	1,625
Faculty	6,880	1,465	630	2,095	1,035	1,470	2,505
Staff	12,260	3,190	1,370	4,560	1,885	2,685	4,570
Total No Action	27,850	6,140	2,635	8,775	3,590	5,110	8,700
Future 2028 (Alt 1)							
Student	10,390	1,775	760	2,535	800	1,140	1,940
Faculty	8,230	1,750	750	2,500	1,240	1,765	3,005
Staff	14,860	3,860	1,660	5,520	2,280	3,250	5,530
Total Future	33,480	7,385	3,170	10,555	4,320	6,155	10,475
Net New Trips							
Student	1,680	290	125	415	130	185	315
Faculty	1,350	285	120	405	205	295	500
Staff	2,600	670	290	960	395	565	960
Total Net New Trips	5,630	1,245	535	1,780	730	1,045	1,775

Source: Transpo Group, 2016

Table 5.5
ESTIMATED NET NEW FUTURE VEHICLE TRIPS

Trip Type	Daily Trips	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Net New Trips							
Student	1,680	290	125	415	130	185	315
Faculty	1,350	285	120	405	205	295	500
Staff	2,600	670	290	960	395	565	960
Total Net New Trips	5,630	1,245	535	1,780	730	1,045	1,775
Visitors (10%)	565	125	55	180	75	105	180
Total UW Trips	6,195	1,370	590	1,960	805	1,150	1,955

Source: Transpo Group, 2016

As shown in Table 5.5, when accounting for students, faculty, staff, partner space, and visitors, the Action Alternatives are anticipated to generate approximately 6,195 net new weekday daily trips with approximately 1,960 trips occurring during the AM peak hour and 1,955 trips during the PM peak hour.

Table 5.6
ESTIMATED 2028 NO ACTION AND ALTERNATIVE 1 DAILY TRIPS BY MODE

	Transit	Walk	Bicycle	Other
No Action				
Student	34,550	28,270	5,500	470
Faculty	2,990	840	1,680	260
Staff	11,790	1,120	2,110	670
Total No Action	49,330	30,230	9,290	1,400
Future 2028 (Alt 1)				
Student	40,480	33,120	6,440	550
Faculty	3,450	960	1,930	300
Staff	15,460	1,470	2,760	870
Total Future	59,390	35,550	11,130	1,720
Net New Trips				
Student	5,930	4,850	940	80
Faculty	460	120	250	40
Staff	3,670	350	650	200
Total Net New Trips	10,060	5,320	1,840	320

Source: Transpo Group, 2016

These campus trips assume each campus member creates two trips (arriving and leaving) the campus each day. The bulk are approaching campus in the morning peak and leaving in the afternoon peak. Generally, this also assumes that the peak periods are two hours with 65% of peak period trips occurring in the peak one hour.

5.3 ANTICIPATED (BACKGROUND) AND PROPOSED GROWTH

The City has adopted a draft 2035 Comprehensive Plan as well as a U District Upzone Plan that reflect increased density and heights in the University District surrounding the University of Washington campus. The City 2035 plan includes an increase of 120,000 residents and 115,000 jobs, citywide by 2035. The U District Urban Design process suggests a potential increase in building heights over the Comprehensive Plan levels. For this analysis, background growth was interpolated from the 2035 plan using the City developed travel demand model to reflect the 2028 design year. Land use and traffic as part of the U District up zone are assumed as part of the analysis. In addition to vehicle traffic, the City developed travel demand model provides background growth related to transit, pedestrians, and bicycles.

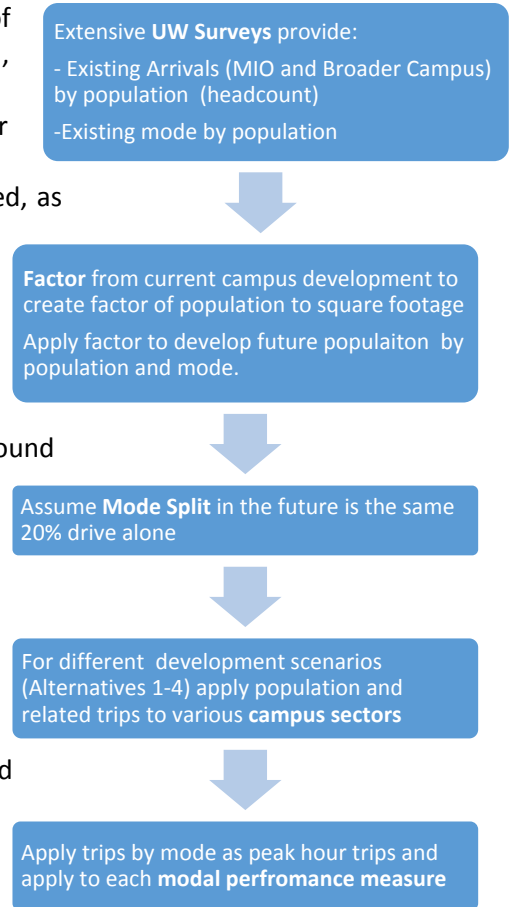
The transportation analysis of growth on the University of Washington Campus as an update of their Campus Master Plan, required consideration of:

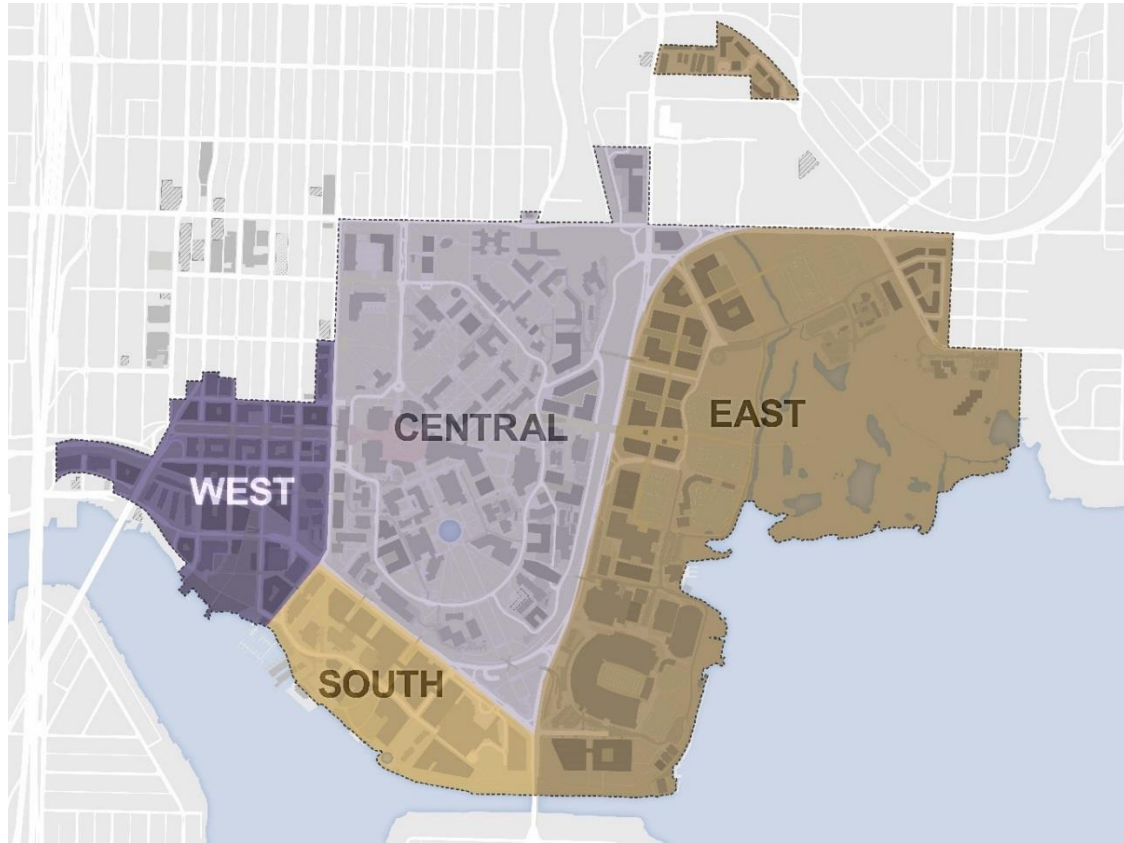
- Background growth – Growth that is planned to occur outside the campus growth
- Campus Growth – Increased trips reflective of the planned, as well as proposed Campus Master Plan
- Growth from Upzone – Growth from the recently approved up-zone is proposed by the U District Upzone and is considered as part of the background development scenarios

Background Growth – Background growth is based on the University District Up-Zoning Travel Demand Model. This background growth includes trips resulting from proposed increased height and density in the University District as approved in late 2016. These trends were applied as growth factors on top of existing trips to represent growth to the year 2028 as background trips.

Campus Growth – Campus growth is reported for the planned development which is approved as part of the 2003 Campus Master Plan, considered to be No Action, and, on top of that, growth proposed as action alternatives for this EIS including up to 6 million gross square feet of development. In the four proposed action alternatives, this additional 6 million net new gross square feet of development is allocated to different sectors of the campus.

Generation of trips for both No Action and Action alternatives was developed using trends from available data from the University of Washington surveys to estimate total trips by population type (students, faculty and staff), allocated to different sectors (see Figure 5.5) based on development alternative and assigned to various modes and reported for different times of day. Under all development scenarios it was assumed that the partner space would be developed in West Campus.





Source: Transpo 2016

Figure 5.5 University of Washington Primary/Secondary Transportation Impact Zones

The next sections describe the analysis procedure for analyzing each mode and the measures described previously.

6 ANALYSIS OF PEDESTRIAN FACILITIES

Six measures of effectiveness are analyzed to evaluate the impact of the campus growth on the pedestrian environment:

- Proportion of development within ¼ mile of multifamily housing in the University District
- Proportion of development within ¼ mile of University of Washington residence halls the University District
- Quality of pedestrian environment
- Pedestrian screenline demand and capacity
- Pedestrian LOS at station/stop area
- Pedestrian and bike capacity along the Burke Gilman Trail

These measures respond to the following questions:

- Will the campus be developed in a way that promotes walking especially for students that rely on walking?
- Is there adequate capacity in the future to accommodate growth for pedestrians crossing key screenlines and Burke Gillman Trail?
- Are station areas/stop areas at transit stops adequate to accommodate future growth?
- Is capacity reliant on pedestrian skybridges?

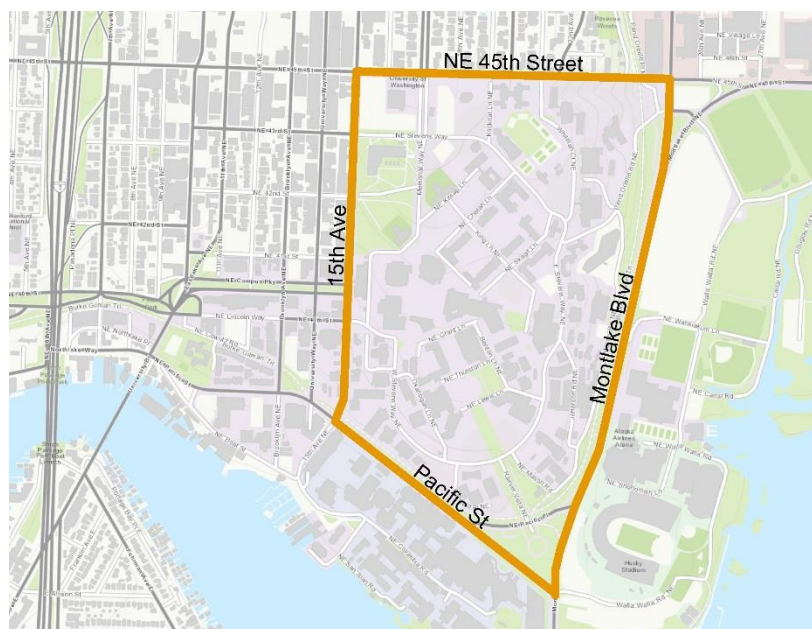


Figure 6.1 Pedestrian Screenlines

6.1 DATA COLLECTED

Intersection counts including vehicles, bicycles, and pedestrians were collected at roughly 80 intersections in November 2015. Pedestrian afternoon peak hour counts were collected during a peak event on campus (the Friday, September 30, 2016 Stanford-University of Washington Football game). These peak period

volumes reflect a high “saturation” pedestrian and bicycle volumes. Additionally, field data was collected to measure the pedestrian crossings, crosswalks, and pedestrian bridges. Signal timing was collected from the City to understand crosswalk timings for crossing screenlines. Pedestrian areas at key transit stations and stops were collected along with other transit data from transit agencies as noted in the transit section. At these areas, video counts at station areas and key bus stops were also collected to assess current station area pedestrian activity. A visual assessment of pedestrian barriers was also conducted.



Figure 6.2 Pedestrian Count Locations

Pedestrian counts collected on September 30, 2016 were also compared to automated counts from WSDOT’s pedestrian bridge connecting to the University of Washington station. These automated counts provided a comparison of event and non-event times. This factor of peak event to non-event was applied to adjust counts around the stadium to reflect average counts.

Existing pedestrian space was measured in square feet per person at 10 key transit stops in the study area, as shown in Figure 6.3 and listed in Table 6.1.

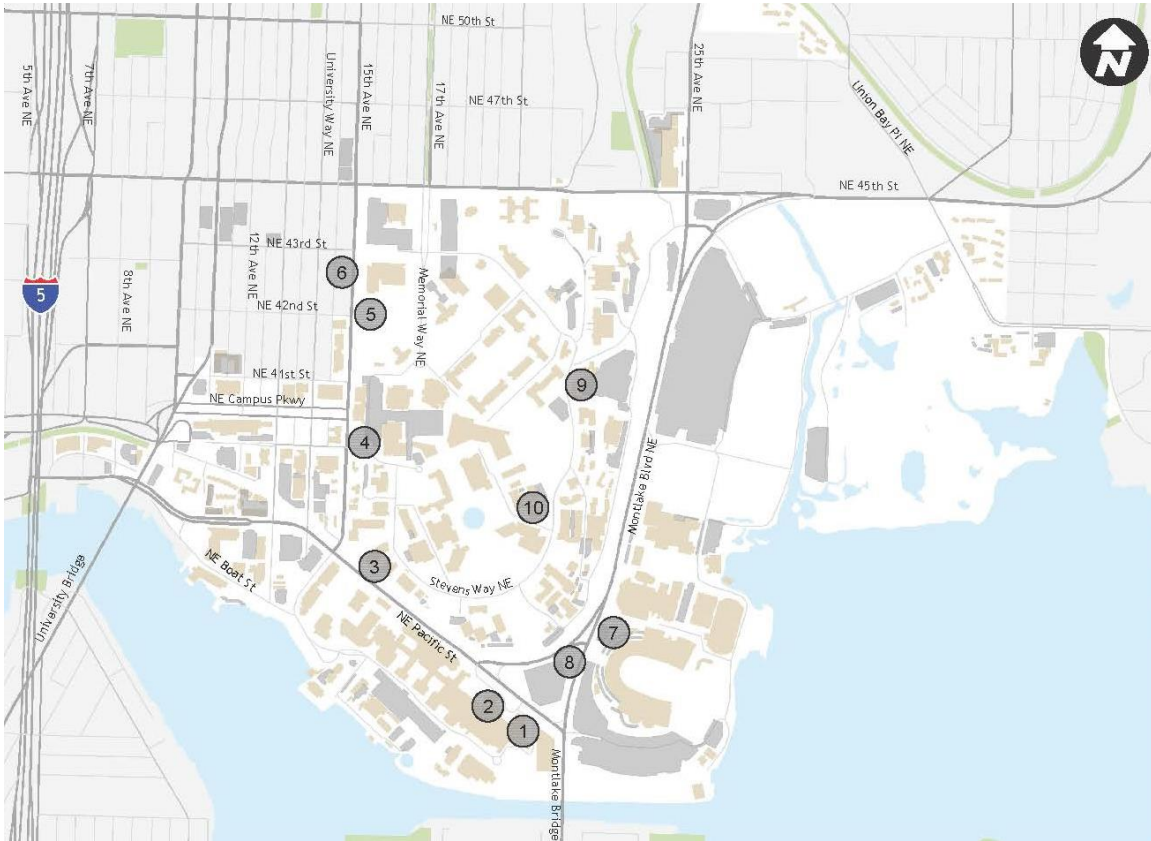


Figure 6.3 Pedestrian Transit Stop Space Analysis Study Area

**Table 6.1
STUDY AREA TRANSIT STOP LOCATIONS**

Stop ID Number	King County Metro Stop Number	Roadway	Stop Location	Description	Campus Sector	Effective Area (ft²)
1	29,247	Montlake Boulevard NE	NE Pacific Street	Bay 1, south side of NE Pacific Street	South	1,930
2	29,405	Montlake Boulevard NE	NE Pacific Street	Bay 2, south side of NE Pacific Street	South	1,930
3	29,240	NE Pacific Street	Mid-block	North side of NE Pacific Street, under pedestrian bridge	South	315
4	29,440	15th Avenue NE	NE Campus Parkway	East side of 15th Avenue NE, north of Stevens Way NE	West	2,625
5	11,352	15th Avenue NE	NE 42nd Street	East side of 15th Avenue NE, north of NE 42nd Street	West	235
6	10,912	15th Avenue NE	NE 43rd Street	West side of 15th Avenue NE, south of NE 43rd Street	West	2,534
7	25,240	Montlake Boulevard NE	NE Pacific Place	Bay 4, east side of Montlake Boulevard, adjacent to Husky Stadium	East	1,072
8	25,765	Montlake Boulevard NE	NE Pacific Place	Bay 3, west side of Montlake Boulevard	East	2,990
9	75,410	Stevens Way NE	Pend Oreille Road	East side of Stevens Way NE	East	564
10	75,403	Stevens Way NE	Benton Lane	West side of Stevens Way NE, adjacent to the Husky Union Building	East	1,122

Existing data is based on counts and field observations conducted during the PM peak hour on Tuesday, January 31, 2017. Pedestrian counts at each transit stop were collected via a two-hour video recording at each location, during the PM peak hour of 4 pm to 6 pm. Video data were summarized to determine the 15-minute period with the greatest number of pedestrians (the peak 15-minute pedestrian count) waiting at each transit stop analyzed. Field observations were conducted on Tuesday, January 31, 2017. Field data recorded the measurements of obstacles that may have impeded pedestrian waiting areas. Obstacles that were considered included pedestrian walkway space, trees, garbage cans, fire hydrants, and other objects that may have impacted the available waiting area.

6.2 METHODS AND ASSUMPTIONS FOR EVALUATING PEDESTRIANS

Assumptions:

- ¼ mile radius (as the crow flies) around University of Washington Residence Halls and new proposed University District Multi Family housing
- Crossing time: sum of walk and flash-don't-walk time per hour at signalized crossings, 60 minutes at pedestrian bridges and mid-block crossings (one mid-block) location
- Pedestrian Walkway Level of Service criteria from TCRP Report 165: Transit Capacity & Quality of Service Manual, 3rd Edition
- LOS E from the Highway Capacity Manual assumed as the capacity threshold
- Walkway level of service was analyzed at specific locations (crosswalks and skybridges) and aggregated to screenlines assuming pedestrians are balanced across the screenline. Screenlines evaluated include 45th Street between 15th Avenue and Montlake Avenue on the north edge of the Campus, 15th Avenue between 45th Street and Pacific Street on the west edge of Campus, Pacific Street between 15th Avenue and Montlake Avenue, on the south edge of Campus, and Montlake Avenue between 45th Street and Pacific Street on the south edge of campus
- Pedestrian Station Area Level of Service from Highway Capacity Manual (2000) Level of Service
- At stations, existing counts were collected using video collected during the PM peak period (4-6 PM). The peak counts within this period (during a 15-minute period) is used as the existing counts.
- Visual assessment and field visits of pedestrian facilities were conducted where barriers for pedestrians were noted.

6.2.1 Thresholds

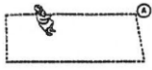
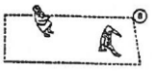
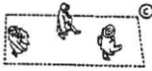
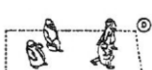


For ¼ mile proximity to Residence Halls and University District multifamily housing the threshold is a comparison between alternatives noting which have greater development patterns to promote walking.

Pedestrian Screenline Capacity Analysis

Pedestrian walkway capacity at all screenline crossings was determined from the Walkway LOS, as stated in the Transit Cooperative Highway Research Program (TCRP) Report 165: Transit Capacity and Quality of

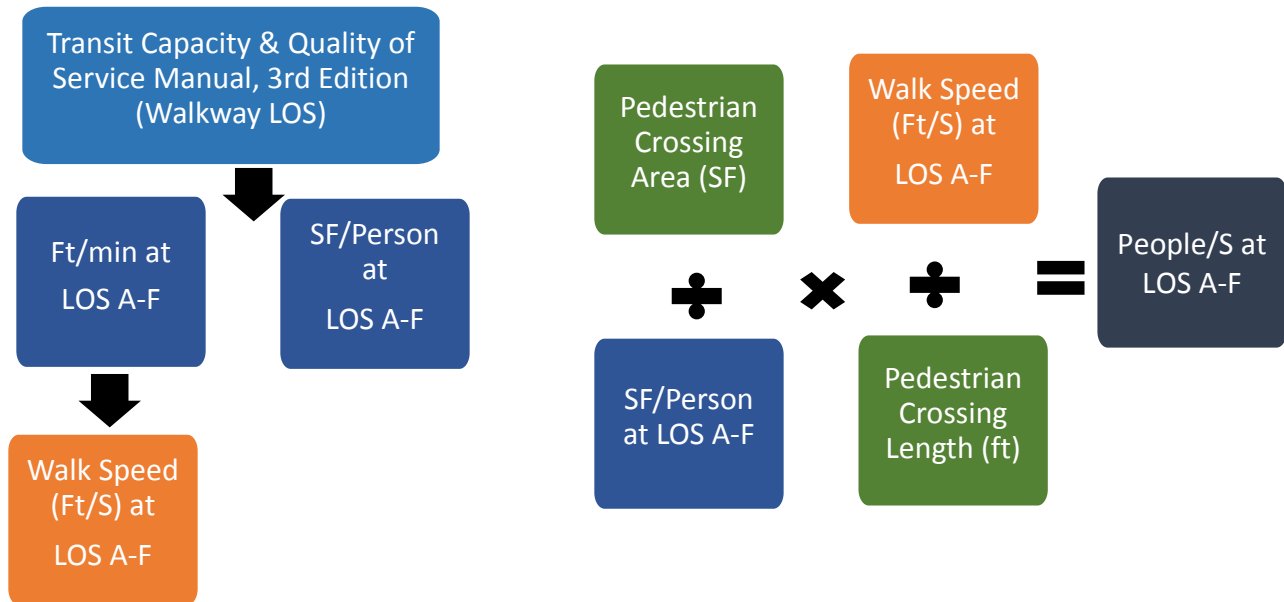
Service Manual, 3rd Edition. Capacity was calculated for each crossing location and aggregated by screenline using the pedestrian space and walk speed metrics shown in Table 6.2 to determine the crossing level of service (LOS).

**Table 6.2
PEDESTRIAN WALKWAY LEVEL OF SERVICE**

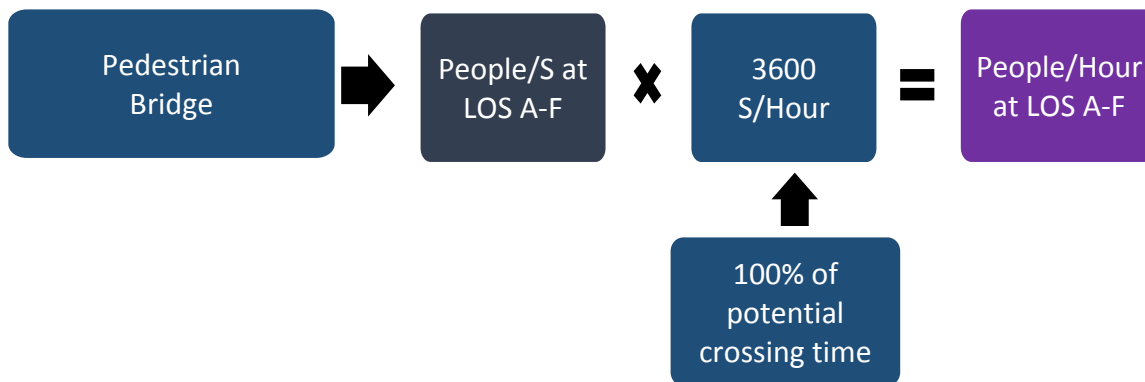
LOS	Pedestrian Space (ft ² /person)	Average Speed (ft/min)	Walkway Characteristics	Illustration
A	≥ 35	260	Walking speeds freely selected; conflicts with other pedestrians unlikely.	
B	25–35	250	Walking speeds freely selected; pedestrians respond to presence of others.	
C	15–25	240	Walking speeds freely selected; passing is possible in unidirectional streams; minor conflicts for reverse or cross movement.	
D	10–15	225	Freedom to select walking speed and pass others is restricted; high probability of conflicts for reverse or cross movements.	
E	5–10	150	Walking speeds and passing ability are restricted for all pedestrians; forward movement is possible only by shuffling; reverse or cross movements are possible only with extreme difficulty; volumes approach limit of walking capacity.	
F	< 5	< 150	Walking speeds are severely restricted; frequent, unavoidable contact with others; reverse or cross movements are virtually impossible; flow is sporadic and unstable.	

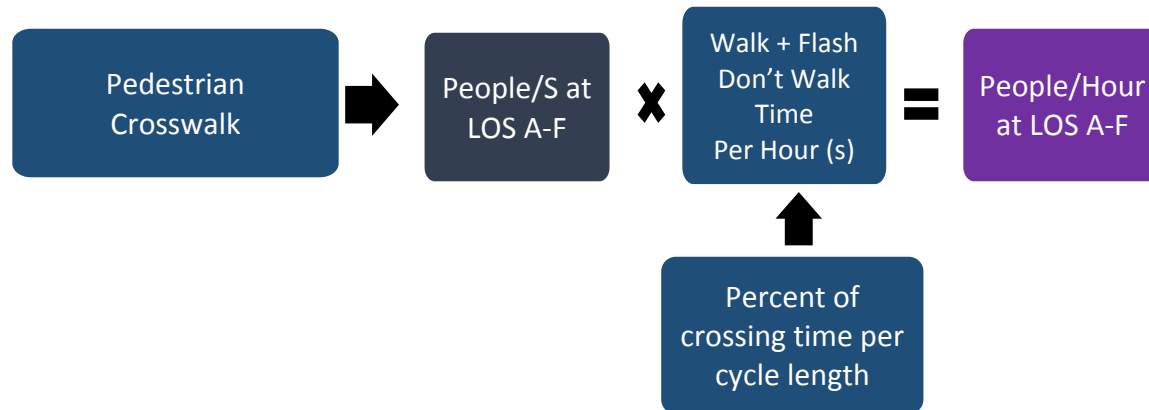
Source: TCRP Report 165: Transit Capacity & Quality of Service Manual, 3rd Edition; Highway Capacity Manual

Based on the metrics shown in Table 6.2, each screenline is assigned a letter grade A to F where LOS A represents low density of people in the crosswalk and LOS F represents a high density of people in the cross walk. The calculations to determine the people per second at the crossing can accommodate at each level of service are shown below.



Additional field characteristics used to determine capacity for each pedestrian crossing included crossing area, walk time, and flash-don't-walk time where applicable. A combined walk and flash-don't-walk time per hour was determined for each crossing location. A full hour was assumed at unsignalized mid-block crossings and pedestrian bridges. The calculation to determine people per hour for each level of service is shown below.





Capacity at LOS E, as shown in Table 6.3, was assumed to be maximum saturation flow.

**Table 6.3
MAXIMUM PEDESTRIAN CAPACITY BY SCREENLINE**

Screenline	Maximum Capacity (People/hour at LOS E)
Montlake Boulevard NE	102,345
NE Pacific Street	67,326
15th Avenue NE	58,104
NE 45th Street	24,366

Source: TCRP Report 165: Transit Capacity & Quality of Service Manual, 3rd Edition

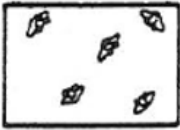

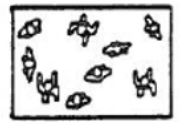



Existing pedestrian crossing volumes were determined from the September 2016 counts. A scaling factor was applied to crossing locations closest to Husky Stadium, accounting for the high volume of pedestrians generated by the evening football game. The scaling factor was developed from the differences between the PM peak hour pedestrian counts and WSDOT’s automatic counter data at the Husky Stadium pedestrian bridge adjacent to the University of Washington Station. Existing scaled peak hour pedestrian volumes summarized by screenline are shown in the Affected Environment section of the Transportation Discipline Report. As shown, the pedestrian walkway level of service depends on the walking speed and the number of conflicting pedestrians.

Pedestrian Transit Stop Space Analysis

The transit stop space analysis for pedestrians evaluates the peak hour demand, capacity, and LOS at key transit stops along Montlake Boulevard NE, NE Pacific Street, and 15th Avenue NE. Ten stops were identified that reflect the higher level of stop activity based on passenger count data from transit agencies, as described above and in the Affected Environment section of the Transportation Discipline Report.

Pedestrian queuing capacity at each transit stop was determined from the Waiting Area LOS, as stated in the Transit Cooperative Highway Research Program (TCRP) Report 165: Transit Capacity and Quality of Service Manual, 3rd Edition. Capacity at LOS A to F was calculated for each crossing location and aggregated by campus sector using the pedestrian space metric shown in Table 6.4. Pedestrian space was calculated using the peak 15-minute pedestrian count and effective area at each location. Effective area was assumed to be constant throughout existing and future analysis years.

Table 6.4
PEDESTRIAN QUEUING AREA LEVEL OF SERVICE

LOS	Pedestrian Space (ft ² /person)	Queuing Area Characteristics	Illustration
A	≥ 13	Standing and free circulation through the queuing area is possible without disturbing others in the queue.	
B	10–13	Standing and partially restricted circulation to avoid disturbing others in the queue is possible.	
C	7–10	Standing and restricted circulation through the queuing area by disturbing others is possible; this density is within the range of personal comfort.	
D	3–7	Standing without touching is impossible; circulation is severely restricted within the queue and forward movement is only possible as a group; long-term waiting at this density is discomfoting.	
E	2–3	Standing in physical contact with others is unavoidable; circulation within the queue is not possible; queueing at this density can only be sustained for a short period without serious discomfort.	
F	< 2	Virtually all personal within the queue are standing in direct physical contact with others; this density is extremely discomfoting; no movement is possible within the queue; the potential for pushing and panic exists.	

Source: TCRP Report 165: Transit Capacity & Quality of Service Manual, 3rd Edition; Highway Capacity Manual

Pedestrian space and LOS was determined at each location based on the PM peak pedestrian count and effective area as described above. As shown, the pedestrian area level of service depends on the available standing/queuing space available at the station area.

6.3 BACKGROUND GROWTH

Pedestrian counts collected around the campus were expanded to include a 10% background growth applied to all locations. On top of this, locations adjacent to the University District light rail station were increased by 1,500 pedestrians (or roughly 60% growth) to reflect the opening of the light rail station in 2021.

6.4 TRIP GENERATION, DISTRIBUTION/ASSIGNMENT

All Campus Master Plan growth by mode was assigned to the transportation network assuming the peak is 2 hours long with 65 percent occurring in the peak one hour and directionally all trips are assigned in the peak direction to provide a conservative analysis. Growth related to the Campus Master Plan was applied to the screenlines assuming a distribution consistent with the distribution patterns from the Comprehensive Plan model with pedestrian origins linked to the development density in each sector for each alternative. Growth in pedestrians also includes the distribution of all new Campus Master Plan related transit trips which are destined for key stops in the study area. The distribution of transit trips to stops are described in the transit section.

6.5 ANALYSIS RESULTS

The results of the pedestrian measures suggest there is adequate capacity to accommodate growth in pedestrians. Detailed results of the pedestrian analysis can be found in the Transportation Discipline Report.

7 ANALYSIS OF BICYCLE FACILITIES

Three measures of effectiveness are analyzed to evaluate the impact of the campus growth on the bicycle environment:

- Quality of the Environment
- Bike Parking and Utilization (racks)
- Burke Gilman Trail

These measures respond to these questions:

- Is there adequate capacity in the future to accommodate growth for bikes on the Burke Gillman Trail?
- Will the CMP include adequate parking for bikes with growth?

7.1 DATA COLLECTED

Bike share use on campus using Pronto was also collected and is described in the report; however, bike share has been discontinued. The University of Washington Transportation Services provided bicycle parking information including utilization data which they collect annually at bike racks. The University also provides secure bike parking including lockers and bike houses. Racks and secure bike lockers and houses that the University monitors are shown below.

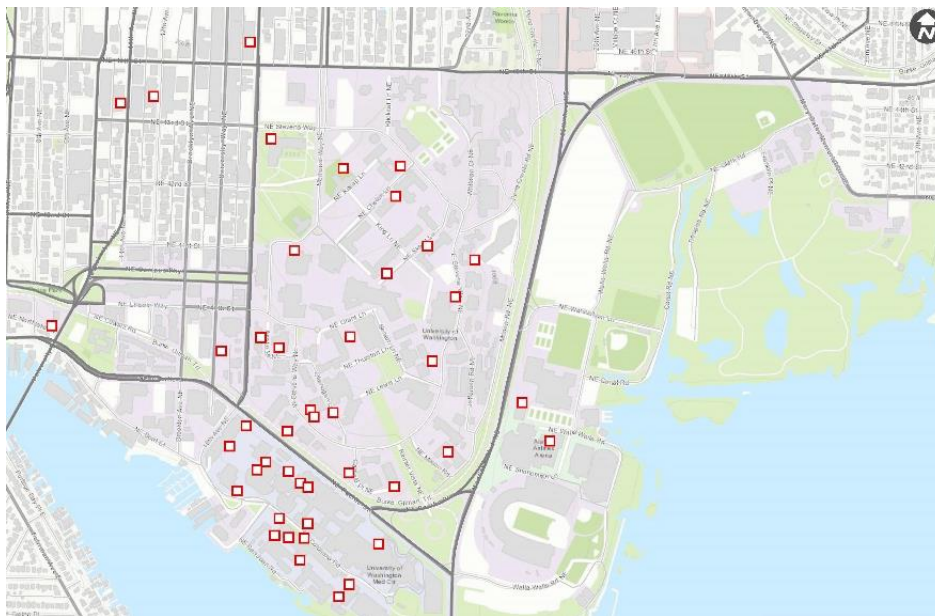


Figure 7.1 Secure Bike Locations (Houses and Lockers)

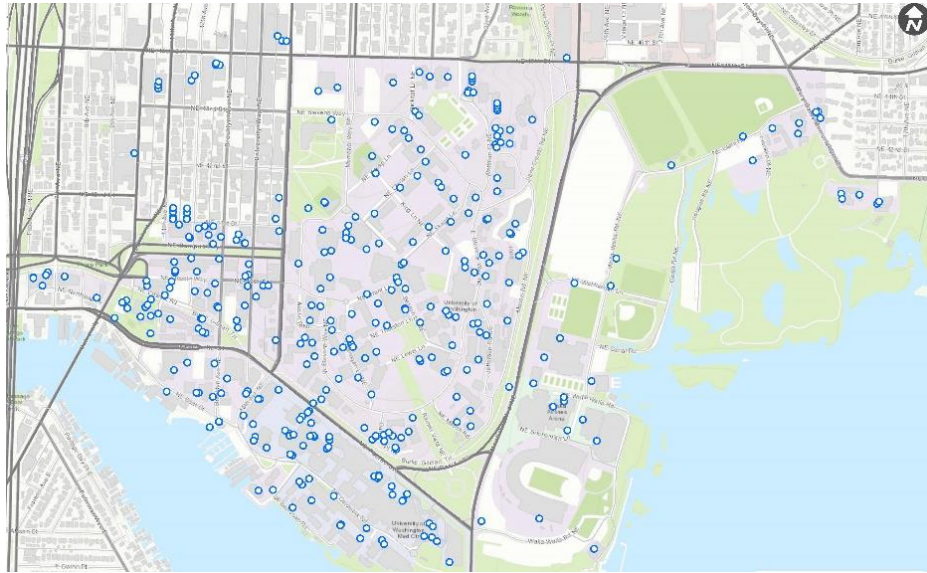


Figure 7.2 Bike Rack Locations

The University also owns the segment of the Burke-Gilman trail within the MIO. The University has developed a detailed analysis and plan of the Burke-Gilman Trail (*University of Washington Burke-Gilman Trail Design Concept Plan*, November 2012 and *University of Washington Burke-Gilman Trail Corridor Study*, July 2011). Visual assessment and field visits of bicycle facilities were conducted where barriers for bicycles were noted.



Figure 7.3 The Reaches of the Burke-Gilman Trail

Bike and pedestrian crash data was also collected from the City and University of Washington. Most recent crash data for vehicle, pedestrian and bicycles is provided in the Transportation Discipline Report (Affected Environment). Locations with higher intensity of crashes are listed in the table below.

7.2 METHODS

Forecasts analysis for the Burke-Gilman Trail were assumed based on the previous reports (Alta and SvR) prepared. Campus Master Plan related growth was forecasted as a portion of the newly generated bike trips. The Burke Gilman Trail was analyzed using the same methodology identified in the Burke Gilman analysis report.

Depending on location within the Campus, secured bike parking such as bike lockers and bike houses/cages is in high demand. Bike parking including racks were evaluated based on the current utilization within the various sectors of the campus. It is assumed that bike racks will be provided concurrent with growth. As new buildings are planned and developed, additional bike parking will be provided.

The University of Washington conducted two detailed studies in 2011 and 2012 to identify how best to improve the capacity and aesthetics of the Burke-Gilman Trail. PM peak hour counts and level of service are summarized below. Level of service was evaluated with methods used in the 2011 and 2012 studies, including the use of the Federal Highway Administration's Shared-Use Path Level of Service Calculator (SUPLOS). SUPLOS evaluates trail segments using factors including trail width, directional bicycle and pedestrian volumes, and the presence of a striped centerline. (University of Washington Burke-Gilman Trail Corridor Study, July 2011).

7.3 ANALYSIS RESULTS

Detailed results of the bicycle analysis can be found in the Transportation Discipline Report.

8 ANALYSIS OF TRANSIT FACILITIES

Five measures of effectiveness are analyzed to evaluate the impact of the campus growth on the transit environment:

- Proportion of development within ¼ mile of RapidRide
- Proportion of development within ½ mile of Link Light Rail
- Transit Travel Times
- Transit Stop Capacity
- Transit Screenline (bus) Loads

These measures respond to these questions:

- Is the CMP developing to allow close proximity to (existing and future) high capacity transit?
- How will transit operate on key corridors with increased riders and congestion?
- What are the average transit travel speeds now and how do they compare and contrast to vehicle speeds in the future?
- Is future transit service adequate to accommodate background and CMP growth (Loads)?
- What is the Demand versus (bus) Capacity?
- Are the transit stops adequate to serve future bus demand with the Campus growth?

8.1 DATA COLLECTED

Data collected to support transit analysis was provided by King County Metro, Pierce Transit (for Sound Transit bus service), Sound Transit for Link Light rail, and Community Transit. Data collected includes Automatic Vehicle Location (AVL) data and Automatic Passenger Counters (APC) data. Data was requested for mid-week afternoon peak for a week in October 2016. This reflects a condition after the opening of the University of Washington Link Light Rail stations. From this data key, higher volume stations were identified.

Existing and future transit routes, ridership, boardings and alightings at stops and the physical features at stops were collected from transit agencies (Metro, Sound Transit, Pierce Transit and Community Transit). Future estimates of service were obtained from the King County Long Range Plan (Metro Connects 2025 Service concept) and Lynnwood Links EIS. In the forecast year, 2028, Community Transit will no longer service the University District.

Routes serving the area and assumed coach lengths are shown in the table below:

Table 8.1
2016 ASSUMED CAPACITY, 2016 ROUTES, AND FREQUENCY

All Routes	Peak Frequency (Minutes)	Peak one Hour Trips	Coach Length	Seated Capacity
31	20	2	40	40
32	20	2	40	40
43	30	1	60	65
44	10	5	60	65
45	15	3	60	65
48	15	3	60	65
49	12	4	60	65
65	15	3	60	65
67	10	5	60	65
70	10	5	40	40
71	30	1	60	65
73	30	1	60	65
74	15	3	60	65
75	30	1	40	40
78	40	1	60	65
167	30	1	60	65
271	15	3	60	65
277	30	1	40	40
372	10	5	60	65
373	15	3	60	65
540	20	2	40	40
541	15	3	60	65
542	15	3	60	65
556	30	1	60	65
810	30	1	60	65
821	60	0	60	65
855	20	2	60	65
860	20	2	60	65
871	20	2	60	65
880	20	2	60	65
Link	6	19	3 cars	450*

Future routes estimated to serve the area are shown in the table below:

Table 8.2
2028 ASSUMED CAPACITY, 2025 ROUTES, AND FREQUENCY

All Routes	Peak Frequency (mins)	Peak Trips	Route Type	Coach Length	Seated Capacity
31	20	2	Local	40	40
32	20	2	Local	40	40
540	20	2	ST	40	40
542	15	3	ST	60a	65
554	30	1	Express	60a	65
556	30	1	ST	60a	65
1002	10	5	Frequent	60a	65
1009	10	5	Rapid	60b	65
1012	10	5	Rapid	60b	65
1013	10	5	Frequent	60a	65
1014	10	5	Frequent	60a	65
1019	10	5	Frequent	60a	65
1063	10	5	Rapid	60b	65
1064	10	5	Frequent	60a	65
1071	10	5	Rapid	60b	65
1996	10	5	Frequent	60a	65
2004	10	5	Frequent	60a	65
2516	15	3	Express	60a	65
2998	15	3	Express	60a	65
3008	30	1	Local	40	40
3101	30	1	Local	40	40
3122	30	1	Local	40	40
3123	30	1	Local	40	40
3208	30	1	Local	40	40
Link	3	39	Rail	-	600

From the APC data, peak volume stops serving the campus were identified as shown on the following map.

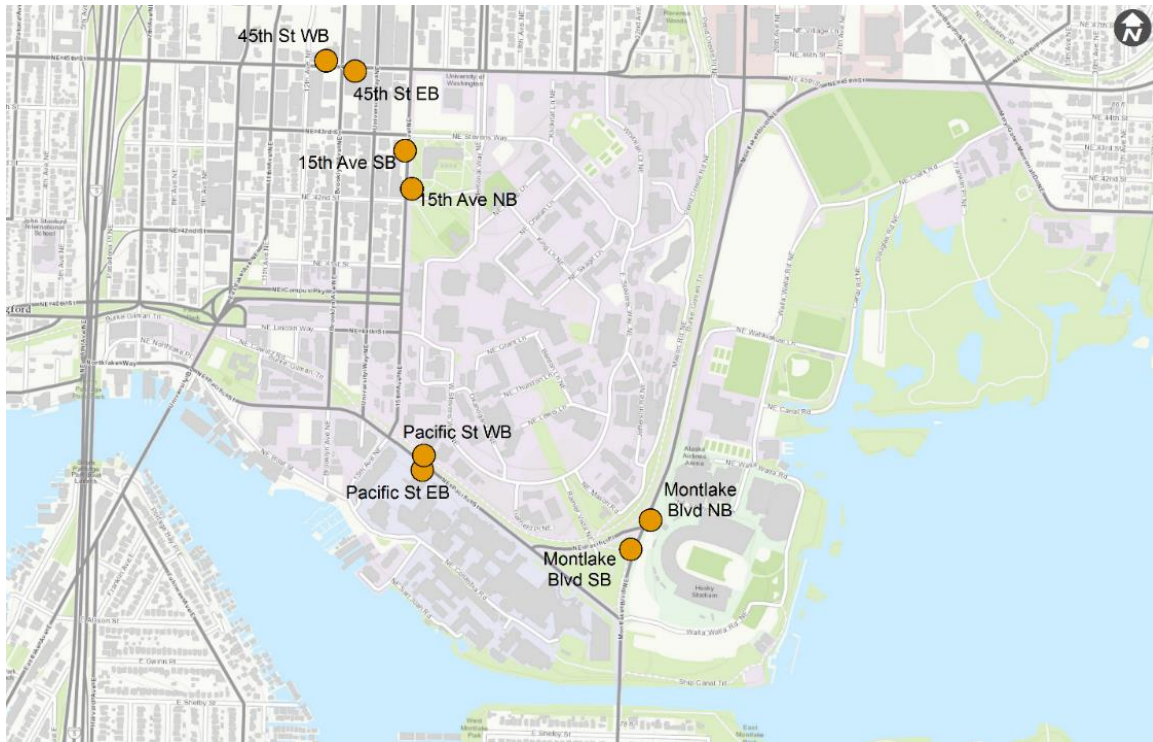


Figure 8.1 Peak Volume Transit Stops Serving Campus

Transit travel times were measured along corridors using AVL data for the following pathways. These pathways were also evaluated for vehicle travel times and field data was collected to confirm/validate travel times.

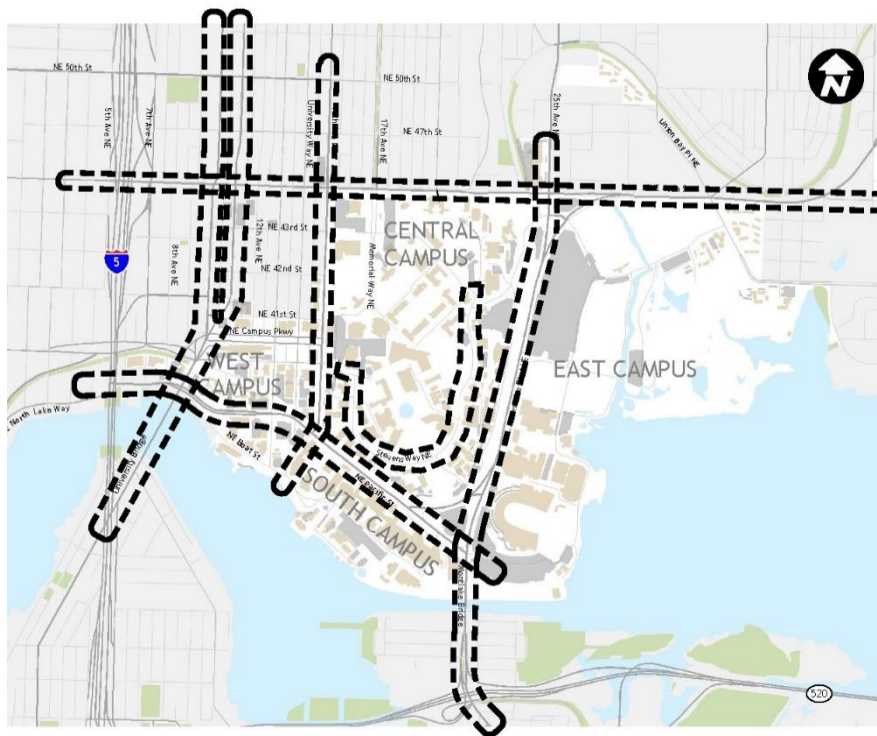


Figure 8.2 Study Area Transit Corridors

Screenline (bus load) locations were also determined based on locations of high transit vehicle loads that include all transit crossing that screenline. Screenlines evaluated in the study area are noted below:

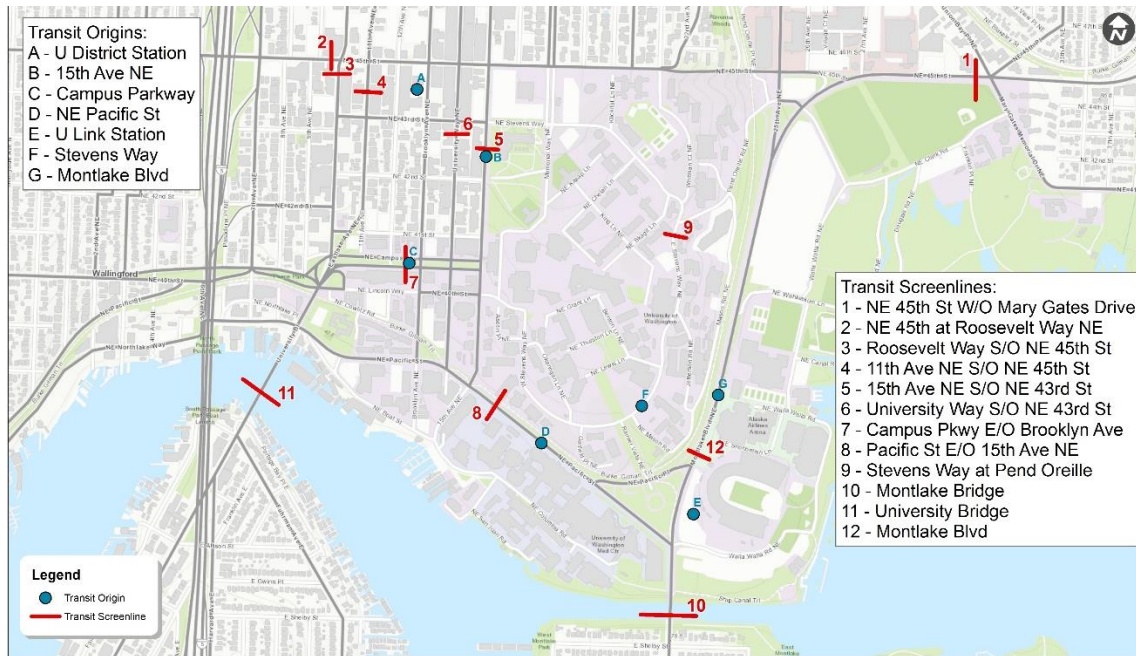


Figure 8.3 Study Area Transit Screenline Locations

The table below compares the AM and PM peak hour automatic passenger count (APC) data for October of 2016 at each screenline. The right most column highlights the difference between the two counts, values that are red represent corridors that have higher AM ridership, while values in green represent higher ridership in the PM. Due to ridership numbers being greater on most corridors during the PM, PM analysis generally represents the worst-case analysis.

Table 8.3
AUTOMATIC PASSENGER COUNTER COUNTS (OCTOBER 2106)

Screenline	Direction	Stop ID	AM Load	PM Load	PM - AM
NE 45th St W/O Mary Gates Drive	Eastbound	29,920	226	640	414
	Westbound	25,200	869	258	-611
			1,095	898	-197
NE 45th W/O Brooklyn Ave NE	Westbound	11,354	154	658	504
	Eastbound	10,911	952	328	-624
			1,106	986	-120
Roosevelt Way S/O NE 45th St	Southbound	9,605	1,295	166	-1,129
11th Ave NE S/O NE 45th St	Northbound	9,650	69	594	525
15th Ave NE S/O NE 43rd St	Southbound	10,912	997	694	-303
	Northbound	11,352	296	794	498
			1,293	1,488	195
University Way S/O NE 43rd St	Southbound	9,134	864	289	-575
	Northbound	9,582	147	973	826
			1,011	1,262	251
Campus Pkwy E/O Brooklyn Ave	Westbound	9,138	502	865	363
	Eastbound	9,580	203	289	86
	Eastbound	9,575	564	554	-10
	<i>EB total</i>		767	843	76
			1,269	1,708	439
Pacific St E/O 15th Ave NE	Northbound	29,240	620	506	-114
	Southbound	29,240	515	824	309
			1,135	1,330	195
Stevens Way at Pend Oreille	Westbound	75,406	1,330	525	-805
	Eastbound	75,410	176	1089	913
			1,506	1,614	108
Montlake Bridge	Southbound	29,247	589	1139	550
	Northbound	25,752	585	364	-221
			1,174	1,503	329
University Bridge	Northbound	10,915	200	144	-56
	Northbound	9,560	201	281	80
	<i>NB total</i>		401	425	24
	Southbound	9,141	355	280	-75
	Southbound	10,916	131	287	156
	<i>SB Total</i>		486	567	81
	Total			887	992

Green indicates PM is higher than AM, **Red** indicates PM is lower than AM

The figure below shows the existing average transit travel speeds in October 2016 for the AM peak (7-9 AM) and for the PM peak (4-6 PM). AM transit speeds are significantly faster on every corridor except for two; Pacific St Eastbound and Roosevelt Way Southbound. This further demonstrates that the worst-case scenario occurs during the PM.

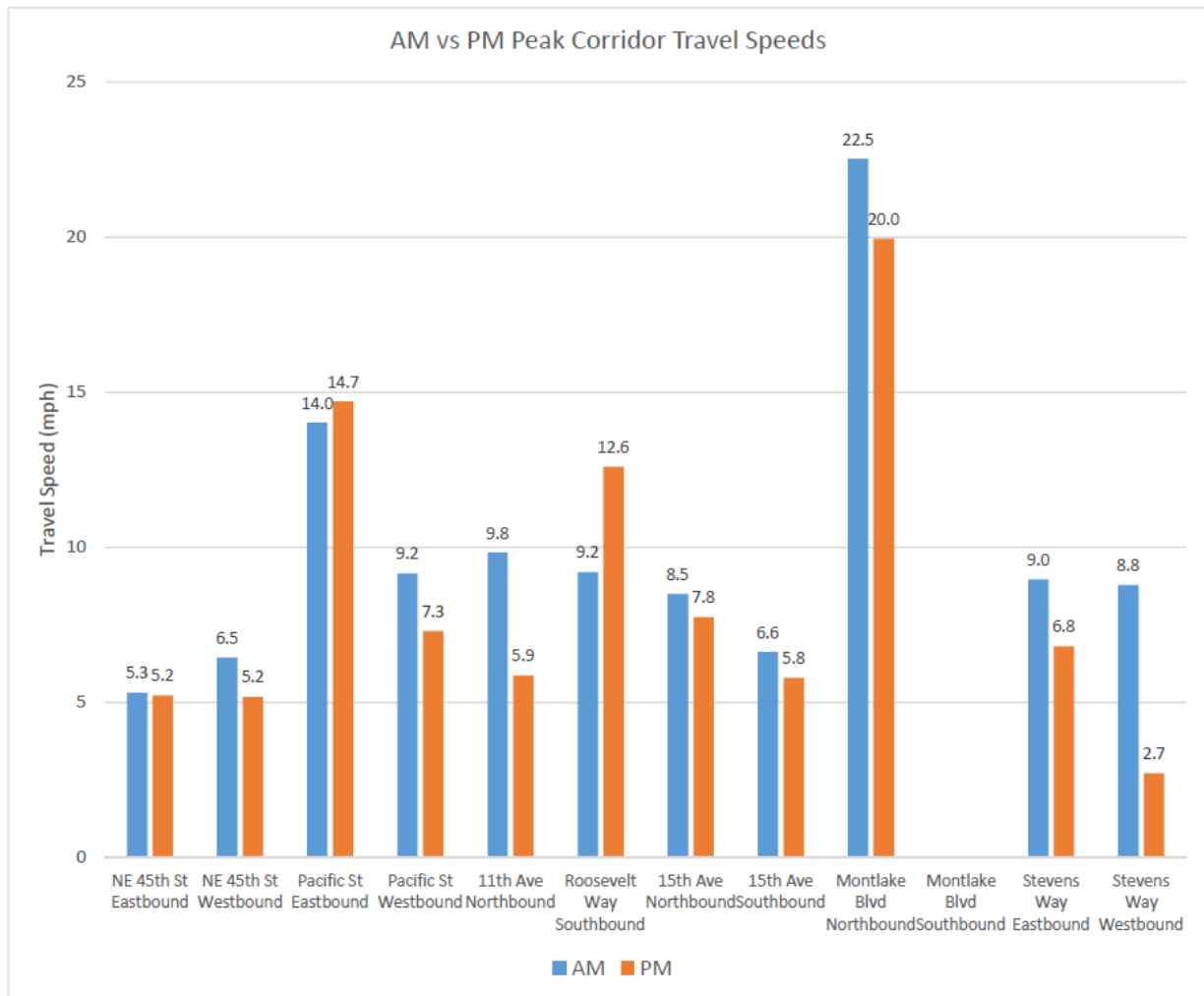


Figure 8.4 AM vs. PM Transit Corridor Travel Speeds

8.2 METHODS AND ASSUMPTIONS FOR EVALUATING EACH MOE

- **Assumptions:**
 - Development based on alternative growth scenarios for 6 Million net new GSF
 - All growth alternatives are assumed to operate the same for transit regardless of location of growth
 - Metro Connects proposed service plan for 2025 including Rapid Ride
 - Proximity to Rapid Ride transit stops
 - Pacific, Montlake, 15th Avenue
 - Link Light Rail System build out of ST2 (Lynnwood, Federal Way, Overlake, Redmond)
 - GIS Proximity changed to ¼ mile for Rapid Ride and ½ Mile to Light Rail Stations
 - Notably of total 25,574 current full and part time employees, address by zip code adjacent to light rail is currently 26% and will increase to 62 % with extension of light rail to Lynnwood. 2025 Metro Connects proposed Rapid Ride
 - GIS Proximity changed to ¼ mile for Rapid Ride and ½ mile for LRT
 - Proximity distances are shown as the crow flies
 - Dwell time is based on transit passenger growth and average dwell per passenger of 2.5 for alighting and 2.75 for boarding (Source TCRP 165 table for average passenger service times)
 - Comparison of current auto travel speeds and transit travel speeds
 - AVL (Automatic Vehicle Location) data from Metro, CT and ST (PT) Dwell times)
 - APC (Automatic Passenger Count) data from Metro, ST/PT, CT
 - 2-3 car link trains and 6 minute headways
 - Bus capacity 60 persons per 40' and 100 persons per 60' and 150 per LRT car

Future

- Auto travel speeds from corridor (auto) analysis
- Future estimates of dwell time (based on passengers)
- Assumes no change on fare payment or boarding and alighting times
- Passenger counts at screenlines were “grown” with background and project related trips
This conservatively assumes no rerouting of these trips to Link where service was redundant (example CT service and Metro Route 41)
- Rapid Ride is 10 min headways and all buses are articulated
- Assumes existing mode split of 20% SOV
- Distribution from 2035 Comprehensive Plan Travel Demand Model
- Same bus and train car capacities
- 3 car link trains currently and 4 car link light rail trains in the future.
- 6 minute headways currently and 3 min Headways in the future
- All alternatives are the same

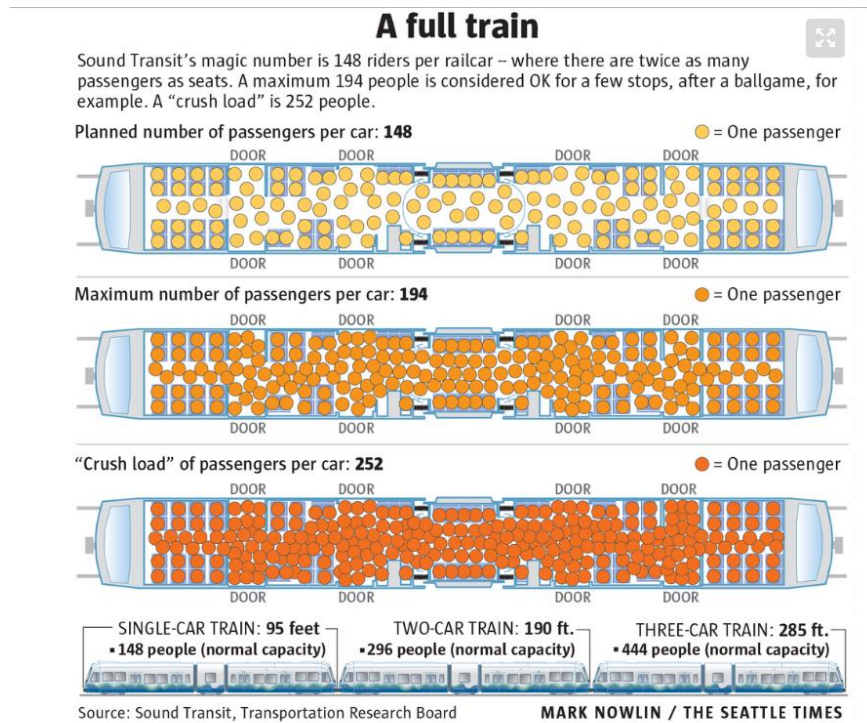


Figure 8.5 Sound Transit Passengers Per Car

Notably, for screenline growth, ridership is increased over existing and no re-routing (for example to light rail) is assumed. This likely represents a “double counting” as routes redundant to light rail (for example the 41 or Community Transit Routes) may be counted in the bus baseline, as well as the Light Rail forecasts.

8.3 ESTIMATION OF BACKGROUND GROWTH

Increased transit ridership for estimating background transit growth was estimated as 12% total for the 10-year design horizon. This is a compromise between the 6% total 10-year growth projected in the 2035 Comprehensive Plan travel demand model and the recent experience of 10% growth in just one year. This background growth was added to screenlines and added to boardings before adding Campus growth as a baseline No Action scenario. Passenger counts at screenlines were not reassigned to new Light Rail (for example the CT service and Metro Route 41).

8.4 TRIP GENERATION, DISTRIBUTION/ASSIGNMENT

Transit trips were assigned to the network noted as originating from 7 key transit locations /stations as origins. Based on the trip distribution from the comprehensive plan model transit trips were assigned to corridors through screenlines, based on assumed destinations, as shown below. These new passengers (demand) were added to the passenger demand at the screenlines with existing and background growth. These were then compared to capacity of transit that is anticipated through Metro Connects 2025 Plan and the expansion of Link Light Rail.

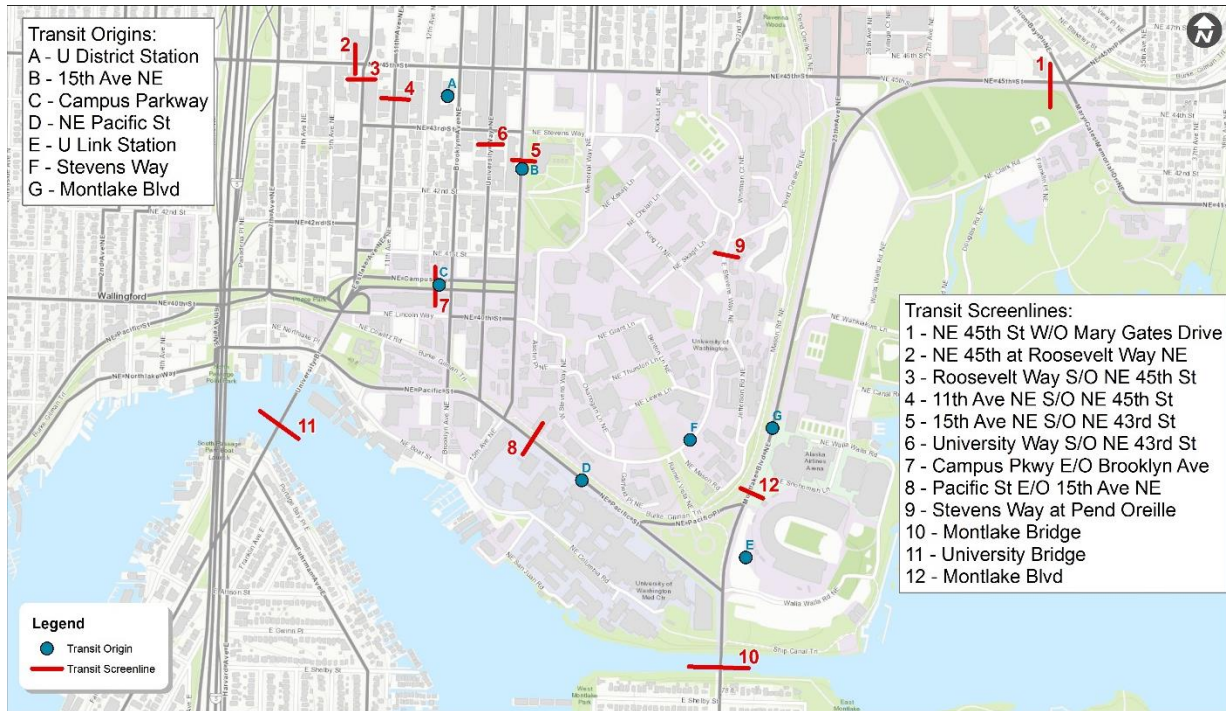


Figure 8.6 Transit Screenline Locations

Trips assigned to these stop locations also factored into the passenger counts at stations/stops and increased delay for vehicles with additional boarding /alighting time.

Transit (bus) stop capacity looked only at what was available today in No Action and what Metro Connects suggests in the future.

**Table 8.4
EXISTING AND FUTURE PASSENGER LOADS**

Corridor	Existing APC	Background APC	Notes
NE 45th St W/O Mary Gates Drive	584	655	12% growth
NE 45th St & Roosevelt Way	544	610	12% growth
Roosevelt Way S/O NE 45th St	108	121	12% growth
11th Ave NE S/O NE 45th St	386	216	12% growth then reduce by half and shift half riders to Link due to route consolidation
15th Ave NE S/O NE 43rd St	967	1,084	12% growth
University Way S/O NE 43rd St	820	459	12% growth then reduce by half and shift half riders to Link due to route consolidation
Campus Pkwy E/O Brooklyn Ave	1,110	995	12% growth then 20% decrease in ridership because of route changes through this screenline
Pacific St E/O 15th Ave NE	865	969	12% growth
Stevens Way at Pend Oreille	1,049	1,175	12% growth
Montlake Bridge	977	1,095	12% growth
University Bridge	646	724	12% growth
Montlake Blvd	297	333	12% growth
UW/Stadium Station	1400	16,275	Assumes 60,000 daily riders with peak factor of 0.4 and peak hour factor of 0.65 + riders added from other route consolidation

8.5 ANALYSIS RESULTS

Detailed results of the transit analysis can be found in the Transportation Discipline Report.

9 ANALYSIS OF VEHICLE FACILITIES (NOT INCLUDING PARKING)

Six measures of effectiveness are analyzed to evaluate the impact of the campus growth on the transportation network:

- Intersection operational level of service for intersection located in the primary and secondary impact area
- Arterial Corridor Speeds
- Screenline Volumes
- Cordon Volumes
- Caps are set as 1990 trip levels to the University District and University (MIO)
- Freight Corridor impact

These measures respond to these questions:

- Will the CMP increase vehicle congestion and will intersections and corridor speeds worsen?
- How will screenlines identified in the comprehensive plan increase?
- How will traffic grow in the overall area?

9.1 DATA COLLECTED

Data collected includes:

- Intersection turning movement counts at 79 intersections in the primary impact analysis zone and 7 intersections in the secondary impact analysis zone
 - Counts collected include vehicles, pedestrians, and bicycles and were conducted mid-week during the PM peak hour
- Travel times were collected along key corridors utilizing the floating car method during PM peak periods with 5-10 travel time runs
- Intersection channelization was based on field observations and signal timing was based on data collected from SDOT
- Existing daily volumes are noted below from 2014 (Source SDOT)
- Signal timing dial cards were collected from the SDOT

9.2 PEAK ANALYSIS PERIOD

The campus is a vibrant and active place with activities at all times of the day and every day of the week. To determine the appropriate analysis period (morning or afternoon, weekday or weekend), 24-hour count data from the City of Seattle was obtained and reviewed for several key locations throughout the study area. This data was also used to compare weekday AM and PM peak hour volumes to determine which peak period had higher volumes, and thus should be included in the analysis. The weekday comparison was done for the 7 – 9 a.m. period and the 4 – 6 p.m. period. Table 9.1 summarizes the peak one-hour count information at key locations within the study area within these time periods. The data

presented in the table represents the peak of the daily volumes and may not necessarily correspond to the same one-hour period at each location.

**Table 9.1
PEAK HOUR COMPARISON (WEEKDAY VS. WEEKEND)**

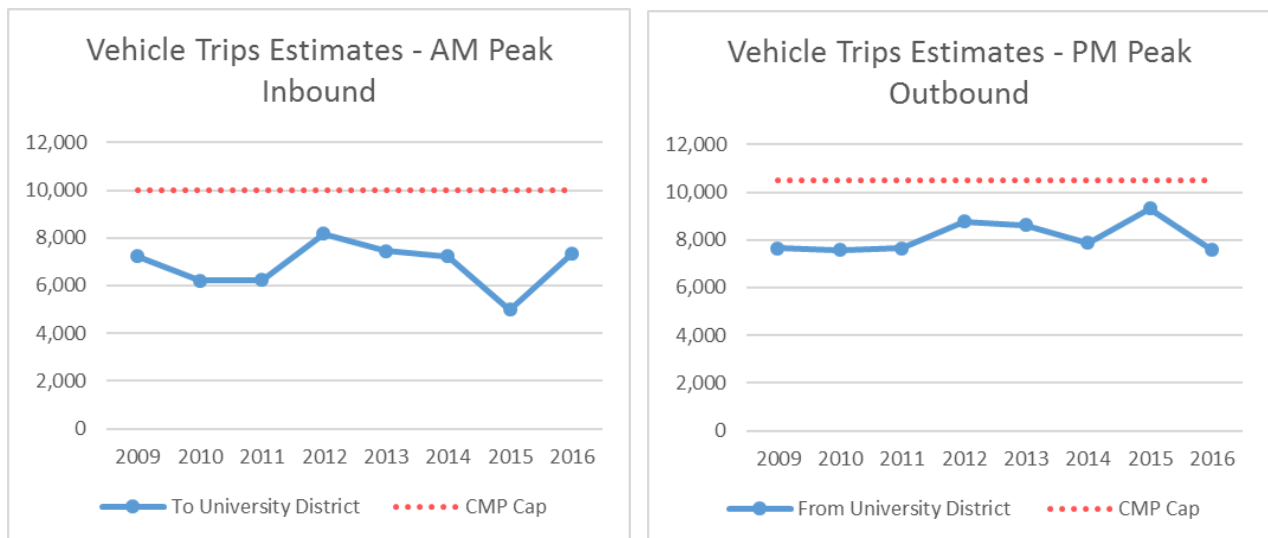
Location	Peak Hour Volumes							
	Weekday PM (Tues-Thurs) ¹		Weekday AM (Tues-Thurs) ¹ (Percent of PM Peak)		Saturday (Percent of Weekday)		Sunday (Percent of Weekday)	
	Volume	Peak Hour	Volume	Peak Hour	Volume	Peak Hour	Volume	Peak Hour
Montlake Boulevard NE, north of NE Pacific Place. ²	4,035	5 – 6 PM	3,465 (85%)	8 – 9 AM	4,885 ⁴ (121%)	5 – 6 PM	3,680 (91%)	4 – 5 PM
15th Avenue NE, south of NE 45th Street. ²	1,220	4 – 5 PM	905 (74%)	8 – 9 AM	895 (73%)	3 – 4 PM	705 (58%)	3 – 4 PM
11th Avenue NE, south of NE 45th Street. ²	1,080	5 – 6 PM	305 (28%)	8 – 9 AM	785 (73%)	2 – 3 PM	455 (42%)	3 – 4 PM
Roosevelt Way NE, north of NE 50th Street. ³	880	5 – 6 PM	910 (103%)	8 – 9 PM	895 (102%)	7 – 8 PM	710 (81%)	5 – 6 PM

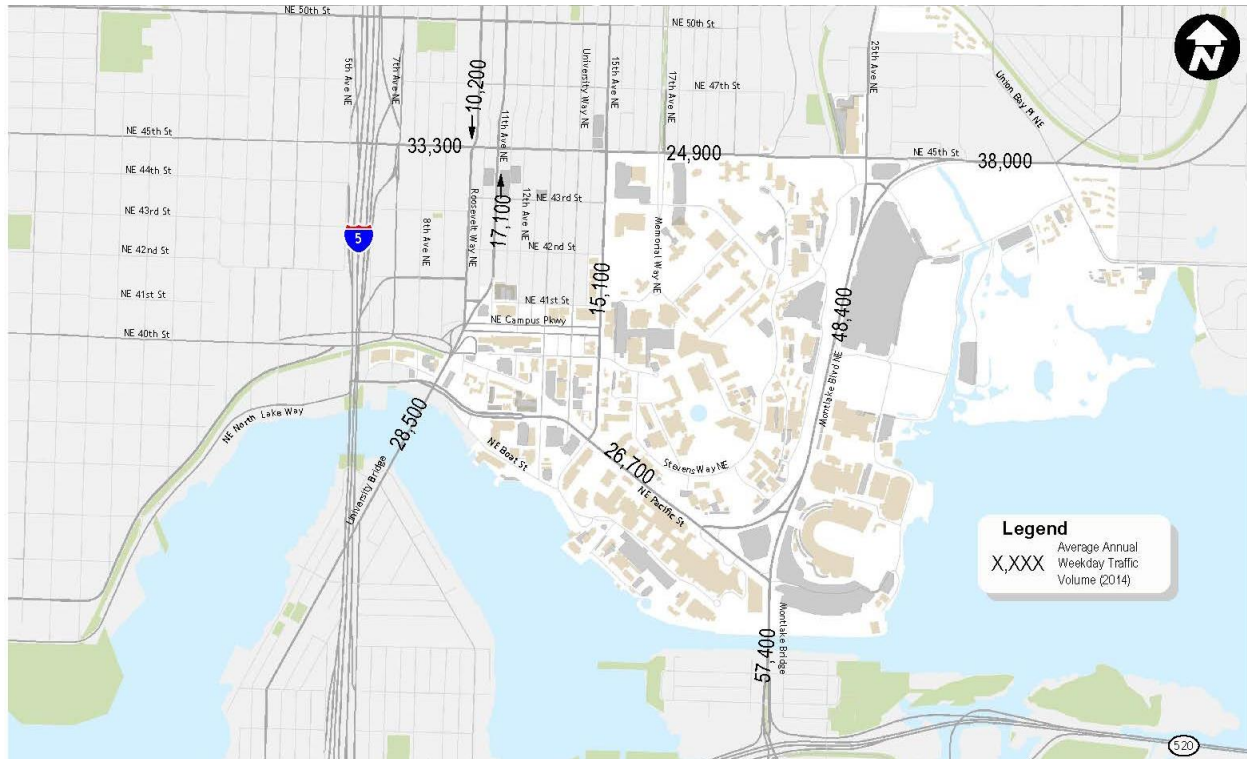
1. PM peak hour between 4:00 PM – 6:00 PM, AM peak hour between 7:00 AM – 9:00 AM
2. February 2016, SDOT traffic count data
3. October 2014, SDOT traffic count data
4. Traffic volumes reflects activity associated with a sporting event (basketball game)

As shown in Table 9.1, traffic volumes observed during peak Saturday and Sunday peak hours range from 42 percent to 121 percent of the weekday PM peak hour. The highest Saturday volume along Montlake Boulevard NE (121 percent of the PM peak hour) coincides with a University of Washington Huskies basketball game and explains the higher volumes. Additionally, the AM peak hours ranged from 28 to 103 percent of the weekday PM peak hour. During the AM peak hour volumes are higher along Roosevelt Way NE. Roosevelt Way NE and 11th Avenue NE operate as a couplet, one-way southbound along Roosevelt Way NE and one-way northbound along 11th Avenue NE. The higher volumes along Roosevelt Way NE indicates the directionality of traffic i.e. more vehicles are traveling southbound (Roosevelt Way NE) during the AM and northbound (11th Avenue NE) during the PM peak hours. Total couplet volumes during the PM peak hour are 1,960 vehicles and the AM peak hour are approximately 1,215 vehicles or 62 percent of the PM peak hour volumes.

Generally, throughout the study area the PM peak hour represents the highest volumes. The differences noted between the weekday AM and PM peak hour volumes are nominal and within the range of daily fluctuations. Existing turning movement counts were collected in October and November 2015 within the study area shown in Appendix C. As such, the weekday PM peak hour was chosen as the time period to measure the impacts of the alternatives. This time coincides with the end of the work day for much of the University as well as people travelling through the area and the end of classes for many. As a result, the PM Peak period will be analyzed for all transportation operations.

Vehicle trip estimates and performance over the last 7 years related to the caps for the University District are noted below.





9.3 VEHICLE ANALYSIS METHODS AND ASSUMPTIONS

The following sections review methods and assumptions associated with the intersection and arterial lever of service analysis.

9.3.1 Synchro 9

Intersection Operations

Weekday PM peak hour traffic operations for existing and future conditions were evaluated at the study intersections based on the procedures identified in the *Highway Capacity Manual* (2010), and were evaluated using *Synchro 9*. *Synchro 9* is a software program that uses *HCM* methodology to evaluate intersection LOS and average vehicle delays. Intersection level of service was based on methods outline in the *HCM 2010* for signalized and unsignalized intersections unless otherwise prohibited by methodologies in the *HCM 2010*. For example, 5-leg intersections like the NE 45th Street/Mary Gates Memorial Drive NE/Union Bay Place NE/NE 45th Place intersection are not supported under the *HCM 2010* methodology. Intersections evaluated under *HCM 2000* methodologies are noted.

The operational characteristics of an intersection are determined by calculating the intersection level of service (LOS). At signalized intersections, LOS is measured in average control delay per vehicle and is typically reported using the intersection delay and volume-to-capacity ratio (V/C). At unsignalized side-street, stop-controlled intersections, LOS is measured by the average delay on the worst-movement of the intersection. Traffic operations and average vehicle delay for an intersection can be described qualitatively with a range of levels of service (LOS A through LOS F), with LOS A indicating free-flowing traffic and LOS F indicating extreme congestion and long vehicle delays. The LOS criteria for signalized and unsignalized intersections is described in Table 9.2.

Table 9.2
LEVEL OF SERVICE CRITERIA: SIGNALIZED AND UNSIGNALIZED INTERSECTIONS

LOS ¹	Average Signalized Delay	Average Unsignalized Delay	General Description
A	< 10 seconds	< 10 seconds	Free Flow
B	10 - 20 seconds	10 - 15 seconds	Stable Flow (slight delays)
C	20 - 35 seconds	15 - 25 seconds	Stable flow (acceptable delays)
D	35 - 55 seconds	25 - 35 seconds	Approaching unstable flow (tolerable delay, occasionally wait through more than one signal cycle before proceeding)
E	55 - 80 seconds	35 - 50 seconds	Unstable flow (intolerable delay)
F	> 80 seconds	> 50 seconds	Forced flow (jammed)

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

Other baseline intersection assumptions utilized in the Synchro 9 model include the following:

Peak Hour Factor (PHF): Existing peak hour factors (PHF) were taken from individual intersection turning movement counts. Future PHF were based on the future anticipated No Action volumes at the intersection and NCHRP Report 599. The report identifies a volume range associated with typical PHFs as outlined in Table 9.3.

Table 9.3
NCHRP REPORT 599 PEAK HOUR FACTOR BY VOLUME

Volume Range	Peak Hour Factor
0 – 500	0.82
501 – 1,000	0.89
1,001 – 1,500	0.91
1,501 – 2,000	0.92
2,001 – 2,500	0.93
>2501	0.94

Intersection PHFs were updated to reflect the numbers in Table 9.3 based on the total entering volumes at the intersection with the expectation of intersections where the existing PHF was higher under existing conditions.

Heavy Vehicles: Heavy vehicles percentages were taken from existing turning movement counts and held constant under No Action and Action Alternative analysis.

Pedestrian/Bicycle Volumes: Existing pedestrian and bicycle volumes were collected as part of the individual turning movement counts. Future No Action pedestrian and bicycle volumes were grown by 10 percent to account for background growth. Under the Action Alternatives pedestrian and bicycle volumes were grown above the No Action Alternative based on the anticipated development in the sectors and is shown in Table 9.4.

**Table 9.4
PEDESTRIAN AND BICYCLE VOLUME GROWTH BY ALTERNATIVE**

Area	Alternative 1	Alternative 2	Alternative 3	Alternative 4
West of I-5	10%	10%	10%	10%
North of NE 45th Street	5%	5%	5%	5%
South of NE 45th Street and west of MIO	15%	15%	15%	15%
Montlake	25%	25%	25%	25%
West Campus	50%	40%	53%	50%
South Campus	22%	22%	28%	4%
Central Campus	15%	15%	15%	18%
East Campus	13%	23%	4%	28%

The areas west of I-5, north of NE 45th Street, South of NE 45th Street and west of the MIO, and Montlake are further from development in the campus sectors and is therefore anticipated to experience less growth than areas directly adjacent to the development.

Signal Timing: Signal timing dial cards were obtained from the SDOT. Signal timing splits were optimized under the future No Action and Action Alternatives. Optimizing the signal timing split allows Synchro to reallocate the amount of green time based on individual volume movements at the intersection.

Intersection Improvements: Background intersection improvements were included where investments are planned and programmed either in Move Seattle, Modal Mobility Implementation Plans (example Bicycle Master Plan, Implementation Plan) the State’s Connecting Washington Partners, or investments planned and potentially funded by the University of Washington. The only added intersection or arterial capacity assumed was the Second Montlake Bascule bridge as part of the WSDOT SR 520 rest of the west.

Vehicle trip growth is calculated assuming both drive alone and rideshare vehicles.

Arterial Operations

Corridor travel times/speeds along study corridors were evaluated using the Synchro 9 network used for the intersection operations analysis and observed travel times/speeds collected. Travel time projections and average speeds reported from the Synchro model were calibrated to data measured in the field. Appendix C provides a summary of the existing travel times measured in the field, existing uncalibrated travel times from the Synchro model, and the resulting adjustment factor. The adjustment or calibration factor accounts for operational impacts from vehicle queuing, mid-block pedestrian crossing, on-street parking maneuvers, etc. not reflected in the Synchro delay calculations. The future travel times from the Synchro model are multiplied by the adjustment factor to determine future travel times calibrated to field conditions and accounting for the factors described above (i.e., queuing, parking, etc.).

9.4 BACKGROUND VEHICLE GROWTH

Background growth was based on growth was based on the travel demand model developed for the U District Upzone which also accounts for growth shown in the 2035 Comprehensive Plan model. Future 2028 volumes were developed by linearly interpolated between the existing 2015 counts and future 2035 model delta volumes to develop the future 2028 volumes.

9.5 VEHICLE TRIP GENERATION, DISTRIBUTION, AND ASSIGNMENT

As described previously, the methodology used to forecast the trip generation for the various transportation modes is based on mode split data for each population group. The basis for the mode split assumptions is a 3-year average of the transportation survey conducted by the University of Washington Transportation Services (UWTS) and includes a 20 percent SOV rate.

With campus growth, there is also an anticipated level of growth in visitors related to new buildings. Based on campus parking data and anecdotal data from other universities, trips from visitors range from 5 to 10 percent. For the purposes of this analysis, trips from visitors were assumed to be 10 percent of the total increased trips.

For the Campus Master Plan (CMP) No Action analysis volumes were developed by layering the anticipated project generated trips and visitor vehicle trips onto the future 2028 volumes. The steps for calculating Future 2028 No Action volumes is noted below:



Similar to the No Action alternative, the steps for calculating the CMP generated Action Alternative trips are shown below:

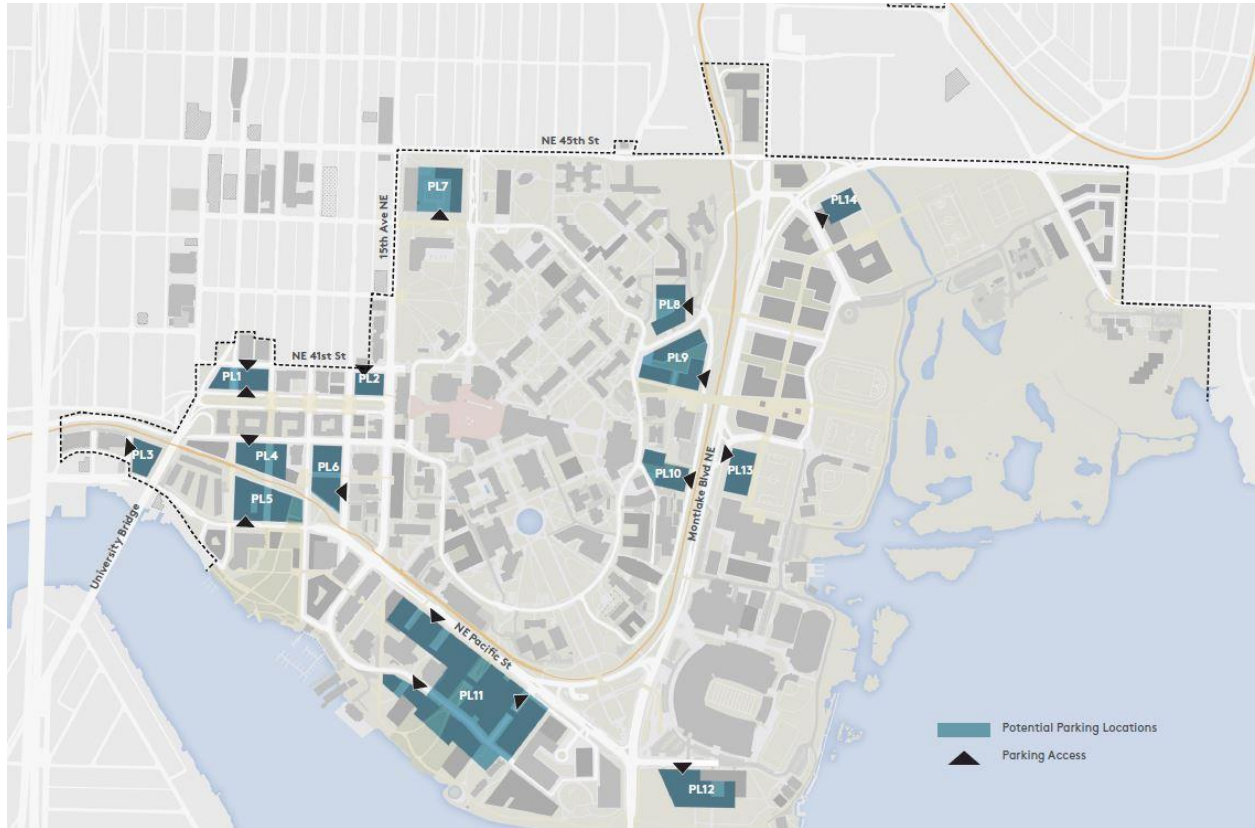
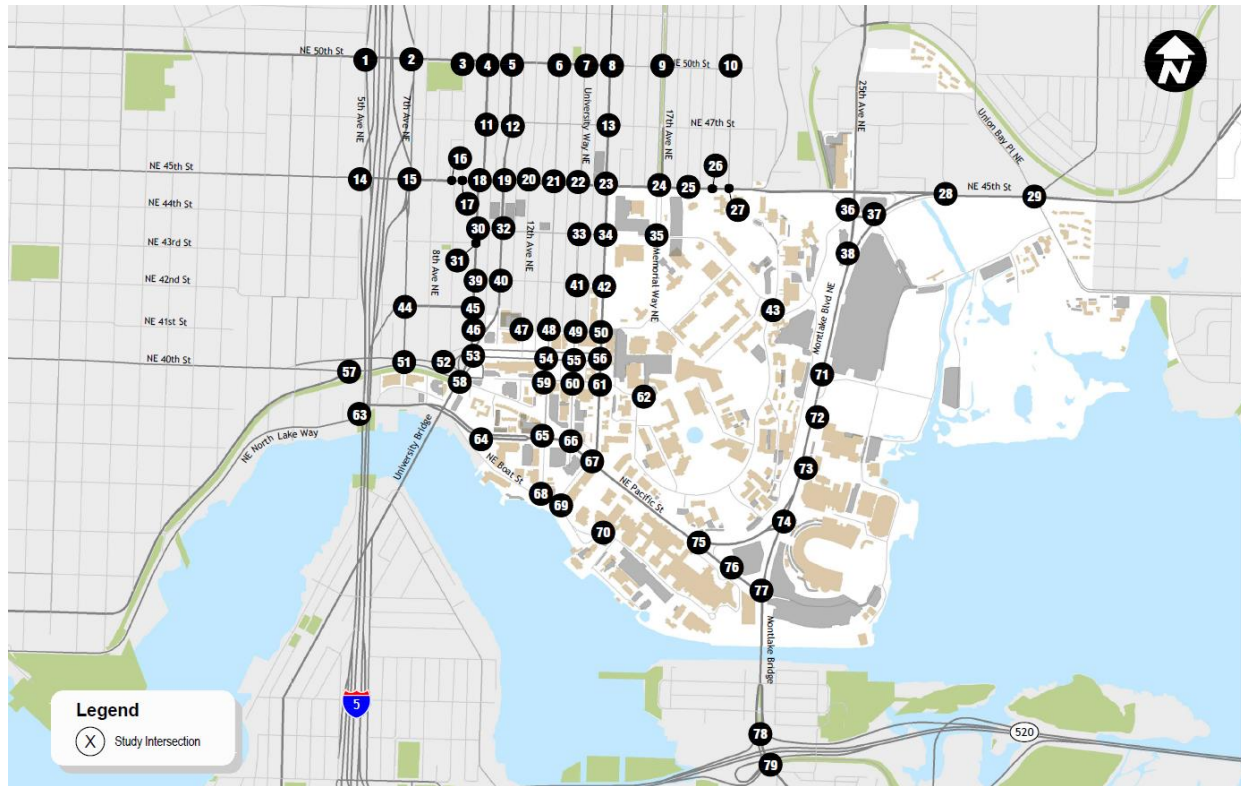


Figure 9.2 Proposed Driveway Locations

9.6 VEHICLE PERFORMANCE RESULTS

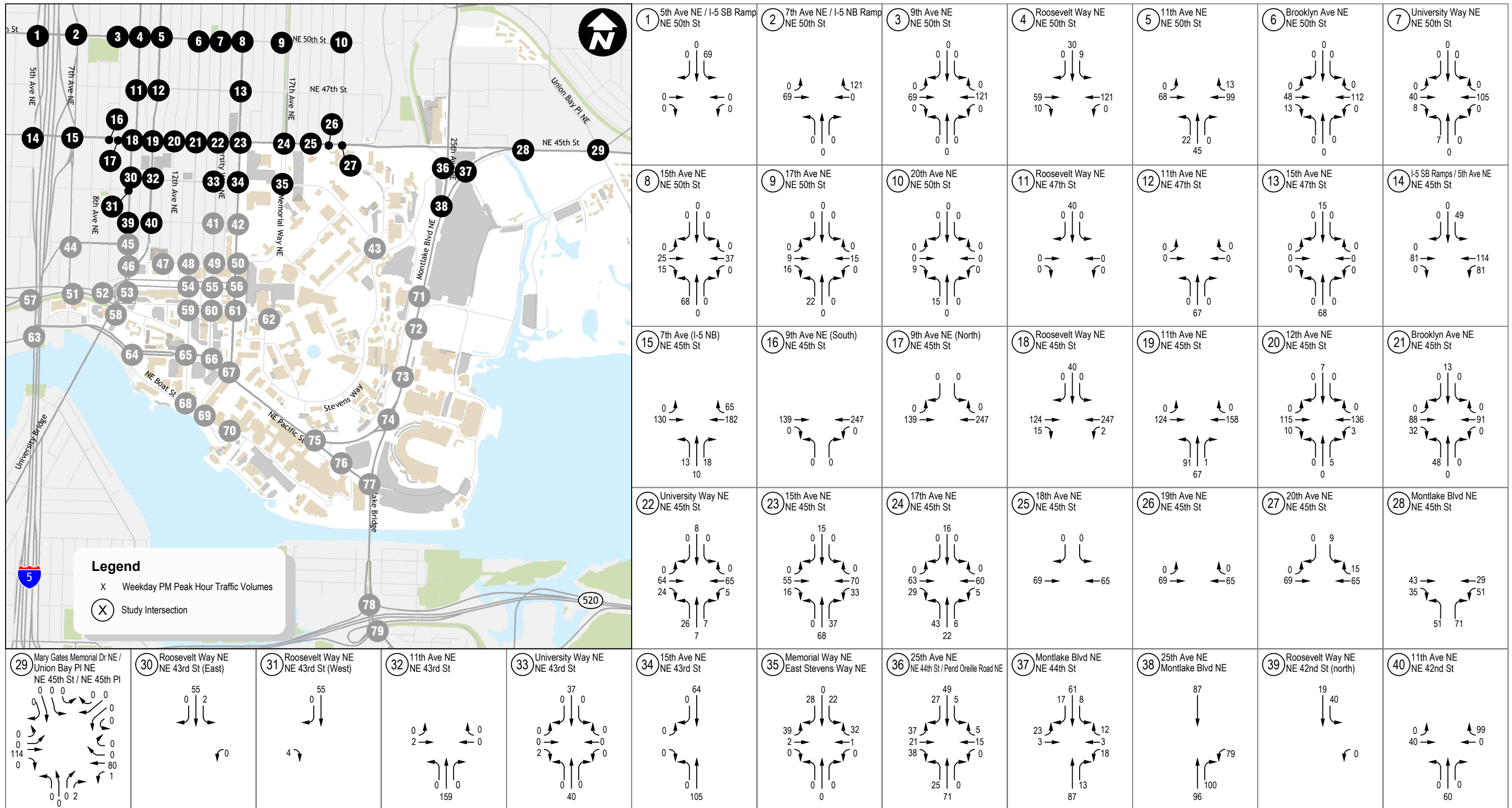
Study area intersections and corridors were determined based on a review of the key access routes to the university campus, development areas, consideration of previous studies, and limits of the existing Major Institution Overlay (MIO) boundary. Within this study area this report evaluates traffic operations at 79 intersections in the primary impact zone and 7 intersections in the secondary impact zone. These study area intersections are shown in Figure 9.3 and are concentrated within the primary impact area.



Source: Transpo 2016

Figure 9.3 Primary Impact Zone Study Intersections

Project trips for each potential garage location were assigned to the study intersections based on the general trip distribution patterns described previously and shown on Figure 9.1. The Alternative 1 project trips at each study intersection within the primary impact zone are shown in Figure 9.5 and Figure 9.6 below. The resulting Alternative 1 volumes are shown on Figure 9.7 and Figure 9.9 within the primary impact zone. Seven intersections within the secondary impact zone were analyzed, as shown below.



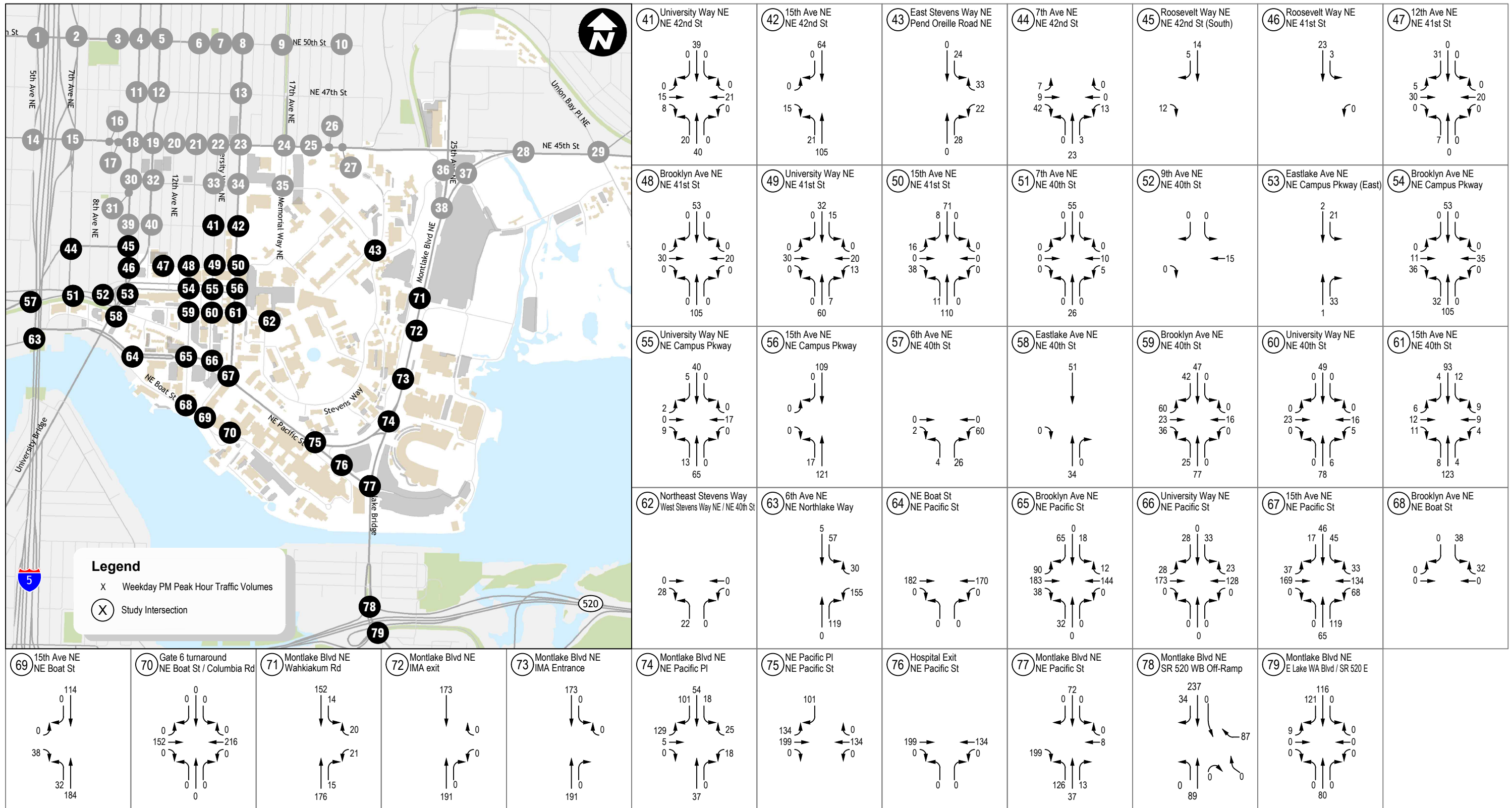
Future (2028) Alternative 1 (Intersections 1-40) Project Trips

University of Washington 2018 Campus Master Plan

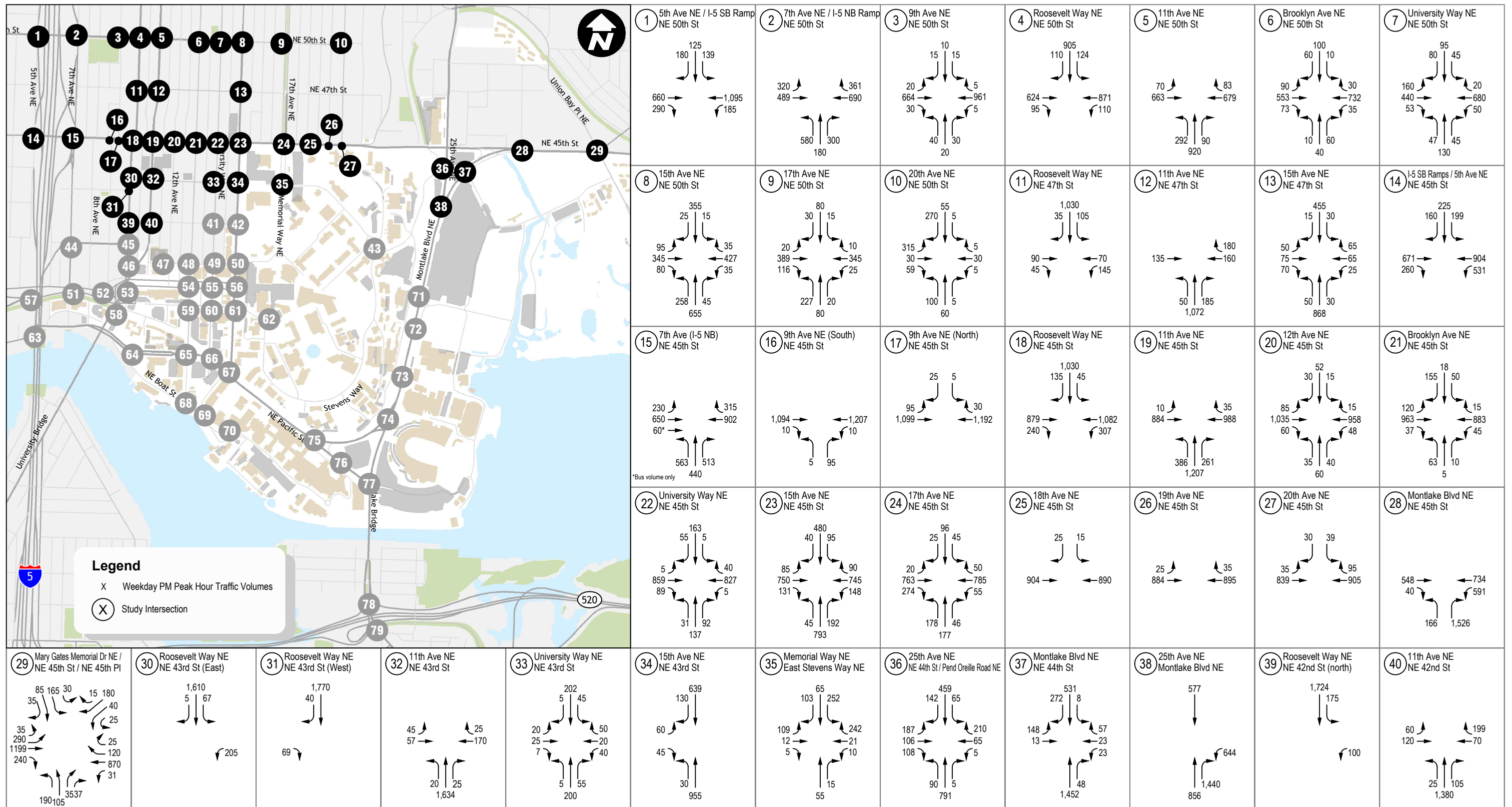
FIGURE

9.5

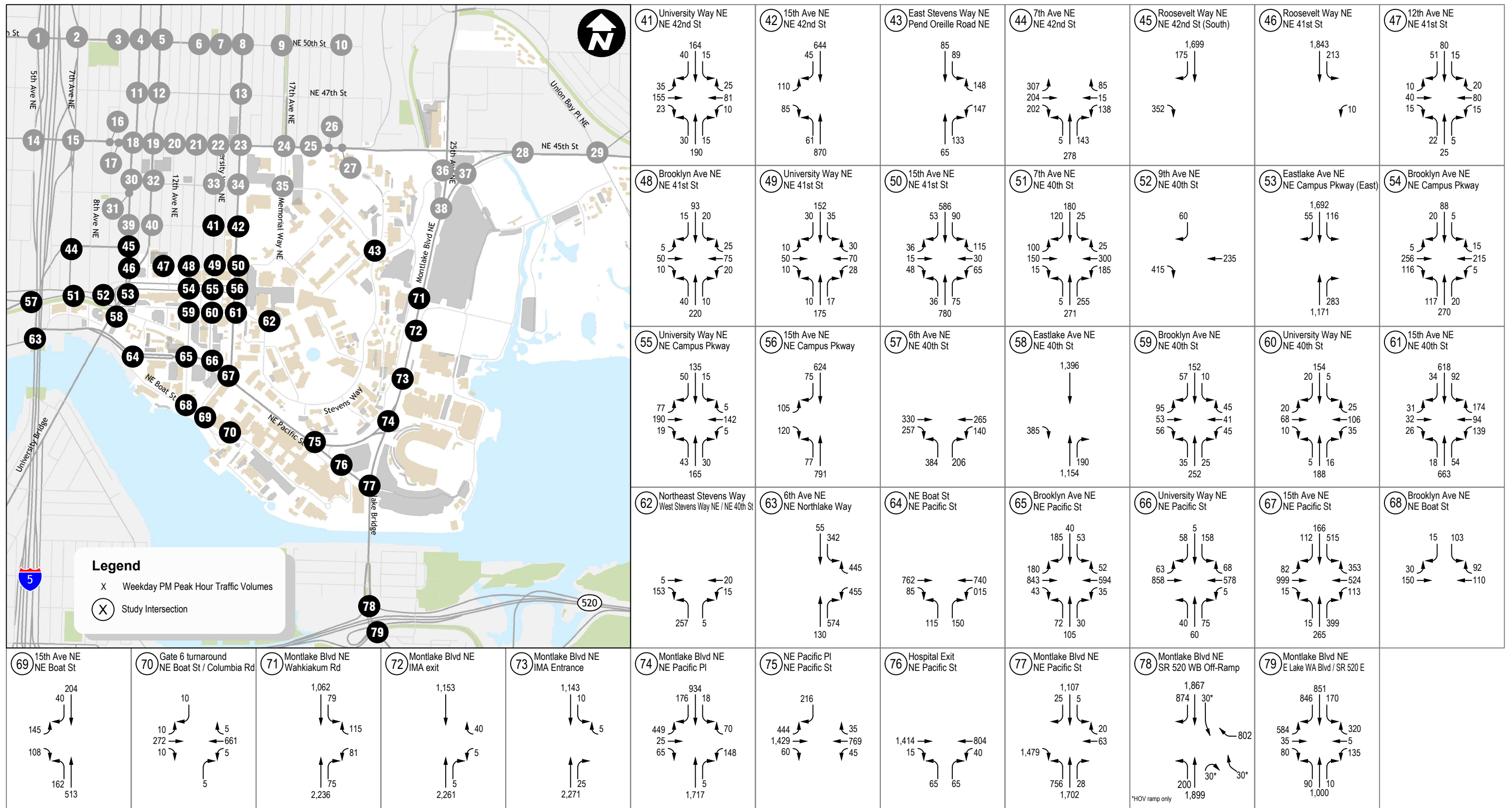




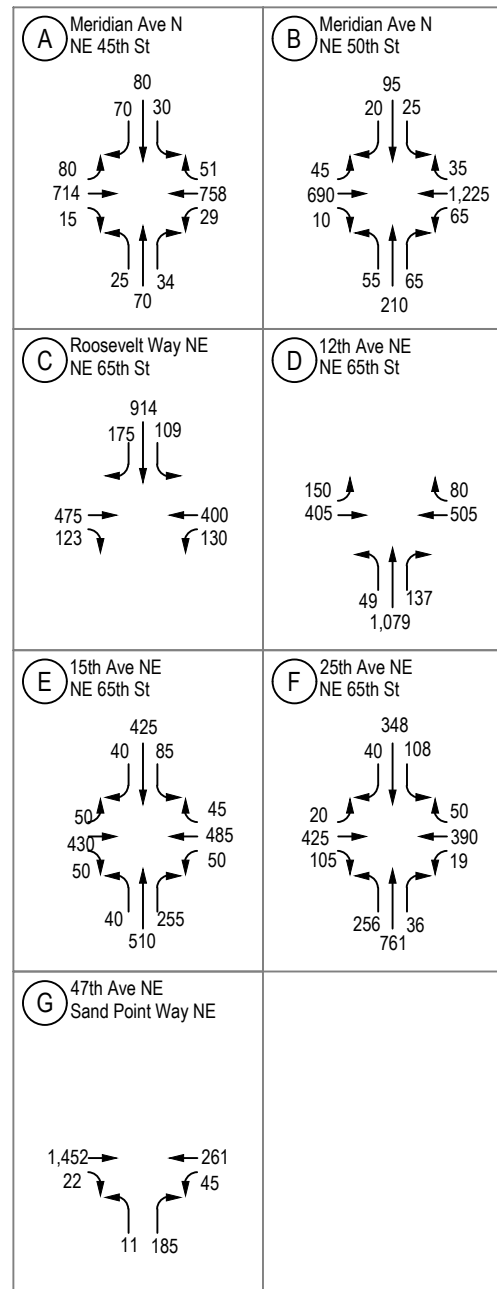
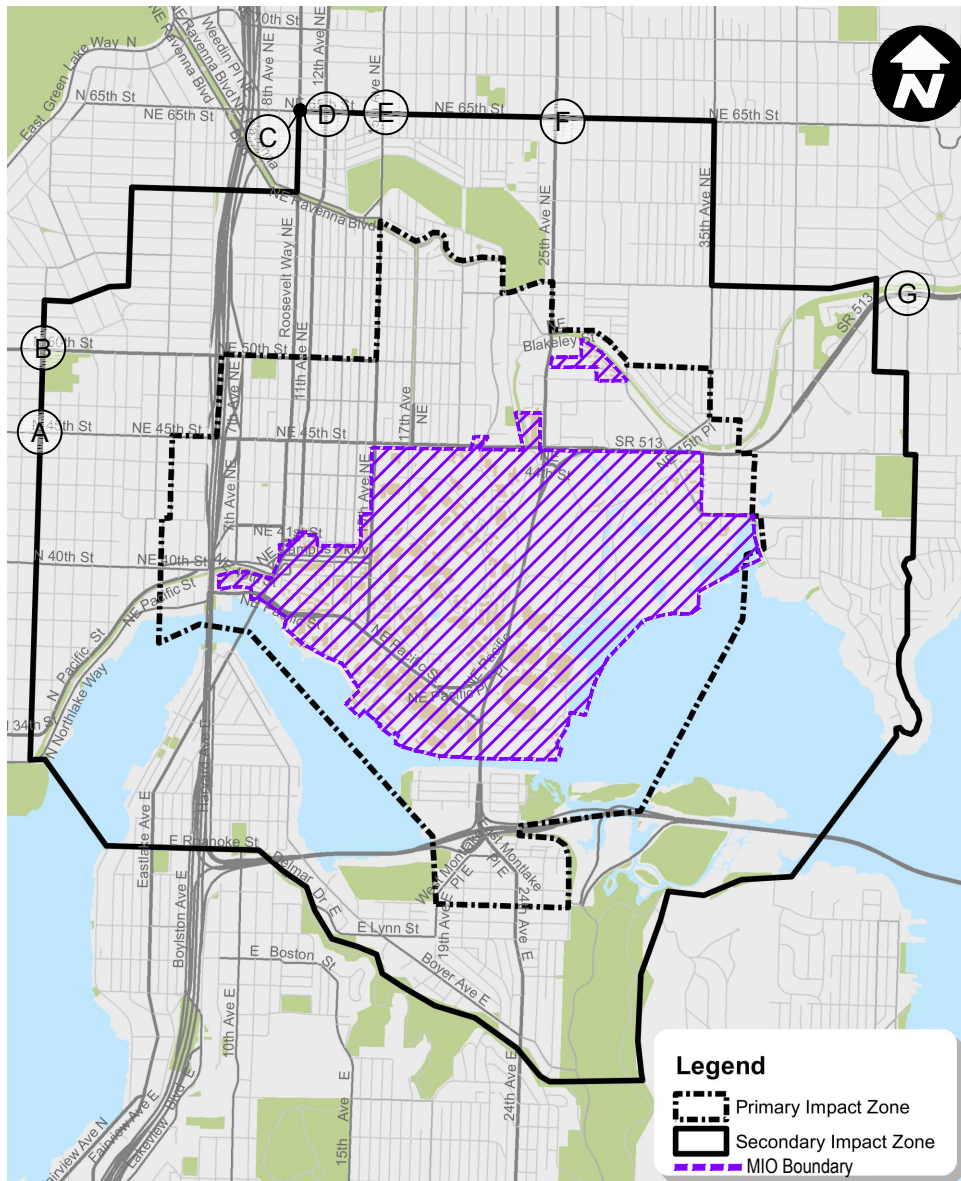
Future (2028) Alternative 1 (Intersections 41-79) Project Trips



Future (2028) Alternative 1 (Intersections 1-40) Weekday PM Peak Hour Traffic Volumes



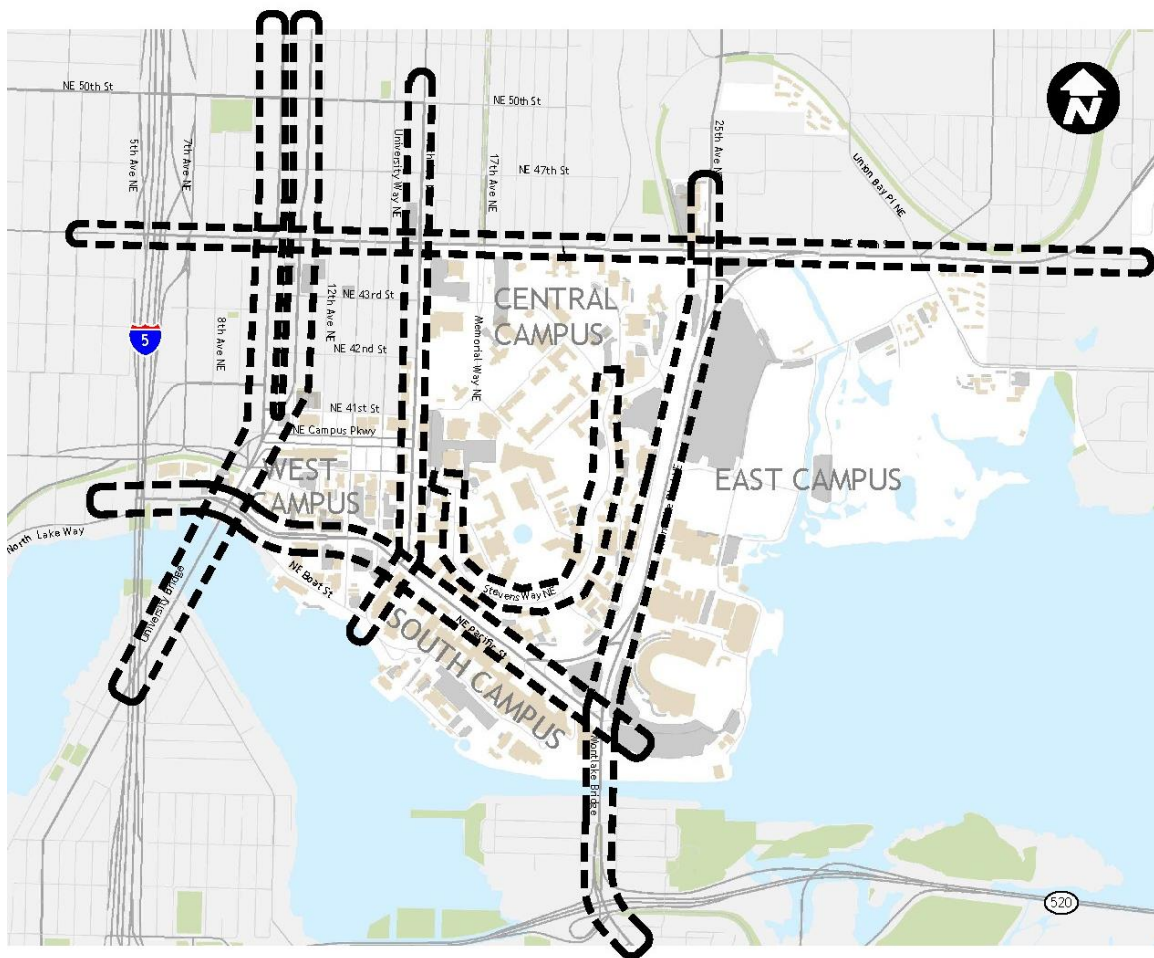
Future (2028) Alternative 1 (Intersections 41-79) Weekday PM Peak Hour Traffic Volumes



Alternative 1 Secondary Impact Zone Weekday PM Peak Hour Traffic Volumes

FIGURE 9.9

A corridor analysis was used to assess impacts within both the primary and secondary impact zones to evaluate corridor travel times and speeds. The corridors evaluated are shown in Figure 9.10.



Source: Transpo 2016

Figure 9.10 Study Corridors

Detailed results of the vehicle analysis can be found in the Transportation Discipline Report.

9.7 NE CAMPUS PARKWAY ANALYSIS METHODOLOGY

Note, as directed by Seattle Department of Construction and Inspections (SDCI) staff, additional analysis was conducted at the Brooklyn Avenue NE/NE Campus Parkway and University Way NE/NE Campus Parkway intersections to determine the most appropriate way to evaluate the intersections operations due to the current configuration. The NE Campus Parkway intersections at Brooklyn Avenue NE and University Way NE could each be evaluated in two different ways since each location is separated by a grass median along NE Campus Parkway. Because of this median, each intersection has two traffic signals operating as one. Operations at these two intersections were reviewed as either separate or combined intersections considering the overall weighted average delay. The results are summarized in Table 9.5.

Table 9.5
CAMPUS WAY LEVEL OF SERVICE ALTERNATIVE METHODOLOGY SUMMARY – EXISTING
CONDITIONS

Intersection	Existing PM Peak Hour	
	LOS ¹	Delay ²
<i>Brooklyn Avenue NE/NE Campus Parkway</i>		
North Intersection	B	14
South Intersection	B	18
<i>Evaluated as Two Intersections – Weighted Average</i>	<i>B</i>	<i>17</i>
<i>Evaluated as One Intersection</i>	<i>B</i>	<i>19</i>
<i>University Way NE/NE Campus Parkway</i>		
North Intersection	B	16
South Intersection	B	10
<i>Evaluated as Two Intersections – Weighted Average</i>	<i>B</i>	<i>12</i>
<i>Evaluated as One Intersection</i>	B	14

Source: Transpo Group, 2016

1. Level of service.

2. Delay in seconds

As shown in Table 9.5, the total intersection delay is approximately two seconds greater when the intersections are evaluated as a single intersection. Based on this, the operational analysis at these two intersections evaluates each location as a single intersection which provides a conservative analysis considering a single intersection configuration. All future scenarios the intersections are evaluated as one intersection.

9.8 ARTERIAL LEVEL OF SERVICE OPERATIONS

It is recognized that six arterial corridors in the site vicinity—NE 45th Street, NE Northlake Way/Pacific Street, Roosevelt Way NE, 11th Avenue NE, 15th Avenue NE, and Montlake Boulevard NE—can experience extensive congestion related to the high volume of traffic that accesses I-5 and SR 520. Corridor analysis adds context to the results of the intersection LOS because it takes into account general travel times

between intersections as well as additional delay anticipated at intersections for the specific movements relevant to the identified route. The City of Seattle has not defined a level of service standard for corridors. Instead this information is used to gauge the change in operations when evaluating the different alternatives.

As discussed previously, corridor travel times/speeds were evaluated using the Synchro 9 network used for the intersection operations analysis and observed travel times/speeds collected in January 2016. Signalized intersections along this corridor not evaluated in the previous section were added to the Synchro 9 network and existing traffic volumes collected at these intersections from a variety of sources included for this corridor evaluation and balanced with the individual study intersections described in the previous section.

Travel time projections and average speeds reported from the Synchro model were calibrated to data measured in the field. The adjustment or calibration factor accounts for operational impacts from vehicle queuing, mid-block pedestrian crossing, on-street parking maneuvers, etc. not reflected in the Synchro delay calculations. Future travel times from the Synchro model are multiplied by the adjustment factor to determine future travel times calibrated to field conditions and accounting for the factors described above (i.e., queuing, parking, etc.).

Detailed results of the arterial level of service analysis can be found in the Transportation Discipline Report.

9.9 SCREENLINE ANALYSIS

The following section describes the screenline analysis completed for two designated screenlines within the study area, consistent with the City of Seattle's Transportation Concurrency system. Screenlines are imaginary lines across which the number of passing vehicles is counted. In this study, screenlines were selected to count vehicle traffic entering and exiting the University of Washington primary and secondary study area. As part of the Mayor's Seattle 2035 Comprehensive Plan (City of Seattle, 2016), two screenlines are identified within the vicinity of the University of Washington, as shown in Figure 9.11. Screenline 5.16 is an east-west screenline, measuring north-south travel, and extending along the ship canal to include the University and Montlake Bridges. Screenline 13.13 is a north-south screenline, measuring east-west travel, and extending east of I-5 between NE Pacific Street and NE Ravenna Boulevard. Screenline locations are shown in Figure 9.11.

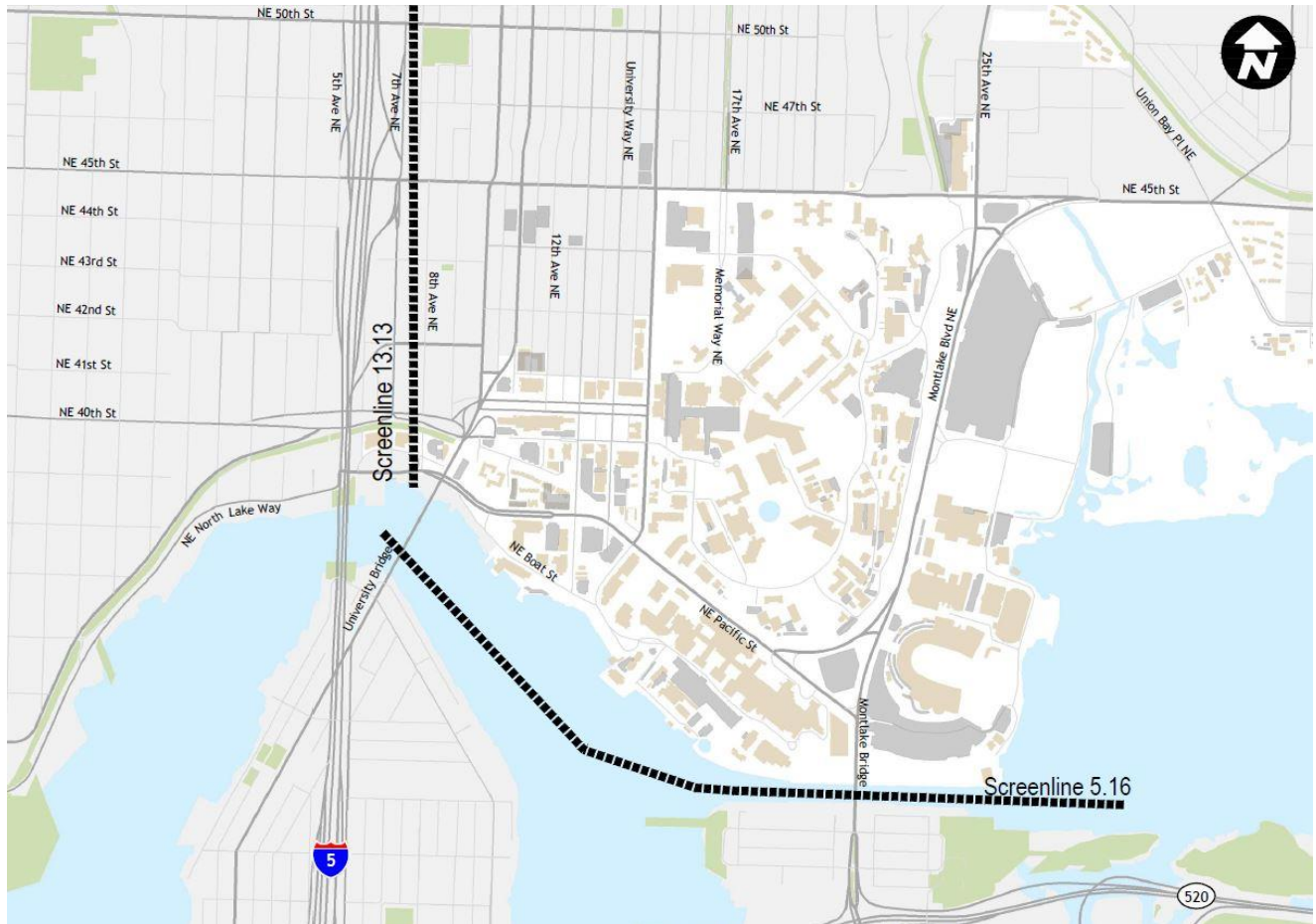


Figure 9.11 Study Area Screenlines

The screenline analysis includes volume to capacity (V/C) calculations for the vehicles traversing the screenlines using existing (2015) traffic volumes and roadway capacity estimates. Existing roadway capacity estimates are shown in Table 9.6 below.

Table 9.6
ROADWAY CAPACITY ASSUMPTIONS

Roadway Description	Capacity (per direction, per hour)
Two-lane street	800
Four-lane street	1,600
Six-lane street	2,400
Two-lane street with frequent buses	750
Four-lane street with frequent buses	1,450
Six-lane street with frequent buses	2,150

Source: NACTO and Transpo Group, 2016

The analysis included volume-to-capacity (V/C) calculations for the vehicles traversing the screenlines using Alternative 1 traffic volumes and interpolated roadway capacity estimates. Roadway capacity for the 2028 horizon year was interpolated using 2016 capacity estimates described in the Transportation Discipline Report Affected Environment section, and 2035 capacity estimates referenced in the May 2016 Seattle Comprehensive Plan Update Final EIS. Alternative 1 roadway capacity estimates are shown in Table 9.7 below. Detailed screenline volumes and V/C calculations are included in Appendix C.

**Table 9.7
ROADWAY CAPACITY AT STUDY AREA SCREENLINES**

Screenline	Alternative 1 Capacity
5.16 – Ship Canal, University, and Montlake Bridges	
Northbound	4,210
Southbound	4,210
13.13 – East of I-5, NE Pacific Street to NE Ravenna Boulevard	
Eastbound	6,119
Westbound	6,119

Source: Transpo Group, 2016

Level of service standards for the screenline analysis are based on the volume to capacity ratio of a screenline. As described in the Seattle Comprehensive Plan Update EIS, the LOS standard volume to capacity ratio for Screenline 5.16 and Screenline 13.13 are 1.20 and 1.00, respectively. For this study, screenline V/C ratios that did not exceed the LOS standard were considered acceptable. A summary of the Alternative 1 screenline analysis is included in the Transportation Discipline Report. Detailed screenline analysis calculations are included in Appendix C.

10 MODE SPLIT SENSITIVITY

As a sensitivity analysis was conducted to provide an assessment of potential changes to individual intersection impacts assuming a reduction in the SOV rate from 20 percent to 15 percent with 5 percent of SOV trips shifting to transit. Sensitivity analysis is provided where the impact is anticipated to be greatest including reduction of auto trips at impacted intersections would go down and where transit impacts are perceived to potentially increase. Table 10.1 summarizes the anticipated LOS operations at 13 intersections where project impacts were previously identified.

Table 10.1
SOV SENSITIVITY ANALYSIS AT KEY IMPACTED INTERSECTIONS

Intersection	Existing (2015)		No Action		Alternative 1 at 20% SOV		Alternative 1 at 15% SOV	
	LOS ¹	Delay ²	LOS ¹	Delay ²	LOS ¹	Delay ²	LOS ¹	Delay ²
16. 9th Ave NE (South)/NE 45th St	E	38	E	41	F	67	F	65
29. Montlake Blvd NE/Mary Gates Memorial Dr NE	D	54	D	50	E	56	D	55
30. Roosevelt Way NE / NE 43rd St (East)**	D	28	F	793	F	978	F	950
31. Roosevelt Way NE / NE 43rd St (West)	E	36	F	74	F	113	F	109
32. 11th Ave NE/ NE 43rd St	B	14	E	72	F	110	F	102
47. 12th Ave NE / NE 41st St	E	41	F	52	F	602	F	532
49. University Way NE / NE 41st St	F	*	F	*	F	*	F	>180
51. 7th Ave NE / NE 40th St	E	37	E	44	F	58	F	55
57. 6th Ave NE / NE 40th St	F	60	F	107	F	133	F	102
63. 6th Ave NE / NE Northlake Way	C	25	E	38	F	109	F	67
67. 15th Ave NE / NE Pacific St	D	38	D	37	E	72	E	60
69. 15th Ave NE / NE Boat St	B	15	C	18	F	95	E	76
72. Montlake Blvd NE/ IMA exit	D	34	D	34	E	43	E	41

Source: Transpo Group, 2016

* Volume exceeds capacity and Synchro could not calculate the delay.

**Evaluated in HCS because Synchro could not calculate the delay.

1. Level of service. 2.Delay in seconds

As shown in Table 10.1, generally there is a decrease in delay between Alternative 1 at 20 percent SOV and 15 percent SOV. Additionally, at 15 percent SOV the impacts at the Montlake Boulevard NE/Mary Gates Memorial Drive NE would be resolved and the intersection is anticipated to operate at LOS D with a 5 second increase in delay over No Action.

11 PARKING

The evaluation of existing parking was based on 2015 parking supply inventory and demand counts provided by the University of Washington. Existing University of Washington parking characteristics are identified by population and sector (West, South, East, and Central). Key data components of the existing conditions analysis include:

- UW parking supply by sector
- Weekday midday 2015 campus parking counts by sector to establish existing peak parking usage
- Annual campus travel demand survey data to establish mode splits by user type and identify existing parking demand by population group

The data was used to establish parking demand by sector and demonstrate that some sectors are highly utilized and are at or near parking capacity, while others have available parking. In addition, a calibrated parking demand model was developed to provide a basis for forecasting future demands by campus sector. Parking demand was allocated to sectors based on the level of proposed development. It should be noted parking on campus fluctuates, for example new development may occur on surface lots, reducing overall available parking. In general, all of the CMP development alternatives are assumed to result in the same amount of new parking demand; however, the demand by sector is influenced by the intensity of development. A desired performance measure of a utilization of no more than 85% was applied to see where sector demands might exceed available supply.

12 HISTORY AND METHODOLOGY OF TRIP CAPS AT UNIVERSITY OF WASHINGTON

12.1 1983 TRANSPORTATION MANAGEMENT PLAN

The first TMP for the University was developed in 1983 with the intent to expand commuting options for University students, staff and faculty shifting them away from Single Occupant Vehicles. The Primary Goal was to reduce the number of peak hour vehicle trips at the University of Washington.

12.2 1992 GENERAL PHYSICAL DEVELOPMENT PLAN (EXACT WORDING FROM THE GPDP)

The baseline traffic volumes shall consist of two measures: the campus cordon shall be based on the average of the years 1988-1990 plus a 4% error factor for random variation. The larger University District cordon will be adjusted to a pre-U-PASS condition as described above plus an error factor of 6.1% will be applied to account for both random variation and survey variations. Trips generated by the University shall not be allowed to increase beyond any of the following volumes. Conditions 9 and 10 describe remedies which may apply if increases occur.

Baseline Traffic

24 Hr. Total Campus Trips	63,200 and
AM Peak Period TO CAMPUS	8,267 and
PM Peak Period FROM CAMPUS	9,782

and:

Cordon Area	
AM Peak Period (inbound)	10,720
PM Peak Period (outbound)	12,610

The biennial traffic counts and survey results for the campus and cordon area shall be included in the Annual Report.

12.3 2003 CAMPUS MASTER PLAN (EXACT WORDING FROM THE 2003 PLAN)

The baseline traffic volumes shall consist of two measures: the campus cordon count shall be based on the average of the years 1998-1990 plus a 5% error factor for random variation. The larger University District area will also be based on the average of the years 1988-1990, plus an error factor of 6.1% will be applied to account for both random variation and survey variations. University student, faculty and staff trips shall not be allowed to increase beyond any of the following volumes, adjusted downward to exclude visitor and patient trips.

Baseline Traffic

AM Peak-period TO CAMPUS	8,267
PM Peak-period FROM CAMPUS	9,782

AM Peak-period (inbound)	10,760
PM Peak-period (outbound)	13,270

The annual traffic counts and survey results for the campus and biennial University District area estimates shall be included in the Annual Report.

12.4 DRAFT 2018 CAMPUS MASTER PLAN (EXACT WORDING FROM THE 2018 PLAN)

UW proposes a new method of demonstrating its commitment to reduced automobile traffic. Specifically, each year, starting the year after the 2018 CMP is approved, the UW will provide annual mode split (student, faculty, staff, and combined), and comparable data from previous years.

The University's combined SOV goal will be 15% by 2028.

If the combined drive-alone rate (SOV mode share) increases from the previous year by 1.0% or more, the UW will provide the estimated peak-hour traffic generation in comparison with trip caps. If there is an increase, both of these pieces of information will be included in the Annual Report on the CMP. Otherwise, only the SOV mode share will be reported in the Annual Report.

In the past few survey years, an increase in SOV mode share has only occurred once, in 2015. Surveying switched from biennial to annual in 2014.

	2012	2014	2015	2016
Drive-alone rate	20.0%	17.9%	20.4%	17.3%

Additionally, UW proposes rounding up from the Trip Caps to the next highest 100.

The traffic volume cap shall consist of two measures listed below.

CAMPUS TRIP CAP

AM Peak-period inbound (7:00 to 9:00 AM) 7,900
 PM Peak-period outbound (3:00 to 6:00 PM) 8,500

UNIVERSITY DISTRICT TRIP CAP

AM Peak-period inbound (7:00 to 9:00 AM) 10,100
 PM Peak-period outbound (3:00 to 6:00 PM) 10,500

The University shall provide the results of its efforts to meet the TMP goal by publishing the monitoring information in the Campus Master Plan Annual Report.

12.5 COMPARISON OF MASTER PLAN TRIP CAP LIMITS AS OUTLINED IN EACH PLAN

	1992	2003		2018 (2003 numbers rounded up)
		With visitors	“Adjusted downward to exclude visitors, patient trips”	
24 Hour	63,200	N/A	N/A	N/A
Campus Trip Cap				
AM Peak to	8,267	8,267	7,877	7,900
PM Peak from	9,782	9,782	8,488	8,500
Cordon (U District Trip Cap)				
AM Peak IN	10,720	10,760	10,020	10,100
PM Peak OUT	12,610	13,270	10,481	10,500

12.6 METHODOLOGY FOR ESTIMATING TRIPS TO AND FROM THE UW

The University conducts an extensive annual survey of staff, students, and faculty to evaluate mode split, assess effectiveness of the U-PASS and report travel behavior. This survey seeks to collect travel behavior and demographics from a statistically representative cross-section of the campus to better understand commute patterns. In the most recent survey, data from over 1,600 respondents was collected representing students, faculty and staff. This broad survey yields an approximation of travel by mode.

This survey provides data on how students, faculty and staff are driving to campus and where they are parking. This information is then used to estimate to the Campus and U-District trips and parking for example those that parked within the MIO are considered within the University. All parkers in the University lots are included in the University District Cap calculation.

UW estimates the average number of vehicles that arrive on campus each day by multiplying the entire campus population by the SOV and carpool mode-split from the survey, then multiplying that by the average number of week days people spent on campus, and dividing by 5. UW then estimates the number of peak-period trips by multiplying the estimate of daily vehicles by the ratio between the number of weekly SOV and carpool trips that arrived/departed during the peak period vs. the average number of weekly SOV and carpool trips. Carpool occupancy is taken into account to avoid over-estimating carpool vehicle trips.

A simplified equation for the trip estimates is:

[campus population] * [combined SOV+Carpool mode split] * [average trips per week / 5] * [average SOV+Carpool trips per week, peak period arrival or departure only] / [average SOV+ Carpool trips per week, all times]

These figures are all weighted to the student, faculty, and staff population.

12.7 SENSITIVITY OF THE TRIP CAPS

Mode Split or the proportion of drive alone for the campus students, faculty and staff has a direct relationship to meeting the University and University District Caps. With the proposed 20 percent growth in campus population as proposed in the 2018 Campus Master Plan, a drive alone rate of 20 percent into the future might cause the peak direction trip caps to be tripped by 2025 assuming straight line projections of trips and modes. A small one percent reduction in drive alone trips to other modes such as transit, would result in an adherence to the caps beyond the 2028 plan horizon. Given that recent (2016) survey data indicates a drive alone mode split of 17 percent, it is reasonable to assume the University can maintain the trip caps within the plan horizon.

APPENDIX C: DATA

- 1 INTERSECTION TRAFFIC OPERATIONS
 - 1.1 SUMMARY
 - 1.2 SYNCHRO 9 REPORTS
 - 1.2.1 Primary Impact Zone
 - 1.2.2 Secondary Impact Zone
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 - 2.1 SUMMARY
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- 4 VEHICLE SCREENLINE ANALYSIS
- 5 PEDESTRIAN ANALYSIS
 - 5.1 SCREENLINE SUMMARY
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 - 6.6 TRANSIT SCREENLINE DEMAND ALLOCATION

1 INTERSECTION TRAFFIC OPERATIONS

1.1 SUMMARY



















1.2 SYNCHRO 9 REPORTS

1.2.1 Primary Impact Zone

1.2.2 Secondary Impact Zone

HCM 2010 Signalized Intersection Summary
 1: 5th Ave NE & NE 50th St




















UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	670	250	230	1060	0	0	0	0	150	125	200
Future Volume (veh/h)	0	670	250	230	1060	0	0	0	0	150	125	200
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00				1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1900	1863	1863	0				1900	1900	1900
Adj Flow Rate, veh/h	0	684	255	235	1082	0				156	123	204
Adj No. of Lanes	0	2	0	1	2	0				2	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	1	1	2	2	0				0	0	0
Cap, veh/h	0	1393	519	269	2647	0				569	299	249
Arrive On Green	0.00	0.55	0.55	0.30	1.00	0.00				0.16	0.16	0.16
Sat Flow, veh/h	0	2622	942	1774	3632	0				3619	1900	1587
Grp Volume(v), veh/h	0	483	456	235	1082	0				156	123	204
Grp Sat Flow(s),veh/h/ln	0	1787	1683	1774	1770	0				1810	1900	1587
Q Serve(g_s), s	0.0	16.6	16.7	12.6	0.0	0.0				3.8	5.8	12.4
Cycle Q Clear(g_c), s	0.0	16.6	16.7	12.6	0.0	0.0				3.8	5.8	12.4
Prop In Lane	0.00		0.56	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	985	928	269	2647	0				569	299	249
V/C Ratio(X)	0.00	0.49	0.49	0.87	0.41	0.00				0.27	0.41	0.82
Avail Cap(c_a), veh/h	0	985	928	399	2647	0				941	494	413
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.73	0.73	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	13.8	13.8	33.9	0.0	0.0				37.1	38.0	40.8
Incr Delay (d2), s/veh	0.0	1.7	1.9	12.0	0.3	0.0				0.2	0.7	4.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.7	8.2	7.0	0.1	0.0				1.9	3.1	5.8
LnGrp Delay(d),s/veh	0.0	15.6	15.7	45.9	0.3	0.0				37.3	38.7	45.7
LnGrp LOS		B	B	D	A					D	D	D
Approach Vol, veh/h		939			1317						483	
Approach Delay, s/veh		15.6			8.5						41.2	
Approach LOS		B			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	19.7	59.6		20.7		79.3						
Change Period (Y+Rc), s	4.5	4.5		5.0		4.5						
Max Green Setting (Gmax), s	22.5	37.5		26.0		64.5						
Max Q Clear Time (g_c+I1), s	14.6	18.7		14.4		2.0						
Green Ext Time (p_c), s	0.6	14.7		1.2		32.9						
Intersection Summary												
HCM 2010 Ctrl Delay			16.7									
HCM 2010 LOS			B									
Notes												

HCM Signalized Intersection Capacity Analysis

















2: 7th Ave NE & NE 50th St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	320	510	0	0	695	285	585	140	315	0	0	0	
Future Volume (vph)	320	510	0	0	695	285	585	140	315	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5				
Lane Util. Factor	1.00	0.95			0.95	1.00	0.95	0.95	1.00				
Frbp, ped/bikes	1.00	1.00			1.00	0.89	1.00	1.00	0.98				
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00				
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85				
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.97	1.00				
Satd. Flow (prot)	1787	3574			3539	1402	1698	1733	1565				
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.97	1.00				
Satd. Flow (perm)	1787	3574			3539	1402	1698	1733	1565				
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	333	531	0	0	724	297	609	146	328	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	82	0	0	244	0	0	0	
Lane Group Flow (vph)	333	531	0	0	724	215	371	384	84	0	0	0	
Confl. Peds. (#/hr)	21		19	19		21			5	5			
Confl. Bikes (#/hr)			2			1			1				
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	0%	0%	0%	
Turn Type	Prot	NA			NA	Perm	Split	NA	Perm				
Protected Phases	5	2			6		8	8					
Permitted Phases						6			8				
Actuated Green, G (s)	21.5	65.5			39.5	39.5	25.5	25.5	25.5				
Effective Green, g (s)	21.5	65.5			39.5	39.5	25.5	25.5	25.5				
Actuated g/C Ratio	0.22	0.66			0.40	0.40	0.26	0.26	0.26				
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5				
Vehicle Extension (s)	2.5	2.5			2.5	2.5	2.5	2.5	2.5				
Lane Grp Cap (vph)	384	2340			1397	553	432	441	399				
v/s Ratio Prot	c0.19	0.15			c0.20		0.22	c0.22					
v/s Ratio Perm						0.15			0.05				
v/c Ratio	0.87	0.23			0.52	0.39	0.86	0.87	0.21				
Uniform Delay, d1	37.9	7.0			23.0	21.6	35.5	35.7	29.3				
Progression Factor	0.83	1.27			0.38	0.13	1.00	1.00	1.00				
Incremental Delay, d2	16.8	0.2			1.3	1.9	19.4	20.4	1.2				
Delay (s)	48.4	9.1			10.1	4.8	54.9	56.0	30.5				
Level of Service	D	A			B	A	D	E	C				
Approach Delay (s)		24.2			8.5			47.9			0.0		
Approach LOS		C			A			D			A		
Intersection Summary													
HCM 2000 Control Delay			27.5		HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.71										
Actuated Cycle Length (s)			100.0		Sum of lost time (s)				13.5				
Intersection Capacity Utilization			68.5%		ICU Level of Service				C				
Analysis Period (min)			15										
c	Critical Lane Group												

















HCM 2010 Signalized Intersection Summary
3: 9th Ave NE & NE 50th St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	705	30	5	890	5	40	20	30	15	10	15
Future Volume (veh/h)	20	705	30	5	890	5	40	20	30	15	10	15
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.96	0.99		0.95	0.97		0.95	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1900	1900	1863	1900	1900	1792	1900	1900	1900	1900
Adj Flow Rate, veh/h	20	719	31	5	908	5	41	20	31	15	10	15
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	2	2	2	6	6	6	0	0	0
Cap, veh/h	63	1957	83	39	2096	11	240	119	156	216	147	188
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.32	0.32	0.32	0.32	0.32	0.32
Sat Flow, veh/h	43	3289	140	4	3523	19	587	372	488	519	460	587
Grp Volume(v), veh/h	398	0	372	480	0	438	92	0	0	40	0	0
Grp Sat Flow(s),veh/h/ln	1792	0	1680	1856	0	1691	1447	0	0	1566	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	1.6	0.0	0.0
Prop In Lane	0.05		0.08	0.01		0.01	0.45		0.34	0.37		0.37
Lane Grp Cap(c), veh/h	1104	0	999	1140	0	1006	515	0	0	551	0	0
V/C Ratio(X)	0.36	0.00	0.37	0.42	0.00	0.43	0.18	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	1104	0	999	1140	0	1006	515	0	0	551	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	24.5	0.0	0.0	23.7	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	1.1	1.1	0.0	1.4	0.8	0.0	0.0	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.3	0.4	0.0	0.4	1.9	0.0	0.0	0.8	0.0	0.0
LnGrp Delay(d),s/veh	0.9	0.0	1.1	1.1	0.0	1.4	25.3	0.0	0.0	23.9	0.0	0.0
LnGrp LOS	A		A	A		A	C			C		
Approach Vol, veh/h		770			918			92				40
Approach Delay, s/veh		1.0			1.3			25.3				23.9
Approach LOS		A			A			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		64.0		36.0		64.0		36.0				
Change Period (Y+Rc), s		4.5		4.0		4.5		4.0				
Max Green Setting (Gmax), s		59.5		32.0		59.5		32.0				
Max Q Clear Time (g_c+I1), s		2.0		6.2		2.0		3.6				
Green Ext Time (p_c), s		2.0		0.1		2.0		0.1				
Intersection Summary												
HCM 2010 Ctrl Delay				2.9								
HCM 2010 LOS				A								
















HCM 2010 Signalized Intersection Summary
4: Roosevelt Way NE & NE 50th St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	665	95	95	790	0	0	0	0	80	580	115
Future Volume (veh/h)	0	665	95	95	790	0	0	0	0	80	580	115
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00				1.00		0.91
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1900	1900	1900	0				1900	1881	1881
Adj Flow Rate, veh/h	0	686	98	98	814	0				82	598	119
Adj No. of Lanes	0	2	0	0	2	0				0	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	1	1	0	0	0				1	1	1
Cap, veh/h	0	1734	247	0	2004	0				149	1146	517
Arrive On Green	0.00	0.56	0.56	0.00	1.00	0.00				0.35	0.35	0.35
Sat Flow, veh/h	0	3218	446	0	3705	0				420	3227	1457
Grp Volume(v), veh/h	0	392	392	0	814	0				363	317	119
Grp Sat Flow(s),veh/h/ln	0	1787	1783	0	1805	0				1860	1787	1457
Q Serve(g_s), s	0.0	12.5	12.5	0.0	0.0	0.0				15.6	13.9	5.7
Cycle Q Clear(g_c), s	0.0	12.5	12.5	0.0	0.0	0.0				15.6	13.9	5.7
Prop In Lane	0.00		0.25	0.00		0.00				0.23		1.00
Lane Grp Cap(c), veh/h	0	992	989	0	2004	0				660	634	517
V/C Ratio(X)	0.00	0.40	0.40	0.00	0.41	0.00				0.55	0.50	0.23
Avail Cap(c_a), veh/h	0	992	989	0	2004	0				660	634	517
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	12.7	12.7	0.0	0.0	0.0				25.8	25.3	22.7
Incr Delay (d2), s/veh	0.0	1.2	1.2	0.0	0.6	0.0				3.3	2.8	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	6.4	6.4	0.0	0.2	0.0				8.6	7.4	2.5
LnGrp Delay(d),s/veh	0.0	13.9	13.9	0.0	0.6	0.0				29.1	28.1	23.7
LnGrp LOS		B	B		A					C	C	C
Approach Vol, veh/h		784			814						799	
Approach Delay, s/veh		13.9			0.6						27.9	
Approach LOS		B			A						C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		60.0			0.0	60.0		40.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		55.5			11.5	39.5		35.5				
Max Q Clear Time (g_c+I1), s		2.0			0.0	14.5		17.6				
Green Ext Time (p_c), s		2.2			0.0	2.2		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay				14.0								
HCM 2010 LOS				B								

HCM 2010 Signalized Intersection Summary
5: 11th Ave NE & NE 50th St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	165	560	0	0	670	45	205	680	70	0	0	0
Future Volume (veh/h)	165	560	0	0	670	45	205	680	70	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.93	1.00		0.90			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1881	0	0	1881	1900	1900	1863	1900			
Adj Flow Rate, veh/h	176	596	0	0	713	48	218	723	74			
Adj No. of Lanes	0	2	0	0	2	0	0	2	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	1	1	0	0	1	1	0	2	0			
Cap, veh/h	58	929	0	0	1505	101	263	919	98			
Arrive On Green	0.37	0.37	0.00	0.00	0.89	0.89	0.12	0.12	0.12			
Sat Flow, veh/h	2	1760	0	0	3475	227	740	2589	276			
Grp Volume(v), veh/h	297	475	0	0	377	384	538	0	477			
Grp Sat Flow(s),veh/h/ln	50	1627	0	0	1787	1821	1826	0	1779			
Q Serve(g_s), s	18.8	22.8	0.0	0.0	4.0	4.0	28.8	0.0	26.0			
Cycle Q Clear(g_c), s	18.8	22.8	0.0	0.0	4.0	4.0	28.8	0.0	26.0			
Prop In Lane	0.59		0.00	0.00		0.12	0.41		0.16			
Lane Grp Cap(c), veh/h	0	903	0	0	795	810	648	0	632			
V/C Ratio(X)	0.00	0.53	0.00	0.00	0.47	0.47	0.83	0.00	0.76			
Avail Cap(c_a), veh/h	0	903	0	0	795	810	648	0	632			
HCM Platoon Ratio	0.67	0.67	1.00	1.00	2.00	2.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	21.1	0.0	0.0	3.3	3.3	41.2	0.0	39.9			
Incr Delay (d2), s/veh	0.0	2.2	0.0	0.0	2.0	2.0	11.7	0.0	8.2			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	10.8	0.0	0.0	2.1	2.2	16.7	0.0	14.3			
LnGrp Delay(d),s/veh	0.0	23.3	0.0	0.0	5.3	5.3	52.9	0.0	48.1			
LnGrp LOS		C			A	A	D		D			
Approach Vol, veh/h		772			761			1015				
Approach Delay, s/veh		14.4			5.3			50.7				
Approach LOS		B			A			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		49.0		40.0		60.0						
Change Period (Y+Rc), s		* 4.5		4.5		4.5						
Max Green Setting (Gmax), s		* 45		35.5		55.5						
Max Q Clear Time (g_c+I1), s		6.0		30.8		24.8						
Green Ext Time (p_c), s		0.8		0.8		1.4						
Intersection Summary												
HCM 2010 Ctrl Delay				26.1								
HCM 2010 LOS				C								
Notes												

HCM Signalized Intersection Capacity Analysis

6: Brooklyn Ave NE & NE 50th St

















UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	65	480	55	30	570	45	10	20	10	10	65	60
Future Volume (vph)	65	480	55	30	570	45	10	20	10	10	65	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.95			0.98			0.97			0.97	
Flpb, ped/bikes		0.99			0.99			0.99			0.99	
Frt		0.99			0.99			0.97			0.94	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		3274			3352			1749			1682	
Flt Permitted		0.80			0.90			0.95			0.99	
Satd. Flow (perm)		2617			3036			1678			1667	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	68	500	57	31	594	47	10	21	10	10	68	62
RTOR Reduction (vph)	0	7	0	0	5	0	0	6	0	0	29	0
Lane Group Flow (vph)	0	618	0	0	667	0	0	35	0	0	112	0
Confl. Peds. (#/hr)	104		173	173		104	80		137	137		80
Confl. Bikes (#/hr)			1			3			12			1
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	0%	0%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		47.5			47.5			44.0			44.0	
Effective Green, g (s)		47.5			47.5			44.0			44.0	
Actuated g/C Ratio		0.48			0.48			0.44			0.44	
Clearance Time (s)		4.5			4.5			4.0			4.0	
Lane Grp Cap (vph)		1243			1442			738			733	
v/s Ratio Prot												
v/s Ratio Perm		c0.24			0.22			0.02			c0.07	
v/c Ratio		0.50			0.46			0.05			0.15	
Uniform Delay, d1		18.0			17.7			16.0			16.8	
Progression Factor		0.78			0.46			1.39			1.00	
Incremental Delay, d2		1.1			1.0			0.1			0.4	
Delay (s)		15.2			9.1			22.4			17.3	
Level of Service		B			A			C			B	
Approach Delay (s)		15.2			9.1			22.4			17.3	
Approach LOS		B			A			C			B	
Intersection Summary												
HCM 2000 Control Delay			12.8									B
HCM 2000 Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			100.0									8.5
Intersection Capacity Utilization			83.6%									E
Analysis Period (min)			15									
c Critical Lane Group												

















HCM 2010 Signalized Intersection Summary
7: University Way NE & NE 50th St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	415	40	35	525	20	55	130	30	25	90	75
Future Volume (veh/h)	70	415	40	35	525	20	55	130	30	25	90	75
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.92		0.81	0.91		0.81	0.91		0.85	0.90		0.86
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1845	1900	1900	1792	1900	1900	1743	1900
Adj Flow Rate, veh/h	76	451	43	38	571	22	60	141	33	27	98	82
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	3	3	3	6	6	6	9	9	9
Cap, veh/h	218	1239	118	111	1568	60	173	385	84	90	294	226
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.79	0.79	0.79	0.40	0.40	0.40
Sat Flow, veh/h	333	2406	229	137	3044	116	324	976	213	125	745	571
Grp Volume(v), veh/h	272	0	298	322	0	309	234	0	0	207	0	0
Grp Sat Flow(s),veh/h/ln	1377	0	1591	1671	0	1626	1514	0	0	1441	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	9.5	0.0	0.0
Prop In Lane	0.28		0.14	0.12		0.07	0.26		0.14	0.13		0.40
Lane Grp Cap(c), veh/h	755	0	819	901	0	837	643	0	0	610	0	0
V/C Ratio(X)	0.36	0.00	0.36	0.36	0.00	0.37	0.36	0.00	0.00	0.34	0.00	0.00
Avail Cap(c_a), veh/h	755	0	819	901	0	837	643	0	0	610	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	6.8	0.0	0.0	21.2	0.0	0.0
Incr Delay (d2), s/veh	1.3	0.0	1.3	1.1	0.0	1.3	1.6	0.0	0.0	1.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.3	0.3	0.0	0.3	2.1	0.0	0.0	4.2	0.0	0.0
LnGrp Delay(d),s/veh	1.3	0.0	1.3	1.1	0.0	1.3	8.4	0.0	0.0	22.7	0.0	0.0
LnGrp LOS	A		A	A		A	A			C		
Approach Vol, veh/h		570			631			234			207	
Approach Delay, s/veh		1.3			1.2			8.4			22.7	
Approach LOS		A			A			A			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		56.0		44.0		56.0		44.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		51.5		39.5		51.5		39.5				
Max Q Clear Time (g_c+I1), s		2.0		6.0		2.0		11.5				
Green Ext Time (p_c), s		1.6		0.6		1.6		0.6				
Intersection Summary												
HCM 2010 Ctrl Delay				5.0								
HCM 2010 LOS				A								

HCM 2010 Signalized Intersection Summary
8: 15th Ave NE & NE 50th St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	325	85	30	395	25	145	395	40	15	250	40
Future Volume (veh/h)	55	325	85	30	395	25	145	395	40	15	250	40
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.79	0.97		0.87	0.99		0.93	0.97		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1900	1900	1881	1900	1900	1827	1900	1900	1845	1900
Adj Flow Rate, veh/h	58	342	89	32	416	26	153	416	42	16	263	42
Adj No. of Lanes	0	2	0	0	2	0	0	2	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	1	1	1	4	4	4	3	3	3
Cap, veh/h	148	829	217	101	1231	76	385	1014	103	57	746	115
Arrive On Green	0.41	0.41	0.41	0.41	0.41	0.41	1.00	1.00	1.00	0.50	0.50	0.50
Sat Flow, veh/h	257	2048	535	150	3040	187	652	2008	204	38	1477	228
Grp Volume(v), veh/h	256	0	233	245	0	229	281	0	330	321	0	0
Grp Sat Flow(s),veh/h/ln	1436	0	1404	1729	0	1647	1257	0	1608	1743	0	0
Q Serve(g_s), s	4.3	0.0	11.9	0.0	0.0	9.6	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	13.9	0.0	11.9	8.9	0.0	9.6	0.0	0.0	0.0	10.9	0.0	0.0
Prop In Lane	0.23		0.38	0.13		0.11	0.55		0.13	0.05		0.13
Lane Grp Cap(c), veh/h	626	0	568	741	0	667	691	0	812	918	0	0
V/C Ratio(X)	0.41	0.00	0.41	0.33	0.00	0.34	0.41	0.00	0.41	0.35	0.00	0.00
Avail Cap(c_a), veh/h	626	0	568	741	0	667	691	0	812	918	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	21.3	0.0	21.2	20.4	0.0	20.6	0.0	0.0	0.0	14.9	0.0	0.0
Incr Delay (d2), s/veh	2.0	0.0	2.2	1.2	0.0	1.4	1.8	0.0	1.5	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	4.9	4.9	0.0	4.6	0.3	0.0	0.3	5.6	0.0	0.0
LnGrp Delay(d),s/veh	23.3	0.0	23.4	21.5	0.0	22.0	1.8	0.0	1.5	16.0	0.0	0.0
LnGrp LOS	C		C	C		C	A		A	B		
Approach Vol, veh/h		489			474			611			321	
Approach Delay, s/veh		23.3			21.7			1.6			16.0	
Approach LOS		C			C			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		45.0		55.0		45.0		55.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		40.5		50.5		40.5		50.5				
Max Q Clear Time (g_c+I1), s		11.6		2.0		15.9		12.9				
Green Ext Time (p_c), s		7.2		7.6		6.8		7.4				
Intersection Summary												
HCM 2010 Ctrl Delay				14.7								
HCM 2010 LOS				B								

HCM Signalized Intersection Capacity Analysis

9: 17th Ave NE & NE 50th St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕			↕			↕	
Traffic Volume (vph)	20	375	110	25	305	10	230	75	25	15	85	25
Future Volume (vph)	20	375	110	25	305	10	230	75	25	15	85	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frbp, ped/bikes		0.96			1.00			0.99			0.97	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.99			0.97	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		3290			1835			1781			1767	
Flt Permitted		0.93			0.93			0.97			0.99	
Satd. Flow (perm)		3065			1714			1781			1767	
Peak-hour factor, PHF	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Adj. Flow (vph)	23	431	126	29	351	11	264	86	29	17	98	29
RTOR Reduction (vph)	0	23	0	0	1	0	0	3	0	0	8	0
Lane Group Flow (vph)	0	557	0	0	390	0	0	376	0	0	136	0
Confl. Peds. (#/hr)	48		72	72		48	75		57	57		75
Confl. Bikes (#/hr)						2			36			4
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			2		4	4		3	3	
Permitted Phases	2			2								
Actuated Green, G (s)		37.0			37.0			30.0			30.0	
Effective Green, g (s)		37.0			37.0			30.0			30.0	
Actuated g/C Ratio		0.33			0.33			0.27			0.27	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			3.0			3.0	
Lane Grp Cap (vph)		1026			573			483			479	
v/s Ratio Prot								c0.21			c0.08	
v/s Ratio Perm		0.18			c0.23							
v/c Ratio		0.54			0.68			0.78			0.28	
Uniform Delay, d1		29.9			31.7			37.2			31.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.1			6.4			11.7			1.5	
Delay (s)		31.9			38.1			48.9			33.3	
Level of Service		C			D			D			C	
Approach Delay (s)		31.9			38.1			48.9			33.3	
Approach LOS		C			D			D			C	

Intersection Summary

HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	15.4
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	310	30	50	0	5	30	5	0	85	60	5
Future Vol, veh/h	0	310	30	50	0	5	30	5	0	85	60	5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	3	3	3	3	1	1	1	1
Mvmt Flow	0	348	34	56	0	6	34	6	0	96	67	6
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	19.1	9.7	11.4
HCM LOS	C	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	57%	79%	12%	2%
Vol Thru, %	40%	8%	75%	18%
Vol Right, %	3%	13%	12%	81%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	150	390	40	310
LT Vol	85	310	5	5
Through Vol	60	30	30	55
RT Vol	5	50	5	250
Lane Flow Rate	169	438	45	348
Geometry Grp	1	1	1	1
Degree of Util (X)	0.28	0.67	0.077	0.5
Departure Headway (Hd)	5.977	5.505	6.132	5.171
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	598	653	581	693
Service Time	4.045	3.551	4.209	3.23
HCM Lane V/C Ratio	0.283	0.671	0.077	0.502
HCM Control Delay	11.4	19.1	9.7	13.3
HCM Lane LOS	B	C	A	B
HCM 95th-tile Q	1.1	5.1	0.2	2.8

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	5	55	250
Future Vol, veh/h	0	5	55	250
Peak Hour Factor	0.89	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3
Mvmt Flow	0	6	62	281
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	13.3
HCM LOS	B

HCM Signalized Intersection Capacity Analysis
 11: Roosevelt Way NE & NE 47th St

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Traffic Volume (vph)	0	90	45	105	70	0	0	0	0	50	735	35
Future Volume (vph)	0	90	45	105	70	0	0	0	0	50	735	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0						4.5	
Lane Util. Factor		1.00			1.00						0.95	
Frbp, ped/bikes		0.93			1.00						0.98	
Flpb, ped/bikes		1.00			0.91						0.99	
Frt		0.95			1.00						0.99	
Flt Protected		1.00			0.97						1.00	
Satd. Flow (prot)		1696			1670						3413	
Flt Permitted		1.00			0.67						1.00	
Satd. Flow (perm)		1696			1154						3413	
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	96	48	112	74	0	0	0	0	53	782	37
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	118	0	0	186	0	0	0	0	0	870	0
Confl. Peds. (#/hr)	67		98	98		67	99		51	51		99
Confl. Bikes (#/hr)			5			20						9
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		21.4			21.4						69.1	
Effective Green, g (s)		21.4			21.4						69.1	
Actuated g/C Ratio		0.21			0.21						0.69	
Clearance Time (s)		5.0			5.0						4.5	
Vehicle Extension (s)		4.0			4.0						0.2	
Lane Grp Cap (vph)		362			246						2358	
v/s Ratio Prot		0.07										
v/s Ratio Perm					0.16						0.25	
v/c Ratio		0.33			0.76						0.37	
Uniform Delay, d1		33.2			36.9						6.4	
Progression Factor		1.00			0.83						0.83	
Incremental Delay, d2		0.7			12.5						0.4	
Delay (s)		33.9			43.2						5.7	
Level of Service		C			D						A	
Approach Delay (s)		33.9			43.2			0.0			5.7	
Approach LOS		C			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 12: 11th Ave NE & NE 47th St

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	80	0	0	120	100	50	805	60	0	0	0
Future Volume (vph)	0	80	0	0	120	100	50	805	60	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			0.95			0.99				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.94			0.99				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1900			1656			3485				
Flt Permitted		1.00			1.00			1.00				
Satd. Flow (perm)		1900			1656			3485				
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)	0	86	0	0	129	108	54	866	65	0	0	0
RTOR Reduction (vph)	0	0	0	0	35	0	0	7	0	0	0	0
Lane Group Flow (vph)	0	86	0	0	202	0	0	978	0	0	0	0
Confl. Peds. (#/hr)	77		81	81		77	38		42	42		38
Confl. Bikes (#/hr)			12			26			70			
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type		NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		11.1			11.1			28.9				
Effective Green, g (s)		11.1			11.1			28.9				
Actuated g/C Ratio		0.22			0.22			0.58				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.0			2.0			0.2				
Lane Grp Cap (vph)		421			367			2014				
v/s Ratio Prot		0.05			0.12							
v/s Ratio Perm								0.28				
v/c Ratio		0.20			0.55			0.49				
Uniform Delay, d1		15.9			17.2			6.2				
Progression Factor		0.53			0.90			0.78				
Incremental Delay, d2		0.1			1.0			0.7				
Delay (s)		8.5			16.5			5.6				
Level of Service		A			B			A				
Approach Delay (s)		8.5			16.5			5.6			0.0	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			7.7					HCM 2000 Level of Service			A	
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			50.0					Sum of lost time (s)		10.0		
Intersection Capacity Utilization			52.3%					ICU Level of Service			A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 13: 15th Ave NE & NE 47th St

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	45	75	55	20	65	25	65	535	30	30	350	15
Future Volume (vph)	45	75	55	20	65	25	65	535	30	30	350	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frbp, ped/bikes		0.96			0.97			0.99			0.99	
Flpb, ped/bikes		0.97			0.98			0.99			0.99	
Frt		0.96			0.97			0.99			0.99	
Flt Protected		0.99			0.99			0.99			1.00	
Satd. Flow (prot)		1658			1707			3369			1743	
Flt Permitted		0.91			0.94			0.87			0.93	
Satd. Flow (perm)		1528			1613			2960			1625	
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)	48	81	59	22	70	27	70	575	32	32	376	16
RTOR Reduction (vph)	0	33	0	0	18	0	0	7	0	0	3	0
Lane Group Flow (vph)	0	155	0	0	101	0	0	670	0	0	421	0
Confl. Peds. (#/hr)	121		126	126		121	152		114	114		152
Confl. Bikes (#/hr)			5			4			21			4
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	3%	3%	3%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		17.0			17.0			24.5			24.5	
Effective Green, g (s)		17.0			17.0			24.5			24.5	
Actuated g/C Ratio		0.34			0.34			0.49			0.49	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		519			548			1450			796	
v/s Ratio Prot												
v/s Ratio Perm		c0.10			0.06			0.23			c0.26	
v/c Ratio		0.30			0.18			0.46			0.53	
Uniform Delay, d1		12.1			11.6			8.4			8.8	
Progression Factor		0.97			1.00			1.96			1.47	
Incremental Delay, d2		1.5			0.7			0.7			2.4	
Delay (s)		13.3			12.4			17.2			15.2	
Level of Service		B			B			B			B	
Approach Delay (s)		13.3			12.4			17.2			15.2	
Approach LOS		B			B			B			B	
Intersection Summary												
HCM 2000 Control Delay			15.7									B
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			50.0								8.5	
Intersection Capacity Utilization			67.1%									C
ICU Level of Service												
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 14: 5th Ave NE & NE 45th St

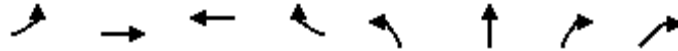
UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑					↑	↑↑	
Traffic Volume (vph)	0	590	245	385	705	0	0	0	0	280	220	185
Future Volume (vph)	0	590	245	385	705	0	0	0	0	280	220	185
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5					5.0	5.0	
Lane Util. Factor		0.95		0.97	0.95					0.91	0.91	
Frbp, ped/bikes		0.96		1.00	1.00					1.00	0.98	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.96		1.00	1.00					1.00	0.94	
Flt Protected		1.00		0.95	1.00					0.95	0.99	
Satd. Flow (prot)		3288		3433	3539					1579	3035	
Flt Permitted		1.00		0.95	1.00					0.95	0.99	
Satd. Flow (perm)		3288		3433	3539					1579	3035	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	615	255	401	734	0	0	0	0	292	229	193
RTOR Reduction (vph)	0	45	0	0	0	0	0	0	0	0	105	0
Lane Group Flow (vph)	0	825	0	401	734	0	0	0	0	242	367	0
Confl. Peds. (#/hr)	105		114	114		105	29					29
Confl. Bikes (#/hr)			2			6						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type		NA		Prot	NA					Split	NA	
Protected Phases		2		1	6					4	4	
Permitted Phases												
Actuated Green, G (s)		35.5		25.5	65.5					25.0	25.0	
Effective Green, g (s)		35.5		25.5	65.5					25.0	25.0	
Actuated g/C Ratio		0.36		0.26	0.66					0.25	0.25	
Clearance Time (s)		4.5		4.5	4.5					5.0	5.0	
Vehicle Extension (s)		3.0		4.0	4.0					3.0	3.0	
Lane Grp Cap (vph)		1167		875	2318					394	758	
v/s Ratio Prot		c0.25		c0.12	0.21					c0.15	0.12	
v/s Ratio Perm												
v/c Ratio		0.71		0.46	0.32					0.61	0.48	
Uniform Delay, d1		27.8		31.4	7.5					33.2	32.0	
Progression Factor		1.00		1.16	1.05					0.85	0.76	
Incremental Delay, d2		2.0		1.3	0.3					6.5	2.1	
Delay (s)		29.7		37.8	8.2					34.7	26.3	
Level of Service		C		D	A					C	C	
Approach Delay (s)		29.7			18.6			0.0			29.1	
Approach LOS		C			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			24.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			14.0			
Intersection Capacity Utilization			77.1%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 15: 7th Ave NE & NE 45th St

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	NER
Lane Configurations								
Traffic Volume (vph)	240	635	645	330	480	370	435	60
Future Volume (vph)	240	635	645	330	480	370	435	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5	4.5	3.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.95	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.89		1.00	1.00	0.97	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.95		1.00	0.98	0.85	0.86
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1736	3471	2942		3400	1707	1438	1596
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	1.00
Satd. Flow (perm)	1736	3471	2942		3400	1707	1438	1596
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	253	668	679	347	505	389	458	63
RTOR Reduction (vph)	0	0	65	0	0	6	145	0
Lane Group Flow (vph)	253	668	961	0	505	447	249	63
Confl. Peds. (#/hr)	233			233	75		19	
Confl. Bikes (#/hr)				19				
Heavy Vehicles (%)	4%	4%	4%	4%	3%	3%	3%	3%
Turn Type	Prot	NA	NA		Split	NA	Perm	custom
Protected Phases	5	2	6		4	4		1
Permitted Phases							4	2
Actuated Green, G (s)	13.5	54.2	43.5		29.5	29.5	29.5	58.5
Effective Green, g (s)	13.5	54.2	43.5		29.5	29.5	29.5	58.5
Actuated g/C Ratio	0.14	0.54	0.44		0.29	0.29	0.29	0.58
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5	4.5	3.0
Vehicle Extension (s)	3.0	4.0	4.0		4.0	4.0	4.0	1.0
Lane Grp Cap (vph)	234	1881	1279		1003	503	424	981
v/s Ratio Prot	c0.15	0.19	c0.33		0.15	c0.26		0.00
v/s Ratio Perm							0.17	0.04
v/c Ratio	1.08	0.36	0.75		0.50	0.89	0.59	0.06
Uniform Delay, d1	43.2	13.0	23.7		29.2	33.7	30.1	8.9
Progression Factor	0.69	2.09	0.81		1.00	1.00	1.00	1.00
Incremental Delay, d2	73.8	0.4	3.9		1.8	20.4	5.8	0.0
Delay (s)	103.6	27.5	23.1		31.0	54.1	35.9	9.0
Level of Service	F	C	C		C	D	D	A
Approach Delay (s)		48.4	23.1			40.2		
Approach LOS		D	C			D		
Intersection Summary								
HCM 2000 Control Delay			36.6		HCM 2000 Level of Service			D
HCM 2000 Volume to Capacity ratio			0.85					
Actuated Cycle Length (s)			100.0		Sum of lost time (s)		13.5	
Intersection Capacity Utilization			84.5%		ICU Level of Service			E
Analysis Period (min)			15					
c Critical Lane Group								

Intersection

Int Delay, s/veh 1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑		↑
Traffic Vol, veh/h	995	10	10	965	5	95
Future Vol, veh/h	995	10	10	965	5	95
Conflicting Peds, #/hr	0	177	177	0	177	177
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	10	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	1070	11	11	1038	5	102

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1258
Stage 1	-	-	1252
Stage 2	-	-	717
Critical Hdwy	-	-	4.16
Critical Hdwy Stg 1	-	-	5.8
Critical Hdwy Stg 2	-	-	5.8
Follow-up Hdwy	-	-	2.23
Pot Cap-1 Maneuver	-	-	543
Stage 1	-	-	237
Stage 2	-	-	450
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	463
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	202
Stage 2	-	-	375

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	37.7
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	209	-	-	463	-
HCM Lane V/C Ratio	0.489	-	-	0.023	-
HCM Control Delay (s)	37.7	-	-	13	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	2.4	-	-	0.1	-

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	95	1000	950	30	5	25
Future Vol, veh/h	95	1000	950	30	5	25
Conflicting Peds, #/hr	118	0	0	117	117	118
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	10	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	100	1053	1000	32	5	26






















Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1150	0	752
Stage 1	-	-	1134
Stage 2	-	-	843
Critical Hdwy	4.16	-	6.9
Critical Hdwy Stg 1	-	-	5.8
Critical Hdwy Stg 2	-	-	5.8
Follow-up Hdwy	2.23	-	3.3
Pot Cap-1 Maneuver	598	-	357
Stage 1	-	-	273
Stage 2	-	-	388
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	539	-	290
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	246
Stage 2	-	-	285

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	21.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	539	-	-	-	244
HCM Lane V/C Ratio	0.186	-	-	-	0.129
HCM Control Delay (s)	13.2	-	-	-	21.9
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.7	-	-	-	0.4













HCM Signalized Intersection Capacity Analysis
 18: Roosevelt Way NE & NE 45th St

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 						 	
Traffic Volume (vph)	0	825	195	225	830	0	0	0	0	45	690	140
Future Volume (vph)	0	825	195	225	830	0	0	0	0	45	690	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5					4.5	4.5	4.5
Lane Util. Factor		0.95		1.00	0.95					1.00	0.95	1.00
Frbp, ped/bikes		0.95		1.00	1.00					1.00	1.00	0.67
Flpb, ped/bikes		1.00		0.99	1.00					0.89	1.00	1.00
Frt		0.97		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		3220		1725	3471					1581	3539	1062
Flt Permitted		1.00		0.19	1.00					0.95	1.00	1.00
Satd. Flow (perm)		3220		352	3471					1581	3539	1062
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	859	203	234	865	0	0	0	0	47	719	146
RTOR Reduction (vph)	0	20	0	0	0	0	0	0	0	0	0	50
Lane Group Flow (vph)	0	1042	0	234	865	0	0	0	0	47	719	96
Confl. Peds. (#/hr)	213		184	184		213	235		71	71		235
Confl. Bikes (#/hr)			2			14						27
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	0%	0%	0%	2%	2%	2%
Turn Type		NA		D.P+P	NA					Perm	NA	Perm
Protected Phases		2		3	2 3						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		55.5		64.0	68.5					22.5	22.5	22.5
Effective Green, g (s)		55.5		64.0	68.5					22.5	22.5	22.5
Actuated g/C Ratio		0.56		0.64	0.68					0.22	0.22	0.22
Clearance Time (s)		4.5		4.5						4.5	4.5	4.5
Vehicle Extension (s)		0.2		1.0						1.0	1.0	1.0
Lane Grp Cap (vph)		1787		341	2377					355	796	238
v/s Ratio Prot		0.32		c0.06	0.25						c0.20	
v/s Ratio Perm				c0.38						0.03		0.09
v/c Ratio		0.58		0.69	0.36					0.13	0.90	0.40
Uniform Delay, d1		14.6		23.8	6.6					31.0	37.7	33.0
Progression Factor		1.05		0.75	0.27					1.02	0.79	0.93
Incremental Delay, d2		1.3		4.0	0.0					0.1	12.7	0.4
Delay (s)		16.7		21.8	1.8					31.7	42.6	31.1
Level of Service		B		C	A					C	D	C
Approach Delay (s)		16.7			6.1			0.0			40.2	
Approach LOS		B			A			A			D	
Intersection Summary												
HCM 2000 Control Delay			19.9			HCM 2000 Level of Service				B		
HCM 2000 Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			73.3%			ICU Level of Service				D		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
 19: 11th Ave NE & NE 45th St

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑		↗	↑↑	↗			
Traffic Volume (vph)	5	790	0	0	740	30	300	825	155	0	0	0
Future Volume (vph)	5	790	0	0	740	30	300	825	155	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5	4.5			
Lane Util. Factor		0.95			0.95		1.00	0.95	1.00			
Frbp, ped/bikes		1.00			0.99		1.00	1.00	0.82			
Flpb, ped/bikes		1.00			1.00		0.93	1.00	1.00			
Frt		1.00			0.99		1.00	1.00	0.85			
Flt Protected		1.00			1.00		0.95	1.00	1.00			
Satd. Flow (prot)		3503			3408		1656	3574	1304			
Flt Permitted		0.95			1.00		0.95	1.00	1.00			
Satd. Flow (perm)		3332			3408		1656	3574	1304			
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)	5	849	0	0	796	32	323	887	167	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	32	0	0	0
Lane Group Flow (vph)	0	854	0	0	825	0	323	887	135	0	0	0
Confl. Peds. (#/hr)	192		103	103		192	44		88	88		44
Confl. Bikes (#/hr)						13			74			
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		2			2			4				
Permitted Phases	2						4		4			
Actuated Green, G (s)		47.5			47.5		43.5	43.5	43.5			
Effective Green, g (s)		47.5			47.5		43.5	43.5	43.5			
Actuated g/C Ratio		0.48			0.48		0.44	0.44	0.44			
Clearance Time (s)		4.5			4.5		4.5	4.5	4.5			
Vehicle Extension (s)		0.2			0.2		2.0	2.0	2.0			
Lane Grp Cap (vph)		1582			1618		720	1554	567			
v/s Ratio Prot					0.24			c0.25				
v/s Ratio Perm		c0.26					0.20		0.10			
v/c Ratio		0.54			0.51		0.45	0.57	0.24			
Uniform Delay, d1		18.5			18.2		19.8	21.2	17.8			
Progression Factor		0.25			0.58		0.79	0.77	0.76			
Incremental Delay, d2		1.1			1.1		1.5	1.1	0.7			
Delay (s)		5.7			11.7		17.1	17.5	14.2			
Level of Service		A			B		B	B	B			
Approach Delay (s)		5.7			11.7			17.0			0.0	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			12.4				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)		9.0			
Intersection Capacity Utilization			55.6%				ICU Level of Service		B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 20: 12th Ave NE & NE 45th St

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	845	50	45	710	15	35	60	35	15	45	30
Future Volume (vph)	85	845	50	45	710	15	35	60	35	15	45	30
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.0	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frbp, ped/bikes	1.00	0.97		1.00	0.99			0.96			0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98			0.99	
Frt	1.00	0.99		1.00	1.00			0.96			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1736	3326		1703	3356			1649			1601	
Flt Permitted	0.95	1.00		0.95	1.00			0.91			0.95	
Satd. Flow (perm)	1736	3326		1703	3356			1523			1536	
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)	90	899	53	48	755	16	37	64	37	16	48	32
RTOR Reduction (vph)	0	3	0	0	1	0	0	14	0	0	19	0
Lane Group Flow (vph)	90	949	0	48	770	0	0	124	0	0	77	0
Confl. Peds. (#/hr)	169		239	239		169	57		77	77		57
Confl. Bikes (#/hr)			2			7			24			3
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	3%	3%	3%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4			4		
Actuated Green, G (s)	7.3	66.1		4.3	62.6			16.6			16.6	
Effective Green, g (s)	7.3	66.1		4.3	62.6			16.6			16.6	
Actuated g/C Ratio	0.07	0.66		0.04	0.63			0.17			0.17	
Clearance Time (s)	4.5	4.5		4.0	4.5			4.5			4.5	
Vehicle Extension (s)	0.5	0.2		0.5	0.2			1.0			1.0	
Lane Grp Cap (vph)	126	2198		73	2100			252			254	
v/s Ratio Prot	c0.05	c0.29		0.03	0.23							
v/s Ratio Perm								c0.08			0.05	
v/c Ratio	0.71	0.43		0.66	0.37			0.49			0.30	
Uniform Delay, d1	45.3	8.0		47.1	9.1			37.9			36.6	
Progression Factor	1.19	0.30		1.34	0.32			1.00			1.00	
Incremental Delay, d2	13.2	0.6		14.4	0.5			0.6			0.2	
Delay (s)	67.4	2.9		77.5	3.4			38.4			36.9	
Level of Service	E	A		E	A			D			D	
Approach Delay (s)		8.5			7.7			38.4			36.9	
Approach LOS		A			A			D			D	

Intersection Summary		
HCM 2000 Control Delay	11.5	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.47	B
Actuated Cycle Length (s)	100.0	Sum of lost time (s)
Intersection Capacity Utilization	56.0%	13.5
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		B

HCM Signalized Intersection Capacity Analysis

21: Brooklyn Ave NE & NE 45th St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	850	5	5	725	30	5	5	5	50	0	115
Future Volume (vph)	70	850	5	5	725	30	5	5	5	50	0	115
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5			4.5			4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95			0.95			1.00	1.00		1.00	1.00
Frbp, ped/bikes	1.00	1.00			0.98			1.00	0.73		1.00	0.79
Flpb, ped/bikes	1.00	1.00			1.00			0.91	1.00		0.75	1.00
Frt	1.00	1.00			0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00			1.00			0.98	1.00		0.95	1.00
Satd. Flow (prot)	1736	3453			3329			1681	1183		1338	1262
Flt Permitted	0.95	1.00			0.95			0.91	1.00		0.75	1.00
Satd. Flow (perm)	1736	3453			3165			1562	1183		1058	1262
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)	74	904	5	5	771	32	5	5	5	53	0	122
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	4	0	0	103
Lane Group Flow (vph)	74	909	0	0	806	0	0	10	1	0	53	19
Confl. Peds. (#/hr)	266		548	548		266	120		153	153		120
Confl. Bikes (#/hr)			7			9			7			3
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			4			4	
Permitted Phases				6			4		4	4		4
Actuated Green, G (s)	6.7	75.2			64.5			15.8	15.8		15.8	15.8
Effective Green, g (s)	6.7	75.2			64.5			15.8	15.8		15.8	15.8
Actuated g/C Ratio	0.07	0.75			0.64			0.16	0.16		0.16	0.16
Clearance Time (s)	4.0	4.5			4.5			4.5	4.5		4.5	4.5
Vehicle Extension (s)	0.5	0.2			0.2			1.0	1.0		1.0	1.0
Lane Grp Cap (vph)	116	2596			2041			246	186		167	199
v/s Ratio Prot	c0.04	0.26										
v/s Ratio Perm					c0.25			0.01	0.00		c0.05	0.02
v/c Ratio	0.64	0.35			0.40			0.04	0.00		0.32	0.10
Uniform Delay, d1	45.5	4.2			8.5			35.7	35.5		37.3	36.0
Progression Factor	0.97	1.01			0.81			1.00	1.00		1.07	1.27
Incremental Delay, d2	7.6	0.3			0.5			0.0	0.0		0.4	0.1
Delay (s)	51.9	4.6			7.4			35.7	35.5		40.1	45.9
Level of Service	D	A			A			D	D		D	D
Approach Delay (s)		8.1			7.4			35.6			44.2	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
22: University Way NE & NE 45th St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↓			↑↓	
Traffic Volume (vph)	5	770	65	0	675	35	5	160	35	5	135	55
Future Volume (vph)	5	770	65	0	675	35	5	160	35	5	135	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.94			0.97			0.93			0.87	
Flpb, ped/bikes		1.00			1.00			0.99			0.99	
Frt		0.99			0.99			0.98			0.96	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3222			3425			1597			1510	
Flt Permitted		0.95			1.00			0.99			0.99	
Satd. Flow (perm)		3067			3425			1590			1503	
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)	5	819	69	0	718	37	5	170	37	5	144	59
RTOR Reduction (vph)	0	3	0	0	4	0	0	8	0	0	14	0
Lane Group Flow (vph)	0	890	0	0	751	0	0	204	0	0	194	0
Confl. Peds. (#/hr)	390		481	481		390	596		472	472		596
Confl. Bikes (#/hr)			1			5			56			15
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	7%	7%	7%	5%	5%	5%
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2						4			4		
Actuated Green, G (s)		54.5			54.5			36.5			36.5	
Effective Green, g (s)		54.5			54.5			36.5			36.5	
Actuated g/C Ratio		0.54			0.54			0.36			0.36	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			1.0			1.0	
Lane Grp Cap (vph)		1671			1866			580			548	
v/s Ratio Prot					0.22							
v/s Ratio Perm		c0.29						0.13			c0.13	
v/c Ratio		0.53			0.40			0.35			0.35	
Uniform Delay, d1		14.6			13.3			23.1			23.2	
Progression Factor		0.56			0.44			0.92			1.27	
Incremental Delay, d2		1.2			0.6			1.6			1.7	
Delay (s)		9.3			6.4			23.0			31.1	
Level of Service		A			A			C			C	
Approach Delay (s)		9.3			6.4			23.0			31.1	
Approach LOS		A			A			C			C	

Intersection Summary

HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
 23: 15th Ave NE & NE 45th St

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (veh/h)	70	605	140	165	610	55	40	515	195	75	375	40
Future Volume (veh/h)	70	605	140	165	610	55	40	515	195	75	375	40
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.84	1.00		0.85	1.00		0.78	1.00		0.82
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1810	1810	1900	1776	1776	1900	1810	1810	1900
Adj Flow Rate, veh/h	73	630	146	172	635	57	42	536	203	78	391	42
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	5	5	5	7	7	7	5	5	5
Cap, veh/h	93	1124	260	172	1436	129	58	582	218	99	876	93
Arrive On Green	0.10	0.82	0.82	0.20	0.91	0.91	0.05	0.35	0.35	0.02	0.09	0.09
Sat Flow, veh/h	1774	2745	634	1723	3141	281	1691	2216	831	1723	3063	325
Grp Volume(v), veh/h	73	405	371	172	347	345	42	407	332	78	217	216
Grp Sat Flow(s),veh/h/ln	1774	1770	1609	1723	1719	1703	1691	1687	1359	1723	1719	1669
Q Serve(g_s), s	4.0	7.7	7.7	10.0	2.9	2.9	2.5	23.1	23.6	4.5	11.9	12.2
Cycle Q Clear(g_c), s	4.0	7.7	7.7	10.0	2.9	2.9	2.5	23.1	23.6	4.5	11.9	12.2
Prop In Lane	1.00		0.39	1.00		0.17	1.00		0.61	1.00		0.19
Lane Grp Cap(c), veh/h	93	725	659	172	786	779	58	443	357	99	492	477
V/C Ratio(X)	0.79	0.56	0.56	1.00	0.44	0.44	0.72	0.92	0.93	0.79	0.44	0.45
Avail Cap(c_a), veh/h	284	725	659	172	786	779	321	481	387	121	492	477
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.33	1.33	1.33	0.33	0.33	0.33
Upstream Filter(I)	0.83	0.83	0.83	0.88	0.88	0.88	0.89	0.89	0.89	0.83	0.83	0.83
Uniform Delay (d), s/veh	44.2	6.0	6.0	40.0	2.4	2.4	47.2	31.5	31.6	48.4	37.7	37.9
Incr Delay (d2), s/veh	4.5	2.6	2.9	63.5	1.6	1.6	5.5	19.0	24.6	16.5	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.1	3.9	3.6	7.7	1.5	1.5	1.2	13.0	11.2	2.6	5.7	5.7
LnGrp Delay(d),s/veh	48.8	8.6	8.9	103.5	4.0	4.0	52.7	50.5	56.3	64.9	37.9	38.1
LnGrp LOS	D	A	A	F	A	A	D	D	E	E	D	D
Approach Vol, veh/h		849			864			781			511	
Approach Delay, s/veh		12.2			23.8			53.1			42.1	
Approach LOS		B			C			D			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	9.2	50.2	9.8	30.8	14.0	45.5	7.4	33.1				
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	16.0	31.5	7.0	28.5	10.0	37.5	19.0	16.5				
Max Q Clear Time (g_c+I1), s	6.0	4.9	6.5	25.6	12.0	9.7	4.5	14.2				
Green Ext Time (p_c), s	0.0	3.8	0.0	0.7	0.0	3.8	0.0	0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			31.3									
HCM 2010 LOS			C									

HCM Signalized Intersection Capacity Analysis
 24: Memorial Way NE/17th Ave NE & NE 45th St

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	680	240	50	620	45	190	100	40	45	70	25
Future Volume (vph)	20	680	240	50	620	45	190	100	40	45	70	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frbp, ped/bikes	1.00	0.94		1.00	0.97		1.00	1.00	0.59		0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85		0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1752	3177		1770	3394		1770	1863	927		1695	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.98	
Satd. Flow (perm)	1752	3177		1770	3394		1770	1863	927		1695	
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)	22	731	258	54	667	48	204	108	43	48	75	27
RTOR Reduction (vph)	0	30	0	0	4	0	0	0	37	0	9	0
Lane Group Flow (vph)	22	959	0	54	711	0	204	108	6	0	142	0
Confl. Peds. (#/hr)	173		146	146		173	260		345	345		260
Confl. Bikes (#/hr)			2			3			59			8
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases									4			
Actuated Green, G (s)	2.4	47.9		5.5	51.0		15.1	15.1	15.1		15.0	
Effective Green, g (s)	2.4	47.9		5.5	51.0		15.1	15.1	15.1		15.0	
Actuated g/C Ratio	0.02	0.48		0.06	0.51		0.15	0.15	0.15		0.15	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.0	4.0		4.0	
Vehicle Extension (s)	1.0	0.2		1.0	0.2		0.5	0.5	0.5		2.0	
Lane Grp Cap (vph)	42	1521		97	1730		267	281	139		254	
v/s Ratio Prot	0.01	c0.30		c0.03	c0.21		c0.12	0.06			c0.08	
v/s Ratio Perm									0.01			
v/c Ratio	0.52	0.63		0.56	0.41		0.76	0.38	0.05		0.56	
Uniform Delay, d1	48.2	19.4		46.1	15.2		40.7	38.3	36.3		39.4	
Progression Factor	1.08	0.60		0.97	0.97		1.00	1.00	1.00		1.00	
Incremental Delay, d2	4.4	1.6		3.8	0.7		11.1	0.3	0.1		1.5	
Delay (s)	56.4	13.2		48.7	15.5		51.8	38.6	36.3		40.9	
Level of Service	E	B		D	B		D	D	D		D	
Approach Delay (s)		14.2			17.8			45.9			40.9	
Approach LOS		B			B			D			D	

Intersection Summary

HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

25: NE 45th St & 18th Ave NE

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Volume (vph)	0	775	715	0	15	25
Future Volume (vph)	0	775	715	0	15	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.0	
Lane Util. Factor		0.95	0.95		1.00	
Frbp, ped/bikes		1.00	1.00		0.89	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	1.00		0.92	
Flt Protected		1.00	1.00		0.98	
Satd. Flow (prot)		3574	3539		1518	
Flt Permitted		1.00	1.00		0.98	
Satd. Flow (perm)		3574	3539		1518	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	842	777	0	16	27
RTOR Reduction (vph)	0	0	0	0	22	0
Lane Group Flow (vph)	0	842	777	0	21	0
Confl. Peds. (#/hr)	165			165	97	95
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	1%	1%	2%	2%	0%	0%
Turn Type		NA	NA		Prot	
Protected Phases		2	2		4	
Permitted Phases						
Actuated Green, G (s)		74.5	74.5		17.0	
Effective Green, g (s)		74.5	74.5		17.0	
Actuated g/C Ratio		0.74	0.74		0.17	
Clearance Time (s)		4.5	4.5		4.0	
Vehicle Extension (s)		0.2	0.2		1.0	
Lane Grp Cap (vph)		2662	2636		258	
v/s Ratio Prot		c0.24	0.22		c0.01	
v/s Ratio Perm						
v/c Ratio		0.32	0.29		0.08	
Uniform Delay, d1		4.3	4.2		34.9	
Progression Factor		0.37	0.74		1.00	
Incremental Delay, d2		0.3	0.3		0.0	
Delay (s)		1.8	3.4		35.0	
Level of Service		A	A		C	
Approach Delay (s)		1.8	3.4		35.0	
Approach LOS		A	A		C	
Intersection Summary						
HCM 2000 Control Delay			3.4		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.27			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	8.5
Intersection Capacity Utilization			43.1%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

26: NE 45th St & 19th Ave NE

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	25	755	720	35	0	0
Future Volume (vph)	25	755	720	35	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.5			
Lane Util. Factor	1.00	1.00	0.95			
Frpb, ped/bikes	1.00	1.00	0.98			
Flpb, ped/bikes	0.98	1.00	1.00			
Frt	1.00	1.00	0.99			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1754	1881	3430			
Flt Permitted	0.27	1.00	1.00			
Satd. Flow (perm)	497	1881	3430			
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	28	839	800	39	0	0
RTOR Reduction (vph)	0	0	3	0	0	0
Lane Group Flow (vph)	28	839	836	0	0	0
Confl. Peds. (#/hr)	114			114	241	99
Confl. Bikes (#/hr)				6		1
Heavy Vehicles (%)	1%	1%	2%	2%	0%	0%
Turn Type	pm+pt	NA	NA			
Protected Phases	1	1 2	2			
Permitted Phases	1 2					
Actuated Green, G (s)	71.5	74.5	53.5			
Effective Green, g (s)	71.5	74.5	53.5			
Actuated g/C Ratio	0.72	0.74	0.54			
Clearance Time (s)	3.0		4.5			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	581	1401	1835			
v/s Ratio Prot	0.01	0.45	0.24			
v/s Ratio Perm	0.03					
v/c Ratio	0.05	0.60	0.46			
Uniform Delay, d1	4.7	5.9	14.3			
Progression Factor	0.15	0.54	0.14			
Incremental Delay, d2	0.0	0.7	0.7			
Delay (s)	0.7	3.8	2.7			
Level of Service	A	A	A			
Approach Delay (s)		3.7	2.7		0.0	
Approach LOS		A	A		A	
Intersection Summary						
HCM 2000 Control Delay			3.3		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.50			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	10.5
Intersection Capacity Utilization			43.1%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

27: NE 45th St & 20th Ave NE

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑	↑↑		↘	
Traffic Volume (vph)	35	710	730	110	55	30
Future Volume (vph)	35	710	730	110	55	30
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.5		4.0	
Lane Util. Factor	1.00	1.00	0.95		1.00	
Frbp, ped/bikes	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.98		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1787	1881	3460		1726	
Flt Permitted	0.24	1.00	1.00		0.97	
Satd. Flow (perm)	455	1881	3460		1726	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	38	763	785	118	59	32
RTOR Reduction (vph)	0	0	0	0	22	0
Lane Group Flow (vph)	38	763	903	0	69	0
Confl. Bikes (#/hr)				2		3
Heavy Vehicles (%)	1%	1%	2%	2%	1%	1%
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	1	1 2	2		4	
Permitted Phases	1 2					
Actuated Green, G (s)	71.5	74.5	52.9		17.0	
Effective Green, g (s)	71.5	74.5	52.9		17.0	
Actuated g/C Ratio	0.72	0.74	0.53		0.17	
Clearance Time (s)	3.0		4.5		4.0	
Vehicle Extension (s)	1.0		0.2		1.0	
Lane Grp Cap (vph)	573	1401	1830		293	
v/s Ratio Prot	0.01	c0.41	0.26		c0.04	
v/s Ratio Perm	0.04					
v/c Ratio	0.07	0.54	0.49		0.24	
Uniform Delay, d1	5.0	5.5	15.0		35.9	
Progression Factor	0.41	0.19	1.00		1.00	
Incremental Delay, d2	0.0	0.2	1.0		0.2	
Delay (s)	2.0	1.2	16.0		36.0	
Level of Service	A	A	B		D	
Approach Delay (s)		1.3	16.0		36.0	
Approach LOS		A	B		D	

Intersection Summary

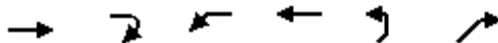
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Montlake Blvd NE & NE 45th St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



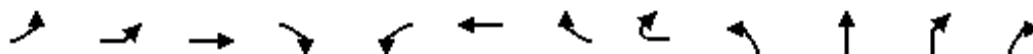
Movement	EBT	EBR	WBL	WBT	NEL	NER
Lane Configurations	↑↑	↑	↔	↑	↔	↔
Traffic Volume (vph)	505	5	555	705	120	1405
Future Volume (vph)	505	5	555	705	120	1405
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	0.88
Frbp, ped/bikes	1.00	0.91	1.00	1.00	1.00	1.00
Flpb, ped/bikes	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)	3574	1454	3400	1845	1770	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3574	1454	3400	1845	1770	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	537	5	590	750	128	1495
RTOR Reduction (vph)	0	1	0	0	0	10
Lane Group Flow (vph)	537	4	590	750	128	1485
Confl. Peds. (#/hr)		36	36			
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	1%	1%	3%	3%	2%	2%
Turn Type	NA	Perm	Split	NA	Prot	pt+ov
Protected Phases	3		1	1	2	1 2
Permitted Phases		3				
Actuated Green, G (s)	26.7	26.7	80.2	80.2	19.6	104.3
Effective Green, g (s)	26.7	26.7	80.2	80.2	19.6	104.3
Actuated g/C Ratio	0.19	0.19	0.57	0.57	0.14	0.74
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.5	3.5	0.2	0.2	3.0	
Lane Grp Cap (vph)	681	277	1947	1056	247	2076
v/s Ratio Prot	c0.15		0.17	0.41	0.07	c0.53
v/s Ratio Perm		0.00				
v/c Ratio	0.79	0.02	0.30	0.71	0.52	0.72
Uniform Delay, d1	54.0	46.0	15.5	21.5	55.8	9.7
Progression Factor	1.00	1.00	0.50	0.73	1.11	1.38
Incremental Delay, d2	6.2	0.0	0.3	3.4	1.7	1.1
Delay (s)	60.2	46.0	8.1	19.2	63.7	14.5
Level of Service	E	D	A	B	E	B
Approach Delay (s)	60.0			14.3	18.4	
Approach LOS	E			B	B	

Intersection Summary

HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 29: Union Bay PI NE & NE 45th St & NE 45th PI

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Traffic Volume (vph)	35	285	1060	225	25	740	85	25	185	90	30	30
Future Volume (vph)	35	285	1060	225	25	740	85	25	185	90	30	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5		5.5	5.5	5.5	4.0	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.86		0.86	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	0.93	1.00	0.99		0.95	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	1.00	0.98		0.85	1.00	1.00	0.85	
Flt Protected	0.95	0.95	1.00	1.00	0.95	1.00		1.00	0.95	0.98	1.00	
Satd. Flow (prot)	1752	1752	3505	1457	1736	4598		1272	1698	1756	1599	
Flt Permitted	0.95	0.12	1.00	1.00	0.12	1.00		1.00	0.95	0.98	1.00	
Satd. Flow (perm)	1752	221	3505	1457	215	4598		1272	1698	1756	1599	
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)	36	294	1093	232	26	763	88	26	191	93	31	31
RTOR Reduction (vph)	0	0	0	97	0	0	0	17	0	0	62	0
Lane Group Flow (vph)	36	294	1093	135	26	854	0	6	139	145	0	0
Confl. Peds. (#/hr)	16	16		14	14		16	16	31		16	15
Confl. Bikes (#/hr)				3				1				4
Heavy Vehicles (%)	3%	3%	3%	3%	4%	4%	4%	4%	1%	1%	1%	1%
Turn Type	Prot	pm+pt	NA	Perm	Perm	NA		Perm	Split	NA	NA	
Protected Phases	1	1 9	6			2			4	4		
Permitted Phases		6		6	2			2				
Actuated Green, G (s)	8.9	63.6	48.4	48.4	34.0	34.0		34.0	21.9	21.9	0.0	
Effective Green, g (s)	8.9	59.6	48.4	48.4	34.0	34.0		34.0	21.9	21.9	0.0	
Actuated g/C Ratio	0.06	0.43	0.35	0.35	0.24	0.24		0.24	0.16	0.16	0.00	
Clearance Time (s)	5.5		5.5	5.5	5.5	5.5		5.5	5.5	5.5		
Vehicle Extension (s)	2.5		2.0	2.0	2.0	2.0		2.0	2.0	2.0		
Lane Grp Cap (vph)	111	313	1211	503	52	1116		308	265	274	0	
v/s Ratio Prot	0.02	c0.13	c0.31			0.19			0.08	c0.08		
v/s Ratio Perm		c0.26		0.09	0.12			0.00				
v/c Ratio	0.32	0.94	0.90	0.27	0.50	0.77		0.02	0.52	0.53	0.00	
Uniform Delay, d1	62.7	38.5	43.6	33.0	45.7	49.3		40.3	54.3	54.3	70.0	
Progression Factor	1.06	1.12	0.97	1.08	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.9	28.0	8.3	0.9	30.5	5.0		0.1	0.9	0.9	0.0	
Delay (s)	67.4	71.0	50.4	36.7	76.2	54.3		40.4	55.1	55.2	70.0	
Level of Service	E	E	D	D	E	D		D	E	E	E	
Approach Delay (s)			52.5			54.6				57.8		
Approach LOS			D			D				E		

Intersection Summary

HCM 2000 Control Delay	53.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	31.5
Intersection Capacity Utilization	77.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 29: Union Bay PI NE & NE 45th St & NE 45th PI

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour

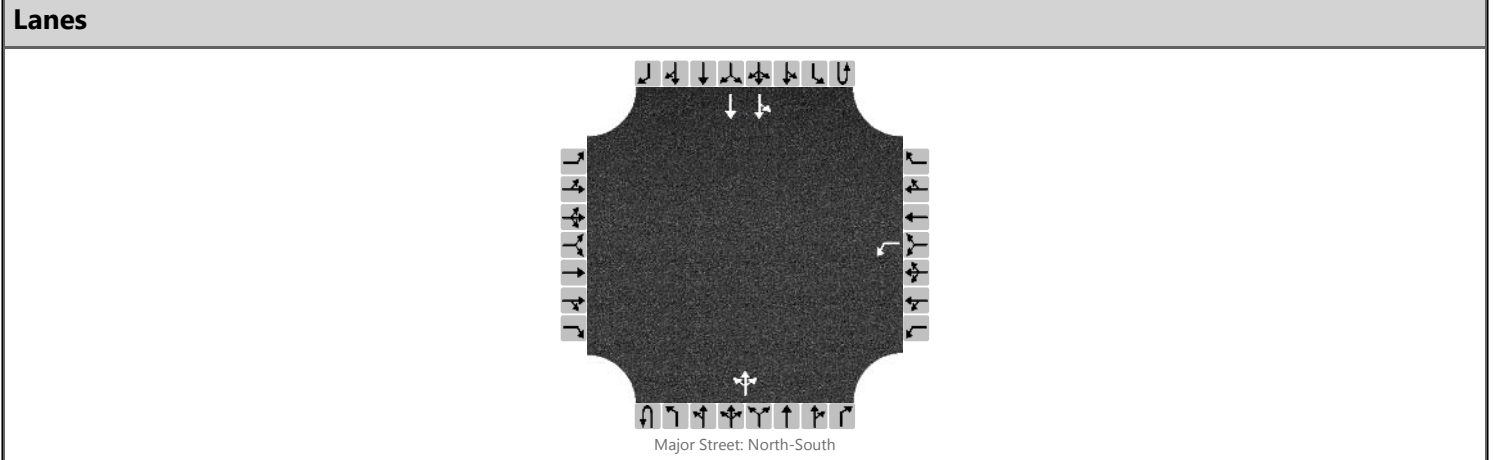


Movement	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Traffic Volume (vph)	30	160	85	30	25	35	170	10
Future Volume (vph)	30	160	85	30	25	35	170	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5			5.5	5.5	
Lane Util. Factor		0.95	0.95			1.00	0.88	
Frbp, ped/bikes		1.00	0.99			1.00	1.00	
Flpb, ped/bikes		1.00	1.00			1.00	1.00	
Frt		1.00	0.97			1.00	0.85	
Flt Protected		0.95	0.99			0.95	1.00	
Satd. Flow (prot)		1698	1693			1787	2814	
Flt Permitted		0.95	0.99			0.95	1.00	
Satd. Flow (perm)		1698	1693			1787	2814	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	31	165	88	31	26	36	175	10
RTOR Reduction (vph)	0	0	7	0	0	0	123	0
Lane Group Flow (vph)	0	158	150	0	0	62	62	0
Confl. Peds. (#/hr)	15	16		31	15	14	31	16
Confl. Bikes (#/hr)				1			1	1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split	Split	NA		Prot	Prot	Prot	
Protected Phases	3	3	3		7	7	8	
Permitted Phases								
Actuated Green, G (s)		23.7	23.7			8.8	24.0	
Effective Green, g (s)		23.7	23.7			8.8	24.0	
Actuated g/C Ratio		0.17	0.17			0.06	0.17	
Clearance Time (s)		5.5	5.5			5.5	5.5	
Vehicle Extension (s)		2.0	2.0			2.5	2.5	
Lane Grp Cap (vph)		287	286			112	482	
v/s Ratio Prot		c0.09	0.09			c0.03	0.02	
v/s Ratio Perm								
v/c Ratio		0.55	0.53			0.55	0.13	
Uniform Delay, d1		53.3	53.0			63.7	49.1	
Progression Factor		1.00	1.00			1.00	1.00	
Incremental Delay, d2		1.3	0.8			4.7	0.1	
Delay (s)		54.6	53.8			68.4	49.2	
Level of Service		D	D			E	D	
Approach Delay (s)			54.2			54.0		
Approach LOS			D			D		

Intersection Summary

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Transpo	Intersection	Roosevelt Way & 43rd St
Agency/Co.		Jurisdiction	Seattle
Date Performed	3/17/2017	East/West Street	NE 43rd St (east)
Analysis Year	2015	North/South Street	Roosevelt Way NE
Time Analyzed	PM Peak Hour	Peak Hour Factor	0.91
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	UW Master Plan EIS, Existing (2015) PM Peak		



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	0		0	1	0		0	2	0
Configuration						L					LTR			LT	T	
Volume, V (veh/h)						125				0	0	0		40	1170	
Percent Heavy Vehicles (%)						6				3				1		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						137				0				44		
Capacity, c (veh/h)						291				530				1459		
v/c Ratio						0.47				0.00				0.03		
95% Queue Length, Q ₉₅ (veh)						2.6				0.0				0.1		
Control Delay (s/veh)						28.2				11.8				7.5		
Level of Service, LOS						D				B				A		
Approach Delay (s/veh)					28.2								0.6			
Approach LOS					D											

Intersection

Int Delay, s/veh 5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔					↕↕
Traffic Vol, veh/h	125	0	0	0	40	1170
Future Vol, veh/h	125	0	0	0	40	1170
Conflicting Peds, #/hr	59	121	0	59	121	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	6	6	0	0	1	1
Mvmt Flow	137	0	0	0	44	1286

Major/Minor

	Minor1	Major2
Conflicting Flow All	911	121
Stage 1	121	-
Stage 2	790	-
Critical Hdwy	6.92	4.12
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	5.92	-
Follow-up Hdwy	3.56	2.21
Pot Cap-1 Maneuver	266	1472
Stage 1	-	-
Stage 2	397	-
Platoon blocked, %		
Mov Cap-1 Maneuver	214	1472
Mov Cap-2 Maneuver	214	-
Stage 1	-	-
Stage 2	355	-

Approach

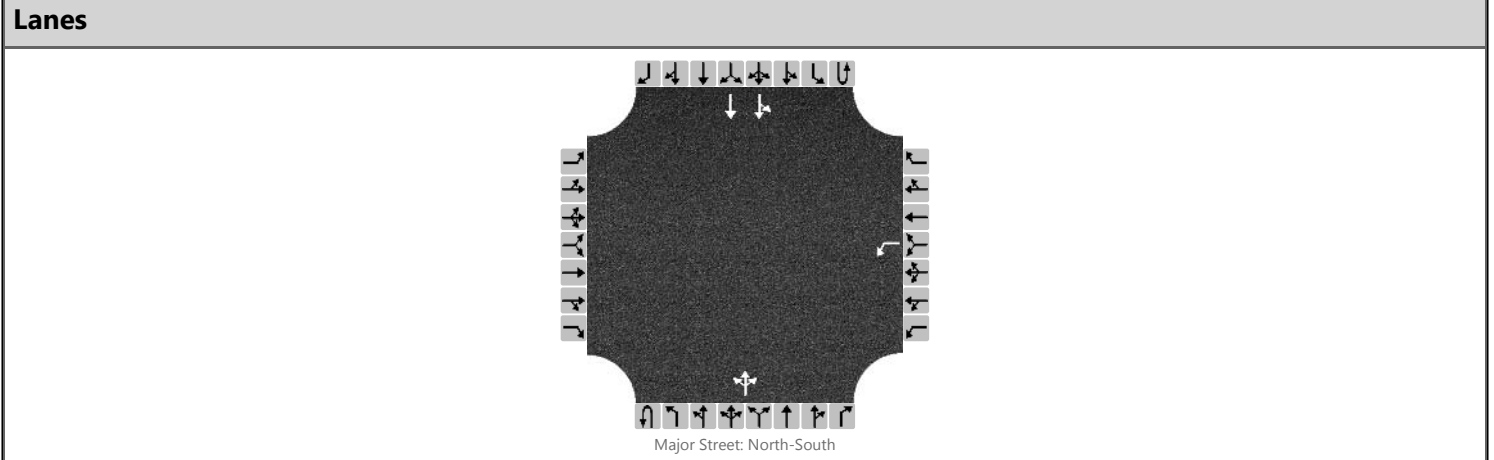
	WB	SB
HCM Control Delay, s	47.8	0.6
HCM LOS	E	

Minor Lane/Major Mvmt

	WBLn1	SBL	SBT
Capacity (veh/h)	214	1472	-
HCM Lane V/C Ratio	0.642	0.03	-
HCM Control Delay (s)	47.8	7.5	0.4
HCM Lane LOS	E	A	A
HCM 95th %tile Q(veh)	3.8	0.1	-

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Transpo	Intersection	Roosevelt Way & 43rd St
Agency/Co.		Jurisdiction	Seattle
Date Performed	3/17/2017	East/West Street	NE 43rd St (east)
Analysis Year	2015	North/South Street	Roosevelt Way NE
Time Analyzed	PM Peak Hour	Peak Hour Factor	0.91
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	UW Master Plan EIS, Existing (2015) PM Peak		



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	0		0	1	0		0	2	0
Configuration						L					LTR			LT	T	
Volume, V (veh/h)						125				0	0	0		40	1170	
Percent Heavy Vehicles (%)						6				3				1		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways



Base Critical Headway (sec)																
Critical Headway (sec)																
Base Follow-Up Headway (sec)																
Follow-Up Headway (sec)																

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						137				0				44		
Capacity, c (veh/h)						291				530				1459		
v/c Ratio						0.47				0.00				0.03		
95% Queue Length, Q ₉₅ (veh)						2.6				0.0				0.1		
Control Delay (s/veh)						28.2				11.8				7.5		
Level of Service, LOS						D				B				A		
Approach Delay (s/veh)					28.2								0.6			
Approach LOS					D											

Intersection

Int Delay, s/veh 1.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	65	0	0	1255	40
Future Vol, veh/h	0	65	0	0	1255	40
Conflicting Peds, #/hr	219	119	119	0	0	219
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	0	0	2	2
Mvmt Flow	0	71	0	0	1364	43

Major/Minor

	Minor2	Major2
Conflicting Flow All	-	1042
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	6.94
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	3.32
Pot Cap-1 Maneuver	0	226
Stage 1	0	-
Stage 2	0	-
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	185
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach

	EB	SB
HCM Control Delay, s	36	0
HCM LOS	E	

Minor Lane/Major Mvmt

	EBLn1	SBT	SBR
Capacity (veh/h)	185	-	-
HCM Lane V/C Ratio	0.382	-	-
HCM Control Delay (s)	36	-	-
HCM Lane LOS	E	-	-
HCM 95th %tile Q(veh)	1.7	-	-

HCM Signalized Intersection Capacity Analysis

32: 11th Ave NE & NE 43rd St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	30	0	0	95	45	15	1040	25	0	0	0
Future Volume (vph)	45	30	0	0	95	45	15	1040	25	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			0.97			1.00				
Flpb, ped/bikes		0.96			1.00			1.00				
Frt		1.00			0.96			1.00				
Flt Protected		0.97			1.00			1.00				
Satd. Flow (prot)		1772			1646			3507				
Flt Permitted		0.82			1.00			1.00				
Satd. Flow (perm)		1490			1646			3507				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	33	0	0	103	49	16	1130	27	0	0	0
RTOR Reduction (vph)	0	0	0	0	11	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	82	0	0	141	0	0	1169	0	0	0	0
Confl. Peds. (#/hr)	93		63	63		93	44		48	48		44
Confl. Bikes (#/hr)			5			8			63			
Heavy Vehicles (%)	0%	0%	0%	7%	7%	7%	2%	2%	2%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		21.0			21.0			20.5				
Effective Green, g (s)		21.0			21.0			20.5				
Actuated g/C Ratio		0.42			0.42			0.41				
Clearance Time (s)		4.0			4.0			4.5				
Lane Grp Cap (vph)		625			691			1437				
v/s Ratio Prot					c0.09							
v/s Ratio Perm		0.06						0.33				
v/c Ratio		0.13			0.20			0.81				
Uniform Delay, d1		8.9			9.2			13.1				
Progression Factor		0.84			0.93			0.75				
Incremental Delay, d2		0.4			0.7			4.7				
Delay (s)		7.9			9.3			14.5				
Level of Service		A			A			B				
Approach Delay (s)		7.9			9.3			14.5			0.0	
Approach LOS		A			A			B			A	
Intersection Summary												
HCM 2000 Control Delay			13.6					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.50									
Actuated Cycle Length (s)			50.0					Sum of lost time (s)		8.5		
Intersection Capacity Utilization			72.1%					ICU Level of Service		C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 33: University Way NE & NE 43rd St

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	20	25	5	40	5	50	5	140	40	40	150	10
Future Volume (vph)	20	25	5	40	5	50	5	140	40	40	150	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.96			0.86			0.87			0.97	
Flpb, ped/bikes		0.91			0.84			0.99			0.91	
Frt		0.99			0.93			0.97			0.99	
Flt Protected		0.98			0.98			1.00			0.99	
Satd. Flow (prot)		1578			1237			1472			1562	
Flt Permitted		0.89			0.88			0.99			0.92	
Satd. Flow (perm)		1437			1114			1465			1456	
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)	22	27	5	43	5	54	5	151	43	43	161	11
RTOR Reduction (vph)	0	4	0	0	38	0	0	20	0	0	4	0
Lane Group Flow (vph)	0	51	0	0	64	0	0	179	0	0	211	0
Confl. Peds. (#/hr)	142		235	235		142	545		467	467		545
Confl. Bikes (#/hr)			2			3			50			20
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	8%	8%	8%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		15.0			15.0			26.5			26.5	
Effective Green, g (s)		15.0			15.0			26.5			26.5	
Actuated g/C Ratio		0.30			0.30			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		431			334			776			771	
v/s Ratio Prot												
v/s Ratio Perm		0.04			c0.06			0.12			c0.15	
v/c Ratio		0.12			0.19			0.23			0.27	
Uniform Delay, d1		12.7			13.0			6.3			6.5	
Progression Factor		0.74			0.47			0.94			0.75	
Incremental Delay, d2		0.5			1.3			0.7			0.8	
Delay (s)		9.9			7.4			6.6			5.6	
Level of Service		A			A			A			A	
Approach Delay (s)		9.9			7.4			6.6			5.6	
Approach LOS		A			A			A			A	

Intersection Summary		
HCM 2000 Control Delay	6.7	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.24	A
Actuated Cycle Length (s)	50.0	Sum of lost time (s)
Intersection Capacity Utilization	46.3%	8.5
Analysis Period (min)	15	ICU Level of Service
		A

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 34: 15th Ave NE & NE 43rd St

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	85	40	30	650	610	90
Future Volume (vph)	85	40	30	650	610	90
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	4.5
Lane Util. Factor	1.00			0.95	0.95	1.00
Frbp, ped/bikes	0.91			1.00	1.00	0.71
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.96			1.00	1.00	0.85
Flt Protected	0.97			1.00	1.00	1.00
Satd. Flow (prot)	1572			3350	3343	1057
Flt Permitted	0.97			0.91	1.00	1.00
Satd. Flow (perm)	1572			3063	3343	1057
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	89	42	32	684	642	95
RTOR Reduction (vph)	27	0	0	0	0	50
Lane Group Flow (vph)	104	0	0	716	642	45
Confl. Peds. (#/hr)	207	285	144			144
Confl. Bikes (#/hr)						3
Heavy Vehicles (%)	2%	2%	7%	7%	8%	8%
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	2	
Permitted Phases			2			2
Actuated Green, G (s)	17.5			23.5	23.5	23.5
Effective Green, g (s)	17.5			23.5	23.5	23.5
Actuated g/C Ratio	0.35			0.47	0.47	0.47
Clearance Time (s)	4.5			4.5	4.5	4.5
Lane Grp Cap (vph)	550			1439	1571	496
v/s Ratio Prot	c0.07				0.19	
v/s Ratio Perm				c0.23		0.04
v/c Ratio	0.19			0.50	0.41	0.09
Uniform Delay, d1	11.3			9.2	8.7	7.3
Progression Factor	0.71			1.32	1.30	3.01
Incremental Delay, d2	0.8			1.1	0.7	0.3
Delay (s)	8.7			13.2	11.9	22.3
Level of Service	A			B	B	C
Approach Delay (s)	8.7			13.2	13.3	
Approach LOS	A			B	B	

Intersection Summary

HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

UW Master Plan EIS

35: Memorial Way NE & Burke Museum Access/East Stevens Way NE (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Yield	
Traffic Volume (vph)	70	10	5	10	20	210	0	55	15	230	65	75
Future Volume (vph)	70	10	5	10	20	210	0	55	15	230	65	75
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	11	5	11	22	228	0	60	16	250	71	82




















Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	92	261	30	46	286	118
Volume Left (vph)	76	11	0	0	250	0
Volume Right (vph)	5	228	0	16	0	82
Hadj (s)	0.13	-0.52	0.44	0.20	0.52	-0.40
Departure Headway (s)	5.7	4.8	6.4	6.2	6.1	5.1
Degree Utilization, x	0.14	0.35	0.05	0.08	0.48	0.17
Capacity (veh/h)	581	704	515	534	570	670
Control Delay (s)	9.6	10.3	8.6	8.5	13.4	8.0
Approach Delay (s)	9.6	10.3	8.6		11.8	
Approach LOS	A	B	A		B	

Intersection Summary

Delay	10.8
Level of Service	B
Intersection Capacity Utilization	63.7%
ICU Level of Service	B
Analysis Period (min)	15

HCM 2010 Signalized Intersection Summary
 36: Montlake Blvd NE & Pend Oreille Rd NE/NE 44th St

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	145	85	55	5	55	205	75	705	5	65	355	110
Future Volume (veh/h)	145	85	55	5	55	205	75	705	5	65	355	110
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.91	0.96		0.87	1.00		0.98	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1900	1900	1827	1900	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	153	89	58	5	58	216	79	742	5	68	374	116
Adj No. of Lanes	1	2	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	4	4	4	0	0	0	1	1	1
Cap, veh/h	208	582	336	41	311	224	99	2075	14	87	1501	459
Arrive On Green	0.09	0.29	0.29	0.18	0.18	0.18	0.05	0.56	0.56	0.05	0.56	0.56
Sat Flow, veh/h	1707	2004	1157	74	1710	1231	1810	3675	25	1792	2689	823
Grp Volume(v), veh/h	153	74	73	63	0	216	79	364	383	68	247	243
Grp Sat Flow(s),veh/h/ln	1707	1703	1458	1784	0	1231	1810	1805	1895	1792	1787	1724
Q Serve(g_s), s	9.9	4.5	5.2	0.0	0.0	24.4	6.0	15.4	15.4	5.3	9.9	10.2
Cycle Q Clear(g_c), s	9.9	4.5	5.2	4.0	0.0	24.4	6.0	15.4	15.4	5.3	9.9	10.2
Prop In Lane	1.00		0.79	0.08		1.00	1.00		0.01	1.00		0.48
Lane Grp Cap(c), veh/h	208	495	424	546	0	224	99	1019	1070	87	998	963
V/C Ratio(X)	0.73	0.15	0.17	0.12	0.00	0.96	0.80	0.36	0.36	0.79	0.25	0.25
Avail Cap(c_a), veh/h	389	675	578	546	0	224	213	1019	1070	160	998	963
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.00	0.99	0.82	0.82	0.82	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	36.8	37.1	48.5	0.0	56.8	65.4	16.6	16.6	65.9	15.9	15.9
Incr Delay (d2), s/veh	4.9	0.1	0.2	0.0	0.0	49.1	4.4	0.8	0.8	5.8	0.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	2.1	2.1	1.8	0.0	11.3	3.2	7.9	8.3	2.7	5.0	5.0
LnGrp Delay(d),s/veh	47.1	37.0	37.3	48.5	0.0	105.9	69.8	17.4	17.4	71.7	16.4	16.5
LnGrp LOS	D	D	D	D		F	E	B	B	E	B	B
Approach Vol, veh/h		300			279			826			558	
Approach Delay, s/veh		42.2			92.9			22.4			23.2	
Approach LOS		D			F			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	11.3	83.6	15.2	30.0	12.2	82.6		45.2				
Change Period (Y+Rc), s	4.5	4.5	3.0	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	12.5	58.5	27.0	25.5	16.5	54.5		55.5				
Max Q Clear Time (g_c+I1), s	7.3	17.4	11.9	26.4	8.0	12.2		7.2				
Green Ext Time (p_c), s	0.0	5.5	0.3	0.0	0.0	5.5		2.4				
Intersection Summary												
HCM 2010 Ctrl Delay			35.7									
HCM 2010 LOS			D									

HCM Signalized Intersection Capacity Analysis
 37: Montlake Blvd NE & NE 44th St/Walla Walla Rd

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	10	0	5	20	45	0	1320	35	0	480	260
Future Volume (vph)	130	10	0	5	20	45	0	1320	35	0	480	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lane Util. Factor	0.95	0.95			0.95	1.00		0.95			0.95	1.00
Frbp, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00			1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	0.96			0.99	1.00		1.00			1.00	1.00
Satd. Flow (prot)	1618	1633			3342	1509		3558			3539	1545
Flt Permitted	0.74	0.74			0.91	1.00		1.00			1.00	1.00
Satd. Flow (perm)	1259	1257			3071	1509		3558			3539	1545
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)	138	11	0	5	21	48	0	1404	37	0	511	277
RTOR Reduction (vph)	0	0	0	0	0	44	0	1	0	0	0	43
Lane Group Flow (vph)	75	74	0	0	26	4	0	1440	0	0	511	234
Confl. Peds. (#/hr)							5		2	2		5
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	1%	1%	1%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm		NA			NA	Perm
Protected Phases		2			2			1			1	
Permitted Phases	2			2		2						1
Actuated Green, G (s)	12.8	12.8			12.8	12.8		118.2			118.2	118.2
Effective Green, g (s)	12.8	12.8			12.8	12.8		118.2			118.2	118.2
Actuated g/C Ratio	0.09	0.09			0.09	0.09		0.84			0.84	0.84
Clearance Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Vehicle Extension (s)	2.0	2.0			2.0	2.0		0.2			0.2	0.2
Lane Grp Cap (vph)	115	114			280	137		3003			2987	1304
v/s Ratio Prot								c0.40			0.14	
v/s Ratio Perm	c0.06	0.06			0.01	0.00						0.15
v/c Ratio	0.65	0.65			0.09	0.03		0.48			0.17	0.18
Uniform Delay, d1	61.4	61.4			58.3	58.0		2.9			2.0	2.0
Progression Factor	0.68	0.67			1.00	1.00		1.04			0.23	0.00
Incremental Delay, d2	9.5	9.0			0.1	0.0		0.4			0.1	0.3
Delay (s)	51.1	50.4			58.3	58.0		3.4			0.6	0.3
Level of Service	D	D			E	E		A			A	A
Approach Delay (s)		50.7			58.1			3.4			0.5	
Approach LOS		D			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis










38: Montlake Blvd NE

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour

	↑	↗	↖	↓	↘	↙
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↑↑	↗↖		↑↑	↘↙	
Traffic Volume (vph)	755	1295	0	415	575	0
Future Volume (vph)	755	1295	0	415	575	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	
Lane Util. Factor	0.95	0.88		0.95	0.97	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	1.00	1.00		1.00	0.95	
Satd. Flow (prot)	3574	2814		3610	3433	
Flt Permitted	1.00	1.00		1.00	0.95	
Satd. Flow (perm)	3574	2814		3610	3433	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	778	1335	0	428	593	0
RTOR Reduction (vph)	0	802	0	0	0	0
Lane Group Flow (vph)	778	533	0	428	593	0
Heavy Vehicles (%)	1%	1%	0%	0%	2%	2%
Turn Type	NA	Perm		NA	Prot	
Protected Phases	2			2	1	
Permitted Phases		2				
Actuated Green, G (s)	55.9	55.9		55.9	75.1	
Effective Green, g (s)	55.9	55.9		55.9	75.1	
Actuated g/C Ratio	0.40	0.40		0.40	0.54	
Clearance Time (s)	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	0.2	
Lane Grp Cap (vph)	1427	1123		1441	1841	
v/s Ratio Prot	c0.22			0.12	c0.17	
v/s Ratio Perm		0.19				
v/c Ratio	0.55	0.47		0.30	0.32	
Uniform Delay, d1	32.3	31.2		28.7	18.2	
Progression Factor	1.00	1.00		0.67	0.40	
Incremental Delay, d2	0.2	0.1		0.0	0.5	
Delay (s)	32.5	31.3		19.3	7.8	
Level of Service	C	C		B	A	
Approach Delay (s)	31.7			19.3	7.8	
Approach LOS	C			B	A	
Intersection Summary						
HCM 2000 Control Delay			25.5		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.42			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	9.0
Intersection Capacity Utilization			49.1%		ICU Level of Service	A
Analysis Period (min)			15			
c	Critical Lane Group					

HCM 2010 Signalized Intersection Summary
 39: Roosevelt Way NE & NE 42nd St (north)

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations						 		
Traffic Volume (veh/h)	100	0	0	0	125	1250		
Future Volume (veh/h)	100	0	0	0	125	1250		
Number	7	14			5	2		
Initial Q (Qb), veh	0	0			0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00			
Parking Bus, Adj	1.00	1.00			1.00	1.00		
Adj Sat Flow, veh/h/ln	1881	0			1900	1863		
Adj Flow Rate, veh/h	109	0			136	1359		
Adj No. of Lanes	1	0			0	2		
Peak Hour Factor	0.92	0.92			0.92	0.92		
Percent Heavy Veh, %	1	0			2	2		
Cap, veh/h	0	0			309	2965		
Arrive On Green	0.00	0.00			0.32	0.32		
Sat Flow, veh/h	0				279	3189		
Grp Volume(v), veh/h	0.0				790	705		
Grp Sat Flow(s),veh/h/ln					1773	1610		
Q Serve(g_s), s					27.8	35.0		
Cycle Q Clear(g_c), s					35.5	35.0		
Prop In Lane					0.17			
Lane Grp Cap(c), veh/h					1736	1538		
V/C Ratio(X)					0.46	0.46		
Avail Cap(c_a), veh/h					1736	1538		
HCM Platoon Ratio					0.33	0.33		
Upstream Filter(I)					1.00	1.00		
Uniform Delay (d), s/veh					13.6	13.5		
Incr Delay (d2), s/veh					0.9	1.0		
Initial Q Delay(d3),s/veh					0.0	0.0		
%ile BackOfQ(50%),veh/ln					17.9	16.1		
LnGrp Delay(d),s/veh					14.4	14.5		
LnGrp LOS					B	B		
Approach Vol, veh/h						1495		
Approach Delay, s/veh						14.5		
Approach LOS						B		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						
Phs Duration (G+Y+Rc), s		100.0						
Change Period (Y+Rc), s		4.5						
Max Green Setting (Gmax), s		64.5						
Max Q Clear Time (g_c+I1), s		37.5						
Green Ext Time (p_c), s		1.8						
Intersection Summary								
HCM 2010 Ctrl Delay			14.5					
HCM 2010 LOS			B					

HCM Signalized Intersection Capacity Analysis
40: NE 42nd St (north)/NE 42nd St & 11th Ave NE

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	60	70	0	0	70	95	25	905	90	0	0	0
Future Volume (vph)	60	70	0	0	70	95	25	905	90	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			0.90			0.99				
Flpb, ped/bikes		0.95			1.00			1.00				
Frt		1.00			0.92			0.99				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1760			1561			3433				
Flt Permitted		0.76			1.00			1.00				
Satd. Flow (perm)		1361			1561			3433				
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)	66	77	0	0	77	104	27	995	99	0	0	0
RTOR Reduction (vph)	0	0	0	0	31	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	143	0	0	150	0	0	1112	0	0	0	0
Confl. Peds. (#/hr)	158		104	104		158	22		57	57		22
Confl. Bikes (#/hr)			7			21			75			1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	2%	2%	2%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		9.7			9.7			31.8				
Effective Green, g (s)		9.7			9.7			31.8				
Actuated g/C Ratio		0.19			0.19			0.64				
Clearance Time (s)		4.0			4.0			4.5				
Vehicle Extension (s)		2.0			2.0			0.2				
Lane Grp Cap (vph)		264			302			2183				
v/s Ratio Prot					0.10							
v/s Ratio Perm		c0.11						0.32				
v/c Ratio		0.54			0.50			0.51				
Uniform Delay, d1		18.1			18.0			4.9				
Progression Factor		1.14			1.18			1.00				
Incremental Delay, d2		1.0			0.5			0.9				
Delay (s)		21.7			21.6			5.8				
Level of Service		C			C			A				
Approach Delay (s)		21.7			21.6			5.8			0.0	
Approach LOS		C			C			A			A	

Intersection Summary

HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

41: University Way NE & NE 42nd St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	35	115	15	10	60	25	10	115	15	15	105	40
Future Volume (vph)	35	115	15	10	60	25	10	115	15	15	105	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.95			0.86			0.94			0.84	
Flpb, ped/bikes		0.90			0.96			0.96			0.96	
Frt		0.99			0.96			0.99			0.97	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1596			1497			1577			1405	
Flt Permitted		0.93			0.97			0.98			0.97	
Satd. Flow (perm)		1504			1458			1552			1376	
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)	37	122	16	11	64	27	11	122	16	16	112	43
RTOR Reduction (vph)	0	7	0	0	18	0	0	8	0	0	22	0
Lane Group Flow (vph)	0	168	0	0	84	0	0	141	0	0	149	0
Confl. Peds. (#/hr)	361		395	395		361	547		413	413		547
Confl. Bikes (#/hr)			15			20			48			17
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	7%	7%	7%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		17.0			17.0			24.5			24.5	
Effective Green, g (s)		17.0			17.0			24.5			24.5	
Actuated g/C Ratio		0.34			0.34			0.49			0.49	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		511			495			760			674	
v/s Ratio Prot												
v/s Ratio Perm		c0.11			0.06			0.09			c0.11	
v/c Ratio		0.33			0.17			0.19			0.22	
Uniform Delay, d1		12.3			11.6			7.2			7.3	
Progression Factor		1.48			0.56			0.78			1.74	
Incremental Delay, d2		1.6			0.7			0.5			0.7	
Delay (s)		19.7			7.2			6.1			13.4	
Level of Service		B			A			A			B	
Approach Delay (s)		19.7			7.2			6.1			13.4	
Approach LOS		B			A			A			B	

Intersection Summary

HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	38.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

42: 15th Ave NE & NE 42nd St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	85	70	40	595	605	45
Future Volume (vph)	85	70	40	595	605	45
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.5	4.5	4.5	
Lane Util. Factor	1.00		1.00	0.95	0.95	
Frpb, ped/bikes	0.87		1.00	1.00	0.98	
Flpb, ped/bikes	1.00		0.89	1.00	1.00	
Frt	0.94		1.00	1.00	0.99	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	1502		1484	3343	3196	
Flt Permitted	0.97		0.32	1.00	1.00	
Satd. Flow (perm)	1502		505	3343	3196	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	76	43	647	658	49
RTOR Reduction (vph)	23	0	0	0	11	0
Lane Group Flow (vph)	145	0	43	647	696	0
Confl. Peds. (#/hr)	437	310	177			177
Confl. Bikes (#/hr)		4				10
Heavy Vehicles (%)	0%	0%	8%	8%	9%	9%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	21.0		20.5	20.5	20.5	
Effective Green, g (s)	21.0		20.5	20.5	20.5	
Actuated g/C Ratio	0.42		0.41	0.41	0.41	
Clearance Time (s)	4.0		4.5	4.5	4.5	
Lane Grp Cap (vph)	630		207	1370	1310	
v/s Ratio Prot	c0.10			0.19	c0.22	
v/s Ratio Perm			0.09			
v/c Ratio	0.23		0.21	0.47	0.53	
Uniform Delay, d1	9.3		9.5	10.8	11.1	
Progression Factor	0.38		1.44	1.48	0.95	
Incremental Delay, d2	0.8		2.2	1.2	1.5	
Delay (s)	4.4		15.9	17.1	12.0	
Level of Service	A		B	B	B	
Approach Delay (s)	4.4			17.0	12.0	
Approach LOS	A			B	B	

Intersection Summary

HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	48.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations									
Traffic Vol, veh/h	0	125	115	0	65	105	0	65	85
Future Vol, veh/h	0	125	115	0	65	105	0	65	85
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	6	6	6	8	8	8	17	17	17
Mvmt Flow	0	142	131	0	74	119	0	74	97
Number of Lanes	0	1	0	0	1	0	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	10.3	9.1	9.9
HCM LOS	B	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	52%	43%
Vol Thru, %	38%	0%	57%
Vol Right, %	62%	48%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	170	240	150
LT Vol	0	125	65
Through Vol	65	0	85
RT Vol	105	115	0
Lane Flow Rate	193	273	170
Geometry Grp	1	1	1
Degree of Util (X)	0.244	0.355	0.245
Departure Headway (Hd)	4.553	4.686	5.166
Convergence, Y/N	Yes	Yes	Yes
Cap	784	764	692
Service Time	2.604	2.732	3.219
HCM Lane V/C Ratio	0.246	0.357	0.246
HCM Control Delay	9.1	10.3	9.9
HCM Lane LOS	A	B	A
HCM 95th-tile Q	1	1.6	1

HCM Signalized Intersection Capacity Analysis

44: I-5 NB Express Lane Off Ramp & 7th Ave NE & NE 42nd St/NE 42nd St (South)

Friday PM Peak Hour



Movement	WBL2	WBT	WBR	NBL	NBT	NBR	NEL	NER	NER2
Lane Configurations									
Traffic Volume (vph)	105	15	85	5	250	125	295	160	135
Future Volume (vph)	105	15	85	5	250	125	295	160	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0			5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.95			0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00			1.00		1.00	1.00	
Frt	1.00	0.87			0.96		1.00	0.85	
Flt Protected	0.95	1.00			1.00		0.95	1.00	
Satd. Flow (prot)	1770	1537			1784		1736	1553	
Flt Permitted	0.95	1.00			1.00		0.95	1.00	
Satd. Flow (perm)	1770	1537			1784		1736	1553	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	122	17	99	6	291	145	343	186	157
RTOR Reduction (vph)	0	81	0	0	18	0	0	57	0
Lane Group Flow (vph)	122	35	0	0	424	0	343	286	0
Confl. Peds. (#/hr)			43	10					
Confl. Bikes (#/hr)			1			1			
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	4%	4%	4%
Turn Type	Split	NA		Perm	NA		Prot	Perm	
Protected Phases	3	3			2		4		
Permitted Phases				2				4	
Actuated Green, G (s)	13.8	13.8			24.1		22.2	22.2	
Effective Green, g (s)	13.8	13.8			24.1		22.2	22.2	
Actuated g/C Ratio	0.18	0.18			0.32		0.30	0.30	
Clearance Time (s)	5.0	5.0			5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0			5.0		5.0	5.0	
Lane Grp Cap (vph)	325	282			572		513	459	
v/s Ratio Prot	c0.07	0.02					c0.20		
v/s Ratio Perm					0.24			0.18	
v/c Ratio	0.38	0.12			0.74		0.67	0.62	
Uniform Delay, d1	26.9	25.6			22.7		23.2	22.8	
Progression Factor	1.00	1.00			1.00		1.00	1.00	
Incremental Delay, d2	0.7	0.2			6.1		4.3	3.7	
Delay (s)	27.6	25.8			28.9		27.6	26.5	
Level of Service	C	C			C		C	C	
Approach Delay (s)		26.7			28.9		27.1		
Approach LOS		C			C		C		
Intersection Summary									
HCM 2000 Control Delay			27.6		HCM 2000 Level of Service				C
HCM 2000 Volume to Capacity ratio			0.63						
Actuated Cycle Length (s)			75.1		Sum of lost time (s)			15.0	
Intersection Capacity Utilization			68.0%		ICU Level of Service				C
Analysis Period (min)			15						
c	Critical Lane Group								

HCM Signalized Intersection Capacity Analysis
 45: Roosevelt Way NE & NE 42nd St (south)

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗			↕	↗
Traffic Volume (vph)	0	290	0	0	1250	150
Future Volume (vph)	0	290	0	0	1250	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5	4.5
Lane Util. Factor		1.00			0.95	1.00
Frbp, ped/bikes		1.00			1.00	0.79
Flpb, ped/bikes		1.00			1.00	1.00
Frt		0.86			1.00	0.85
Flt Protected		1.00			1.00	1.00
Satd. Flow (prot)		1580			3539	1245
Flt Permitted		1.00			1.00	1.00
Satd. Flow (perm)		1580			3539	1245
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	302	0	0	1302	156
RTOR Reduction (vph)	0	18	0	0	0	22
Lane Group Flow (vph)	0	284	0	0	1302	134
Confl. Peds. (#/hr)	141		93			93
Confl. Bikes (#/hr)		2				30
Heavy Vehicles (%)	4%	4%	0%	0%	2%	2%
Turn Type		Prot			NA	Perm
Protected Phases		4			2	
Permitted Phases						2
Actuated Green, G (s)		22.7			67.8	67.8
Effective Green, g (s)		22.7			67.8	67.8
Actuated g/C Ratio		0.23			0.68	0.68
Clearance Time (s)		5.0			4.5	4.5
Vehicle Extension (s)		2.0			0.2	0.2
Lane Grp Cap (vph)		358			2399	844
v/s Ratio Prot		c0.18			c0.37	
v/s Ratio Perm						0.11
v/c Ratio		0.79			0.54	0.16
Uniform Delay, d1		36.4			8.2	5.8
Progression Factor		1.00			0.52	0.46
Incremental Delay, d2		10.8			0.8	0.3
Delay (s)		47.2			5.0	3.0
Level of Service		D			A	A
Approach Delay (s)	47.2			0.0	4.8	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Int Delay, s/veh 2.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔					↕↕
Traffic Vol, veh/h	15	0	0	0	120	1425
Future Vol, veh/h	15	0	0	0	120	1425
Conflicting Peds, #/hr	9	18	0	9	18	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	2	2
Mvmt Flow	16	0	0	0	126	1500

Major/Minor

	Minor1		Major2	
Conflicting Flow All	1030	-	18	0
Stage 1	18	-	-	-
Stage 2	1012	-	-	-
Critical Hdwy	6.8	-	4.14	-
Critical Hdwy Stg 1	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-
Follow-up Hdwy	3.5	-	2.22	-
Pot Cap-1 Maneuver	233	0	1597	-
Stage 1	-	0	-	-
Stage 2	317	0	-	-
Platoon blocked, %				-
Mov Cap-1 Maneuver	121	-	1597	-
Mov Cap-2 Maneuver	121	-	-	-
Stage 1	-	-	-	-
Stage 2	167	-	-	-

Approach

	WB	SB
HCM Control Delay, s	39.2	2
HCM LOS	E	

Minor Lane/Major Mvmt

	WBLn1	SBL	SBT
Capacity (veh/h)	121	1597	-
HCM Lane V/C Ratio	0.13	0.079	-
HCM Control Delay (s)	39.2	7.4	1.5
HCM Lane LOS	E	A	A
HCM 95th %tile Q(veh)	0.4	0.3	-

Intersection

Int Delay, s/veh 17.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	10	15	15	60	20	15	25	5	15	80	20
Future Vol, veh/h	5	10	15	15	60	20	15	25	5	15	80	20
Conflicting Peds, #/hr	247	0	267	252	0	232	267	0	252	232	0	247
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	4	4	4	10	10	10	0	0	0	0	0	0
Mvmt Flow	6	12	18	18	71	24	18	30	6	18	95	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	773	733	641	745	742	532	386	0	0	288	0	0
Stage 1	410	410	-	320	320	-	-	-	-	-	-	-
Stage 2	363	323	-	425	422	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.2	6.6	6.3	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.2	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.2	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.59	4.09	3.39	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	314	345	471	320	334	532	1184	-	-	1286	-	-
Stage 1	615	592	-	675	638	-	-	-	-	-	-	-
Stage 2	652	647	-	592	575	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	126	204	285	171	197	334	921	-	-	1021	-	-
Mov Cap-2 Maneuver	126	204	-	171	197	-	-	-	-	-	-	-
Stage 1	469	452	-	523	494	-	-	-	-	-	-	-
Stage 2	403	501	-	412	439	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	25.4	40.5	3	1.1
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	921	-	-	212	210	1021	-
HCM Lane V/C Ratio	0.019	-	-	0.168	0.539	0.017	-
HCM Control Delay (s)	9	0	-	25.4	40.5	8.6	0
HCM Lane LOS	A	A	-	D	E	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.6	2.8	0.1	-

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	5	20	10	0	20	55	25	0	40	110	10
Future Vol, veh/h	0	5	20	10	0	20	55	25	0	40	110	10
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	3	3	3	3	1	1	1	1	5	5	5	5
Mvmt Flow	0	6	24	12	0	24	65	29	0	47	129	12
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.9	8.3	8.9
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	25%	14%	20%	27%
Vol Thru, %	69%	57%	55%	53%
Vol Right, %	6%	29%	25%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	160	35	100	75
LT Vol	40	5	20	20
Through Vol	110	20	55	40
RT Vol	10	10	25	15
Lane Flow Rate	188	41	118	88
Geometry Grp	1	1	1	1
Degree of Util (X)	0.234	0.053	0.147	0.114
Departure Headway (Hd)	4.469	4.592	4.5	4.651
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	804	780	798	771
Service Time	2.49	2.62	2.524	2.676
HCM Lane V/C Ratio	0.234	0.053	0.148	0.114
HCM Control Delay	8.9	7.9	8.3	8.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.9	0.2	0.5	0.4

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	20	40	15
Future Vol, veh/h	0	20	40	15
Peak Hour Factor	0.85	0.85	0.85	0.85
Heavy Vehicles, %	14	14	14	14
Mvmt Flow	0	24	47	18
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8.3
HCM LOS	A

Intersection

Int Delay, s/veh 1.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	20	10	15	50	30	10	115	10	20	120	30
Future Vol, veh/h	10	20	10	15	50	30	10	115	10	20	120	30
Conflicting Peds, #/hr	686	0	746	780	0	720	746	0	780	720	0	686
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	0	0	0	0	0	0	13	13	13	6	6	6
Mvmt Flow	12	25	12	19	62	37	12	142	12	25	148	37

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1904	1921	1693	1968	1934	1648	931	0	0	934	0	0
Stage 1	962	962	-	953	953	-	-	-	-	-	-	-
Stage 2	942	959	-	1015	981	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.23	-	-	4.16	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.317	-	-	2.254	-	-
Pot Cap-1 Maneuver	53	68	116	48	67	124	692	-	-	717	-	-
Stage 1	310	337	-	314	340	-	-	-	-	-	-	-
Stage 2	318	338	-	290	330	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	-	~ 8	15	-	~ 8	~ 17	242	-	-	287	-	-
Mov Cap-2 Maneuver	-	~ 8	-	-	~ 8	-	-	-	-	-	-	-
Stage 1	111	115	-	104	113	-	-	-	-	-	-	-
Stage 2	-	112	-	~ 13	113	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s			1.5	2.2
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	242	-	-	-	287	-	-
HCM Lane V/C Ratio	0.051	-	-	-	0.086	-	-
HCM Control Delay (s)	20.7	0	-	-	18.7	0	-
HCM Lane LOS	C	A	-	-	C	A	-
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

50: 15th Ave NE & NE 41st St/UW Campus Parking Access

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕	↕	↕	↕↕	↕	↕	↕↕	
Traffic Volume (vph)	20	15	10	65	30	105	25	510	75	90	540	45
Future Volume (vph)	20	15	10	65	30	105	25	510	75	90	540	45
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	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes		0.96			1.00	0.66	1.00	1.00	0.68	1.00	0.96	
Flpb, ped/bikes		0.87			0.90	1.00	0.79	1.00	1.00	0.86	1.00	
Frt		0.97			1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1515			1646	1055	1325	3343	1010	1447	3202	
Flt Permitted		0.85			0.81	1.00	0.41	1.00	1.00	0.44	1.00	
Satd. Flow (perm)		1318			1381	1055	569	3343	1010	677	3202	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	16	11	71	33	114	27	554	82	98	587	49
RTOR Reduction (vph)	0	10	0	0	0	99	0	0	18	0	3	0
Lane Group Flow (vph)	0	39	0	0	104	15	27	554	64	98	633	0
Confl. Peds. (#/hr)	327		108	108		327	223		129	129		223
Confl. Bikes (#/hr)			6			2			10			6
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	8%	8%	8%	7%	7%	7%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2				2
Permitted Phases	4			4		4	2		2	2		
Actuated Green, G (s)		13.2			13.2	13.2	78.3	78.3	78.3	78.3		78.3
Effective Green, g (s)		13.2			13.2	13.2	78.3	78.3	78.3	78.3		78.3
Actuated g/C Ratio		0.13			0.13	0.13	0.78	0.78	0.78	0.78		0.78
Clearance Time (s)		4.0			4.0	4.0	4.5	4.5	4.5	4.5		4.5
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	0.2		0.2
Lane Grp Cap (vph)		173			182	139	445	2617	790	530		2507
v/s Ratio Prot								0.17				c0.20
v/s Ratio Perm		0.03			c0.08	0.01	0.05		0.06	0.14		
v/c Ratio		0.23			0.57	0.11	0.06	0.21	0.08	0.18		0.25
Uniform Delay, d1		38.8			40.7	38.2	2.5	2.8	2.5	2.8		2.9
Progression Factor		0.94			1.00	1.00	0.44	0.42	0.30	0.29		0.25
Incremental Delay, d2		0.7			4.3	0.3	0.3	0.2	0.2	0.7		0.2
Delay (s)		37.1			45.0	38.6	1.4	1.4	0.9	1.5		0.9
Level of Service		D			D	D	A	A	A	A		A
Approach Delay (s)		37.1			41.6			1.3				1.0
Approach LOS		D			D			A				A

Intersection Summary

HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	36.8
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↔				↔				↔	↔
Traffic Vol, veh/h	0	95	135	15	0	205	275	20	0	5	240	230
Future Vol, veh/h	0	95	135	15	0	205	275	20	0	5	240	230
Peak Hour Factor	0.25	0.98	0.98	0.98	0.25	0.98	0.98	0.98	0.92	0.98	0.98	0.98
Heavy Vehicles, %	3	3	3	3	4	4	4	4	2	1	1	1
Mvmt Flow	0	97	138	15	0	209	281	20	0	5	245	235
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	1	1
HCM Control Delay	20	70.7	18.5
HCM LOS	C	F	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	0%	39%	41%	4%
Vol Thru, %	98%	0%	55%	55%	40%
Vol Right, %	0%	100%	6%	4%	56%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	245	230	245	500	225
LT Vol	5	0	95	205	10
Through Vol	240	0	135	275	90
RT Vol	0	230	15	20	125
Lane Flow Rate	250	235	250	510	230
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.551	0.477	0.542	1.014	0.495
Departure Headway (Hd)	8.091	7.313	7.977	7.157	7.937
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	448	493	455	510	457
Service Time	5.791	5.057	5.977	5.18	5.937
HCM Lane V/C Ratio	0.558	0.477	0.549	1	0.503
HCM Control Delay	20.3	16.6	20	70.7	18.5
HCM Lane LOS	C	C	C	F	C
HCM 95th-tile Q	3.3	2.5	3.2	14.3	2.7

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	10	90	125
Future Vol, veh/h	0	10	90	125
Peak Hour Factor	0.25	0.98	0.98	0.98
Heavy Vehicles, %	1	1	1	1
Mvmt Flow	0	10	92	128
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	18.5
HCM LOS	C

Intersection

Int Delay, s/veh 0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations			↗		↖		↘			
Traffic Vol, veh/h	0	0	390	0	210	0	0	25	0	0
Future Vol, veh/h	0	0	390	0	210	0	0	25	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	63	69	0	63
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None	-	-
Storage Length	-	-	0	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	0	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	0	0	0	0	0	3	3
Mvmt Flow	0	0	424	0	228	0	0	27	0	0

Major/Minor	Major1			Major2			Minor2	
Conflicting Flow All	-	-	0	-	-	0	291	297
Stage 1	-	-	-	-	-	-	228	-
Stage 2	-	-	-	-	-	-	63	-
Critical Hdwy	-	-	-	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	0	0	-	0	-	0	704	747
Stage 1	0	0	-	0	-	0	815	-
Stage 2	0	0	-	0	-	0	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	704	704
Mov Cap-2 Maneuver	-	-	-	-	-	-	704	-
Stage 1	-	-	-	-	-	-	815	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.3
HCM LOS			B

Minor Lane/Major Mvmt	EBR	WBT	SBLn1
Capacity (veh/h)	-	-	704
HCM Lane V/C Ratio	-	-	0.039
HCM Control Delay (s)	-	-	10.3
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.1

HCM Signalized Intersection Capacity Analysis

UW Master Plan EIS

53: University Bridge/Roosevelt Way NE & NE Campus Pkwy & Eastlake Ave NE Friday, 2/15/2019 Weekday PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations			↑↑	↑	↑	↑↑		
Traffic Volume (vph)	0	0	850	290	130	1285	0	0
Future Volume (vph)	0	0	850	290	130	1285	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5	4.5	4.5	4.5		
Lane Util. Factor			0.95	1.00	1.00	0.95		
Frbp, ped/bikes			1.00	0.95	1.00	1.00		
Flpb, ped/bikes			1.00	1.00	1.00	1.00		
Frt			1.00	0.85	1.00	1.00		
Flt Protected			1.00	1.00	0.95	1.00		
Satd. Flow (prot)			3539	1499	1752	3505		
Flt Permitted			1.00	1.00	0.95	1.00		
Satd. Flow (perm)			3539	1499	1752	3505		
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	0	0	914	312	140	1382	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	914	312	140	1382	0	0
Confl. Peds. (#/hr)	10	9		10	9			
Confl. Bikes (#/hr)				93				
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%	3%	3%
Turn Type			NA	Perm	Prot	NA		
Protected Phases			2		4	2		
Permitted Phases				2				
Actuated Green, G (s)			33.0	33.0	15.9	57.9		
Effective Green, g (s)			33.0	33.0	15.9	57.9		
Actuated g/C Ratio			0.57	0.57	0.27	1.00		
Clearance Time (s)			4.5	4.5	4.5			
Vehicle Extension (s)			0.2	0.2	2.0			
Lane Grp Cap (vph)			2017	854	481	3505		
v/s Ratio Prot			c0.26		0.08	c0.39		
v/s Ratio Perm				0.21				
v/c Ratio			0.45	0.37	0.29	0.39		
Uniform Delay, d1			7.2	6.8	16.6	0.0		
Progression Factor			1.00	1.00	1.00	1.00		
Incremental Delay, d2			0.7	1.2	0.1	0.0		
Delay (s)			8.0	8.0	16.7	0.0		
Level of Service			A	A	B	A		
Approach Delay (s)	0.0		8.0			1.6	0.0	
Approach LOS	A		A			A	A	

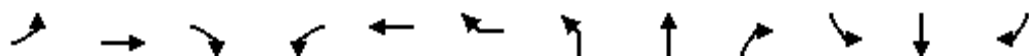
Intersection Summary

HCM 2000 Control Delay	4.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	57.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

54: Brooklyn Ave NE & NE Campus Pkwy

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	5	270	80	5	210	10	80	135	15	5	40	25
Future Volume (vph)	5	270	80	5	210	10	80	135	15	5	40	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.97			0.99			0.99			0.95	
Flt Protected		1.00			1.00			0.98			1.00	
Satd. Flow (prot)		3417			3511			1815			1767	
Flt Permitted		0.95			0.95			0.87			0.98	
Satd. Flow (perm)		3252			3327			1605			1740	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	6	314	93	6	244	12	93	157	17	6	47	29
RTOR Reduction (vph)	0	27	0	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	386		0	262		0	265		0	82	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		40.5			40.5			50.5			50.5	
Effective Green, g (s)		40.5			40.5			50.5			50.5	
Actuated g/C Ratio		0.40			0.40			0.50			0.50	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		1317			1347			810			878	
v/s Ratio Prot												
v/s Ratio Perm		c0.12			0.08			c0.16			0.05	
v/c Ratio		0.29			0.19			0.33			0.09	
Uniform Delay, d1		20.1			19.2			14.7			12.9	
Progression Factor		1.00			1.10			1.00			1.00	
Incremental Delay, d2		0.6			0.3			1.1			0.2	
Delay (s)		20.7			21.4			15.7			13.1	
Level of Service		C			C			B			B	
Approach Delay (s)		20.7			21.4			15.7			13.1	
Approach LOS		C			C			B			B	

Intersection Summary

HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	40.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

55: University Way NE & NE Campus Pkwy

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	45	240	10	5	145	5	25	95	20	15	75	45
Future Volume (vph)	45	240	10	5	145	5	25	95	20	15	75	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.99			1.00			0.98			0.95	
Flt Protected		0.99			1.00			0.99			0.99	
Satd. Flow (prot)		3494			3518			1810			1769	
Flt Permitted		0.88			0.95			0.94			0.97	
Satd. Flow (perm)		3115			3337			1716			1721	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	261	11	5	158	5	27	103	22	16	82	49
RTOR Reduction (vph)	0	2	0	0	2	0	0	6	0	0	18	0
Lane Group Flow (vph)	0	319		0	0	166	0	0	146	0	0	129
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		6			2			4			8	
Permitted Phases	6			2			4			8		
Actuated Green, G (s)		50.5			50.5			40.5			40.5	
Effective Green, g (s)		50.5			50.5			40.5			40.5	
Actuated g/C Ratio		0.50			0.50			0.40			0.40	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		1573			1685			694			697	
v/s Ratio Prot												
v/s Ratio Perm		c0.10			0.05			c0.09			0.08	
v/c Ratio		0.20			0.10			0.21			0.19	
Uniform Delay, d1		13.6			12.9			19.4			19.1	
Progression Factor		0.49			1.43			1.00			0.87	
Incremental Delay, d2		0.3			0.1			0.7			0.6	
Delay (s)		7.0			18.6			20.0			17.3	
Level of Service		A			B			C			B	
Approach Delay (s)		7.0			18.6			20.0			17.3	
Approach LOS		A			B			C			B	

Intersection Summary

HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.21		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	37.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
 55: University Way NE & NE Campus Pkwy

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	240	10	5	145	5	25	95	20	15	75	45
Future Volume (veh/h)	45	240	10	5	145	5	25	95	20	15	75	45
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	49	261	11	5	158	5	27	103	22	16	82	49
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	267	1390	59	63	1692	53	136	498	100	87	414	230
Arrive On Green	0.67	0.67	0.67	0.50	0.50	0.50	0.41	0.41	0.41	0.41	0.41	0.41
Sat Flow, veh/h	436	2753	117	50	3350	105	231	1229	247	116	1022	569
Grp Volume(v), veh/h	164	0	157	88	0	80	152	0	0	147	0	0
Grp Sat Flow(s),veh/h/ln	1632	0	1674	1828	0	1677	1707	0	0	1707	0	0
Q Serve(g_s), s	0.0	0.0	3.5	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	3.3	0.0	3.5	2.5	0.0	2.5	5.4	0.0	0.0	5.4	0.0	0.0
Prop In Lane	0.30		0.07	0.06		0.06	0.18		0.14	0.11		0.33
Lane Grp Cap(c), veh/h	871	0	846	961	0	847	734	0	0	731	0	0
V/C Ratio(X)	0.19	0.00	0.19	0.09	0.00	0.09	0.21	0.00	0.00	0.20	0.00	0.00
Avail Cap(c_a), veh/h	871	0	846	961	0	847	734	0	0	731	0	0
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	8.7	0.0	8.7	12.9	0.0	12.9	19.3	0.0	0.0	19.3	0.0	0.0
Incr Delay (d2), s/veh	0.5	0.0	0.5	0.2	0.0	0.2	0.6	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	1.7	1.3	0.0	1.2	2.8	0.0	0.0	2.7	0.0	0.0
LnGrp Delay(d),s/veh	9.1	0.0	9.2	13.0	0.0	13.1	20.0	0.0	0.0	19.9	0.0	0.0
LnGrp LOS	A		A	B		B	B			B		
Approach Vol, veh/h		321			168			152			147	
Approach Delay, s/veh		9.2			13.1			20.0			19.9	
Approach LOS		A			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		55.0		45.0		55.0		45.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		25.5		40.5		50.5		40.5				
Max Q Clear Time (g_c+I1), s		4.5		7.4		5.5		7.4				
Green Ext Time (p_c), s		0.5		0.3		0.5		0.3				
Intersection Summary												
HCM 2010 Ctrl Delay				14.1								
HCM 2010 LOS				B								

HCM Signalized Intersection Capacity Analysis
56: 15th Ave NE & NE Campus Pkwy

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour






Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔↔		↔	↑↑	↑↑	
Traffic Volume (vph)	145	120	60	470	515	100
Future Volume (vph)	145	120	60	470	515	100
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		6.0	6.0	6.0	
Lane Util. Factor	0.97		1.00	0.95	0.95	
Frpb, ped/bikes	0.99		1.00	1.00	0.94	
Flpb, ped/bikes	1.00		0.89	1.00	1.00	
Frt	0.93		1.00	1.00	0.98	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	2955		1442	3252	3075	
Flt Permitted	0.97		0.37	1.00	1.00	
Satd. Flow (perm)	2955		556	3252	3075	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	151	125	62	490	536	104
RTOR Reduction (vph)	0	0	0	0	16	0
Lane Group Flow (vph)	276	0	63	490	624	0
Confl. Peds. (#/hr)	4	2	227			227
Confl. Bikes (#/hr)						6
Heavy Vehicles (%)	12%	12%	11%	11%	8%	8%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	38.5		51.0	51.0	51.0	
Effective Green, g (s)	38.5		51.0	51.0	51.0	
Actuated g/C Ratio	0.38		0.51	0.51	0.51	
Clearance Time (s)	4.5		6.0	6.0	6.0	
Lane Grp Cap (vph)	1137		283	1658	1568	
v/s Ratio Prot	c0.09			0.15	c0.20	
v/s Ratio Perm			0.11			
v/c Ratio	0.24		0.22	0.30	0.40	
Uniform Delay, d1	20.9		13.5	14.1	15.1	
Progression Factor	0.61		0.48	0.47	0.78	
Incremental Delay, d2	0.5		1.8	0.4	0.7	
Delay (s)	13.3		8.2	7.1	12.5	
Level of Service	B		A	A	B	
Approach Delay (s)	13.3			7.2	12.5	
Approach LOS	B			A	B	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	60
Intersection LOS	F

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Lane Configurations									
Traffic Vol, veh/h	0	295	240	0	75	260	0	335	180
Future Vol, veh/h	0	295	240	0	75	260	0	335	180
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	1	1	1	0	0	0
Mvmt Flow	0	321	261	0	82	283	0	364	196
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	71.6	26.4	69.7
HCM LOS	F	D	F

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	65%	0%	22%
Vol Thru, %	0%	55%	78%
Vol Right, %	35%	45%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	515	535	335
LT Vol	335	0	75
Through Vol	0	295	260
RT Vol	180	240	0
Lane Flow Rate	560	582	364
Geometry Grp	1	1	1
Degree of Util (X)	1.019	1.029	0.713
Departure Headway (Hd)	6.719	6.571	7.278
Convergence, Y/N	Yes	Yes	Yes
Cap	543	558	499
Service Time	4.719	4.571	5.278
HCM Lane V/C Ratio	1.031	1.043	0.729
HCM Control Delay	69.7	71.6	26.4
HCM Lane LOS	F	F	D
HCM 95th-tile Q	15	15.6	5.7

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	30	30	20	0	35	25	45	0	10	160	25
Future Vol, veh/h	0	30	30	20	0	35	25	45	0	10	160	25
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	1	1	1	1	2	2	2	2	7	7	7	7
Mvmt Flow	0	35	35	24	0	41	29	53	0	12	188	29
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.7	8.7	9.7
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	38%	33%	8%
Vol Thru, %	82%	38%	24%	80%
Vol Right, %	13%	25%	43%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	195	80	105	125
LT Vol	10	30	35	10
Through Vol	160	30	25	100
RT Vol	25	20	45	15
Lane Flow Rate	229	94	124	147
Geometry Grp	1	1	1	1
Degree of Util (X)	0.296	0.128	0.163	0.191
Departure Headway (Hd)	4.651	4.881	4.746	4.675
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	771	730	752	765
Service Time	2.696	2.936	2.798	2.724
HCM Lane V/C Ratio	0.297	0.129	0.165	0.192
HCM Control Delay	9.7	8.7	8.7	8.8
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.2	0.4	0.6	0.7

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	10	100	15
Future Vol, veh/h	0	10	100	15
Peak Hour Factor	0.85	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	12	118	18
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8.8
HCM LOS	A

Intersection	
Intersection Delay, s/veh	8.5
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	20	45	10	0	30	75	25	0	5	100	15
Future Vol, veh/h	0	20	45	10	0	30	75	25	0	5	100	15
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	1	1	1	1	2	2	2	2	3	3	3	3
Mvmt Flow	0	23	52	11	0	34	86	29	0	6	115	17
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.3	8.6	8.6
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	27%	23%	5%
Vol Thru, %	83%	60%	58%	74%
Vol Right, %	12%	13%	19%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	120	75	130	95
LT Vol	5	20	30	5
Through Vol	100	45	75	70
RT Vol	15	10	25	20
Lane Flow Rate	138	86	149	109
Geometry Grp	1	1	1	1
Degree of Util (X)	0.175	0.111	0.188	0.136
Departure Headway (Hd)	4.561	4.639	4.54	4.497
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	786	772	790	797
Service Time	2.59	2.67	2.568	2.527
HCM Lane V/C Ratio	0.176	0.111	0.189	0.137
HCM Control Delay	8.6	8.3	8.6	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.6	0.4	0.7	0.5

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	5	70	20
Future Vol, veh/h	0	5	70	20
Peak Hour Factor	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	0	0	0
Mvmt Flow	0	6	80	23
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8.2
HCM LOS	A

HCM Signalized Intersection Capacity Analysis

61: 15th Ave NE & NE 40th St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕↔		↕	↕↔	
Traffic Volume (vph)	25	20	15	105	85	140	10	365	50	80	525	30
Future Volume (vph)	25	20	15	105	85	140	10	365	50	80	525	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frbp, ped/bikes		0.88			1.00	0.63	1.00	0.97		1.00	0.99	
Flpb, ped/bikes		0.90			0.77	1.00	0.93	1.00		0.91	1.00	
Frt		0.97			1.00	0.85	1.00	0.98		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1393			1300	924	1548	3168		1506	3249	
Flt Permitted		0.85			0.81	1.00	0.30	1.00		0.41	1.00	
Satd. Flow (perm)		1210			1085	924	488	3168		651	3249	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	26	21	16	111	89	147	11	384	53	84	553	32
RTOR Reduction (vph)	0	12	0	0	0	107	0	11	0	0	4	0
Lane Group Flow (vph)	0	51	0	0	200	40	11	426	0	84	581	0
Confl. Peds. (#/hr)	490		972	972		490	109		115	115		109
Confl. Bikes (#/hr)			133			54			15			7
Heavy Vehicles (%)	2%	2%	2%	10%	10%	10%	9%	9%	9%	9%	9%	9%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)		27.5			27.5	27.5	31.5	31.5		31.5	31.5	
Effective Green, g (s)		27.5			27.5	27.5	31.5	31.5		31.5	31.5	
Actuated g/C Ratio		0.28			0.28	0.28	0.32	0.32		0.32	0.32	
Clearance Time (s)		4.5			4.5	4.5	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		332			298	254	153	997		205	1023	
v/s Ratio Prot								0.13			c0.18	
v/s Ratio Perm		0.04			c0.18	0.04	0.02			0.13		
v/c Ratio		0.15			0.67	0.16	0.07	0.43		0.41	0.57	
Uniform Delay, d1		27.4			32.2	27.5	24.0	27.1		26.9	28.6	
Progression Factor		1.00			1.00	1.00	1.38	1.31		0.66	0.67	
Incremental Delay, d2		1.0			11.4	1.3	0.8	1.2		5.6	2.2	
Delay (s)		28.4			43.7	28.8	34.0	36.8		23.5	21.2	
Level of Service		C			D	C	C	D		C	C	
Approach Delay (s)		28.4			37.4			36.8			21.5	
Approach LOS		C			D			D			C	

Intersection Summary

HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Lane Configurations									
Traffic Vol, veh/h	0	5	125	0	15	20	0	235	5
Future Vol, veh/h	0	5	125	0	15	20	0	235	5
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	11	11	11	0	0	0	14	14	14
Mvmt Flow	0	6	145	0	17	23	0	273	6
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.2	8.2	10.5
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	98%	0%	43%
Vol Thru, %	0%	4%	57%
Vol Right, %	2%	96%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	240	130	35
LT Vol	235	0	15
Through Vol	0	5	20
RT Vol	5	125	0
Lane Flow Rate	279	151	41
Geometry Grp	1	1	1
Degree of Util (X)	0.37	0.179	0.055
Departure Headway (Hd)	4.773	4.27	4.865
Convergence, Y/N	Yes	Yes	Yes
Cap	759	842	736
Service Time	2.773	2.291	2.894
HCM Lane V/C Ratio	0.368	0.179	0.056
HCM Control Delay	10.5	8.2	8.2
HCM Lane LOS	B	A	A
HCM 95th-tile Q	1.7	0.6	0.2

Intersection	
Intersection Delay, s/veh	24.8
Intersection LOS	C

Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↘	↗		↕	↗		↘	↕
Traffic Vol, veh/h	0	270	380	0	130	425	0	270	45
Future Vol, veh/h	0	270	380	0	130	425	0	270	45
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	1	1	1	4	4	4
Mvmt Flow	0	284	400	0	137	447	0	284	47
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	23.4	27.8	22.6
HCM LOS	C	D	C

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	425	270	380	270	45
LT Vol	0	0	270	0	270	0
Through Vol	130	0	0	0	0	45
RT Vol	0	425	0	380	0	0
Lane Flow Rate	137	447	284	400	284	47
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.277	0.818	0.611	0.724	0.644	0.1
Departure Headway (Hd)	7.3	6.58	7.739	6.514	8.152	7.637
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	494	550	469	556	443	470
Service Time	5.023	4.303	5.458	4.234	5.891	5.376
HCM Lane V/C Ratio	0.277	0.813	0.606	0.719	0.641	0.1
HCM Control Delay	12.8	32.4	21.9	24.5	24.5	11.2
HCM Lane LOS	B	D	C	C	C	B
HCM 95th-tile Q	1.1	8.1	4	6	4.4	0.3

HCM Signalized Intersection Capacity Analysis
64: NE Boat St & NE Pacific St





















UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	500	85	15	490	115	15
Future Volume (vph)	500	85	15	490	115	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	5.0	5.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		0.99	1.00	1.00	
Frt	0.98		1.00	1.00	0.98	
Flt Protected	1.00		0.95	1.00	0.96	
Satd. Flow (prot)	1808		1765	1881	1749	
Flt Permitted	1.00		0.31	1.00	0.96	
Satd. Flow (perm)	1808		574	1881	1749	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	538	91	16	527	124	16
RTOR Reduction (vph)	6	0	0	0	5	0
Lane Group Flow (vph)	623	0	16	527	135	0
Confl. Peds. (#/hr)		20	20		16	11
Confl. Bikes (#/hr)		3				10
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			2	4	
Permitted Phases			2			
Actuated Green, G (s)	60.0		60.0	60.0	30.0	
Effective Green, g (s)	60.0		60.0	60.0	30.0	
Actuated g/C Ratio	0.60		0.60	0.60	0.30	
Clearance Time (s)	5.0		5.0	5.0	5.0	
Vehicle Extension (s)	0.2		0.2	0.2	2.0	
Lane Grp Cap (vph)	1084		344	1128	524	
v/s Ratio Prot	c0.34			0.28	c0.08	
v/s Ratio Perm			0.03			
v/c Ratio	0.57		0.05	0.47	0.26	
Uniform Delay, d1	12.2		8.2	11.1	26.6	
Progression Factor	1.00		0.58	0.51	1.00	
Incremental Delay, d2	2.2		0.2	1.3	1.2	
Delay (s)	14.4		5.1	7.1	27.7	
Level of Service	B		A	A	C	
Approach Delay (s)	14.4			7.0	27.7	
Approach LOS	B			A	C	
Intersection Summary						
HCM 2000 Control Delay			12.8		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.47			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	10.0
Intersection Capacity Utilization			56.8%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

HCM 2010 Signalized Intersection Summary
 65: Brooklyn Ave NE & NE Pacific St

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	575	5	30	375	25	35	105	20	35	40	95
Future Volume (veh/h)	95	575	5	30	375	25	35	105	20	35	40	95
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		0.93	1.00		0.93	1.00		0.92
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1881	1881	1900	1792	1792	1900	1827	1827	1900
Adj Flow Rate, veh/h	104	632	5	33	412	27	38	115	22	38	44	104
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	3	3	3	1	1	1	6	6	6	4	4	4
Cap, veh/h	131	1621	13	54	1392	91	85	425	81	87	134	316
Arrive On Green	0.07	0.46	0.46	0.03	0.41	0.41	0.05	0.29	0.29	0.05	0.29	0.29
Sat Flow, veh/h	1757	3562	28	1792	3390	221	1707	1442	276	1740	453	1070
Grp Volume(v), veh/h	104	311	326	33	216	223	38	0	137	38	0	148
Grp Sat Flow(s),veh/h/ln	1757	1752	1838	1792	1787	1824	1707	0	1718	1740	0	1523
Q Serve(g_s), s	5.8	11.8	11.8	1.8	8.1	8.2	2.2	0.0	6.1	2.1	0.0	7.6
Cycle Q Clear(g_c), s	5.8	11.8	11.8	1.8	8.1	8.2	2.2	0.0	6.1	2.1	0.0	7.6
Prop In Lane	1.00		0.02	1.00		0.12	1.00		0.16	1.00		0.70
Lane Grp Cap(c), veh/h	131	798	836	54	734	749	85	0	507	87	0	449
V/C Ratio(X)	0.79	0.39	0.39	0.61	0.29	0.30	0.45	0.00	0.27	0.44	0.00	0.33
Avail Cap(c_a), veh/h	264	798	836	161	734	749	154	0	507	278	0	449
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.79	0.79	0.79	0.98	0.98	0.98	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	45.5	18.0	18.0	47.9	19.8	19.8	46.2	0.0	27.0	46.1	0.0	27.5
Incr Delay (d2), s/veh	3.3	1.1	1.1	4.1	1.0	1.0	1.4	0.0	1.3	1.3	0.0	2.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.9	6.0	6.2	1.0	4.2	4.4	1.1	0.0	3.1	1.1	0.0	3.4
LnGrp Delay(d),s/veh	48.8	19.2	19.1	52.0	20.8	20.8	47.5	0.0	28.3	47.4	0.0	29.5
LnGrp LOS	D	B	B	D	C	C	D		C	D		C
Approach Vol, veh/h		741			472			175				186
Approach Delay, s/veh		23.3			23.0			32.5				33.2
Approach LOS		C			C			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.4	45.6	9.0	34.0	7.0	50.0	9.0	34.0				
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	15.0	29.5	16.0	22.5	9.0	35.5	9.0	29.5				
Max Q Clear Time (g_c+I1), s	7.8	10.2	4.1	8.1	3.8	13.8	4.2	9.6				
Green Ext Time (p_c), s	0.1	4.3	0.0	1.0	0.0	4.4	0.0	1.1				
Intersection Summary												
HCM 2010 Ctrl Delay				25.4								
HCM 2010 LOS				C								

HCM Signalized Intersection Capacity Analysis
 66: Campus Parking Access/University Way NE & NE Pacific St

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↖	↗		↗	↖
Traffic Volume (vph)	35	595	0	5	340	40	40	60	70	85	5	30
Future Volume (vph)	35	595	0	5	340	40	40	60	70	85	5	30
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5			4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.96			1.00	0.93		0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		0.97	
Frt	1.00	1.00		1.00	0.98			1.00	0.85		0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.97	
Satd. Flow (prot)	1787	3574		1752	3309			1844	1507		1676	
Flt Permitted	0.95	1.00		0.95	1.00			0.86	1.00		0.75	
Satd. Flow (perm)	1787	3574		1752	3309			1617	1507		1296	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	36	607	0	5	347	41	41	61	71	87	5	31
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	49	0	12	0
Lane Group Flow (vph)	36	607	0	5	380	0	0	102	22	0	111	0
Confl. Peds. (#/hr)	156		123	123		156	32		56	56		32
Confl. Bikes (#/hr)						4						1
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			4	
Permitted Phases							4		4	4		
Actuated Green, G (s)	4.6	55.4		1.1	51.9			30.5	30.5		30.5	
Effective Green, g (s)	4.6	55.4		1.1	51.9			30.5	30.5		30.5	
Actuated g/C Ratio	0.05	0.55		0.01	0.52			0.30	0.30		0.30	
Clearance Time (s)	4.0	4.5		4.0	4.5			4.5	4.5		4.5	
Vehicle Extension (s)	2.0	0.2		2.0	0.2			3.0	3.0		3.0	
Lane Grp Cap (vph)	82	1979		19	1717			493	459		395	
v/s Ratio Prot	c0.02	c0.17		0.00	0.11							
v/s Ratio Perm								0.06	0.01		c0.09	
v/c Ratio	0.44	0.31		0.26	0.22			0.21	0.05		0.28	
Uniform Delay, d1	46.4	12.0		49.0	13.1			25.8	24.5		26.4	
Progression Factor	1.28	0.45		1.31	0.17			1.00	1.00		1.00	
Incremental Delay, d2	1.3	0.4		2.5	0.3			0.9	0.2		1.8	
Delay (s)	60.7	5.7		66.9	2.5			26.7	24.7		28.2	
Level of Service	E	A		E	A			C	C		C	
Approach Delay (s)		8.8			3.3			25.9			28.2	
Approach LOS		A			A			C			C	

Intersection Summary		
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.31	B
Actuated Cycle Length (s)	100.0	Sum of lost time (s)
Intersection Capacity Utilization	78.8%	13.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		D

HCM Signalized Intersection Capacity Analysis

67: 15th Ave NE & NE Pacific St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	705	15	45	310	200	15	195	280	445	115	55
Future Volume (vph)	30	705	15	45	310	200	15	195	280	445	115	55
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		0.95		0.95	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	1.00	0.93		0.87		1.00	0.97	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.91		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	0.98	
Satd. Flow (prot)	1787	3523		1703	3406	1424		2838		1573	1527	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		1.00		0.95	0.98	
Satd. Flow (perm)	1787	3523		1703	3406	1424		2838		1573	1527	
Peak-hour factor, PHF	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Adj. Flow (vph)	35	820	17	52	360	233	17	227	326	517	134	64
RTOR Reduction (vph)	0	1	0	0	0	85	0	140	0	0	7	0
Lane Group Flow (vph)	35	836	0	52	360	148	0	430	0	357	351	0
Confl. Peds. (#/hr)	84		258	258		84	118		157	157		118
Confl. Bikes (#/hr)			1			16			22			11
Heavy Vehicles (%)	1%	1%	1%	6%	6%	6%	1%	1%	1%	9%	9%	9%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	
Protected Phases	1	6		5	2	4	3	3		4	4	
Permitted Phases						2						
Actuated Green, G (s)	4.3	26.9		5.7	28.3	56.1		21.6		27.8	27.8	
Effective Green, g (s)	4.3	26.9		5.7	28.3	56.1		21.6		27.8	27.8	
Actuated g/C Ratio	0.04	0.27		0.06	0.28	0.56		0.22		0.28	0.28	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.0	0.2		2.0	0.2	3.0		2.0		3.0	3.0	
Lane Grp Cap (vph)	76	947		97	963	798		613		437	424	
v/s Ratio Prot	0.02	c0.24		c0.03	0.11	0.05		c0.15		0.23	c0.23	
v/s Ratio Perm						0.05						
v/c Ratio	0.46	0.88		0.54	0.37	0.19		0.70		0.82	0.83	
Uniform Delay, d1	46.7	35.0		45.9	28.7	10.8		36.2		33.7	33.8	
Progression Factor	1.21	0.96		1.00	1.00	1.00		1.00		0.84	0.84	
Incremental Delay, d2	1.6	11.5		2.8	1.1	0.1		3.0		10.6	11.7	
Delay (s)	58.1	45.3		48.7	29.9	10.9		39.2		38.9	40.0	
Level of Service	E	D		D	C	B		D		D	D	
Approach Delay (s)		45.8			24.5			39.2			39.5	
Approach LOS		D			C			D			D	

Intersection Summary

HCM 2000 Control Delay	37.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Int Delay, s/veh 2.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	30	150	110	55	60	15
Future Vol, veh/h	30	150	110	55	60	15
Conflicting Peds, #/hr	45	0	0	32	32	45
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	6	6	4	4
Mvmt Flow	33	165	121	60	66	16

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	226	0	459
Stage 1	-	-	196
Stage 2	-	-	263
Critical Hdwy	4.13	-	6.44
Critical Hdwy Stg 1	-	-	5.44
Critical Hdwy Stg 2	-	-	5.44
Follow-up Hdwy	2.227	-	3.536
Pot Cap-1 Maneuver	1337	-	556
Stage 1	-	-	832
Stage 2	-	-	776
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1287	-	501
Mov Cap-2 Maneuver	-	-	501
Stage 1	-	-	801
Stage 2	-	-	726

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	13
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1287	-	-	-	535
HCM Lane V/C Ratio	0.026	-	-	-	0.154
HCM Control Delay (s)	7.9	0	-	-	13
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.5

Intersection	
Intersection Delay, s/veh	14.8
Intersection LOS	B

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations									
Traffic Vol, veh/h	0	140	70	0	130	330	0	90	35
Future Vol, veh/h	0	140	70	0	130	330	0	90	35
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	5	5	5	2	2	2	3	3	3
Mvmt Flow	0	156	78	0	144	367	0	100	39
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	11.6	17.7	9.4
HCM LOS	B	C	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	28%	67%	0%
Vol Thru, %	72%	0%	72%
Vol Right, %	0%	33%	28%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	460	210	125
LT Vol	130	140	0
Through Vol	330	0	90
RT Vol	0	70	35
Lane Flow Rate	511	233	139
Geometry Grp	1	1	1
Degree of Util (X)	0.682	0.359	0.199
Departure Headway (Hd)	4.805	5.541	5.148
Convergence, Y/N	Yes	Yes	Yes
Cap	741	653	700
Service Time	2.896	3.546	3.162
HCM Lane V/C Ratio	0.69	0.357	0.199
HCM Control Delay	17.7	11.6	9.4
HCM Lane LOS	C	B	A
HCM 95th-tile Q	5.4	1.6	0.7

HCM Unsignalized Intersection Capacity Analysis

UW Master Plan EIS

70: Parking Access/Campus Parking Access & NE Boat St/Columbia Rd (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Stop			Stop			Stop	
Traffic Volume (vph)	15	120	10	5	445	5	0	0	5	0	0	10
Future Volume (vph)	15	120	10	5	445	5	0	0	5	0	0	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	16	126	11	5	468	5	0	0	5	0	0	11

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	16	137	478	5	11
Volume Left (vph)	16	0	5	0	0
Volume Right (vph)	0	11	5	5	11
Hadj (s)	0.62	0.06	0.08	-0.60	-0.60
Departure Headway (s)	5.5	4.9	4.3	4.7	4.7
Degree Utilization, x	0.02	0.19	0.57	0.01	0.01
Capacity (veh/h)	646	716	827	669	668
Control Delay (s)	7.4	7.8	12.8	7.7	7.8
Approach Delay (s)	7.8		12.8	7.7	7.8
Approach LOS	A		B	A	A

Intersection Summary				
Delay			11.5	
Level of Service			B	
Intersection Capacity Utilization		47.8%		ICU Level of Service A
Analysis Period (min)		15		

Intersection

Int Delay, s/veh 15.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑			↑↑
Traffic Vol, veh/h	60	95	2010	60	65	850
Future Vol, veh/h	60	95	2010	60	65	850
Conflicting Peds, #/hr	0	3	0	0	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	63	100	2116	63	68	895

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	2734	1095	0
Stage 1	2150	-	-
Stage 2	584	-	-
Critical Hdwy	6.8	6.9	4.14
Critical Hdwy Stg 1	5.8	-	-
Critical Hdwy Stg 2	5.8	-	-
Follow-up Hdwy	3.5	3.3	2.22
Pot Cap-1 Maneuver	~ 17	212	240
Stage 1	77	-	-
Stage 2	526	-	-
Platoon blocked, %			
Mov Cap-1 Maneuver	~ 7	211	239
Mov Cap-2 Maneuver	68	-	-
Stage 1	77	-	-
Stage 2	228	-	-

Approach	WB	NB	SB
HCM Control Delay, s	294.9	0	1.8
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 116	239	-
HCM Lane V/C Ratio	-	- 1.407	0.286	-
HCM Control Delay (s)	-	- 294.9	26	-
HCM Lane LOS	-	- F	D	-
HCM 95th %tile Q(veh)	-	- 11.3	1.1	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑			↑↑
Traffic Vol, veh/h	5	40	2020	5	0	920
Future Vol, veh/h	5	40	2020	5	0	920
Conflicting Peds, #/hr	3	3	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	5	42	2126	5	0	968

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2619	1072	0	0	-	-
Stage 1	2132	-	-	-	-	-
Stage 2	487	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	-	-
Pot Cap-1 Maneuver	20	216	-	-	0	-
Stage 1	77	-	-	-	0	-
Stage 2	583	-	-	-	0	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	20	215	-	-	-	-
Mov Cap-2 Maneuver	65	-	-	-	-	-
Stage 1	77	-	-	-	-	-
Stage 2	582	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	33.9		0		0
HCM LOS	D				

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	- 171	-
HCM Lane V/C Ratio	-	- 0.277	-
HCM Control Delay (s)	-	- 33.9	-
HCM Lane LOS	-	- D	-
HCM 95th %tile Q(veh)	-	- 1.1	-

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑		↑	↑↑
Traffic Vol, veh/h	0	5	2030	25	10	910
Future Vol, veh/h	0	5	2030	25	10	910
Conflicting Peds, #/hr	4	4	0	4	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	0	5	2115	26	10	948

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	1078	0 0 2145 0
Stage 1	-	-	- - - -
Stage 2	-	-	- - - -
Critical Hdwy	-	6.9	- - 4.14 -
Critical Hdwy Stg 1	-	-	- - - -
Critical Hdwy Stg 2	-	-	- - - -
Follow-up Hdwy	-	3.3	- - 2.22 -
Pot Cap-1 Maneuver	0	218	- - 248 -
Stage 1	0	-	- - - -
Stage 2	0	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	-	217	- - 247 -
Mov Cap-2 Maneuver	-	-	- - - -
Stage 1	-	-	- - - -
Stage 2	-	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	22	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 217	247	-
HCM Lane V/C Ratio	-	- 0.024	0.042	-
HCM Control Delay (s)	-	- 22	20.2	-
HCM Lane LOS	-	- C	C	-
HCM 95th %tile Q(veh)	-	- 0.1	0.1	-

HCM Signalized Intersection Capacity Analysis

74: Montlake Blvd NE & Husky Stadium Parking Access

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	335	15	65	125	0	45	0	1615	5	0	825	70
Future Volume (vph)	335	15	65	125	0	45	0	1615	5	0	825	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5			4.5	
Lane Util. Factor	0.95	0.95	1.00	1.00		1.00		0.95			0.95	
Frbp, ped/bikes	1.00	1.00	0.89	1.00		0.99		1.00			0.99	
Flpb, ped/bikes	1.00	1.00	1.00	0.94		1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00		0.85		1.00			0.99	
Flt Protected	0.95	0.96	1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	1681	1692	1403	1690		1594		3568			3436	
Flt Permitted	0.95	0.96	1.00	0.43		1.00		1.00			1.00	
Satd. Flow (perm)	1681	1692	1403	764		1594		3568			3436	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	349	16	68	130	0	47	0	1682	5	0	859	73
RTOR Reduction (vph)	0	0	55	0	0	11	0	0	0	0	3	0
Lane Group Flow (vph)	181	184	13	130	0	36	0	1687	0	0	929	0
Confl. Peds. (#/hr)			60	60			29		139	139		29
Confl. Bikes (#/hr)			6			1						1
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	3%	3%	3%
Turn Type	Perm	NA	Perm	D.Pm		Perm		NA			NA	
Protected Phases		4						2				2
Permitted Phases	4		4	4		4						
Actuated Green, G (s)	22.4	22.4	22.4	22.4		22.4		88.6			88.6	
Effective Green, g (s)	22.4	22.4	22.4	22.4		22.4		88.6			88.6	
Actuated g/C Ratio	0.19	0.19	0.19	0.19		0.19		0.74			0.74	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5			4.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0		0.2			0.2	
Lane Grp Cap (vph)	313	315	261	142		297		2634			2536	
v/s Ratio Prot								c0.47			0.27	
v/s Ratio Perm	0.11	0.11	0.01	c0.17		0.02						
v/c Ratio	0.58	0.58	0.05	0.92		0.12		0.64			0.37	
Uniform Delay, d1	44.5	44.5	40.1	47.9		40.6		7.8			5.6	
Progression Factor	0.93	0.93	1.40	1.00		1.00		0.54			1.00	
Incremental Delay, d2	1.4	1.5	0.0	49.8		0.1		0.8			0.4	
Delay (s)	42.8	43.0	56.1	97.7		40.7		5.0			6.0	
Level of Service	D	D	E	F		D		A			A	
Approach Delay (s)		45.0			82.5			5.0			6.0	
Approach LOS		D			F			A			A	

Intersection Summary

HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
75: NE Pacific St & NE Pacific Pl

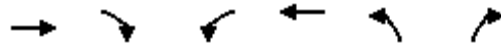
UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	320	1025	60	45	435	35	0	0	0	0	0	110	
Future Volume (vph)	320	1025	60	45	435	35	0	0	0	0	0	110	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0							5.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95							1.00	
Frbp, ped/bikes	1.00	1.00	0.73	1.00	0.98							1.00	
Flpb, ped/bikes	1.00	1.00	1.00	0.97	1.00							1.00	
Frt	1.00	1.00	0.85	1.00	0.99							0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00							1.00	
Satd. Flow (prot)	1805	3610	1175	1752	3486							1565	
Flt Permitted	0.95	1.00	1.00	0.14	1.00							1.00	
Satd. Flow (perm)	1805	3610	1175	258	3486							1565	
Peak-hour factor, PHF	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.80	
Adj. Flow (vph)	400	1281	75	56	544	44	0	0	0	0	0	138	
RTOR Reduction (vph)	0	0	34	0	8	0	0	0	0	0	0	26	
Lane Group Flow (vph)	400	1281	41	56	580	0	0	0	0	0	0	113	
Confl. Peds. (#/hr)			153	153		318			531	531			
Confl. Bikes (#/hr)			5			6		6				1	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	6%	6%	6%	5%	5%	5%	
Turn Type	Prot	NA	Perm	Perm	NA							Over	
Protected Phases	2	1			1							2	
Permitted Phases			1	1									
Actuated Green, G (s)	17.5	32.5	32.5	32.5	32.5							17.5	
Effective Green, g (s)	17.5	32.5	32.5	32.5	32.5							17.5	
Actuated g/C Ratio	0.29	0.54	0.54	0.54	0.54							0.29	
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0							5.0	
Vehicle Extension (s)	2.0	0.2	0.2	0.2	0.2							2.0	
Lane Grp Cap (vph)	526	1955	636	139	1888							456	
v/s Ratio Prot	c0.22	c0.35			0.17							0.07	
v/s Ratio Perm			0.03	0.22									
v/c Ratio	0.76	0.66	0.06	0.40	0.31							0.25	
Uniform Delay, d1	19.3	9.8	6.5	8.1	7.6							16.2	
Progression Factor	1.00	1.00	1.00	1.31	0.82							0.77	
Incremental Delay, d2	5.8	1.7	0.2	8.4	0.4							0.1	
Delay (s)	25.1	11.5	6.7	19.0	6.6							12.6	
Level of Service	C	B	A	B	A							B	
Approach Delay (s)		14.4			7.7			0.0			12.6		
Approach LOS		B			A			A			B		
Intersection Summary													
HCM 2000 Control Delay			12.6									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.69										
Actuated Cycle Length (s)			60.0									Sum of lost time (s)	10.0
Intersection Capacity Utilization			51.7%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
76: Hospital Access & NE Pacific St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	1010	15	40	505	65	65
Future Volume (vph)	1010	15	40	505	65	65
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frbp, ped/bikes	1.00	0.82	1.00	1.00	1.00	0.99
Flpb, ped/bikes	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)	3438	1255	1656	3312	1805	1591
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3438	1255	1656	3312	1805	1591
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1074	16	43	537	69	69
RTOR Reduction (vph)	0	1	0	0	0	64
Lane Group Flow (vph)	1074	15	43	537	69	5
Confl. Peds. (#/hr)		55	55		31	
Confl. Bikes (#/hr)		5				1
Heavy Vehicles (%)	5%	5%	9%	9%	0%	0%
Turn Type	NA	Perm	Prot	NA	pm+pt	Perm
Protected Phases	2		7!	6!	1!	
Permitted Phases		2		3	3!	1
Actuated Green, G (s)	83.3	83.3	14.1	96.9	9.1	9.1
Effective Green, g (s)	83.3	83.3	14.1	96.9	9.1	9.1
Actuated g/C Ratio	0.69	0.69	0.12	0.81	0.08	0.08
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	0.2	0.2	2.0	0.2	2.0	2.0
Lane Grp Cap (vph)	2386	871	194	2674	136	120
v/s Ratio Prot	c0.31		c0.03	0.16	c0.04	
v/s Ratio Perm		0.01				0.00
v/c Ratio	0.45	0.02	0.22	0.20	0.51	0.04
Uniform Delay, d1	8.2	5.7	48.0	2.7	53.3	51.4
Progression Factor	1.79	1.96	0.33	4.72	1.00	1.00
Incremental Delay, d2	0.5	0.0	0.2	0.0	1.1	0.1
Delay (s)	15.0	11.2	15.8	12.6	54.4	51.5
Level of Service	B	B	B	B	D	D
Approach Delay (s)	15.0			12.8	52.9	
Approach LOS	B			B	D	

Intersection Summary

HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

77: Montlake Blvd NE & NE Pacific St/Husky Stadium Parking Access Existing (2015) Weekday PM Peak Hour















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗↗		↑	↗	↗↗	↗↗		↗	↗↗	↗
Traffic Volume (vph)	0	0	1075	0	55	20	465	1600	15	5	975	25
Future Volume (vph)	0	0	1075	0	55	20	465	1600	15	5	975	25
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.5		5.0	5.0	7.0	5.0		6.0	5.0	5.0
Lane Util. Factor			0.88		1.00	1.00	0.97	0.95		1.00	0.95	1.00
Frbp, ped/bikes			1.00		1.00	1.00	1.00	0.99		1.00	1.00	0.68
Flpb, ped/bikes			1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt			0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected			1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)			2787		1863	1583	3433	3517		1752	3505	1074
Flt Permitted			1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)			2787		1863	1583	3433	3517		1752	3505	1074
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)	0	0	1108	0	57	21	479	1649	15	5	1005	26
RTOR Reduction (vph)	0	0	272	0	0	19	0	0	0	0	0	14
Lane Group Flow (vph)	0	0	836	0	57	2	479	1664	0	5	1005	12
Confl. Peds. (#/hr)							181		237	237		181
Confl. Bikes (#/hr)												3
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type			Perm		NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases					3!		4 5	1 5		7!	1	
Permitted Phases			9 1 3			3						1
Actuated Green, G (s)			95.5		10.5	10.5	39.3	70.2		2.0	53.2	53.2
Effective Green, g (s)			90.5		10.5	10.5	39.3	63.2		2.0	53.2	53.2
Actuated g/C Ratio			0.75		0.09	0.09	0.33	0.53		0.02	0.44	0.44
Clearance Time (s)					5.0	5.0				6.0	5.0	5.0
Vehicle Extension (s)					2.0	2.0				2.0	0.2	0.2
Lane Grp Cap (vph)			2101		163	138	1124	1852		29	1553	476
v/s Ratio Prot					0.03		c0.14	c0.47		0.00	0.29	
v/s Ratio Perm			c0.30			0.00						0.01
v/c Ratio			0.40		0.35	0.01	0.43	0.90		0.17	0.65	0.02
Uniform Delay, d1			5.2		51.5	50.0	31.5	25.5		58.2	26.1	18.8
Progression Factor			1.00		1.00	1.00	1.10	0.98		1.23	0.94	1.00
Incremental Delay, d2			0.0		0.5	0.0	0.1	6.0		1.0	2.0	0.1
Delay (s)			5.2		52.0	50.0	34.7	30.9		72.7	26.6	18.9
Level of Service			A		D	D	C	C		E	C	B
Approach Delay (s)		5.2			51.5			31.7			26.6	
Approach LOS		A			D			C			C	

Intersection Summary		
HCM 2000 Control Delay	24.1	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.77	C
Actuated Cycle Length (s)	120.0	Sum of lost time (s)
Intersection Capacity Utilization	75.0%	24.0
Analysis Period (min)	15	ICU Level of Service
		D

! Phase conflict between lane groups.
 c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 78: Montlake Blvd NE & 520 WB Off Ramp

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			  
Traffic Volume (veh/h)	0	600	1625	0	0	1455
Future Volume (Veh/h)	0	600	1625	0	0	1455
Sign Control	Yield		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	625	1693	0	0	1516
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			331			233
pX, platoon unblocked	0.86	0.86			0.86	
vC, conflicting volume	2198	846			1693	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2066	490			1477	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	0			100	
cM capacity (veh/h)	40	450			388	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	625	846	846	505	505	505
Volume Left	0	0	0	0	0	0
Volume Right	625	0	0	0	0	0
cSH	450	1700	1700	1700	1700	1700
Volume to Capacity	1.39	0.50	0.50	0.30	0.30	0.30
Queue Length 95th (ft)	745	0	0	0	0	0
Control Delay (s)	213.6	0.0	0.0	0.0	0.0	0.0
Lane LOS	F					
Approach Delay (s)	213.6	0.0		0.0		
Approach LOS	F					
Intersection Summary						
Average Delay			34.8			
Intersection Capacity Utilization			88.7%		ICU Level of Service	E
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

UW Master Plan EIS

79: Montlake Blvd NE & SR-520 EB Ramps/E Lake Washington Blvd Existing (2015) Weekday PM Peak Hour





















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	745	45	85	65	5	305	145	625	5	165	640	650
Future Volume (vph)	745	45	85	65	5	305	145	625	5	165	640	650
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.95	0.95	1.00		1.00	1.00	1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.91		1.00	1.00	1.00	1.00		1.00	1.00	0.68
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00		0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1694	1435		1763	1568	1736	3455		1752	3505	1061
Flt Permitted	0.95	0.96	1.00		0.96	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1694	1435		1763	1568	1736	3455		1752	3505	1061
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	784	47	89	68	5	321	153	658	5	174	674	684
RTOR Reduction (vph)	0	0	65	0	0	72	0	1	0	0	0	462
Lane Group Flow (vph)	416	415	24	0	73	249	153	662	0	174	674	222
Confl. Peds. (#/hr)	2		44	44		2	81		124	124		81
Confl. Bikes (#/hr)						4			5			7
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Turn Type	Split	NA	Perm	Split	NA	custom	Prot	NA		Prot	NA	Perm
Protected Phases	3	3		4	4	4	6	2		1	5	
Permitted Phases			3			4						5
Actuated Green, G (s)	31.9	31.9	31.9		8.7	29.1	22.5	45.5		15.9	38.9	38.9
Effective Green, g (s)	31.9	31.9	31.9		8.7	29.1	22.5	45.5		15.9	38.9	38.9
Actuated g/C Ratio	0.27	0.27	0.27		0.07	0.24	0.19	0.38		0.13	0.32	0.32
Clearance Time (s)	4.5	4.5	4.5		4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	2.0	2.0	2.0		3.0		2.0	0.2		2.0	0.2	0.2
Lane Grp Cap (vph)	446	450	381		127	380	325	1310		232	1136	343
v/s Ratio Prot	c0.25	0.24			0.04	c0.16	0.09	c0.19		0.10	0.19	
v/s Ratio Perm			0.02									c0.21
v/c Ratio	0.93	0.92	0.06		0.57	0.66	0.47	0.51		0.75	0.59	0.65
Uniform Delay, d1	43.0	42.8	32.9		53.9	40.9	43.4	28.6		50.1	33.9	34.7
Progression Factor	1.00	1.00	1.00		1.00	1.00	1.00	1.00		1.22	1.54	9.51
Incremental Delay, d2	26.2	24.1	0.0		6.2	4.0	0.4	1.4		11.1	2.2	8.8
Delay (s)	69.2	66.9	32.9		60.0	45.0	43.8	30.0		72.3	54.4	338.6
Level of Service	E	E	C		E	D	D	C		E	D	F
Approach Delay (s)		64.7			47.8			32.6			183.3	
Approach LOS		E			D			C			F	

Intersection Summary

HCM 2000 Control Delay	105.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
 1: 5th Ave NE & NE 50th St

UW Master Plan EIS
 Future (2028) No Action PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	660	290	185	1095	0	0	0	0	70	125	180
Future Volume (veh/h)	0	660	290	185	1095	0	0	0	0	70	125	180
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00				1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1900	1863	1863	0				1900	1900	1900
Adj Flow Rate, veh/h	0	673	296	189	1117	0				66	135	184
Adj No. of Lanes	0	2	0	1	2	0				1	2	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	1	1	2	2	0				0	0	0
Cap, veh/h	0	1419	624	223	2703	0				256	537	224
Arrive On Green	0.00	0.59	0.59	0.25	1.00	0.00				0.14	0.14	0.14
Sat Flow, veh/h	0	2488	1053	1774	3632	0				1810	3800	1586
Grp Volume(v), veh/h	0	502	467	189	1117	0				66	135	184
Grp Sat Flow(s),veh/h/ln	0	1787	1660	1774	1770	0				1810	1900	1586
Q Serve(g_s), s	0.0	15.9	15.9	10.1	0.0	0.0				3.3	3.2	11.3
Cycle Q Clear(g_c), s	0.0	15.9	15.9	10.1	0.0	0.0				3.3	3.2	11.3
Prop In Lane	0.00		0.63	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1059	984	223	2703	0				256	537	224
V/C Ratio(X)	0.00	0.47	0.47	0.85	0.41	0.00				0.26	0.25	0.82
Avail Cap(c_a), veh/h	0	1059	984	381	2703	0				362	760	317
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.70	0.70	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	11.5	11.5	36.5	0.0	0.0				38.3	38.2	41.7
Incr Delay (d2), s/veh	0.0	1.5	1.6	8.4	0.3	0.0				0.4	0.2	9.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.3	7.7	5.5	0.1	0.0				1.7	1.7	5.6
LnGrp Delay(d),s/veh	0.0	13.1	13.2	44.9	0.3	0.0				38.7	38.4	51.4
LnGrp LOS		B	B	D	A					D	D	D
Approach Vol, veh/h		969			1306						385	
Approach Delay, s/veh		13.1			6.8						44.6	
Approach LOS		B			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	17.1	63.8		19.1		80.9						
Change Period (Y+Rc), s	4.5	4.5		5.0		4.5						
Max Green Setting (Gmax), s	21.5	44.5		20.0		70.5						
Max Q Clear Time (g_c+I1), s	12.1	17.9		13.3		2.0						
Green Ext Time (p_c), s	0.5	19.8		0.8		36.2						
Intersection Summary												
HCM 2010 Ctrl Delay				14.6								
HCM 2010 LOS				B								
Notes												

HCM Signalized Intersection Capacity Analysis

2: 7th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑			↑↑	↗	↘	↗	↗			
Traffic Volume (vph)	320	420	0	0	690	240	580	180	300	0	0	0
Future Volume (vph)	320	420	0	0	690	240	580	180	300	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Lane Util. Factor	1.00	0.95			0.95	1.00	0.95	0.95	1.00			
Frbp, ped/bikes	1.00	1.00			1.00	0.88	1.00	1.00	0.98			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (prot)	1787	3574			3539	1388	1698	1741	1563			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (perm)	1787	3574			3539	1388	1698	1741	1563			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	333	438	0	0	719	250	604	188	312	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	68	0	0	211	0	0	0
Lane Group Flow (vph)	333	438	0	0	719	182	393	399	102	0	0	0
Confl. Peds. (#/hr)	23		21	21		23			6	6		
Confl. Bikes (#/hr)			2			1			1			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Prot	NA			NA	Perm	Split	NA	Perm			
Protected Phases	5	2			6		8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	22.2	58.5			31.8	31.8	32.5	32.5	32.5			
Effective Green, g (s)	22.2	58.5			31.8	31.8	32.5	32.5	32.5			
Actuated g/C Ratio	0.22	0.58			0.32	0.32	0.32	0.32	0.32			
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Vehicle Extension (s)	2.5	2.5			2.5	2.5	2.5	2.5	2.5			
Lane Grp Cap (vph)	396	2090			1125	441	551	565	507			
v/s Ratio Prot	c0.19	0.12			c0.20		c0.23	0.23				
v/s Ratio Perm						0.13			0.07			
v/c Ratio	0.84	0.21			0.64	0.41	0.71	0.71	0.20			
Uniform Delay, d1	37.2	9.8			29.2	26.8	29.7	29.6	24.4			
Progression Factor	0.77	0.76			0.52	0.35	1.00	1.00	1.00			
Incremental Delay, d2	13.5	0.2			2.6	2.6	7.7	7.3	0.9			
Delay (s)	42.2	7.7			17.8	11.9	37.3	36.8	25.3			
Level of Service	D	A			B	B	D	D	C			
Approach Delay (s)		22.6			16.3			33.7			0.0	
Approach LOS		C			B			C			A	

Intersection Summary

HCM 2000 Control Delay	24.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

















HCM 2010 Signalized Intersection Summary
3: 9th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) No Action PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	595	30	5	840	5	40	20	30	15	10	15
Future Volume (veh/h)	20	595	30	5	840	5	40	20	30	15	10	15
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.95	0.99		0.95	0.97		0.95	0.97		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1900	1900	1863	1900	1900	1792	1900	1900	1900	1900
Adj Flow Rate, veh/h	20	607	31	5	857	5	41	20	31	15	10	15
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	2	2	2	6	6	6	0	0	0
Cap, veh/h	70	1891	95	39	2060	12	246	122	161	221	151	193
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	54	3232	163	5	3522	20	588	370	487	520	457	586
Grp Volume(v), veh/h	340	0	318	454	0	413	92	0	0	40	0	0
Grp Sat Flow(s),veh/h/ln	1776	0	1674	1856	0	1690	1444	0	0	1563	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0	0.0	1.6	0.0	0.0
Prop In Lane	0.06		0.10	0.01		0.01	0.45		0.34	0.37		0.37
Lane Grp Cap(c), veh/h	1077	0	979	1122	0	989	529	0	0	565	0	0
V/C Ratio(X)	0.32	0.00	0.33	0.40	0.00	0.42	0.17	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	1077	0	979	1122	0	989	529	0	0	565	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	23.8	0.0	0.0	23.0	0.0	0.0
Incr Delay (d2), s/veh	0.8	0.0	0.9	1.1	0.0	1.3	0.7	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.2	0.0	0.2	0.3	0.0	0.4	1.9	0.0	0.0	0.8	0.0	0.0
LnGrp Delay(d),s/veh	0.8	0.0	0.9	1.1	0.0	1.3	24.5	0.0	0.0	23.2	0.0	0.0
LnGrp LOS	A		A	A		A	C			C		
Approach Vol, veh/h		658			867			92			40	
Approach Delay, s/veh		0.8			1.2			24.5			23.2	
Approach LOS		A			A			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		63.0		37.0		63.0		37.0				
Change Period (Y+Rc), s		4.5		4.0		4.5		4.0				
Max Green Setting (Gmax), s		58.5		33.0		58.5		33.0				
Max Q Clear Time (g_c+I1), s		2.0		6.2		2.0		3.6				
Green Ext Time (p_c), s		1.8		0.1		1.8		0.1				
Intersection Summary												
HCM 2010 Ctrl Delay				2.9								
HCM 2010 LOS				A								
















HCM 2010 Signalized Intersection Summary
4: Roosevelt Way NE & NE 50th St

UW Master Plan EIS
Future (2028) No Action PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	565	85	110	750	0	0	0	0	115	875	110
Future Volume (veh/h)	0	565	85	110	750	0	0	0	0	115	875	110
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.96	1.00		1.00				1.00		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1900	1900	1900	0				1900	1881	1881
Adj Flow Rate, veh/h	0	582	88	113	773	0				119	902	113
Adj No. of Lanes	0	2	0	0	2	0				0	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	1	1	0	0	0				1	1	1
Cap, veh/h	0	1718	259	0	2004	0				144	1151	513
Arrive On Green	0.00	0.56	0.56	0.00	1.00	0.00				0.35	0.35	0.35
Sat Flow, veh/h	0	3190	467	0	3705	0				406	3242	1446
Grp Volume(v), veh/h	0	335	335	0	773	0				545	476	113
Grp Sat Flow(s),veh/h/ln	0	1787	1776	0	1805	0				1861	1787	1446
Q Serve(g_s), s	0.0	10.3	10.3	0.0	0.0	0.0				26.7	23.4	5.5
Cycle Q Clear(g_c), s	0.0	10.3	10.3	0.0	0.0	0.0				26.7	23.4	5.5
Prop In Lane	0.00		0.26	0.00		0.00				0.22		1.00
Lane Grp Cap(c), veh/h	0	992	985	0	2004	0				661	634	513
V/C Ratio(X)	0.00	0.34	0.34	0.00	0.39	0.00				0.82	0.75	0.22
Avail Cap(c_a), veh/h	0	992	985	0	2004	0				661	634	513
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	12.2	12.2	0.0	0.0	0.0				29.4	28.4	22.6
Incr Delay (d2), s/veh	0.0	0.9	0.9	0.0	0.6	0.0				11.2	8.0	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	5.3	5.3	0.0	0.2	0.0				15.7	12.9	2.3
LnGrp Delay(d),s/veh	0.0	13.1	13.1	0.0	0.6	0.0				40.6	36.3	23.6
LnGrp LOS		B	B		A					D	D	C
Approach Vol, veh/h		670			773						1134	
Approach Delay, s/veh		13.1			0.6						37.1	
Approach LOS		B			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		60.0			0.0	60.0		40.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		55.5			11.3	39.7		35.5				
Max Q Clear Time (g_c+I1), s		2.0			0.0	12.3		28.7				
Green Ext Time (p_c), s		2.0			0.0	2.0		0.9				
Intersection Summary												
HCM 2010 Ctrl Delay				19.9								
HCM 2010 LOS				B								

HCM 2010 Signalized Intersection Summary
5: 11th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) No Action PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	595	0	0	580	70	270	875	90	0	0	0
Future Volume (veh/h)	70	595	0	0	580	70	270	875	90	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.90	1.00		0.92			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1881	0	0	1881	1900	1900	1863	1900			
Adj Flow Rate, veh/h	74	633	0	0	617	74	287	931	96			
Adj No. of Lanes	0	2	0	0	2	0	0	2	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	1	1	0	0	1	1	0	2	0			
Cap, veh/h	44	808	0	0	983	118	373	1277	137			
Arrive On Green	0.28	0.28	0.00	0.00	0.62	0.62	0.16	0.16	0.16			
Sat Flow, veh/h	1	2032	0	0	3266	379	755	2580	277			
Grp Volume(v), veh/h	333	374	0	0	347	344	694	0	620			
Grp Sat Flow(s),veh/h/ln	320	1627	0	0	1787	1764	1825	0	1786			
Q Serve(g_s), s	15.7	19.6	0.0	0.0	12.1	12.2	36.4	0.0	32.8			
Cycle Q Clear(g_c), s	15.7	19.6	0.0	0.0	12.1	12.2	36.4	0.0	32.8			
Prop In Lane	0.22		0.00	0.00		0.22	0.41		0.15			
Lane Grp Cap(c), veh/h	0	675	0	0	554	547	903	0	884			
V/C Ratio(X)	0.00	0.55	0.00	0.00	0.63	0.63	0.77	0.00	0.70			
Avail Cap(c_a), veh/h	0	675	0	0	554	547	903	0	884			
HCM Platoon Ratio	0.67	0.67	1.00	1.00	2.00	2.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	28.2	0.0	0.0	15.4	15.4	36.3	0.0	34.8			
Incr Delay (d2), s/veh	0.0	3.3	0.0	0.0	5.3	5.4	6.2	0.0	4.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	9.4	0.0	0.0	6.6	6.6	20.0	0.0	17.4			
LnGrp Delay(d),s/veh	0.0	31.4	0.0	0.0	20.7	20.8	42.6	0.0	39.5			
LnGrp LOS		C			C	C	D		D			
Approach Vol, veh/h		707			691			1314				
Approach Delay, s/veh		16.6			20.8			41.1				
Approach LOS		B			C			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		35.5		54.0		46.0						
Change Period (Y+Rc), s		* 4.5		4.5		4.5						
Max Green Setting (Gmax), s		* 31		49.5		41.5						
Max Q Clear Time (g_c+I1), s		14.2		38.4		21.6						
Green Ext Time (p_c), s		0.7		1.5		0.9						
Intersection Summary												
HCM 2010 Ctrl Delay				29.5								
HCM 2010 LOS				C								
Notes												

HCM Signalized Intersection Capacity Analysis

6: Brooklyn Ave NE & NE 50th St

















UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	90	505	60	35	620	30	10	40	60	10	100	60
Future Volume (vph)	90	505	60	35	620	30	10	40	60	10	100	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.95			0.98			0.94			0.97	
Flpb, ped/bikes		0.99			0.99			1.00			1.00	
Frt		0.99			0.99			0.93			0.95	
Flt Protected		0.99			1.00			1.00			1.00	
Satd. Flow (prot)		3255			3392			1632			1715	
Flt Permitted		0.71			0.89			0.98			0.99	
Satd. Flow (perm)		2323			3025			1603			1699	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	94	526	62	36	646	31	10	42	62	10	104	62
RTOR Reduction (vph)	0	8	0	0	3	0	0	35	0	0	20	0
Lane Group Flow (vph)	0	675	0	0	710	0	0	80	0	0	157	0
Confl. Peds. (#/hr)	114		190	190		114	88		151	151		88
Confl. Bikes (#/hr)			1			3			13			1
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	0%	0%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		47.5			47.5			44.0			44.0	
Effective Green, g (s)		47.5			47.5			44.0			44.0	
Actuated g/C Ratio		0.48			0.48			0.44			0.44	
Clearance Time (s)		4.5			4.5			4.0			4.0	
Lane Grp Cap (vph)		1103			1436			705			747	
v/s Ratio Prot												
v/s Ratio Perm		c0.29			0.23			0.05			c0.09	
v/c Ratio		0.61			0.49			0.11			0.21	
Uniform Delay, d1		19.4			18.0			16.5			17.3	
Progression Factor		0.44			0.39			0.01			1.00	
Incremental Delay, d2		1.9			1.1			0.3			0.6	
Delay (s)		10.4			8.2			0.4			17.9	
Level of Service		B			A			A			B	
Approach Delay (s)		10.4			8.2			0.4			17.9	
Approach LOS		B			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			9.6									A
HCM 2000 Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			100.0								8.5	
Intersection Capacity Utilization			86.1%									E
ICU Level of Service												
Analysis Period (min)			15									
c Critical Lane Group												

















HCM 2010 Signalized Intersection Summary
7: University Way NE & NE 50th St

UW Master Plan EIS
Future (2028) No Action PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	400	45	50	575	20	40	130	45	45	95	80
Future Volume (veh/h)	160	400	45	50	575	20	40	130	45	45	95	80
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.93		0.80	0.91		0.80	0.91		0.83	0.90		0.84
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1845	1900	1900	1792	1900	1900	1743	1900
Adj Flow Rate, veh/h	170	426	48	53	612	21	43	138	48	48	101	85
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	3	3	3	6	6	6	9	9	9
Cap, veh/h	367	900	102	139	1521	52	130	390	126	131	259	198
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.79	0.79	0.79	0.40	0.40	0.40
Sat Flow, veh/h	597	1748	199	189	2954	100	220	987	320	222	657	501
Grp Volume(v), veh/h	257	0	387	343	0	343	229	0	0	234	0	0
Grp Sat Flow(s),veh/h/ln	941	0	1603	1611	0	1632	1527	0	0	1380	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0	11.5	0.0	0.0
Prop In Lane	0.66		0.12	0.15		0.06	0.19		0.21	0.21		0.36
Lane Grp Cap(c), veh/h	544	0	826	871	0	840	646	0	0	589	0	0
V/C Ratio(X)	0.47	0.00	0.47	0.39	0.00	0.41	0.35	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	544	0	826	871	0	840	646	0	0	589	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	6.8	0.0	0.0	21.7	0.0	0.0
Incr Delay (d2), s/veh	2.9	0.0	1.9	1.3	0.0	1.5	1.5	0.0	0.0	2.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	0.0	0.4	0.3	0.0	0.3	2.1	0.0	0.0	4.9	0.0	0.0
LnGrp Delay(d),s/veh	2.9	0.0	1.9	1.3	0.0	1.5	8.3	0.0	0.0	23.7	0.0	0.0
LnGrp LOS	A		A	A		A	A			C		
Approach Vol, veh/h		644			686			229			234	
Approach Delay, s/veh		2.3			1.4			8.3			23.7	
Approach LOS		A			A			A			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		56.0		44.0		56.0		44.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		51.5		39.5		51.5		39.5				
Max Q Clear Time (g_c+I1), s		2.0		6.0		2.0		13.5				
Green Ext Time (p_c), s		2.2		0.7		2.2		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			5.5									
HCM 2010 LOS			A									

HCM 2010 Signalized Intersection Summary
 8: 15th Ave NE & NE 50th St

UW Master Plan EIS
 Future (2028) No Action PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	320	65	35	390	35	190	655	45	15	355	25
Future Volume (veh/h)	95	320	65	35	390	35	190	655	45	15	355	25
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.97		0.75	0.98		0.85	0.99		0.93	0.98		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1900	1900	1881	1900	1900	1827	1900	1900	1845	1900
Adj Flow Rate, veh/h	100	337	68	37	411	37	200	689	47	16	374	26
Adj No. of Lanes	0	2	0	0	2	0	0	2	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	1	1	1	4	4	4	3	3	3
Cap, veh/h	185	638	138	97	1018	93	364	1130	78	53	887	60
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	1.00	1.00	1.00	0.55	0.55	0.55
Sat Flow, veh/h	369	1748	378	151	2789	254	570	2073	142	29	1628	110
Grp Volume(v), veh/h	244	0	261	250	0	235	400	0	536	416	0	0
Grp Sat Flow(s),veh/h/ln	1046	0	1449	1580	0	1614	1161	0	1624	1768	0	0
Q Serve(g_s), s	12.4	0.0	13.9	0.5	0.0	10.8	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	23.3	0.0	13.9	14.5	0.0	10.8	0.0	0.0	0.0	13.5	0.0	0.0
Prop In Lane	0.41		0.26	0.15		0.16	0.50		0.09	0.04		0.06
Lane Grp Cap(c), veh/h	432	0	529	618	0	589	687	0	885	1001	0	0
V/C Ratio(X)	0.57	0.00	0.49	0.40	0.00	0.40	0.58	0.00	0.61	0.42	0.00	0.00
Avail Cap(c_a), veh/h	432	0	529	618	0	589	687	0	885	1001	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	28.9	0.0	24.6	23.3	0.0	23.6	0.0	0.0	0.0	13.4	0.0	0.0
Incr Delay (d2), s/veh	5.3	0.0	3.3	2.0	0.0	2.0	3.6	0.0	3.1	1.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.5	0.0	6.1	5.4	0.0	5.2	0.7	0.0	0.8	7.1	0.0	0.0
LnGrp Delay(d),s/veh	34.2	0.0	27.8	25.3	0.0	25.6	3.6	0.0	3.1	14.7	0.0	0.0
LnGrp LOS	C		C	C		C	A		A	B		
Approach Vol, veh/h		505			485			936			416	
Approach Delay, s/veh		30.9			25.4			3.3			14.7	
Approach LOS		C			C			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		41.0		59.0		41.0		59.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		36.5		54.5		36.5		54.5				
Max Q Clear Time (g_c+I1), s		16.5		2.0		25.3		15.5				
Green Ext Time (p_c), s		6.7		13.6		4.9		12.7				
Intersection Summary												
HCM 2010 Ctrl Delay			15.9									
HCM 2010 LOS			B									

HCM Signalized Intersection Capacity Analysis

9: 17th Ave NE & NE 50th St

UW Master Plan EIS

Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕			↕↕	
Traffic Volume (vph)	20	380	100	25	330	10	205	80	20	15	80	30
Future Volume (vph)	20	380	100	25	330	10	205	80	20	15	80	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frbp, ped/bikes		0.96			1.00			0.99			0.96	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.99			0.97	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		3298			1835			1787			1741	
Flt Permitted		0.93			0.94			0.97			0.99	
Satd. Flow (perm)		3069			1734			1787			1741	
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)	22	418	110	27	363	11	225	88	22	16	88	33
RTOR Reduction (vph)	0	20	0	0	1	0	0	2	0	0	10	0
Lane Group Flow (vph)	0	530		0	400		0	333		0	127	
Confl. Peds. (#/hr)	53		79	79		53	83		63	63		83
Confl. Bikes (#/hr)						2			40			4
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			2		4	4		3		3
Permitted Phases	2			2								
Actuated Green, G (s)		43.0			43.0			32.5			21.5	
Effective Green, g (s)		43.0			43.0			32.5			21.5	
Actuated g/C Ratio		0.39			0.39			0.29			0.19	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			3.0			3.0	
Lane Grp Cap (vph)		1194			674			525			338	
v/s Ratio Prot								c0.19			c0.07	
v/s Ratio Perm		0.17			c0.23							
v/c Ratio		0.44			0.59			0.63			0.37	
Uniform Delay, d1		24.9			26.8			33.8			38.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.2			3.8			5.7			3.2	
Delay (s)		26.1			30.6			39.6			41.8	
Level of Service		C			C			D			D	
Approach Delay (s)		26.1			30.6			39.6			41.8	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	32.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	110.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	16.1
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	315	30	50	0	5	30	5	0	85	60	5
Future Vol, veh/h	0	315	30	50	0	5	30	5	0	85	60	5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	3	3	3	3	1	1	1	1
Mvmt Flow	0	354	34	56	0	6	34	6	0	96	67	6
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	20	9.9	11.5
HCM LOS	C	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	57%	80%	12%	2%
Vol Thru, %	40%	8%	75%	17%
Vol Right, %	3%	13%	12%	82%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	150	395	40	330
LT Vol	85	315	5	5
Through Vol	60	30	30	55
RT Vol	5	50	5	270
Lane Flow Rate	169	444	45	371
Geometry Grp	1	1	1	1
Degree of Util (X)	0.283	0.687	0.078	0.536
Departure Headway (Hd)	6.053	5.573	6.233	5.202
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	590	648	570	690
Service Time	4.128	3.624	4.319	3.263
HCM Lane V/C Ratio	0.286	0.685	0.079	0.538
HCM Control Delay	11.5	20	9.9	14.2
HCM Lane LOS	B	C	A	B
HCM 95th-tile Q	1.2	5.4	0.3	3.2

Intersection

















Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	5	55	270
Future Vol, veh/h	0	5	55	270
Peak Hour Factor	0.89	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3
Mvmt Flow	0	6	62	303
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	14.2
HCM LOS	B

HCM Signalized Intersection Capacity Analysis
 11: Roosevelt Way NE & NE 47th St

UW Master Plan EIS
 Future (2028) No Action PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	90	45	145	70	0	0	0	0	105	990	35
Future Volume (vph)	0	90	45	145	70	0	0	0	0	105	990	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0						4.5	
Lane Util. Factor		1.00			1.00						0.95	
Frbp, ped/bikes		0.96			1.00						0.99	
Flpb, ped/bikes		1.00			0.94						0.99	
Frt		0.95			1.00						1.00	
Flt Protected		1.00			0.97						1.00	
Satd. Flow (prot)		1745			1718						3451	
Flt Permitted		1.00			0.71						1.00	
Satd. Flow (perm)		1745			1262						3451	
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	96	48	154	74	0	0	0	0	112	1053	37
RTOR Reduction (vph)	0	13	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	131	0	0	228	0	0	0	0	0	1198	0
Confl. Peds. (#/hr)	74		108	108		74	109		56	56		109
Confl. Bikes (#/hr)			6			22						10
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		14.7			14.7						25.8	
Effective Green, g (s)		14.7			14.7						25.8	
Actuated g/C Ratio		0.29			0.29						0.52	
Clearance Time (s)		5.0			5.0						4.5	
Vehicle Extension (s)		4.0			4.0						0.2	
Lane Grp Cap (vph)		513			371						1780	
v/s Ratio Prot		0.07										
v/s Ratio Perm					c0.18						0.35	
v/c Ratio		0.25			0.61						0.67	
Uniform Delay, d1		13.5			15.2						9.0	
Progression Factor		1.00			0.94						2.16	
Incremental Delay, d2		0.4			3.3						1.3	
Delay (s)		13.8			17.6						20.7	
Level of Service		B			B						C	
Approach Delay (s)		13.8			17.6			0.0			20.7	
Approach LOS		B			B			A			C	
Intersection Summary												
HCM 2000 Control Delay			19.6								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			50.0								Sum of lost time (s)	9.5
Intersection Capacity Utilization			73.5%								ICU Level of Service	D
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 12: 11th Ave NE & NE 47th St

UW Master Plan EIS
 Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕				
Traffic Volume (vph)	0	110	0	0	110	110	50	850	55	0	0	0
Future Volume (vph)	0	110	0	0	110	110	50	850	55	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			0.94			0.99				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.93			0.99				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1900			1627			3491				
Flt Permitted		1.00			1.00			1.00				
Satd. Flow (perm)		1900			1627			3491				
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)	0	118	0	0	118	118	54	914	59	0	0	0
RTOR Reduction (vph)	0	0	0	0	52	0	0	7	0	0	0	0
Lane Group Flow (vph)	0	118	0	0	184	0	0	1020	0	0	0	0
Confl. Peds. (#/hr)	85		89	89		85	42		46	46		42
Confl. Bikes (#/hr)			13			29			77			
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type		NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		10.8			10.8			29.2				
Effective Green, g (s)		10.8			10.8			29.2				
Actuated g/C Ratio		0.22			0.22			0.58				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.0			2.0			0.2				
Lane Grp Cap (vph)		410			351			2038				
v/s Ratio Prot		0.06			0.11							
v/s Ratio Perm								0.29				
v/c Ratio		0.29			0.52			0.50				
Uniform Delay, d1		16.4			17.3			6.1				
Progression Factor		1.00			1.00			1.00				
Incremental Delay, d2		0.1			0.6			0.6				
Delay (s)		16.5			18.0			6.7				
Level of Service		B			B			A				
Approach Delay (s)		16.5			18.0			6.7			0.0	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.5					HCM 2000 Level of Service		A		
HCM 2000 Volume to Capacity ratio			0.51									
Actuated Cycle Length (s)			50.0					Sum of lost time (s)		10.0		
Intersection Capacity Utilization			53.8%					ICU Level of Service		A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 13: 15th Ave NE & NE 47th St

UW Master Plan EIS
 Future (2028) No Action PM Peak Hour

























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	50	75	70	25	65	65	50	800	30	30	440	15
Future Volume (vph)	50	75	70	25	65	65	50	800	30	30	440	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frbp, ped/bikes		0.95			0.94			0.99			0.99	
Flpb, ped/bikes		0.98			0.99			0.99			1.00	
Frt		0.95			0.94			0.99			1.00	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1630			1613			3418			1754	
Flt Permitted		0.89			0.93			0.90			0.92	
Satd. Flow (perm)		1469			1519			3098			1615	
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)	54	81	75	27	70	70	54	860	32	32	473	16
RTOR Reduction (vph)	0	40	0	0	47	0	0	5	0	0	2	0
Lane Group Flow (vph)	0	170	0	0	120	0	0	941	0	0	519	0
Confl. Peds. (#/hr)	133		139	139		133	167		125	125		167
Confl. Bikes (#/hr)			6			4			23			4
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	3%	3%	3%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		15.0			15.0			26.5			26.5	
Effective Green, g (s)		15.0			15.0			26.5			26.5	
Actuated g/C Ratio		0.30			0.30			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		440			455			1641			855	
v/s Ratio Prot												
v/s Ratio Perm		c0.12			0.08			0.30			c0.32	
v/c Ratio		0.39			0.26			0.57			0.61	
Uniform Delay, d1		13.9			13.3			7.9			8.1	
Progression Factor		1.77			1.00			0.73			0.61	
Incremental Delay, d2		2.5			1.4			0.8			2.9	
Delay (s)		27.1			14.7			6.6			7.9	
Level of Service		C			B			A			A	
Approach Delay (s)		27.1			14.7			6.6			7.9	
Approach LOS		C			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			10.0									B
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			50.0								8.5	
Intersection Capacity Utilization			76.2%									D
ICU Level of Service												
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: 5th Ave NE & NE 45th St

UW Master Plan EIS

Future (2028) No Action PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 		 	 					 	 	
Traffic Volume (vph)	0	590	260	450	790	0	0	0	0	150	225	160
Future Volume (vph)	0	590	260	450	790	0	0	0	0	150	225	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5					5.0	5.0	
Lane Util. Factor		0.95		0.97	0.95					0.91	0.91	
Frbp, ped/bikes		0.96		1.00	1.00					1.00	0.98	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.95		1.00	1.00					1.00	0.94	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3264		3433	3539					1579	3046	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		3264		3433	3539					1579	3046	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	615	271	469	823	0	0	0	0	156	234	167
RTOR Reduction (vph)	0	55	0	0	0	0	0	0	0	0	97	0
Lane Group Flow (vph)	0	831	0	469	823	0	0	0	0	140	320	0
Confl. Peds. (#/hr)	116		125	125		116	32					32
Confl. Bikes (#/hr)			2			7						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type		NA		Prot	NA					Split	NA	
Protected Phases		2		1	6					4	4	
Permitted Phases												
Actuated Green, G (s)		32.0		32.0	68.5					22.0	22.0	
Effective Green, g (s)		32.0		32.0	68.5					22.0	22.0	
Actuated g/C Ratio		0.32		0.32	0.68					0.22	0.22	
Clearance Time (s)		4.5		4.5	4.5					5.0	5.0	
Vehicle Extension (s)		3.0		4.0	4.0					3.0	3.0	
Lane Grp Cap (vph)		1044		1098	2424					347	670	
v/s Ratio Prot		c0.25		c0.14	0.23					0.09	c0.11	
v/s Ratio Perm												
v/c Ratio		0.80		0.43	0.34					0.40	0.48	
Uniform Delay, d1		31.0		26.8	6.5					33.4	34.0	
Progression Factor		1.00		0.95	1.09					1.28	1.47	
Incremental Delay, d2		4.3		0.8	0.3					3.2	2.2	
Delay (s)		35.3		26.4	7.3					46.1	52.2	
Level of Service		D		C	A					D	D	
Approach Delay (s)		35.3			14.2			0.0			50.6	
Approach LOS		D			B			A			D	
Intersection Summary												
HCM 2000 Control Delay			28.5			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			14.0			
Intersection Capacity Utilization			77.1%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 15: 7th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	NER
Lane Configurations								
Traffic Volume (vph)	230	520	720	250	550	430	495	60
Future Volume (vph)	230	520	720	250	550	430	495	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5	4.5	3.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.95	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.92		1.00	1.00	0.96	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.96		1.00	0.98	0.85	0.86
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1736	3471	3058		3400	1710	1435	1596
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	1.00
Satd. Flow (perm)	1736	3471	3058		3400	1710	1435	1596
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	242	547	758	263	579	453	521	63
RTOR Reduction (vph)	0	0	35	0	0	5	77	0
Lane Group Flow (vph)	242	547	986	0	579	516	376	63
Confl. Peds. (#/hr)	256			256	83		21	
Confl. Bikes (#/hr)				21				
Heavy Vehicles (%)	4%	4%	4%	4%	3%	3%	3%	3%
Turn Type	Prot	NA	NA		Split	NA	Perm	custom
Protected Phases	5	2	6		4	4		1
Permitted Phases							4	2
Actuated Green, G (s)	16.6	53.4	36.9		33.0	33.0	33.0	55.0
Effective Green, g (s)	16.6	53.4	36.9		33.0	33.0	33.0	55.0
Actuated g/C Ratio	0.17	0.53	0.37		0.33	0.33	0.33	0.55
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5	4.5	3.0
Vehicle Extension (s)	3.0	4.0	4.0		4.0	4.0	4.0	1.0
Lane Grp Cap (vph)	288	1853	1128		1122	564	473	877
v/s Ratio Prot	c0.14	0.16	c0.32		0.17	c0.30		0.00
v/s Ratio Perm							0.26	0.04
v/c Ratio	0.84	0.30	0.87		0.52	0.91	0.79	0.07
Uniform Delay, d1	40.4	12.9	29.4		27.1	32.1	30.4	10.5
Progression Factor	1.29	1.53	1.19		1.00	1.00	1.00	1.00
Incremental Delay, d2	15.9	0.3	9.0		1.7	21.8	12.9	0.0
Delay (s)	67.8	20.0	43.9		28.7	53.9	43.4	10.6
Level of Service	E	B	D		C	D	D	B
Approach Delay (s)		34.7	43.9			41.4		
Approach LOS		C	D			D		
Intersection Summary								
HCM 2000 Control Delay			40.1		HCM 2000 Level of Service			D
HCM 2000 Volume to Capacity ratio			0.88					
Actuated Cycle Length (s)			100.0		Sum of lost time (s)			13.5
Intersection Capacity Utilization			87.3%		ICU Level of Service			E
Analysis Period (min)			15					
c Critical Lane Group								

Intersection

Int Delay, s/veh 2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑		↑
Traffic Vol, veh/h	955	10	10	960	5	95
Future Vol, veh/h	955	10	10	960	5	95
Conflicting Peds, #/hr	0	195	195	0	195	195
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	10	-	-	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	1027	11	11	1032	5	102

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1233
Stage 1	-	-	1227
Stage 2	-	-	733
Critical Hdwy	-	4.16	6.8
Critical Hdwy Stg 1	-	-	5.8
Critical Hdwy Stg 2	-	-	5.8
Follow-up Hdwy	-	2.23	3.5
Pot Cap-1 Maneuver	-	555	57
Stage 1	-	-	244
Stage 2	-	-	442
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	465	39
Mov Cap-2 Maneuver	-	-	135
Stage 1	-	-	204
Stage 2	-	-	361

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	41.1
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	198	-	-	465	-
HCM Lane V/C Ratio	0.516	-	-	0.023	-
HCM Control Delay (s)	41.1	-	-	12.9	-
HCM Lane LOS	E	-	-	B	-
HCM 95th %tile Q(veh)	2.6	-	-	0.1	-

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	95	960	945	30	5	25
Future Vol, veh/h	95	960	945	30	5	25
Conflicting Peds, #/hr	130	0	0	129	129	130
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	10	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	100	1011	995	32	5	26

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1156	0	773
Stage 1	-	-	1141
Stage 2	-	-	834
Critical Hdwy	4.16	-	6.9
Critical Hdwy Stg 1	-	-	5.8
Critical Hdwy Stg 2	-	-	5.8
Follow-up Hdwy	2.23	-	3.3
Pot Cap-1 Maneuver	594	-	346
Stage 1	-	-	271
Stage 2	-	-	392
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	530	-	275
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	242
Stage 2	-	-	284

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	22.8
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	530	-	-	-	234
HCM Lane V/C Ratio	0.189	-	-	-	0.135
HCM Control Delay (s)	13.4	-	-	-	22.8
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.7	-	-	-	0.5

HCM Signalized Intersection Capacity Analysis
18: Roosevelt Way NE & NE 45th St

UW Master Plan EIS
Future (2028) No Action PM Peak Hour















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑						↖↑	↖
Traffic Volume (vph)	0	755	225	305	835	0	0	0	0	45	990	135
Future Volume (vph)	0	755	225	305	835	0	0	0	0	45	990	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5						4.5	4.5
Lane Util. Factor		0.95		1.00	0.95						0.95	1.00
Frbp, ped/bikes		0.93		1.00	1.00						1.00	0.67
Flpb, ped/bikes		1.00		1.00	1.00						0.99	1.00
Frt		0.97		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						1.00	1.00
Satd. Flow (prot)		3146		1736	3471						3514	1056
Flt Permitted		1.00		0.12	1.00						1.00	1.00
Satd. Flow (perm)		3146		213	3471						3514	1056
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	786	234	318	870	0	0	0	0	47	1031	141
RTOR Reduction (vph)	0	27	0	0	0	0	0	0	0	0	0	44
Lane Group Flow (vph)	0	993	0	318	870	0	0	0	0	0	1078	97
Confl. Peds. (#/hr)	234		202	202		234	259		78	78		259
Confl. Bikes (#/hr)			2			15						30
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	0%	0%	0%	2%	2%	2%
Turn Type		NA		D.P+P	NA					Perm	NA	Perm
Protected Phases		2		3	2 3						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		37.6		53.8	58.3						32.7	32.7
Effective Green, g (s)		37.6		53.8	58.3						32.7	32.7
Actuated g/C Ratio		0.38		0.54	0.58						0.33	0.33
Clearance Time (s)		4.5		4.5							4.5	4.5
Vehicle Extension (s)		0.2		1.0							1.0	1.0
Lane Grp Cap (vph)		1182		361	2023						1149	345
v/s Ratio Prot		0.32		c0.14	0.25							
v/s Ratio Perm				c0.33							0.31	0.09
v/c Ratio		0.84		0.88	0.43						0.94	0.28
Uniform Delay, d1		28.5		32.5	11.6						32.7	24.9
Progression Factor		0.73		0.72	0.35						1.42	1.75
Incremental Delay, d2		6.5		18.0	0.0						11.4	0.1
Delay (s)		27.4		41.6	4.1						57.7	43.8
Level of Service		C		D	A						E	D
Approach Delay (s)		27.4			14.1			0.0			56.1	
Approach LOS		C			B			A			E	

Intersection Summary			
HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 19: 11th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) No Action PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑		↗	↑↑	↗			
Traffic Volume (vph)	10	760	0	0	830	35	295	1140	260	0	0	0
Future Volume (vph)	10	760	0	0	830	35	295	1140	260	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5	4.5			
Lane Util. Factor		0.95			0.95		1.00	0.95	1.00			
Frbp, ped/bikes		1.00			0.99		1.00	1.00	0.80			
Flpb, ped/bikes		1.00			1.00		0.92	1.00	1.00			
Frt		1.00			0.99		1.00	1.00	0.85			
Flt Protected		1.00			1.00		0.95	1.00	1.00			
Satd. Flow (prot)		3503			3405		1644	3574	1282			
Flt Permitted		0.94			1.00		0.95	1.00	1.00			
Satd. Flow (perm)		3293			3405		1644	3574	1282			
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)	11	809	0	0	883	37	314	1213	277	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	24	0	0	0
Lane Group Flow (vph)	0	820	0	0	917	0	314	1213	253	0	0	0
Confl. Peds. (#/hr)	211		113	113		211	48		97	97		48
Confl. Bikes (#/hr)						14			81			
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		2			2			4				
Permitted Phases	2						4		4			
Actuated Green, G (s)		43.5			43.5		47.5	47.5	47.5			
Effective Green, g (s)		43.5			43.5		47.5	47.5	47.5			
Actuated g/C Ratio		0.44			0.44		0.48	0.48	0.48			
Clearance Time (s)		4.5			4.5		4.5	4.5	4.5			
Vehicle Extension (s)		0.2			0.2		2.0	2.0	2.0			
Lane Grp Cap (vph)		1432			1481		780	1697	608			
v/s Ratio Prot					c0.27			c0.34				
v/s Ratio Perm		0.25					0.19		0.20			
v/c Ratio		0.57			0.62		0.40	0.71	0.42			
Uniform Delay, d1		21.3			21.8		17.0	20.9	17.2			
Progression Factor		0.14			0.86		0.83	0.81	0.80			
Incremental Delay, d2		0.8			1.8		0.1	0.2	0.2			
Delay (s)		3.9			20.5		14.3	17.1	13.9			
Level of Service		A			C		B	B	B			
Approach Delay (s)		3.9			20.5			16.1			0.0	
Approach LOS		A			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			14.4				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			100.0				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

20: 12th Ave NE & NE 45th St

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	920	50	45	800	15	35	60	35	15	45	30
Future Volume (vph)	85	920	50	45	800	15	35	60	35	15	45	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.0	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frbp, ped/bikes	1.00	0.97		1.00	0.99			0.95			0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98			0.98	
Frt	1.00	0.99		1.00	1.00			0.96			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1736	3333		1703	3361			1639			1594	
Flt Permitted	0.95	1.00		0.95	1.00			0.91			0.95	
Satd. Flow (perm)	1736	3333		1703	3361			1514			1529	
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)	90	979	53	48	851	16	37	64	37	16	48	32
RTOR Reduction (vph)	0	3	0	0	1	0	0	15	0	0	20	0
Lane Group Flow (vph)	90	1029	0	48	866	0	0	123	0	0	76	0
Confl. Peds. (#/hr)	186		263	263		186	63		85	85		63
Confl. Bikes (#/hr)			2			8			26			3
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	3%	3%	3%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4			4		
Actuated Green, G (s)	10.2	66.1		4.3	59.7			16.6			16.6	
Effective Green, g (s)	10.2	66.1		4.3	59.7			16.6			16.6	
Actuated g/C Ratio	0.10	0.66		0.04	0.60			0.17			0.17	
Clearance Time (s)	4.5	4.5		4.0	4.5			4.5			4.5	
Vehicle Extension (s)	0.5	0.2		0.5	0.2			1.0			1.0	
Lane Grp Cap (vph)	177	2203		73	2006			251			253	
v/s Ratio Prot	c0.05	c0.31		0.03	0.26							
v/s Ratio Perm								c0.08			0.05	
v/c Ratio	0.51	0.47		0.66	0.43			0.49			0.30	
Uniform Delay, d1	42.5	8.3		47.1	10.9			37.9			36.6	
Progression Factor	0.72	0.46		0.71	0.79			1.00			1.00	
Incremental Delay, d2	0.7	0.6		13.1	0.6			0.5			0.2	
Delay (s)	31.3	4.4		46.4	9.2			38.4			36.8	
Level of Service	C	A		D	A			D			D	
Approach Delay (s)		6.6			11.1			38.4			36.8	
Approach LOS		A			B			D			D	

Intersection Summary

HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

21: Brooklyn Ave NE & NE 45th St

UW Master Plan EIS

Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	875	5	45	770	15	15	5	10	50	5	155
Future Volume (vph)	120	875	5	45	770	15	15	5	10	50	5	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5			4.5			4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95			0.95			1.00	1.00		1.00	1.00
Frbp, ped/bikes	1.00	1.00			0.99			1.00	0.71		1.00	0.77
Flpb, ped/bikes	1.00	1.00			0.99			0.85	1.00		0.75	1.00
Frt	1.00	1.00			1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00			1.00			0.96	1.00		0.96	1.00
Satd. Flow (prot)	1736	3452			3345			1547	1143		1352	1231
Flt Permitted	0.95	1.00			0.85			0.82	1.00		0.74	1.00
Satd. Flow (perm)	1736	3452			2836			1318	1143		1050	1231
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)	128	931	5	48	819	16	16	5	11	53	5	165
RTOR Reduction (vph)	0	0	0	0	1	0	0	0	9	0	0	139
Lane Group Flow (vph)	128	936	0	0	882	0	0	21	2	0	58	26
Confl. Peds. (#/hr)	293		603	603		293	132		168	168		132
Confl. Bikes (#/hr)			8			10			8			3
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			4			4	
Permitted Phases				6			4		4	4		4
Actuated Green, G (s)	16.0	75.2			55.2			15.8	15.8		15.8	15.8
Effective Green, g (s)	16.0	75.2			55.2			15.8	15.8		15.8	15.8
Actuated g/C Ratio	0.16	0.75			0.55			0.16	0.16		0.16	0.16
Clearance Time (s)	4.0	4.5			4.5			4.5	4.5		4.5	4.5
Vehicle Extension (s)	0.5	0.2			0.2			1.0	1.0		1.0	1.0
Lane Grp Cap (vph)	277	2595			1565			208	180		165	194
v/s Ratio Prot	c0.07	0.27										
v/s Ratio Perm					c0.31			0.02	0.00		c0.06	0.02
v/c Ratio	0.46	0.36			0.56			0.10	0.01		0.35	0.13
Uniform Delay, d1	38.1	4.2			14.6			36.0	35.5		37.5	36.2
Progression Factor	0.94	0.28			0.42			1.00	1.00		0.75	0.57
Incremental Delay, d2	0.4	0.4			1.4			0.1	0.0		0.4	0.1
Delay (s)	36.1	1.5			7.5			36.1	35.5		28.5	20.7
Level of Service	D	A			A			D	D		C	C
Approach Delay (s)		5.7			7.5			35.9			22.7	
Approach LOS		A			A			D			C	

Intersection Summary

HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	73.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

22: University Way NE & NE 45th St

UW Master Plan EIS
Future (2028) No Action PM Peak Hour























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↕			↕	
Traffic Volume (vph)	5	795	65	0	740	40	5	130	85	5	155	55
Future Volume (vph)	5	795	65	0	740	40	5	130	85	5	155	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.94			0.96			0.83			0.88	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.99			0.99			0.95			0.97	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3219			3411			1391			1529	
Flt Permitted		0.95			1.00			0.99			0.99	
Satd. Flow (perm)		3064			3411			1383			1520	
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)	5	846	69	0	787	43	5	138	90	5	165	59
RTOR Reduction (vph)	0	1	0	0	3	0	0	8	0	0	15	0
Lane Group Flow (vph)	0	919	0	0	827	0	0	225	0	0	214	0
Confl. Peds. (#/hr)	429		529	529		429	656		519	519		656
Confl. Bikes (#/hr)			1			6			62			17
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	7%	7%	7%	5%	5%	5%
Turn Type	Perm	NA			NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2						4			4		
Actuated Green, G (s)		69.4			69.4			21.6			21.6	
Effective Green, g (s)		69.4			69.4			21.6			21.6	
Actuated g/C Ratio		0.69			0.69			0.22			0.22	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			1.0			1.0	
Lane Grp Cap (vph)		2126			2367			298			328	
v/s Ratio Prot					0.24							
v/s Ratio Perm		c0.30						c0.16			0.14	
v/c Ratio		0.43			0.35			0.76			0.65	
Uniform Delay, d1		6.7			6.2			36.7			35.8	
Progression Factor		0.55			0.28			1.17			1.03	
Incremental Delay, d2		0.6			0.3			9.0			3.3	
Delay (s)		4.3			2.1			52.0			40.2	
Level of Service		A			A			D			D	
Approach Delay (s)		4.3			2.1			52.0			40.2	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
 23: 15th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) No Action PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	695	115	115	675	90	45	725	155	95	465	40
Future Volume (veh/h)	85	695	115	115	675	90	45	725	155	95	465	40
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.79	1.00		0.80	1.00		0.81	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1810	1810	1900	1776	1776	1900	1810	1810	1900
Adj Flow Rate, veh/h	89	724	120	120	703	94	47	755	161	99	484	42
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	5	5	5	7	7	7	5	5	5
Cap, veh/h	185	906	150	231	1006	134	62	811	173	126	1098	95
Arrive On Green	0.21	0.62	0.62	0.27	0.68	0.68	0.04	0.31	0.31	0.15	0.70	0.70
Sat Flow, veh/h	1774	2912	482	1723	2951	394	1691	2643	563	1723	3151	272
Grp Volume(v), veh/h	89	440	404	120	409	388	47	482	434	99	263	263
Grp Sat Flow(s),veh/h/ln	1774	1770	1624	1723	1719	1625	1691	1687	1519	1723	1719	1704
Q Serve(g_s), s	4.4	18.7	18.7	5.9	14.4	14.5	2.8	27.7	27.7	5.5	6.7	6.8
Cycle Q Clear(g_c), s	4.4	18.7	18.7	5.9	14.4	14.5	2.8	27.7	27.7	5.5	6.7	6.8
Prop In Lane	1.00		0.30	1.00		0.24	1.00		0.37	1.00		0.16
Lane Grp Cap(c), veh/h	185	550	505	231	586	554	62	518	466	126	599	594
V/C Ratio(X)	0.48	0.80	0.80	0.52	0.70	0.70	0.76	0.93	0.93	0.79	0.44	0.44
Avail Cap(c_a), veh/h	185	550	505	231	586	554	118	555	500	155	600	595
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	0.90	0.90	0.90	0.88	0.88	0.88	0.81	0.81	0.81	0.76	0.76	0.76
Uniform Delay (d), s/veh	37.2	16.5	16.6	33.8	12.8	12.8	47.7	33.6	33.6	42.0	10.9	10.9
Incr Delay (d2), s/veh	0.7	10.5	11.5	0.8	6.0	6.4	5.8	18.1	19.6	12.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	10.4	9.7	2.9	7.6	7.2	1.4	15.5	14.1	3.1	3.1	3.1
LnGrp Delay(d),s/veh	37.9	27.1	28.0	34.7	18.7	19.2	53.5	51.7	53.3	53.9	11.0	11.1
LnGrp LOS	D	C	C	C	B	B	D	D	D	D	B	B
Approach Vol, veh/h		933			917			963			625	
Approach Delay, s/veh		28.5			21.0			52.5			17.8	
Approach LOS		C			C			D			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	14.4	38.6	11.8	35.2	17.4	35.6	7.6	39.3				
Change Period (Y+Rc), s	4.0	4.5	4.5	* 4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	7.0	34.1	9.0	* 33	10.0	31.1	7.0	34.9				
Max Q Clear Time (g_c+I1), s	6.4	16.5	7.5	29.7	7.9	20.7	4.8	8.8				
Green Ext Time (p_c), s	0.0	1.8	0.3	1.0	0.0	1.7	0.0	1.1				
Intersection Summary												
HCM 2010 Ctrl Delay				31.3								
HCM 2010 LOS				C								
Notes												

HCM Signalized Intersection Capacity Analysis
 24: Memorial Way NE/17th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↗		↗	↗
Traffic Volume (vph)	20	700	245	50	725	50	135	155	40	45	80	25
Future Volume (vph)	20	700	245	50	725	50	135	155	40	45	80	25
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frbp, ped/bikes	1.00	0.94		1.00	0.97		1.00	1.00	0.57		0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85		0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1752	3161		1770	3389		1770	1863	898		1705	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (perm)	1752	3161		1770	3389		1770	1863	898		1705	
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)	22	753	263	54	780	54	145	167	43	48	86	27
RTOR Reduction (vph)	0	31	0	0	4	0	0	0	37	0	8	0
Lane Group Flow (vph)	22	985	0	54	830	0	145	167	6	0	153	0
Confl. Peds. (#/hr)	190		161	161		190	286		380	380		286
Confl. Bikes (#/hr)			2			3			65			9
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases									4			
Actuated Green, G (s)	2.1	49.3		5.5	52.7		13.6	13.6	13.6		15.1	
Effective Green, g (s)	2.1	49.3		5.5	52.7		13.6	13.6	13.6		15.1	
Actuated g/C Ratio	0.02	0.49		0.06	0.53		0.14	0.14	0.14		0.15	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.0	4.0		4.0	
Vehicle Extension (s)	1.0	0.2		1.0	0.2		0.5	0.5	0.5		2.0	
Lane Grp Cap (vph)	36	1558		97	1786		240	253	122		257	
v/s Ratio Prot	0.01	c0.31		c0.03	c0.24		0.08	c0.09			c0.09	
v/s Ratio Perm									0.01			
v/c Ratio	0.61	0.63		0.56	0.46		0.60	0.66	0.05		0.60	
Uniform Delay, d1	48.5	18.7		46.1	14.8		40.7	41.0	37.6		39.6	
Progression Factor	1.19	0.31		1.19	0.76		1.00	1.00	1.00		1.00	
Incremental Delay, d2	13.9	1.4		3.7	0.8		2.9	4.9	0.1		2.5	
Delay (s)	71.6	7.2		58.5	12.0		43.6	45.9	37.6		42.1	
Level of Service	E	A		E	B		D	D	D		D	
Approach Delay (s)		8.6			14.9			44.0			42.1	
Approach LOS		A			B			D			D	

Intersection Summary		
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.62	B
Actuated Cycle Length (s)	100.0	Sum of lost time (s)
Intersection Capacity Utilization	73.6%	16.5
Analysis Period (min)	15	ICU Level of Service
		D
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
25: NE 45th St & 18th Ave NE

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Volume (vph)	0	835	825	0	15	25
Future Volume (vph)	0	835	825	0	15	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.0	
Lane Util. Factor		0.95	0.95		1.00	
Frbp, ped/bikes		1.00	1.00		0.88	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	1.00		0.92	
Flt Protected		1.00	1.00		0.98	
Satd. Flow (prot)		3574	3539		1500	
Flt Permitted		1.00	1.00		0.98	
Satd. Flow (perm)		3574	3539		1500	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	908	897	0	16	27
RTOR Reduction (vph)	0	0	0	0	22	0
Lane Group Flow (vph)	0	908	897	0	21	0
Confl. Peds. (#/hr)	182			182	107	105
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	1%	1%	2%	2%	0%	0%
Turn Type		NA	NA		Prot	
Protected Phases		2	2		4	
Permitted Phases						
Actuated Green, G (s)		74.5	74.5		17.0	
Effective Green, g (s)		74.5	74.5		17.0	
Actuated g/C Ratio		0.74	0.74		0.17	
Clearance Time (s)		4.5	4.5		4.0	
Vehicle Extension (s)		0.2	0.2		1.0	
Lane Grp Cap (vph)		2662	2636		255	
v/s Ratio Prot		c0.25	0.25		c0.01	
v/s Ratio Perm						
v/c Ratio		0.34	0.34		0.08	
Uniform Delay, d1		4.4	4.4		34.9	
Progression Factor		0.21	0.00		1.00	
Incremental Delay, d2		0.3	0.3		0.0	
Delay (s)		1.2	0.3		35.0	
Level of Service		A	A		C	
Approach Delay (s)		1.2	0.3		35.0	
Approach LOS		A	A		C	
Intersection Summary						
HCM 2000 Control Delay			1.6		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.29			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	8.5
Intersection Capacity Utilization			46.2%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

26: NE 45th St & 19th Ave NE

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	25	815	830	35	0	0
Future Volume (vph)	25	815	830	35	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.5			
Lane Util. Factor	1.00	1.00	0.95			
Frpb, ped/bikes	1.00	1.00	0.98			
Flpb, ped/bikes	1.00	1.00	1.00			
Frt	1.00	1.00	0.99			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1787	1881	3443			
Flt Permitted	0.18	1.00	1.00			
Satd. Flow (perm)	344	1881	3443			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	886	902	38	0	0
RTOR Reduction (vph)	0	0	3	0	0	0
Lane Group Flow (vph)	27	886	937	0	0	0
Confl. Peds. (#/hr)	125			125	265	109
Confl. Bikes (#/hr)				7		1
Heavy Vehicles (%)	1%	1%	2%	2%	0%	0%
Turn Type	pm+pt	NA	NA			
Protected Phases	1	1 2	2			
Permitted Phases	1 2					
Actuated Green, G (s)	71.5	74.5	42.9			
Effective Green, g (s)	71.5	74.5	42.9			
Actuated g/C Ratio	0.72	0.74	0.43			
Clearance Time (s)	3.0		4.5			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	658	1401	1477			
v/s Ratio Prot	0.01	c0.47	0.27			
v/s Ratio Perm	0.02					
v/c Ratio	0.04	0.63	0.63			
Uniform Delay, d1	5.7	6.1	22.4			
Progression Factor	1.35	1.34	0.23			
Incremental Delay, d2	0.0	0.9	1.7			
Delay (s)	7.7	9.2	6.8			
Level of Service	A	A	A			
Approach Delay (s)		9.1	6.8		0.0	
Approach LOS		A	A		A	
Intersection Summary						
HCM 2000 Control Delay			7.9		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.53			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	10.5
Intersection Capacity Utilization			46.2%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
 27: NE 45th St & 20th Ave NE

UW Master Plan EIS
 Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↶↷		↶↷	
Traffic Volume (vph)	35	770	840	80	30	30
Future Volume (vph)	35	770	840	80	30	30
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.5		4.0	
Lane Util. Factor	1.00	1.00	0.95		1.00	
Frbp, ped/bikes	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.93	
Flt Protected	0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1787	1881	3487		1698	
Flt Permitted	0.19	1.00	1.00		0.98	
Satd. Flow (perm)	359	1881	3487		1698	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	38	828	903	86	32	32
RTOR Reduction (vph)	0	0	0	0	27	0
Lane Group Flow (vph)	38	828	989	0	37	0
Confl. Bikes (#/hr)				2		3
Heavy Vehicles (%)	1%	1%	2%	2%	1%	1%
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	1	1 2	2		4	
Permitted Phases	1 2					
Actuated Green, G (s)	71.5	74.5	48.4		17.0	
Effective Green, g (s)	71.5	74.5	48.4		17.0	
Actuated g/C Ratio	0.72	0.74	0.48		0.17	
Clearance Time (s)	3.0		4.5		4.0	
Vehicle Extension (s)	1.0		0.2		1.0	
Lane Grp Cap (vph)	586	1401	1687		288	
v/s Ratio Prot	0.01	c0.44	0.28		c0.02	
v/s Ratio Perm	0.03					
v/c Ratio	0.06	0.59	0.59		0.13	
Uniform Delay, d1	5.6	5.8	18.6		35.2	
Progression Factor	0.16	0.08	1.00		1.00	
Incremental Delay, d2	0.0	0.4	1.5		0.1	
Delay (s)	0.9	0.8	20.1		35.3	
Level of Service	A	A	C		D	
Approach Delay (s)		0.8	20.1		35.3	
Approach LOS		A	C		D	

Intersection Summary			
HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Montlake Blvd NE & NE 45th St

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↔	↑	↔	↔
Traffic Volume (vph)	505	5	540	705	115	1455
Future Volume (vph)	505	5	540	705	115	1455
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	0.88
Frpb, ped/bikes	1.00	0.90	1.00	1.00	1.00	1.00
Flpb, ped/bikes	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)	3574	1440	3400	1845	1770	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3574	1440	3400	1845	1770	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	537	5	574	750	122	1548
RTOR Reduction (vph)	0	1	0	0	0	9
Lane Group Flow (vph)	537	4	574	750	122	1539
Confl. Peds. (#/hr)		40	40			
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	1%	1%	3%	3%	2%	2%
Turn Type	NA	Perm	Split	NA	Prot	pt+ov
Protected Phases	3		1	1	2	1 2
Permitted Phases		3				
Actuated Green, G (s)	26.5	26.5	79.1	79.1	20.9	104.5
Effective Green, g (s)	26.5	26.5	79.1	79.1	20.9	104.5
Actuated g/C Ratio	0.19	0.19	0.56	0.56	0.15	0.75
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.5	3.5	0.2	0.2	3.0	
Lane Grp Cap (vph)	676	272	1921	1042	264	2080
v/s Ratio Prot	c0.15		0.17	0.41	0.07	c0.55
v/s Ratio Perm		0.00				
v/c Ratio	0.79	0.02	0.30	0.72	0.46	0.74
Uniform Delay, d1	54.2	46.1	15.9	22.3	54.4	10.1
Progression Factor	1.00	1.00	0.39	0.47	0.94	1.09
Incremental Delay, d2	6.6	0.0	0.3	3.1	1.2	1.3
Delay (s)	60.7	46.2	6.5	13.6	52.3	12.2
Level of Service	E	D	A	B	D	B
Approach Delay (s)	60.6			10.5	15.2	
Approach LOS	E			B	B	

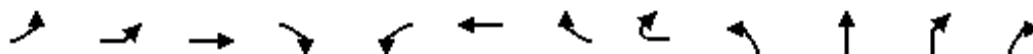
Intersection Summary

HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

29: Union Bay PI NE & NE 45th St & NE 45th PI

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Traffic Volume (vph)	35	290	1085	240	30	790	120	25	190	105	35	35
Future Volume (vph)	35	290	1085	240	30	790	120	25	190	105	35	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.86		0.86	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	0.93	1.00	0.99		0.95	1.00	1.00	0.93	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	1.00	0.98		0.85	1.00	1.00	0.85	
Flt Protected	0.95	0.95	1.00	1.00	0.95	1.00		1.00	0.95	0.99	1.00	
Satd. Flow (prot)	1752	1752	3505	1452	1736	4561		1266	1698	1760	1480	
Flt Permitted	0.95	0.11	1.00	1.00	0.12	1.00		1.00	0.95	0.99	1.00	
Satd. Flow (perm)	1752	212	3505	1452	228	4561		1266	1698	1760	1480	
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)	36	299	1119	247	31	814	124	26	196	108	36	36
RTOR Reduction (vph)	0	0	0	84	0	0	0	18	0	0	61	0
Lane Group Flow (vph)	36	299	1119	163	31	941	0	5	149	155	11	0
Confl. Peds. (#/hr)	18	18		15	15		18	18	34		18	17
Confl. Bikes (#/hr)				3				1				4
Heavy Vehicles (%)	3%	3%	3%	3%	4%	4%	4%	4%	1%	1%	1%	1%
Turn Type	Prot	pm+pt	NA	Perm	Perm	NA		Perm	Split	NA	Perm	
Protected Phases	1	1 9	6			2			4	4		
Permitted Phases		6		6	2			2				4
Actuated Green, G (s)	15.8	61.7	53.4	53.4	32.1	32.1		32.1	22.1	22.1	22.1	
Effective Green, g (s)	15.8	61.7	53.4	53.4	32.1	32.1		32.1	22.1	22.1	22.1	
Actuated g/C Ratio	0.11	0.44	0.38	0.38	0.23	0.23		0.23	0.16	0.16	0.16	
Clearance Time (s)	5.5		5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	
Vehicle Extension (s)	2.5		2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	197	358	1336	553	52	1045		290	268	277	233	
v/s Ratio Prot	0.02	c0.14	c0.32			0.21			0.09	c0.09		
v/s Ratio Perm		0.22		0.11	0.14			0.00			0.01	
v/c Ratio	0.18	0.84	0.84	0.29	0.60	0.90		0.02	0.56	0.56	0.05	
Uniform Delay, d1	56.3	37.4	39.4	30.2	48.2	52.4		41.8	54.4	54.5	50.0	
Progression Factor	0.92	0.90	0.85	0.74	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	10.5	4.3	0.9	41.6	12.2		0.1	1.4	1.4	0.0	
Delay (s)	51.9	44.3	38.0	23.1	89.7	64.6		41.9	55.8	55.8	50.1	
Level of Service	D	D	D	C	F	E		D	E	E	D	
Approach Delay (s)			37.2			64.9				54.7		
Approach LOS			D			E				D		
Intersection Summary												
HCM 2000 Control Delay			50.4			HCM 2000 Level of Service			D			
HCM 2000 Volume to Capacity ratio			0.76									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			31.5			
Intersection Capacity Utilization			83.7%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 29: Union Bay PI NE & NE 45th St & NE 45th PI

UW Master Plan EIS
 Future (2028) No Action PM Peak Hour



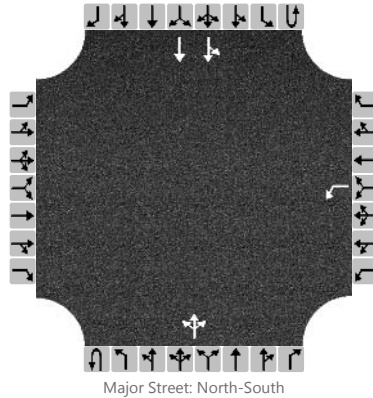
Movement	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Traffic Volume (vph)	30	165	85	35	25	40	180	15
Future Volume (vph)	30	165	85	35	25	40	180	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5			5.5	5.5	
Lane Util. Factor		0.95	0.95			1.00	0.88	
Frbp, ped/bikes		1.00	0.99			1.00	1.00	
Flpb, ped/bikes		1.00	1.00			1.00	1.00	
Frt		1.00	0.97			1.00	0.85	
Flt Protected		0.95	0.99			0.95	1.00	
Satd. Flow (prot)		1698	1683			1787	2814	
Flt Permitted		0.95	0.99			0.95	1.00	
Satd. Flow (perm)		1698	1683			1787	2814	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	31	170	88	36	26	41	186	15
RTOR Reduction (vph)	0	0	7	0	0	0	128	0
Lane Group Flow (vph)	0	162	156	0	0	67	73	0
Confl. Peds. (#/hr)	17	18		34	17	15	34	18
Confl. Bikes (#/hr)				1			1	1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split	Split	NA		Prot	Prot	Prot	
Protected Phases	3	3	3		7	7	8	
Permitted Phases								
Actuated Green, G (s)		23.8	23.8			6.4	18.7	
Effective Green, g (s)		23.8	23.8			6.4	18.7	
Actuated g/C Ratio		0.17	0.17			0.05	0.13	
Clearance Time (s)		5.5	5.5			5.5	5.5	
Vehicle Extension (s)		2.0	2.0			2.5	2.5	
Lane Grp Cap (vph)		288	286			81	375	
v/s Ratio Prot		c0.10	0.09			c0.04	0.03	
v/s Ratio Perm								
v/c Ratio		0.56	0.54			0.83	0.19	
Uniform Delay, d1		53.3	53.1			66.3	53.9	
Progression Factor		1.00	1.00			1.00	1.00	
Incremental Delay, d2		1.5	1.1			46.4	0.2	
Delay (s)		54.8	54.3			112.6	54.1	
Level of Service		D	D			F	D	
Approach Delay (s)			54.5			68.8		
Approach LOS			D			E		

Intersection Summary

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Transpo			Intersection	Roosevelt Way & 43rd St		
Agency/Co.				Jurisdiction	Seattle		
Date Performed	3/17/2017			East/West Street	NE 43rd St (east)		
Analysis Year	2015			North/South Street	Roosevelt Way NE		
Time Analyzed	PM Peak Hour			Peak Hour Factor	0.91		
Intersection Orientation	North-South			Analysis Time Period (hrs)	1.00		
Project Description	UW Master Plan EIS, No Action (2028) PM Peak						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	0	0	0	1	0	0	0	2	0
Configuration						L					LTR			LT	T	
Volume, V (veh/h)						205				0	0	0		65	1555	
Percent Heavy Vehicles (%)						6				3				1		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.5				4.1				4.1		
Critical Headway (sec)						6.92				4.16				4.12		
Base Follow-Up Headway (sec)						3.5				2.2				2.2		
Follow-Up Headway (sec)						3.56				2.23				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						225				0				71		
Capacity, c (veh/h)						162				363				1252		
v/c Ratio						1.39				0.00				0.06		
95% Queue Length, Q ₉₅ (veh)						39.8				0.0				0.2		
Control Delay (s/veh)						793.3				14.9				8.0		
Level of Service, LOS						F				B				A		
Approach Delay (s/veh)					793.3								4.3			
Approach LOS					F											

Intersection

Int Delay, s/veh 1985.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔					↕↕
Traffic Vol, veh/h	205	0	0	0	65	1555
Future Vol, veh/h	205	0	0	0	65	1555
Conflicting Peds, #/hr	65	133	0	65	133	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	6	6	0	0	1	1
Mvmt Flow	225	0	0	0	71	1709

Major/Minor

	Minor1	Major2
Conflicting Flow All	1195	133
Stage 1	133	-
Stage 2	1062	-
Critical Hdwy	6.92	4.12
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	5.92	-
Follow-up Hdwy	3.56	2.21
Pot Cap-1 Maneuver	~ 173	1457
Stage 1	-	0
Stage 2	285	0
Platoon blocked, %		-
Mov Cap-1 Maneuver	~ 6	1457
Mov Cap-2 Maneuver	~ 6	-
Stage 1	-	-
Stage 2	~ 11	-

Approach

	WB	SB
HCM Control Delay, s	\$ 17645.5	3.6
HCM LOS	F	

Minor Lane/Major Mvmt

	WBLn1	SBL	SBT
Capacity (veh/h)	6	1457	-
HCM Lane V/C Ratio	37.546	0.049	-
HCM Control Delay (s)	\$ 17645.5	7.6	3.4
HCM Lane LOS	F	A	A
HCM 95th %tile Q(veh)	30.2	0.2	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 2.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	65	0	0	1715	40
Future Vol, veh/h	0	65	0	0	1715	40
Conflicting Peds, #/hr	241	131	131	0	0	241
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	0	0	2	2
Mvmt Flow	0	71	0	0	1864	43

Major/Minor

	Minor2	Major2
Conflicting Flow All	-	1326
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	6.94
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	3.32
Pot Cap-1 Maneuver	0	146
Stage 1	0	-
Stage 2	0	-
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	117
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach

















	EB	SB
HCM Control Delay, s	74.3	0
HCM LOS	F	

Minor Lane/Major Mvmt

	EBLn1	SBT	SBR
Capacity (veh/h)	117	-	-
HCM Lane V/C Ratio	0.604	-	-
HCM Control Delay (s)	74.3	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	3	-	-

HCM 2010 Signalized Intersection Summary
 32: 11th Ave NE & NE 43rd St

UW Master Plan EIS
 Future (2028) No Action PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	55	0	0	170	25	20	1475	25	0	0	0
Future Volume (veh/h)	45	55	0	0	170	25	20	1475	25	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	0.96		1.00	1.00		0.91	1.00		0.86			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1776	1900	1900	1863	1900			
Adj Flow Rate, veh/h	49	60	0	0	185	27	22	1603	27			
Adj No. of Lanes	0	1	0	0	1	0	0	2	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	0	0	0	7	7	0	2	0			
Cap, veh/h	307	341	0	0	628	92	19	1472	26			
Arrive On Green	0.42	0.42	0.00	0.00	0.14	0.14	0.14	0.14	0.14			
Sat Flow, veh/h	483	812	0	0	1494	218	47	3589	63			
Grp Volume(v), veh/h	109	0	0	0	0	212	867	0	785			
Grp Sat Flow(s),veh/h/ln	1295	0	0	0	0	1713	1860	0	1839			
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	5.6	20.5	0.0	20.5			
Cycle Q Clear(g_c), s	5.8	0.0	0.0	0.0	0.0	5.6	20.5	0.0	20.5			
Prop In Lane	0.45		0.00	0.00		0.13	0.03		0.03			
Lane Grp Cap(c), veh/h	648	0	0	0	0	719	763	0	754			
V/C Ratio(X)	0.17	0.00	0.00	0.00	0.00	0.29	1.14	0.00	1.04			
Avail Cap(c_a), veh/h	648	0	0	0	0	719	763	0	754			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	0.33	0.33	0.33			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	9.0	0.0	0.0	0.0	0.0	14.9	21.6	0.0	21.6			
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.0	0.0	1.0	77.3	0.0	43.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.0	0.0	2.8	26.9	0.0	19.6			
LnGrp Delay(d),s/veh	9.6	0.0	0.0	0.0	0.0	15.9	98.9	0.0	65.4			
LnGrp LOS	A					B	F		F			
Approach Vol, veh/h		109			212			1652				
Approach Delay, s/veh		9.6			15.9			83.0				
Approach LOS		A			B			F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		25.0		25.0				25.0				
Change Period (Y+Rc), s		4.5		4.0				4.0				
Max Green Setting (Gmax), s		20.5		21.0				21.0				
Max Q Clear Time (g_c+I1), s		22.5		7.8				7.6				
Green Ext Time (p_c), s		0.0		1.0				1.1				
Intersection Summary												
HCM 2010 Ctrl Delay				71.7								
HCM 2010 LOS				E								

HCM Signalized Intersection Capacity Analysis

33: University Way NE & NE 43rd St

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	20	25	5	40	20	50	5	160	55	45	165	5
Future Volume (vph)	20	25	5	40	20	50	5	160	55	45	165	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.96			0.87			0.85			0.99	
Flpb, ped/bikes		0.91			0.84			0.99			0.92	
Frt		0.99			0.94			0.97			1.00	
Flt Protected		0.98			0.98			1.00			0.99	
Satd. Flow (prot)		1561			1282			1426			1601	
Flt Permitted		0.90			0.90			0.99			0.91	
Satd. Flow (perm)		1428			1178			1420			1467	
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)	22	27	5	43	22	54	5	172	59	48	177	5
RTOR Reduction (vph)	0	3	0	0	22	0	0	24	0	0	2	0
Lane Group Flow (vph)	0	51	0	0	97	0	0	212	0	0	228	0
Confl. Peds. (#/hr)	156		259	259		156	600		514	514		600
Confl. Bikes (#/hr)			2			3			55			22
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	8%	8%	8%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		18.0			18.0			23.5			23.5	
Effective Green, g (s)		18.0			18.0			23.5			23.5	
Actuated g/C Ratio		0.36			0.36			0.47			0.47	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		514			424			667			689	
v/s Ratio Prot												
v/s Ratio Perm		0.04			c0.08			0.15			c0.16	
v/c Ratio		0.10			0.23			0.32			0.33	
Uniform Delay, d1		10.6			11.2			8.3			8.3	
Progression Factor		0.61			0.58			0.82			0.55	
Incremental Delay, d2		0.3			1.2			1.2			1.2	
Delay (s)		6.8			7.7			8.0			5.7	
Level of Service		A			A			A			A	
Approach Delay (s)		6.8			7.7			8.0			5.7	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	48.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
34: 15th Ave NE & NE 43rd St

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	45	30	850	575	130
Future Volume (vph)	60	45	30	850	575	130
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	4.5
Lane Util. Factor	1.00			0.95	0.95	1.00
Frbp, ped/bikes	0.87			1.00	1.00	0.68
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.94			1.00	1.00	0.85
Flt Protected	0.97			1.00	1.00	1.00
Satd. Flow (prot)	1487			3353	3343	1018
Flt Permitted	0.97			0.92	1.00	1.00
Satd. Flow (perm)	1487			3102	3343	1018
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	47	32	895	605	137
RTOR Reduction (vph)	32	0	0	0	0	69
Lane Group Flow (vph)	78	0	0	927	605	69
Confl. Peds. (#/hr)	228	314	158			158
Confl. Bikes (#/hr)						3
Heavy Vehicles (%)	2%	2%	7%	7%	8%	8%
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	2	
Permitted Phases			2			2
Actuated Green, G (s)	16.0			25.0	25.0	25.0
Effective Green, g (s)	16.0			25.0	25.0	25.0
Actuated g/C Ratio	0.32			0.50	0.50	0.50
Clearance Time (s)	4.5			4.5	4.5	4.5
Lane Grp Cap (vph)	475			1551	1671	509
v/s Ratio Prot	c0.05				0.18	
v/s Ratio Perm				c0.30		0.07
v/c Ratio	0.16			0.60	0.36	0.13
Uniform Delay, d1	12.2			8.9	7.6	6.7
Progression Factor	0.82			1.38	0.86	1.32
Incremental Delay, d2	0.7			1.5	0.5	0.5
Delay (s)	10.7			13.8	7.1	9.3
Level of Service	B			B	A	A
Approach Delay (s)	10.7			13.8	7.5	
Approach LOS	B			B	A	

Intersection Summary

HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

35: Memorial Way NE & Burke Museum Access/East Stevens Way NE (2028) No Action PM Peak Hour






















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Yield	
Traffic Volume (vph)	70	10	5	10	20	210	0	55	15	230	65	75
Future Volume (vph)	70	10	5	10	20	210	0	55	15	230	65	75
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	76	11	5	11	22	228	0	60	16	250	71	82

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	92	261	30	46	286	118
Volume Left (vph)	76	11	0	0	250	0
Volume Right (vph)	5	228	0	16	0	82
Hadj (s)	0.13	-0.52	0.44	0.20	0.52	-0.40
Departure Headway (s)	5.7	4.8	6.4	6.2	6.1	5.1
Degree Utilization, x	0.14	0.35	0.05	0.08	0.48	0.17
Capacity (veh/h)	581	704	515	534	570	670
Control Delay (s)	9.6	10.3	8.6	8.5	13.4	8.0
Approach Delay (s)	9.6	10.3	8.6		11.8	
Approach LOS	A	B	A		B	

Intersection Summary						
Delay			10.8			
Level of Service			B			
Intersection Capacity Utilization			63.7%	ICU Level of Service		B
Analysis Period (min)			15			

HCM 2010 Signalized Intersection Summary
 36: Montlake Blvd NE & Stevens Way

UW Master Plan EIS
 Future (2028) No Action PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	85	70	5	50	205	65	720	5	60	410	115
Future Volume (veh/h)	150	85	70	5	50	205	65	720	5	60	410	115
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.91	0.96		0.86	1.00		0.98	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1900	1900	1827	1900	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	158	89	74	5	53	216	68	758	5	63	432	121
Adj No. of Lanes	1	2	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	4	4	4	0	0	0	1	1	1
Cap, veh/h	219	544	389	44	322	232	349	2054	14	81	1131	314
Arrive On Green	0.09	0.30	0.30	0.19	0.19	0.19	0.19	0.56	0.56	0.05	0.41	0.41
Sat Flow, veh/h	1707	1814	1298	86	1690	1222	1810	3676	24	1792	2754	764
Grp Volume(v), veh/h	158	83	80	58	0	216	68	372	391	63	279	274
Grp Sat Flow(s),veh/h/ln	1707	1703	1409	1776	0	1222	1810	1805	1895	1792	1787	1730
Q Serve(g_s), s	10.1	5.0	5.9	0.0	0.0	24.3	4.4	16.0	16.0	4.9	15.3	15.5
Cycle Q Clear(g_c), s	10.1	5.0	5.9	3.7	0.0	24.3	4.4	16.0	16.0	4.9	15.3	15.5
Prop In Lane	1.00		0.92	0.09		1.00	1.00		0.01	1.00		0.44
Lane Grp Cap(c), veh/h	219	510	422	560	0	232	349	1009	1059	81	734	711
V/C Ratio(X)	0.72	0.16	0.19	0.10	0.00	0.93	0.19	0.37	0.37	0.78	0.38	0.39
Avail Cap(c_a), veh/h	325	626	518	571	0	240	349	1009	1059	198	734	711
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.00	0.99	0.83	0.83	0.83	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.4	36.1	36.4	47.4	0.0	55.8	47.4	17.2	17.2	66.2	28.8	28.9
Incr Delay (d2), s/veh	4.4	0.1	0.2	0.0	0.0	37.6	0.1	0.9	0.8	6.0	1.5	1.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.0	2.4	2.3	1.6	0.0	10.6	2.2	8.2	8.6	2.5	7.8	7.7
LnGrp Delay(d),s/veh	45.8	36.2	36.6	47.4	0.0	93.3	47.4	18.0	18.0	72.1	30.3	30.5
LnGrp LOS	D	D	D	D		F	D	B	B	E	C	C
Approach Vol, veh/h		321			274			831			616	
Approach Delay, s/veh		41.0			83.6			20.4			34.7	
Approach LOS		D			F			C			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	10.8	82.7	15.3	31.1	31.5	62.0		46.5				
Change Period (Y+Rc), s	4.5	4.5	3.0	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	15.5	59.5	21.0	27.5	17.5	57.5		51.5				
Max Q Clear Time (g_c+I1), s	6.9	18.0	12.1	26.3	6.4	17.5		7.9				
Green Ext Time (p_c), s	0.0	4.9	0.3	0.3	2.7	0.5		2.6				
Intersection Summary												
HCM 2010 Ctrl Delay				36.4								
HCM 2010 LOS				D								

HCM Signalized Intersection Capacity Analysis

37: Montlake Blvd NE & Stevens Way

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	125	10	0	5	20	45	0	1365	35	0	470	255
Future Volume (vph)	125	10	0	5	20	45	0	1365	35	0	470	255
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lane Util. Factor	0.95	0.95			0.95	1.00		0.95			0.95	1.00
Frbp, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	0.97
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00			1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	0.96			0.99	1.00		1.00			1.00	1.00
Satd. Flow (prot)	1618	1634			3342	1509		3558			3539	1541
Flt Permitted	0.74	0.74			0.91	1.00		1.00			1.00	1.00
Satd. Flow (perm)	1259	1259			3071	1509		3558			3539	1541
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)	133	11	0	5	21	48	0	1452	37	0	500	271
RTOR Reduction (vph)	0	0	0	0	0	44	0	1	0	0	0	42
Lane Group Flow (vph)	72	72	0	0	26	4	0	1488	0	0	500	229
Confl. Peds. (#/hr)							6		2	2		6
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	1%	1%	1%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm		NA			NA	Perm
Protected Phases		2			2			1			1	
Permitted Phases	2			2		2						1
Actuated Green, G (s)	12.6	12.6			12.6	12.6		118.4			118.4	118.4
Effective Green, g (s)	12.6	12.6			12.6	12.6		118.4			118.4	118.4
Actuated g/C Ratio	0.09	0.09			0.09	0.09		0.85			0.85	0.85
Clearance Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Vehicle Extension (s)	2.0	2.0			2.0	2.0		0.2			0.2	0.2
Lane Grp Cap (vph)	113	113			276	135		3009			2992	1303
v/s Ratio Prot								c0.42			0.14	
v/s Ratio Perm	c0.06	0.06			0.01	0.00						0.15
v/c Ratio	0.64	0.64			0.09	0.03		0.49			0.17	0.18
Uniform Delay, d1	61.5	61.5			58.5	58.1		2.9			1.9	2.0
Progression Factor	0.49	0.49			1.00	1.00		1.06			0.31	0.00
Incremental Delay, d2	8.3	8.3			0.1	0.0		0.5			0.1	0.3
Delay (s)	38.2	38.2			58.5	58.2		3.5			0.7	0.3
Level of Service	D	D			E	E		A			A	A
Approach Delay (s)		38.2			58.3			3.5			0.6	
Approach LOS		D			E			A			A	

Intersection Summary

HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group










HCM Signalized Intersection Capacity Analysis
38: Montlake Blvd NE

UW Master Plan EIS
Future (2028) No Action PM Peak Hour

	↑	↗	↘	↓	↙	↖
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↑↑	↗↘		↑↑	↙↘	
Traffic Volume (vph)	760	1340	0	490	565	0
Future Volume (vph)	760	1340	0	490	565	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	
Lane Util. Factor	0.95	0.88		0.95	0.97	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	1.00	1.00		1.00	0.95	
Satd. Flow (prot)	3574	2814		3610	3433	
Flt Permitted	1.00	1.00		1.00	0.95	
Satd. Flow (perm)	3574	2814		3610	3433	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	784	1381	0	505	582	0
RTOR Reduction (vph)	0	817	0	0	0	0
Lane Group Flow (vph)	784	564	0	505	582	0
Heavy Vehicles (%)	1%	1%	0%	0%	2%	2%
Turn Type	NA	Perm		NA	Prot	
Protected Phases	2			2	1	
Permitted Phases		2				
Actuated Green, G (s)	57.2	57.2		57.2	73.8	
Effective Green, g (s)	57.2	57.2		57.2	73.8	
Actuated g/C Ratio	0.41	0.41		0.41	0.53	
Clearance Time (s)	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	0.2	
Lane Grp Cap (vph)	1460	1149		1474	1809	
v/s Ratio Prot	c0.22			0.14	c0.17	
v/s Ratio Perm		0.20				
v/c Ratio	0.54	0.49		0.34	0.32	
Uniform Delay, d1	31.4	30.6		28.5	18.8	
Progression Factor	1.00	1.00		0.56	0.36	
Incremental Delay, d2	0.2	0.1		0.0	0.5	
Delay (s)	31.6	30.8		15.9	7.2	
Level of Service	C	C		B	A	
Approach Delay (s)	31.0			15.9	7.2	
Approach LOS	C			B	A	
Intersection Summary						
HCM 2000 Control Delay			24.4		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.42			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	9.0
Intersection Capacity Utilization			50.6%		ICU Level of Service	A
Analysis Period (min)			15			
c	Critical Lane Group					

HCM 2010 Signalized Intersection Summary
 39: Roosevelt Way NE & NE 42nd St (north)

UW Master Plan EIS
 Future (2028) No Action PM Peak Hour

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations						 		
Traffic Volume (veh/h)	100	0	0	0	135	1705		
Future Volume (veh/h)	100	0	0	0	135	1705		
Number	7	14			5	2		
Initial Q (Qb), veh	0	0			0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00			
Parking Bus, Adj	1.00	1.00			1.00	1.00		
Adj Sat Flow, veh/h/ln	1881	0			1900	1863		
Adj Flow Rate, veh/h	109	0			147	1853		
Adj No. of Lanes	1	0			0	2		
Peak Hour Factor	0.92	0.92			0.92	0.92		
Percent Heavy Veh, %	1	0			2	2		
Cap, veh/h	0	0			258	3030		
Arrive On Green	0.00	0.00			0.32	0.32		
Sat Flow, veh/h	0				228	3258		
Grp Volume(v), veh/h	0.0				1074	926		
Grp Sat Flow(s),veh/h/ln					1790	1610		
Q Serve(g_s), s					44.6	48.6		
Cycle Q Clear(g_c), s					51.1	48.6		
Prop In Lane					0.14			
Lane Grp Cap(c), veh/h					1750	1538		
V/C Ratio(X)					0.61	0.60		
Avail Cap(c_a), veh/h					1750	1538		
HCM Platoon Ratio					0.33	0.33		
Upstream Filter(I)					1.00	1.00		
Uniform Delay (d), s/veh					18.9	18.2		
Incr Delay (d2), s/veh					1.6	1.8		
Initial Q Delay(d3),s/veh					0.0	0.0		
%ile BackOfQ(50%),veh/ln					26.2	22.4		
LnGrp Delay(d),s/veh					20.5	19.9		
LnGrp LOS					C	B		
Approach Vol, veh/h						2000		
Approach Delay, s/veh						20.3		
Approach LOS						C		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						
Phs Duration (G+Y+Rc), s		100.0						
Change Period (Y+Rc), s		4.5						
Max Green Setting (Gmax), s		72.5						
Max Q Clear Time (g_c+I1), s		53.1						
Green Ext Time (p_c), s		2.9						
Intersection Summary								
HCM 2010 Ctrl Delay			20.3					
HCM 2010 LOS			C					

HCM Signalized Intersection Capacity Analysis
40: NE 42nd St (north)/NE 42nd St & 11th Ave NE

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4				
Traffic Volume (vph)	60	80	0	0	70	100	25	1320	105	0	0	0
Future Volume (vph)	60	80	0	0	70	100	25	1320	105	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5				
Lane Util. Factor		1.00			1.00			0.95				
Frb, ped/bikes		1.00			0.89			0.99				
Flpb, ped/bikes		0.95			1.00			1.00				
Frt		1.00			0.92			0.99				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1761			1540			3449				
Flt Permitted		0.80			1.00			1.00				
Satd. Flow (perm)		1432			1540			3449				
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)	66	88	0	0	77	110	27	1451	115	0	0	0
RTOR Reduction (vph)	0	0	0	0	12	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	154	0	0	175	0	0	1584	0	0	0	0
Confl. Peds. (#/hr)	174		114	114		174	24		63	63		24
Confl. Bikes (#/hr)			8			23			83			1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	2%	2%	2%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		11.4			11.4			30.1				
Effective Green, g (s)		11.4			11.4			30.1				
Actuated g/C Ratio		0.23			0.23			0.60				
Clearance Time (s)		4.0			4.0			4.5				
Vehicle Extension (s)		2.0			2.0			0.2				
Lane Grp Cap (vph)		326			351			2076				
v/s Ratio Prot					0.11							
v/s Ratio Perm		0.11						0.46				
v/c Ratio		0.47			0.50			0.76				
Uniform Delay, d1		16.7			16.8			7.3				
Progression Factor		1.00			1.11			1.00				
Incremental Delay, d2		0.3			0.4			2.7				
Delay (s)		16.9			19.1			10.0				
Level of Service		B			B			B				
Approach Delay (s)		16.9			19.1			10.0			0.0	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.5					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.69									
Actuated Cycle Length (s)			50.0					Sum of lost time (s)		8.5		
Intersection Capacity Utilization			82.0%					ICU Level of Service		E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

41: University Way NE & NE 42nd St

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	35	140	15	10	60	25	10	150	15	15	125	40
Future Volume (vph)	35	140	15	10	60	25	10	150	15	15	125	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.96			0.85			0.95			0.86	
Flpb, ped/bikes		0.92			0.96			0.97			0.96	
Frt		0.99			0.96			0.99			0.97	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1629			1493			1615			1442	
Flt Permitted		0.94			0.97			0.98			0.97	
Satd. Flow (perm)		1552			1455			1592			1410	
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)	37	149	16	11	64	27	11	160	16	16	133	43
RTOR Reduction (vph)	0	6	0	0	16	0	0	7	0	0	21	0
Lane Group Flow (vph)	0	196	0	0	86	0	0	180	0	0	171	0
Confl. Peds. (#/hr)	397		435	435		397	602		454	454		602
Confl. Bikes (#/hr)			17			22			53			19
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	7%	7%	7%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		20.0			20.0			21.5			21.5	
Effective Green, g (s)		20.0			20.0			21.5			21.5	
Actuated g/C Ratio		0.40			0.40			0.43			0.43	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		620			582			684			606	
v/s Ratio Prot												
v/s Ratio Perm		c0.13			0.06			0.11			c0.12	
v/c Ratio		0.32			0.15			0.26			0.28	
Uniform Delay, d1		10.3			9.6			9.2			9.2	
Progression Factor		1.22			0.39			0.83			1.33	
Incremental Delay, d2		1.1			0.5			0.9			1.1	
Delay (s)		13.7			4.3			8.5			13.5	
Level of Service		B			A			A			B	
Approach Delay (s)		13.7			4.3			8.5			13.5	
Approach LOS		B			A			A			B	
Intersection Summary												
HCM 2000 Control Delay			10.8									B
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			50.0								8.5	
Intersection Capacity Utilization			40.8%									A
ICU Level of Service												
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

42: 15th Ave NE & NE 42nd St

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	110	70	40	765	580	45
Future Volume (vph)	110	70	40	765	580	45
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.5	4.5	4.5	
Lane Util. Factor	1.00		1.00	0.95	0.95	
Frpb, ped/bikes	0.88		1.00	1.00	0.97	
Flpb, ped/bikes	1.00		0.87	1.00	1.00	
Frt	0.95		1.00	1.00	0.99	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	1536		1449	3343	3183	
Flt Permitted	0.97		0.35	1.00	1.00	
Satd. Flow (perm)	1536		538	3343	3183	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	76	43	832	630	49
RTOR Reduction (vph)	32	0	0	0	12	0
Lane Group Flow (vph)	164	0	43	832	667	0
Confl. Peds. (#/hr)	481	341	195			195
Confl. Bikes (#/hr)		4				11
Heavy Vehicles (%)	0%	0%	8%	8%	9%	9%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	19.0		22.5	22.5	22.5	
Effective Green, g (s)	19.0		22.5	22.5	22.5	
Actuated g/C Ratio	0.38		0.45	0.45	0.45	
Clearance Time (s)	4.0		4.5	4.5	4.5	
Lane Grp Cap (vph)	583		242	1504	1432	
v/s Ratio Prot	c0.11			c0.25	0.21	
v/s Ratio Perm			0.08			
v/c Ratio	0.28		0.18	0.55	0.47	
Uniform Delay, d1	10.8		8.2	10.1	9.6	
Progression Factor	0.68		0.90	1.10	0.95	
Incremental Delay, d2	1.2		1.6	1.4	1.0	
Delay (s)	8.5		8.9	12.6	10.2	
Level of Service	A		A	B	B	
Approach Delay (s)	8.5			12.4	10.2	
Approach LOS	A			B	B	

Intersection Summary

HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	9.8
Intersection LOS	A

Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations									
Traffic Vol, veh/h	0	125	115	0	65	105	0	65	85
Future Vol, veh/h	0	125	115	0	65	105	0	65	85
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	6	6	6	8	8	8	17	17	17
Mvmt Flow	0	142	131	0	74	119	0	74	97
Number of Lanes	0	1	0	0	1	0	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	10.3	9.1	9.9
HCM LOS	B	A	A

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	52%	43%
Vol Thru, %	38%	0%	57%
Vol Right, %	62%	48%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	170	240	150
LT Vol	0	125	65
Through Vol	65	0	85
RT Vol	105	115	0
Lane Flow Rate	193	273	170
Geometry Grp	1	1	1
Degree of Util (X)	0.244	0.355	0.245
Departure Headway (Hd)	4.553	4.686	5.166
Convergence, Y/N	Yes	Yes	Yes
Cap	784	764	692
Service Time	2.604	2.732	3.219
HCM Lane V/C Ratio	0.246	0.357	0.246
HCM Control Delay	9.1	10.3	9.9
HCM Lane LOS	A	B	A
HCM 95th-tile Q	1	1.6	1

HCM Signalized Intersection Capacity Analysis

44: I-5 NB Express Lane Off Ramp & 7th Ave NE & NE 42nd St/NE 42nd St (South)

42nd St (South) on PM Peak Hour



Movement	WBL2	WBT	WBR	NBL	NBT	NBR	NEL	NER	NER2
Lane Configurations									
Traffic Volume (vph)	125	15	85	5	255	140	300	195	160
Future Volume (vph)	125	15	85	5	255	140	300	195	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.94		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.98	1.00		1.00	1.00	
Frt	1.00	0.87		1.00	0.95		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1530		1750	1768		1736	1553	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1530		1750	1768		1736	1553	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	137	16	93	5	280	154	330	214	176
RTOR Reduction (vph)	0	76	0	0	21	0	0	57	0
Lane Group Flow (vph)	137	33	0	5	413	0	330	333	0
Confl. Peds. (#/hr)			47	11					
Confl. Bikes (#/hr)			1			1			
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	4%	4%	4%
Turn Type	Split	NA		Perm	NA		Prot	Perm	
Protected Phases	3	3			2		4		
Permitted Phases				2				4	
Actuated Green, G (s)	14.0	14.0		24.4	24.4		22.6	22.6	
Effective Green, g (s)	14.0	14.0		24.4	24.4		22.6	22.6	
Actuated g/C Ratio	0.18	0.18		0.32	0.32		0.30	0.30	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	326	281		561	567		516	461	
v/s Ratio Prot	c0.08	0.02			c0.23		0.19		
v/s Ratio Perm				0.00				c0.21	
v/c Ratio	0.42	0.12		0.01	0.73		0.64	0.72	
Uniform Delay, d1	27.4	25.9		17.6	22.9		23.2	23.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	0.2		0.0	5.7		3.6	6.8	
Delay (s)	28.3	26.0		17.6	28.6		26.8	30.6	
Level of Service	C	C		B	C		C	C	
Approach Delay (s)		27.3			28.4		28.9		
Approach LOS		C			C		C		

Intersection Summary

HCM 2000 Control Delay	28.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	76.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

45: Roosevelt Way NE & NE 42nd St (south)

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗			↕	↗
Traffic Volume (vph)	0	340	0	0	1685	170
Future Volume (vph)	0	340	0	0	1685	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5	4.5
Lane Util. Factor		1.00			0.95	1.00
Frbp, ped/bikes		1.00			1.00	0.77
Flpb, ped/bikes		1.00			1.00	1.00
Frt		0.86			1.00	0.85
Flt Protected		1.00			1.00	1.00
Satd. Flow (prot)		1580			3539	1214
Flt Permitted		1.00			1.00	1.00
Satd. Flow (perm)		1580			3539	1214
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	354	0	0	1755	177
RTOR Reduction (vph)	0	11	0	0	0	25
Lane Group Flow (vph)	0	343	0	0	1755	152
Confl. Peds. (#/hr)	155		102			102
Confl. Bikes (#/hr)		2				33
Heavy Vehicles (%)	4%	4%	0%	0%	2%	2%
Turn Type		Prot			NA	Perm
Protected Phases		4			2	
Permitted Phases						2
Actuated Green, G (s)		24.9			65.6	65.6
Effective Green, g (s)		24.9			65.6	65.6
Actuated g/C Ratio		0.25			0.66	0.66
Clearance Time (s)		5.0			4.5	4.5
Vehicle Extension (s)		2.0			0.2	0.2
Lane Grp Cap (vph)		393			2321	796
v/s Ratio Prot		c0.22			c0.50	
v/s Ratio Perm						0.13
v/c Ratio		0.87			0.76	0.19
Uniform Delay, d1		36.0			11.7	6.8
Progression Factor		1.00			0.61	0.87
Incremental Delay, d2		18.4			1.6	0.4
Delay (s)		54.4			8.7	6.2
Level of Service		D			A	A
Approach Delay (s)	54.4			0.0	8.5	
Approach LOS	D			A	A	

Intersection Summary

HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection						
Int Delay, s/veh	1					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔					↕↕
Traffic Vol, veh/h	10	0	0	0	210	1820
Future Vol, veh/h	10	0	0	0	210	1820
Conflicting Peds, #/hr	10	20	0	10	20	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	2	2
Mvmt Flow	11	0	0	0	221	1916
Major/Minor	Minor1		Major2			
Conflicting Flow All	1430	-	20	0		
Stage 1	20	-	-	-		
Stage 2	1410	-	-	-		
Critical Hdwy	6.8	-	4.14	-		
Critical Hdwy Stg 1	-	-	-	-		
Critical Hdwy Stg 2	5.8	-	-	-		
Follow-up Hdwy	3.5	-	2.22	-		
Pot Cap-1 Maneuver	128	0	1595	-		
Stage 1	-	0	-	-		
Stage 2	195	0	-	-		
Platoon blocked, %						
Mov Cap-1 Maneuver	126	-	1595	-		
Mov Cap-2 Maneuver	126	-	-	-		
Stage 1	-	-	-	-		
Stage 2	195	-	-	-		
Approach	WB		SB			
HCM Control Delay, s	36.2		0.8			
HCM LOS	E					
Minor Lane/Major Mvmt	WBLn1	SBL	SBT			
Capacity (veh/h)	126	1595	-			
HCM Lane V/C Ratio	0.084	0.139	-			
HCM Control Delay (s)	36.2	7.6	0			
HCM Lane LOS	E	A	A			
HCM 95th %tile Q(veh)	0.3	0.5	-			

Intersection

Int Delay, s/veh 21.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	5	10	15	15	60	20	15	25	5	15	80	20
Future Vol, veh/h	5	10	15	15	60	20	15	25	5	15	80	20
Conflicting Peds, #/hr	272	0	294	277	0	255	294	0	277	255	0	272
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	4	4	4	10	10	10	0	0	0	0	0	0
Mvmt Flow	6	12	18	18	71	24	18	30	6	18	95	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	825	785	695	797	794	582	413	0	0	313	0	0
Stage 1	437	437	-	345	345	-	-	-	-	-	-	-
Stage 2	388	348	-	452	449	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.2	6.6	6.3	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.2	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.2	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.59	4.09	3.39	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	289	322	439	295	312	498	1157	-	-	1259	-	-
Stage 1	594	576	-	654	622	-	-	-	-	-	-	-
Stage 2	632	631	-	572	559	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	102	179	250	146	174	296	874	-	-	974	-	-
Mov Cap-2 Maneuver	102	179	-	146	174	-	-	-	-	-	-	-
Stage 1	439	426	-	492	468	-	-	-	-	-	-	-
Stage 2	373	475	-	382	414	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	29.5	51.6	3.1	1.1
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	874	-	-	182	184	974	-
HCM Lane V/C Ratio	0.02	-	-	0.196	0.615	0.018	-
HCM Control Delay (s)	9.2	0	-	29.5	51.6	8.8	0
HCM Lane LOS	A	A	-	D	F	A	A
HCM 95th %tile Q(veh)	0.1	-	-	0.7	3.4	0.1	-

Intersection	
Intersection Delay, s/veh	8.4
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	5	20	10	0	20	55	25	0	40	115	10
Future Vol, veh/h	0	5	20	10	0	20	55	25	0	40	115	10
Peak Hour Factor	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	1	1	1	1	5	5	5	5
Mvmt Flow	0	6	22	11	0	22	62	28	0	45	129	11
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	7.8	8.2	8.8
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	24%	14%	20%	27%
Vol Thru, %	70%	57%	55%	53%
Vol Right, %	6%	29%	25%	20%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	165	35	100	75
LT Vol	40	5	20	20
Through Vol	115	20	55	40
RT Vol	10	10	25	15
Lane Flow Rate	185	39	112	84
Geometry Grp	1	1	1	1
Degree of Util (X)	0.229	0.05	0.14	0.108
Departure Headway (Hd)	4.446	4.568	4.481	4.629
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	808	785	801	775
Service Time	2.465	2.591	2.5	2.651
HCM Lane V/C Ratio	0.229	0.05	0.14	0.108
HCM Control Delay	8.8	7.8	8.2	8.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.9	0.2	0.5	0.4

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	20	40	15
Future Vol, veh/h	0	20	40	15
Peak Hour Factor	0.85	0.89	0.89	0.89
Heavy Vehicles, %	14	14	14	14
Mvmt Flow	0	22	45	17
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8.2
HCM LOS	A

Intersection												
Int Delay, s/veh	1.6											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	20	10	15	50	30	10	115	10	20	120	30
Future Vol, veh/h	10	20	10	15	50	30	10	115	10	20	120	30
Conflicting Peds, #/hr	755	0	821	858	0	792	821	0	858	792	0	755
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	13	13	13	6	6	6
Mvmt Flow	11	22	11	17	56	34	11	129	11	22	135	34
Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2012	2039	1831	2086	2049	1785	990	0	0	998	0	0
Stage 1	1018	1018	-	1015	1015	-	-	-	-	-	-	-
Stage 2	994	1021	-	1071	1034	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.23	-	-	4.16	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.317	-	-	2.254	-	-
Pot Cap-1 Maneuver	44	57	96	39	~ 56	102	656	-	-	678	-	-
Stage 1	289	317	-	290	318	-	-	-	-	-	-	-
Stage 2	298	316	-	270	312	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	-	~ 4	~ 9	-	~ 4	~ 10	187	-	-	231	-	-
Mov Cap-2 Maneuver	-	~ 4	-	-	~ 4	-	-	-	-	-	-	-
Stage 1	85	90	-	77	85	-	-	-	-	-	-	-
Stage 2	-	84	-	-	88	-	-	-	-	-	-	-
Approach	EB			WB			NB			SB		
HCM Control Delay, s							1.9			2.6		
HCM LOS	-			-								
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR					
Capacity (veh/h)	187	-	-	-	231	-	-					
HCM Lane V/C Ratio	0.06	-	-	-	0.097	-	-					
HCM Control Delay (s)	25.5	0	-	-	22.3	0	-					
HCM Lane LOS	D	A	-	-	C	A	-					
HCM 95th %tile Q(veh)	0.2	-	-	-	0.3	-	-					
Notes												
-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon												

HCM Signalized Intersection Capacity Analysis

50: 15th Ave NE & NE 41st St/UW Campus Parking Access

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕	↕	↕	↕	↕
Traffic Volume (vph)	20	15	10	65	30	115	25	670	75	90	515	45
Future Volume (vph)	20	15	10	65	30	115	25	670	75	90	515	45
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	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes		0.96			1.00	0.65	1.00	1.00	0.64	1.00	0.96	
Flpb, ped/bikes		0.87			0.89	1.00	0.79	1.00	1.00	0.89	1.00	
Frt		0.97			1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1503			1627	1041	1312	3343	964	1493	3192	
Flt Permitted		0.87			0.79	1.00	0.41	1.00	1.00	0.36	1.00	
Satd. Flow (perm)		1332			1332	1041	572	3343	964	567	3192	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	16	11	71	33	125	27	728	82	98	560	49
RTOR Reduction (vph)	0	9	0	0	0	97	0	0	22	0	4	0
Lane Group Flow (vph)	0	40	0	0	104	28	27	728	60	98	605	0
Confl. Peds. (#/hr)	360		119	119		360	245		142	142		245
Confl. Bikes (#/hr)			7			2			11			7
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	8%	8%	8%	7%	7%	7%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2				2
Permitted Phases	4			4		4	2		2	2		
Actuated Green, G (s)		18.3			18.3	18.3	73.2	73.2	73.2	73.2	73.2	
Effective Green, g (s)		18.3			18.3	18.3	73.2	73.2	73.2	73.2	73.2	
Actuated g/C Ratio		0.18			0.18	0.18	0.73	0.73	0.73	0.73	0.73	
Clearance Time (s)		4.0			4.0	4.0	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	0.2	0.2	
Lane Grp Cap (vph)		243			243	190	418	2447	705	415	2336	
v/s Ratio Prot								c0.22				0.19
v/s Ratio Perm		0.03			c0.08	0.03	0.05		0.06	0.17		
v/c Ratio		0.16			0.43	0.15	0.06	0.30	0.09	0.24	0.26	
Uniform Delay, d1		34.4			36.2	34.3	3.8	4.6	3.8	4.3	4.4	
Progression Factor		1.05			1.00	1.00	0.32	0.30	0.10	0.84	0.84	
Incremental Delay, d2		0.3			1.2	0.4	0.3	0.3	0.2	1.2	0.2	
Delay (s)		36.6			37.4	34.6	1.5	1.7	0.6	4.8	4.0	
Level of Service		D			D	C	A	A	A	A	A	
Approach Delay (s)		36.6			35.9			1.6			4.1	
Approach LOS		D			D			A			A	

Intersection Summary

HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	43.9
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	↕
Traffic Vol, veh/h	0	100	150	15	0	180	290	25	0	5	245	255
Future Vol, veh/h	0	100	150	15	0	180	290	25	0	5	245	255
Peak Hour Factor	0.25	0.98	0.98	0.98	0.25	0.98	0.98	0.98	0.92	0.98	0.98	0.98
Heavy Vehicles, %	3	3	3	3	4	4	4	4	2	1	1	1
Mvmt Flow	0	102	153	15	0	184	296	26	0	5	250	260
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	1	1
HCM Control Delay	24	89	20.8
HCM LOS	C	F	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	0%	38%	36%	9%
Vol Thru, %	98%	0%	57%	59%	46%
Vol Right, %	0%	100%	6%	5%	44%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	250	255	265	495	270
LT Vol	5	0	100	180	25
Through Vol	245	0	150	290	125
RT Vol	0	255	15	25	120
Lane Flow Rate	255	260	270	505	276
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.579	0.539	0.611	1.07	0.611
Departure Headway (Hd)	8.537	7.801	8.497	7.624	8.4
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	426	466	427	480	433
Service Time	6.237	5.501	6.497	5.624	6.4
HCM Lane V/C Ratio	0.599	0.558	0.632	1.052	0.637
HCM Control Delay	22.3	19.3	24	89	23.7
HCM Lane LOS	C	C	C	F	C
HCM 95th-tile Q	3.6	3.1	4	16	4

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	25	125	120
Future Vol, veh/h	0	25	125	120
Peak Hour Factor	0.25	0.98	0.98	0.98
Heavy Vehicles, %	1	1	1	1
Mvmt Flow	0	26	128	122
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	23.7
HCM LOS	C

Intersection

Int Delay, s/veh 1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations			↗		↖		↘			
Traffic Vol, veh/h	0	0	390	0	220	0	0	60	0	0
Future Vol, veh/h	0	0	390	0	220	0	0	60	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	69	76	0	69
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None	-	-
Storage Length	-	-	0	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	-	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	0	0	0	0	0	3	3
Mvmt Flow	0	0	424	0	239	0	0	65	0	0

Major/Minor	Major1			Major2			Minor2	
Conflicting Flow All	-	-	0	-	-	0	308	315
Stage 1	-	-	-	-	-	-	239	-
Stage 2	-	-	-	-	-	-	69	-
Critical Hdwy	-	-	-	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	0	0	-	0	-	0	688	730
Stage 1	0	0	-	0	-	0	805	-
Stage 2	0	0	-	0	-	0	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	688	684
Mov Cap-2 Maneuver	-	-	-	-	-	-	688	-
Stage 1	-	-	-	-	-	-	805	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.8
HCM LOS			B

Minor Lane/Major Mvmt	EBR	WBT	SBLn1
Capacity (veh/h)	-	-	684
HCM Lane V/C Ratio	-	-	0.095
HCM Control Delay (s)	-	-	10.8
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.3

HCM Signalized Intersection Capacity Analysis

53: University Bridge/Roosevelt Way NE & NE Campus Pkwy & Eastlake Ave NE

(2008) Action PM Peak Hour

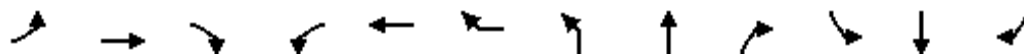


Movement	WBL	WBR	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations			↑↑	↗	↖	↑↑		
Traffic Volume (vph)	0	0	1170	250	95	1690	0	0
Future Volume (vph)	0	0	1170	250	95	1690	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5	4.5	4.5	4.5		
Lane Util. Factor			0.95	1.00	1.00	0.95		
Frbp, ped/bikes			1.00	0.95	1.00	1.00		
Flpb, ped/bikes			1.00	1.00	1.00	1.00		
Frt			1.00	0.85	1.00	1.00		
Flt Protected			1.00	1.00	0.95	1.00		
Satd. Flow (prot)			3539	1499	1752	3505		
Flt Permitted			1.00	1.00	0.95	1.00		
Satd. Flow (perm)			3539	1499	1752	3505		
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	1245	266	101	1798	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	1245	266	101	1798	0	0
Confl. Peds. (#/hr)	11	10		11	10			
Confl. Bikes (#/hr)				102				
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%	3%	3%
Turn Type			NA	Perm	Prot	NA		
Protected Phases			2		4	2		
Permitted Phases				2				
Actuated Green, G (s)			36.9	36.9	13.6	59.5		
Effective Green, g (s)			36.9	36.9	13.6	59.5		
Actuated g/C Ratio			0.62	0.62	0.23	1.00		
Clearance Time (s)			4.5	4.5	4.5			
Vehicle Extension (s)			0.2	0.2	2.0			
Lane Grp Cap (vph)			2194	929	400	3505		
v/s Ratio Prot			0.35		0.06	c0.51		
v/s Ratio Perm				0.18				
v/c Ratio			0.57	0.29	0.25	0.51		
Uniform Delay, d1			6.6	5.2	18.8	0.0		
Progression Factor			1.00	1.00	1.00	1.00		
Incremental Delay, d2			0.2	0.1	0.1	0.1		
Delay (s)			6.8	5.3	18.9	0.1		
Level of Service			A	A	B	A		
Approach Delay (s)	0.0		6.6			1.1	0.0	
Approach LOS	A		A			A	A	
Intersection Summary								
HCM 2000 Control Delay			3.5			HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.60					
Actuated Cycle Length (s)			59.5			Sum of lost time (s)		9.0
Intersection Capacity Utilization			60.0%			ICU Level of Service		B
Analysis Period (min)			15					
c Critical Lane Group								

HCM Signalized Intersection Capacity Analysis

54: Brooklyn Ave NE & NE Campus Pkwy

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	5	245	80	5	180	15	85	165	20	5	35	20
Future Volume (vph)	5	245	80	5	180	15	85	165	20	5	35	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.96			0.99			0.99			0.95	
Flt Protected		1.00			1.00			0.98			1.00	
Satd. Flow (prot)		3408			3496			1816			1771	
Flt Permitted		0.95			0.95			0.89			0.98	
Satd. Flow (perm)		3245			3316			1637			1745	
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)	5	269	88	5	198	16	93	181	22	5	38	22
RTOR Reduction (vph)	0	31	0	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	331	0	0	219	0	0	293	0	0	65	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		31.5			31.5			59.5			59.5	
Effective Green, g (s)		31.5			31.5			59.5			59.5	
Actuated g/C Ratio		0.32			0.32			0.60			0.60	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		1022			1044			974			1038	
v/s Ratio Prot												
v/s Ratio Perm		c0.10			0.07			c0.18			0.04	
v/c Ratio		0.32			0.21			0.30			0.06	
Uniform Delay, d1		26.1			25.1			10.0			8.5	
Progression Factor		1.00			0.74			1.00			1.00	
Incremental Delay, d2		0.8			0.5			0.8			0.1	
Delay (s)		27.0			19.0			10.8			8.6	
Level of Service		C			B			B			A	
Approach Delay (s)		27.0			19.0			10.8			8.6	
Approach LOS		C			B			B			A	

Intersection Summary

HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
55: University Way NE & NE Campus Pkwy

UW Master Plan EIS
Future (2028) No Action PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	75	190	10	5	125	5	30	100	30	15	95	45
Future Volume (veh/h)	75	190	10	5	125	5	30	100	30	15	95	45
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	82	207	11	5	136	5	33	109	33	16	103	49
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	425	1091	60	68	1609	58	148	473	135	81	478	214
Arrive On Green	0.65	0.65	0.65	0.49	0.49	0.49	0.43	0.43	0.43	0.43	0.43	0.43
Sat Flow, veh/h	762	2250	123	62	3317	120	249	1114	317	98	1124	503
Grp Volume(v), veh/h	150	0	150	76	0	70	175	0	0	168	0	0
Grp Sat Flow(s),veh/h/ln	1461	0	1673	1825	0	1674	1679	0	0	1725	0	0
Q Serve(g_s), s	2.1	0.0	3.6	0.0	0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	4.4	0.0	3.6	2.2	0.0	2.2	6.2	0.0	0.0	6.0	0.0	0.0
Prop In Lane	0.55		0.07	0.07		0.07	0.19		0.19	0.10		0.29
Lane Grp Cap(c), veh/h	764	0	812	924	0	812	756	0	0	773	0	0
V/C Ratio(X)	0.20	0.00	0.18	0.08	0.00	0.09	0.23	0.00	0.00	0.22	0.00	0.00
Avail Cap(c_a), veh/h	764	0	812	924	0	812	756	0	0	773	0	0
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	9.9	0.0	9.8	13.8	0.0	13.8	18.3	0.0	0.0	18.3	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.5	0.2	0.0	0.2	0.7	0.0	0.0	0.6	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.8	0.0	1.7	1.2	0.0	1.1	3.2	0.0	0.0	3.1	0.0	0.0
LnGrp Delay(d),s/veh	10.4	0.0	10.3	14.0	0.0	14.0	19.0	0.0	0.0	18.9	0.0	0.0
LnGrp LOS	B		B	B		B	B			B		
Approach Vol, veh/h		300			146			175			168	
Approach Delay, s/veh		10.4			14.0			19.0			18.9	
Approach LOS		B			B			B			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		53.0		47.0		53.0		47.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		48.5		42.5		48.5		42.5				
Max Q Clear Time (g_c+I1), s		4.2		8.2		6.4		8.0				
Green Ext Time (p_c), s		0.5		0.4		0.5		0.4				
Intersection Summary												
HCM 2010 Ctrl Delay				14.8								
HCM 2010 LOS				B								

HCM Signalized Intersection Capacity Analysis

56: 15th Ave NE & NE Campus Pkwy

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	TT		T	TT	TT	
Traffic Volume (vph)	105	120	60	670	515	75
Future Volume (vph)	105	120	60	670	515	75
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		6.0	6.0	6.0	
Lane Util. Factor	0.97		1.00	0.95	0.95	
Frbp, ped/bikes	0.99		1.00	1.00	0.95	
Flpb, ped/bikes	1.00		0.86	1.00	1.00	
Frt	0.92		1.00	1.00	0.98	
Flt Protected	0.98		0.95	1.00	1.00	
Satd. Flow (prot)	2922		1406	3252	3128	
Flt Permitted	0.98		0.40	1.00	1.00	
Satd. Flow (perm)	2922		592	3252	3128	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	109	125	62	698	536	78
RTOR Reduction (vph)	0	0	0	0	12	0
Lane Group Flow (vph)	234	0	63	698	602	0
Confl. Peds. (#/hr)	4	2	250			250
Confl. Bikes (#/hr)						7
Heavy Vehicles (%)	12%	12%	11%	11%	8%	8%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	29.5		60.0	60.0	60.0	
Effective Green, g (s)	29.5		60.0	60.0	60.0	
Actuated g/C Ratio	0.29		0.60	0.60	0.60	
Clearance Time (s)	4.5		6.0	6.0	6.0	
Lane Grp Cap (vph)	861		355	1951	1876	
v/s Ratio Prot	c0.08			c0.21	0.19	
v/s Ratio Perm			0.11			
v/c Ratio	0.27		0.18	0.36	0.32	
Uniform Delay, d1	27.0		9.0	10.2	9.9	
Progression Factor	0.55		0.25	0.24	0.41	
Incremental Delay, d2	0.8		0.9	0.4	0.4	
Delay (s)	15.7		3.1	2.9	4.5	
Level of Service	B		A	A	A	
Approach Delay (s)	15.7			2.9	4.5	
Approach LOS	B			A	A	

Intersection Summary

HCM 2000 Control Delay	5.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	44.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	86.5
Intersection LOS	F

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Lane Configurations									
Traffic Vol, veh/h	0	330	255	0	80	265	0	380	180
Future Vol, veh/h	0	330	255	0	80	265	0	380	180
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	1	1	1	0	0	0
Mvmt Flow	0	359	277	0	87	288	0	413	196
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	107	29	100.5
HCM LOS	F	D	F

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	68%	0%	23%
Vol Thru, %	0%	56%	77%
Vol Right, %	32%	44%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	560	585	345
LT Vol	380	0	80
Through Vol	0	330	265
RT Vol	180	255	0
Lane Flow Rate	609	636	375
Geometry Grp	1	1	1
Degree of Util (X)	1.116	1.136	0.735
Departure Headway (Hd)	6.925	6.828	7.654
Convergence, Y/N	Yes	Yes	Yes
Cap	530	534	476
Service Time	4.925	4.828	5.654
HCM Lane V/C Ratio	1.149	1.191	0.788
HCM Control Delay	100.5	107	29
HCM Lane LOS	F	F	D
HCM 95th-tile Q	19	20.1	6

Intersection	
Intersection Delay, s/veh	9.2
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	35	30	20	0	45	25	45	0	10	175	25
Future Vol, veh/h	0	35	30	20	0	45	25	45	0	10	175	25
Peak Hour Factor	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89
Heavy Vehicles, %	1	1	1	1	2	2	2	2	7	7	7	7
Mvmt Flow	0	39	34	22	0	51	28	51	0	11	197	28
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.7	8.9	9.8
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	41%	39%	8%
Vol Thru, %	83%	35%	22%	81%
Vol Right, %	12%	24%	39%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	210	85	115	130
LT Vol	10	35	45	10
Through Vol	175	30	25	105
RT Vol	25	20	45	15
Lane Flow Rate	236	96	129	146
Geometry Grp	1	1	1	1
Degree of Util (X)	0.307	0.131	0.172	0.191
Departure Headway (Hd)	4.679	4.927	4.803	4.711
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	764	724	743	758
Service Time	2.724	2.984	2.857	2.761
HCM Lane V/C Ratio	0.309	0.133	0.174	0.193
HCM Control Delay	9.8	8.7	8.9	8.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.3	0.4	0.6	0.7

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	10	105	15
Future Vol, veh/h	0	10	105	15
Peak Hour Factor	0.85	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	11	118	17
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8.9
HCM LOS	A

Intersection	
Intersection Delay, s/veh	8.8
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	20	45	10	0	30	90	25	0	5	110	10
Future Vol, veh/h	0	20	45	10	0	30	90	25	0	5	110	10
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	1	1	1	1	2	2	2	2	3	3	3	3
Mvmt Flow	0	23	52	11	0	34	103	29	0	6	126	11
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.5	9	8.8
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	4%	27%	21%	4%
Vol Thru, %	88%	60%	62%	81%
Vol Right, %	8%	13%	17%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	125	75	145	130
LT Vol	5	20	30	5
Through Vol	110	45	90	105
RT Vol	10	10	25	20
Lane Flow Rate	144	86	167	149
Geometry Grp	1	1	1	1
Degree of Util (X)	0.187	0.115	0.216	0.191
Departure Headway (Hd)	4.692	4.782	4.664	4.593
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	763	747	767	780
Service Time	2.734	2.829	2.707	2.633
HCM Lane V/C Ratio	0.189	0.115	0.218	0.191
HCM Control Delay	8.8	8.5	9	8.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	0.7	0.4	0.8	0.7

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	5	105	20
Future Vol, veh/h	0	5	105	20
Peak Hour Factor	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	0	0	0
Mvmt Flow	0	6	121	23
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	8.7
HCM LOS	A

HCM Signalized Intersection Capacity Analysis

61: 15th Ave NE & Stevens Way

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕↔		↕	↕↔	
Traffic Volume (vph)	25	20	15	135	85	165	10	540	50	80	525	30
Future Volume (vph)	25	20	15	135	85	165	10	540	50	80	525	30
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	4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frbp, ped/bikes		0.88			1.00	0.63	1.00	0.98		1.00	0.99	
Flpb, ped/bikes		0.91			0.75	1.00	0.93	1.00		0.93	1.00	
Frt		0.97			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1405			1263	923	1535	3202		1536	3245	
Flt Permitted		0.86			0.80	1.00	0.29	1.00		0.27	1.00	
Satd. Flow (perm)		1228			1043	923	472	3202		432	3245	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	26	21	16	142	89	174	11	568	53	84	553	32
RTOR Reduction (vph)	0	11	0	0	0	122	0	7	0	0	4	0
Lane Group Flow (vph)	0	52	0	0	231	52	11	614	0	84	581	0
Confl. Peds. (#/hr)	539		1069	1069		539	120		127	127		120
Confl. Bikes (#/hr)			146			59			17			8
Heavy Vehicles (%)	2%	2%	2%	10%	10%	10%	9%	9%	9%	9%	9%	9%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)		30.0			30.0	30.0	30.5	30.5		30.5	30.5	
Effective Green, g (s)		30.0			30.0	30.0	30.5	30.5		30.5	30.5	
Actuated g/C Ratio		0.30			0.30	0.30	0.30	0.30		0.30	0.30	
Clearance Time (s)		3.0			3.0	3.0	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		368			312	276	143	976		131	989	
v/s Ratio Prot								0.19			0.18	
v/s Ratio Perm		0.04			0.22	0.06	0.02			0.19		
v/c Ratio		0.14			0.74	0.19	0.08	0.63		0.64	0.59	
Uniform Delay, d1		25.6			31.5	26.0	24.7	29.9		30.0	29.4	
Progression Factor		1.00			1.00	1.00	1.22	1.20		0.66	0.66	
Incremental Delay, d2		0.8			14.6	1.5	0.9	2.8		21.0	2.5	
Delay (s)		26.4			46.1	27.5	31.2	38.5		40.9	21.8	
Level of Service		C			D	C	C	D		D	C	
Approach Delay (s)		26.4			38.1			38.4			24.2	
Approach LOS		C			D			D			C	

Intersection Summary

HCM 2000 Control Delay	32.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Lane Configurations									
Traffic Vol, veh/h	0	5	125	0	15	20	0	235	5
Future Vol, veh/h	0	5	125	0	15	20	0	235	5
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	11	11	11	0	0	0	14	14	14
Mvmt Flow	0	6	145	0	17	23	0	273	6
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.2	8.2	10.5
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	98%	0%	43%
Vol Thru, %	0%	4%	57%
Vol Right, %	2%	96%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	240	130	35
LT Vol	235	0	15
Through Vol	0	5	20
RT Vol	5	125	0
Lane Flow Rate	279	151	41
Geometry Grp	1	1	1
Degree of Util (X)	0.37	0.179	0.055
Departure Headway (Hd)	4.773	4.27	4.865
Convergence, Y/N	Yes	Yes	Yes
Cap	759	842	736
Service Time	2.773	2.291	2.894
HCM Lane V/C Ratio	0.368	0.179	0.056
HCM Control Delay	10.5	8.2	8.2
HCM Lane LOS	B	A	A
HCM 95th-tile Q	1.7	0.6	0.2

Intersection	
Intersection Delay, s/veh	32.2
Intersection LOS	D

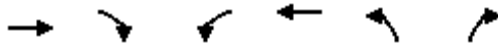
Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↘	↗		↗	↗		↘	↗
Traffic Vol, veh/h	0	300	415	0	130	455	0	285	50
Future Vol, veh/h	0	300	415	0	130	455	0	285	50
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	1	1	1	4	4	4
Mvmt Flow	0	316	437	0	137	479	0	300	53
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	30	38.2	26.2
HCM LOS	D	E	D

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	455	300	415	285	50
LT Vol	0	0	300	0	285	0
Through Vol	130	0	0	0	0	50
RT Vol	0	455	0	415	0	0
Lane Flow Rate	137	479	316	437	300	53
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.286	0.906	0.694	0.812	0.702	0.116
Departure Headway (Hd)	7.532	6.811	7.915	6.688	8.422	7.905
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	478	532	458	542	429	454
Service Time	5.265	4.544	5.647	4.419	6.16	5.643
HCM Lane V/C Ratio	0.287	0.9	0.69	0.806	0.699	0.117
HCM Control Delay	13.3	45.3	26.8	32.3	28.8	11.7
HCM Lane LOS	B	E	D	D	D	B
HCM 95th-tile Q	1.2	10.6	5.2	7.9	5.3	0.4

HCM Signalized Intersection Capacity Analysis
64: NE Boat St & NE Pacific St

UW Master Plan EIS
Future (2028) No Action PM Peak Hour























Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	580	85	15	570	115	15
Future Volume (vph)	580	85	15	570	115	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	5.0	5.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	1.00	
Flpb, ped/bikes	1.00		0.99	1.00	1.00	
Frt	0.98		1.00	1.00	0.98	
Flt Protected	1.00		0.95	1.00	0.96	
Satd. Flow (prot)	1813		1763	1881	1748	
Flt Permitted	1.00		0.32	1.00	0.96	
Satd. Flow (perm)	1813		599	1881	1748	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	624	91	16	613	124	16
RTOR Reduction (vph)	4	0	0	0	5	0
Lane Group Flow (vph)	711	0	16	613	135	0
Confl. Peds. (#/hr)		22	22		18	12
Confl. Bikes (#/hr)		3				11
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			2	4	
Permitted Phases			2			
Actuated Green, G (s)	72.6		72.6	72.6	17.4	
Effective Green, g (s)	72.6		72.6	72.6	17.4	
Actuated g/C Ratio	0.73		0.73	0.73	0.17	
Clearance Time (s)	5.0		5.0	5.0	5.0	
Vehicle Extension (s)	0.2		0.2	0.2	2.0	
Lane Grp Cap (vph)	1316		434	1365	304	
v/s Ratio Prot	c0.39			0.33	c0.08	
v/s Ratio Perm			0.03			
v/c Ratio	0.54		0.04	0.45	0.44	
Uniform Delay, d1	6.2		3.9	5.6	37.0	
Progression Factor	1.00		0.20	0.41	1.00	
Incremental Delay, d2	1.6		0.2	1.0	0.4	
Delay (s)	7.8		0.9	3.3	37.3	
Level of Service	A		A	A	D	
Approach Delay (s)	7.8			3.3	37.3	
Approach LOS	A			A	D	

Intersection Summary

HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	54.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
65: Brooklyn Ave NE & NE Pacific St

UW Master Plan EIS
Future (2028) No Action PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	90	660	5	35	450	40	40	105	30	35	40	120
Future Volume (veh/h)	90	660	5	35	450	40	40	105	30	35	40	120
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.93	1.00		0.92	1.00		0.85	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1881	1881	1900	1792	1792	1900	1827	1827	1900
Adj Flow Rate, veh/h	98	717	5	38	489	43	43	114	33	38	43	130
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	1	1	1	6	6	6	4	4	4
Cap, veh/h	515	1444	10	382	1072	94	85	182	53	121	57	172
Arrive On Green	0.29	0.41	0.41	0.43	0.65	0.65	0.05	0.14	0.14	0.07	0.16	0.16
Sat Flow, veh/h	1757	3566	25	1792	3297	289	1707	1281	371	1740	352	1065
Grp Volume(v), veh/h	98	352	370	38	264	268	43	0	147	38	0	173
Grp Sat Flow(s),veh/h/ln	1757	1752	1838	1792	1787	1799	1707	0	1651	1740	0	1417
Q Serve(g_s), s	4.2	15.0	15.0	1.3	7.3	7.4	2.5	0.0	8.4	2.1	0.0	11.7
Cycle Q Clear(g_c), s	4.2	15.0	15.0	1.3	7.3	7.4	2.5	0.0	8.4	2.1	0.0	11.7
Prop In Lane	1.00		0.01	1.00		0.16	1.00		0.22	1.00		0.75
Lane Grp Cap(c), veh/h	515	710	744	382	581	585	85	0	234	121	0	229
V/C Ratio(X)	0.19	0.50	0.50	0.10	0.45	0.46	0.50	0.00	0.63	0.31	0.00	0.75
Avail Cap(c_a), veh/h	515	710	744	382	581	585	154	0	438	139	0	361
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.82	0.82	0.82	0.98	0.98	0.98	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	26.4	22.2	22.2	22.9	13.1	13.1	46.3	0.0	40.4	44.2	0.0	40.0
Incr Delay (d2), s/veh	0.1	2.0	1.9	0.0	2.5	2.5	1.7	0.0	1.0	0.5	0.0	1.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	7.6	8.0	0.6	3.9	4.0	1.2	0.0	3.9	1.0	0.0	4.7
LnGrp Delay(d),s/veh	26.5	24.2	24.1	23.0	15.6	15.6	48.0	0.0	41.4	44.8	0.0	41.9
LnGrp LOS	C	C	C	C	B	B	D		D	D		D
Approach Vol, veh/h		820			570			190				211
Approach Delay, s/veh		24.4			16.1			42.9				42.4
Approach LOS		C			B			D				D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	33.3	37.0	11.0	18.7	25.3	45.0	9.0	20.7				
Change Period (Y+Rc), s	4.0	4.5	4.0	4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	16.0	32.5	8.0	26.5	8.0	40.5	9.0	25.5				
Max Q Clear Time (g_c+I1), s	6.2	9.4	4.1	10.4	3.3	17.0	4.5	13.7				
Green Ext Time (p_c), s	0.1	2.1	0.0	0.4	0.1	3.0	0.0	0.5				
Intersection Summary												
HCM 2010 Ctrl Delay				25.9								
HCM 2010 LOS				C								

HCM Signalized Intersection Capacity Analysis
 66: Campus Parking Access/University Way NE & NE Pacific St

UW Master Plan EIS
 Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	35	685	0	5	450	45	40	60	75	125	5	30
Future Volume (vph)	35	685	0	5	450	45	40	60	75	125	5	30
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5			4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.96			1.00	0.93		0.99	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		0.96	
Frt	1.00	1.00		1.00	0.99			1.00	0.85		0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.96	
Satd. Flow (prot)	1787	3574		1752	3324			1844	1497		1675	
Flt Permitted	0.95	1.00		0.95	1.00			0.86	1.00		0.71	
Satd. Flow (perm)	1787	3574		1752	3324			1609	1497		1229	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	36	699	0	5	459	46	41	61	77	128	5	31
RTOR Reduction (vph)	0	0	0	0	5	0	0	0	57	0	10	0
Lane Group Flow (vph)	36	699	0	5	500	0	0	102	20	0	154	0
Confl. Peds. (#/hr)	172		135	135		172	35		62	62		35
Confl. Bikes (#/hr)						4						1
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			4	
Permitted Phases							4		4	4		
Actuated Green, G (s)	6.2	59.7		1.4	54.9			25.9	25.9		25.9	
Effective Green, g (s)	6.2	59.7		1.4	54.9			25.9	25.9		25.9	
Actuated g/C Ratio	0.06	0.60		0.01	0.55			0.26	0.26		0.26	
Clearance Time (s)	4.0	4.5		4.0	4.5			4.5	4.5		4.5	
Vehicle Extension (s)	2.0	0.2		2.0	0.2			3.0	3.0		3.0	
Lane Grp Cap (vph)	110	2133		24	1824			416	387		318	
v/s Ratio Prot	c0.02	c0.20		0.00	0.15							
v/s Ratio Perm								0.06	0.01		c0.12	
v/c Ratio	0.33	0.33		0.21	0.27			0.25	0.05		0.48	
Uniform Delay, d1	44.9	10.1		48.8	12.0			29.3	27.8		31.4	
Progression Factor	0.64	0.56		0.87	0.11			1.00	1.00		1.00	
Incremental Delay, d2	0.6	0.4		1.4	0.3			0.3	0.1		1.2	
Delay (s)	29.4	6.0		43.9	1.6			29.6	27.9		32.5	
Level of Service	C	A		D	A			C	C		C	
Approach Delay (s)		7.2			2.0			28.9			32.5	
Approach LOS		A			A			C			C	

Intersection Summary

HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
67: 15th Ave NE & NE Pacific St

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	830	15	45	390	320	15	200	280	470	120	95
Future Volume (vph)	45	830	15	45	390	320	15	200	280	470	120	95
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		0.95		0.95	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	1.00	0.92		0.86		1.00	0.95	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.92		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	0.98	
Satd. Flow (prot)	1787	3529		1703	3406	1405		2806		1573	1473	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		1.00		0.95	0.98	
Satd. Flow (perm)	1787	3529		1703	3406	1405		2806		1573	1473	
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)	48	883	16	48	415	340	16	213	298	500	128	101
RTOR Reduction (vph)	0	1	0	0	0	57	0	111	0	0	14	0
Lane Group Flow (vph)	48	898	0	48	415	283	0	416	0	370	345	0
Confl. Peds. (#/hr)	92		284	284		92	130		173	173		130
Confl. Bikes (#/hr)			1			18			24			12
Heavy Vehicles (%)	1%	1%	1%	6%	6%	6%	1%	1%	1%	9%	9%	9%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	
Protected Phases	1	6		5	2	4	3	3		4	4	
Permitted Phases						2						
Actuated Green, G (s)	4.1	31.7		4.1	31.7	57.0		20.9		25.3	25.3	
Effective Green, g (s)	4.1	31.7		4.1	31.7	57.0		20.9		25.3	25.3	
Actuated g/C Ratio	0.04	0.32		0.04	0.32	0.57		0.21		0.25	0.25	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.0	0.2		2.0	0.2	3.0		2.0		3.0	3.0	
Lane Grp Cap (vph)	73	1118		69	1079	864		586		397	372	
v/s Ratio Prot	0.03	c0.25		0.03	0.12	c0.08		c0.15		c0.24	0.23	
v/s Ratio Perm						0.12						
v/c Ratio	0.66	0.80		0.70	0.38	0.33		0.71		0.93	0.93	
Uniform Delay, d1	47.3	31.3		47.3	26.6	11.4		36.7		36.5	36.4	
Progression Factor	0.81	0.79		1.00	1.00	1.00		1.00		0.91	0.91	
Incremental Delay, d2	14.7	6.0		21.7	1.0	0.2		3.4		24.7	24.7	
Delay (s)	53.2	30.8		69.1	27.6	11.6		40.1		58.0	58.0	
Level of Service	D	C		E	C	B		D		E	E	
Approach Delay (s)		32.0			23.3			40.1			58.0	
Approach LOS		C			C			D			E	

Intersection Summary

HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Int Delay, s/veh 3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	30	150	110	60	65	15
Future Vol, veh/h	30	150	110	60	65	15
Conflicting Peds, #/hr	50	0	0	35	35	50
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	6	6	4	4
Mvmt Flow	33	165	121	66	71	16

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	237	0	470
Stage 1	-	-	204
Stage 2	-	-	266
Critical Hdwy	4.13	-	6.44
Critical Hdwy Stg 1	-	-	5.44
Critical Hdwy Stg 2	-	-	5.44
Follow-up Hdwy	2.227	-	3.536
Pot Cap-1 Maneuver	1324	-	548
Stage 1	-	-	825
Stage 2	-	-	774
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1269	-	489
Mov Cap-2 Maneuver	-	-	489
Stage 1	-	-	791
Stage 2	-	-	720

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1269	-	-	-	520
HCM Lane V/C Ratio	0.026	-	-	-	0.169
HCM Control Delay (s)	7.9	0	-	-	13.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.6

Intersection	
Intersection Delay, s/veh	14.9
Intersection LOS	B

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations									
Traffic Vol, veh/h	0	145	70	0	130	330	0	90	40
Future Vol, veh/h	0	145	70	0	130	330	0	90	40
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	5	5	5	2	2	2	3	3	3
Mvmt Flow	0	161	78	0	144	367	0	100	44
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	11.8	17.9	9.5
HCM LOS	B	C	A

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	28%	67%	0%
Vol Thru, %	72%	0%	69%
Vol Right, %	0%	33%	31%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	460	215	130
LT Vol	130	145	0
Through Vol	330	0	90
RT Vol	0	70	40
Lane Flow Rate	511	239	144
Geometry Grp	1	1	1
Degree of Util (X)	0.685	0.369	0.207
Departure Headway (Hd)	4.828	5.564	5.154
Convergence, Y/N	Yes	Yes	Yes
Cap	741	650	699
Service Time	2.924	3.57	3.17
HCM Lane V/C Ratio	0.69	0.368	0.206
HCM Control Delay	17.9	11.8	9.5
HCM Lane LOS	C	B	A
HCM 95th-tile Q	5.5	1.7	0.8

HCM Unsignalized Intersection Capacity Analysis

70: Parking Access/Campus Parking Access & NE Boat St/Columbia Rd (2028) No Action PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Stop			Stop			Stop	
Traffic Volume (vph)	10	120	10	5	445	5	0	0	5	0	0	10
Future Volume (vph)	10	120	10	5	445	5	0	0	5	0	0	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	126	11	5	468	5	0	0	5	0	0	11

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	11	137	478	5	11
Volume Left (vph)	11	0	5	0	0
Volume Right (vph)	0	11	5	5	11
Hadj (s)	0.62	0.06	0.08	-0.60	-0.60
Departure Headway (s)	5.5	4.9	4.3	4.7	4.7
Degree Utilization, x	0.02	0.19	0.57	0.01	0.01
Capacity (veh/h)	646	716	828	671	670
Control Delay (s)	7.4	7.8	12.8	7.7	7.7
Approach Delay (s)	7.8		12.8	7.7	7.7
Approach LOS	A		B	A	A

Intersection Summary				
Delay			11.5	
Level of Service			B	
Intersection Capacity Utilization		47.8%	ICU Level of Service	A
Analysis Period (min)		15		

Intersection

Int Delay, s/veh 16.9

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑			↑↑
Traffic Vol, veh/h	60	95	2060	60	65	910
Future Vol, veh/h	60	95	2060	60	65	910
Conflicting Peds, #/hr	0	3	0	0	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	63	100	2168	63	68	958

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2819	1122	0	0	2235	0
Stage 1	2203	-	-	-	-	-
Stage 2	616	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.14	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.22	-
Pot Cap-1 Maneuver	~ 15	203	-	-	229	-
Stage 1	72	-	-	-	-	-
Stage 2	507	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 5	202	-	-	228	-
Mov Cap-2 Maneuver	~ 62	-	-	-	-	-
Stage 1	72	-	-	-	-	-
Stage 2	184	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	\$ 342.6		0		1.8
HCM LOS	F				

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 108	228	-
HCM Lane V/C Ratio	-	- 1.511	0.3	-
HCM Control Delay (s)	-	- \$ 342.6	27.4	-
HCM Lane LOS	-	- F	D	-
HCM 95th %tile Q(veh)	-	- 12	1.2	-

Notes

-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 0.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑			↑↑
Traffic Vol, veh/h	5	40	2070	5	0	980
Future Vol, veh/h	5	40	2070	5	0	980
Conflicting Peds, #/hr	3	3	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	5	42	2179	5	0	1032

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	2704	1098	0
Stage 1	2185	-	-
Stage 2	519	-	-
Critical Hdwy	6.84	6.94	-
Critical Hdwy Stg 1	5.84	-	-
Critical Hdwy Stg 2	5.84	-	-
Follow-up Hdwy	3.52	3.32	-
Pot Cap-1 Maneuver	17	208	0
Stage 1	72	-	0
Stage 2	562	-	0
Platoon blocked, %			-
Mov Cap-1 Maneuver	17	207	-
Mov Cap-2 Maneuver	68	-	-
Stage 1	72	-	-
Stage 2	561	-	-

Approach	WB	NB	SB
HCM Control Delay, s	34.4	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	- 169	-
HCM Lane V/C Ratio	-	- 0.28	-
HCM Control Delay (s)	-	- 34.4	-
HCM Lane LOS	-	- D	-
HCM 95th %tile Q(veh)	-	- 1.1	-

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑		↑	↑↑
Traffic Vol, veh/h	0	5	2080	25	10	970
Future Vol, veh/h	0	5	2080	25	10	970
Conflicting Peds, #/hr	4	4	0	4	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	0	5	2167	26	10	1010

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	1104	0 0 2197 0
Stage 1	-	-	- - - -
Stage 2	-	-	- - - -
Critical Hdwy	-	6.9	- - 4.14 -
Critical Hdwy Stg 1	-	-	- - - -
Critical Hdwy Stg 2	-	-	- - - -
Follow-up Hdwy	-	3.3	- - 2.22 -
Pot Cap-1 Maneuver	0	209	- - 237 -
Stage 1	0	-	- - - -
Stage 2	0	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	-	208	- - 236 -
Mov Cap-2 Maneuver	-	-	- - - -
Stage 1	-	-	- - - -
Stage 2	-	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	22.8	0	0.2
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 208	236	-
HCM Lane V/C Ratio	-	- 0.025	0.044	-
HCM Control Delay (s)	-	- 22.8	21	-
HCM Lane LOS	-	- C	C	-
HCM 95th %tile Q(veh)	-	- 0.1	0.1	-

HCM Signalized Intersection Capacity Analysis

74: Montlake Blvd NE & Husky Stadium Parking Access

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	20	65	130	0	45	0	1680	5	0	880	75
Future Volume (vph)	320	20	65	130	0	45	0	1680	5	0	880	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5			4.5	
Lane Util. Factor	0.95	0.95	1.00	1.00		1.00		0.95			0.95	
Frbp, ped/bikes	1.00	1.00	0.88	1.00		0.99		1.00			0.99	
Flpb, ped/bikes	1.00	1.00	1.00	0.93		1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00		0.85		1.00			0.99	
Flt Protected	0.95	0.96	1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	1681	1695	1386	1676		1594		3568			3434	
Flt Permitted	0.95	0.96	1.00	0.45		1.00		1.00			1.00	
Satd. Flow (perm)	1681	1695	1386	796		1594		3568			3434	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	333	21	68	135	0	47	0	1750	5	0	917	78
RTOR Reduction (vph)	0	0	55	0	0	12	0	0	0	0	4	0
Lane Group Flow (vph)	176	178	13	135	0	35	0	1755	0	0	991	0
Confl. Peds. (#/hr)			66	66			32		153	153		32
Confl. Bikes (#/hr)			7			1						1
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	3%	3%	3%
Turn Type	Perm	NA	Perm	D.Pm		Perm		NA			NA	
Protected Phases		4						2				2
Permitted Phases	4		4	4		4						
Actuated Green, G (s)	23.0	23.0	23.0	23.0		23.0		88.0			88.0	
Effective Green, g (s)	23.0	23.0	23.0	23.0		23.0		88.0			88.0	
Actuated g/C Ratio	0.19	0.19	0.19	0.19		0.19		0.73			0.73	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5			4.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0		0.2			0.2	
Lane Grp Cap (vph)	322	324	265	152		305		2616			2518	
v/s Ratio Prot								c0.49			0.29	
v/s Ratio Perm	0.10	0.11	0.01	c0.17		0.02						
v/c Ratio	0.55	0.55	0.05	0.89		0.11		0.67			0.39	
Uniform Delay, d1	43.8	43.8	39.6	47.2		40.1		8.4			6.0	
Progression Factor	0.74	0.74	1.31	1.00		1.00		0.65			1.00	
Incremental Delay, d2	0.9	0.9	0.0	40.7		0.1		0.8			0.5	
Delay (s)	33.4	33.4	51.7	88.0		40.1		6.3			6.5	
Level of Service	C	C	D	F		D		A			A	
Approach Delay (s)		36.3			75.6			6.3			6.5	
Approach LOS		D			E			A			A	

Intersection Summary

HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
75: NE Pacific St & NE Pacific Pl

UW Master Plan EIS
Future (2028) No Action PM Peak Hour

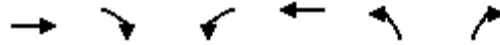


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	310	1230	60	45	635	35	0	0	0	0	0	115
Future Volume (vph)	310	1230	60	45	635	35	0	0	0	0	0	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0							5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95							1.00
Frpb, ped/bikes	1.00	1.00	0.70	1.00	0.98							1.00
Flpb, ped/bikes	1.00	1.00	1.00	0.97	1.00							1.00
Frt	1.00	1.00	0.85	1.00	0.99							0.86
Flt Protected	0.95	1.00	1.00	0.95	1.00							1.00
Satd. Flow (prot)	1805	3610	1135	1749	3522							1565
Flt Permitted	0.95	1.00	1.00	0.14	1.00							1.00
Satd. Flow (perm)	1805	3610	1135	263	3522							1565
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)	333	1323	65	48	683	38	0	0	0	0	0	124
RTOR Reduction (vph)	0	0	27	0	5	0	0	0	0	0	0	27
Lane Group Flow (vph)	333	1323	38	48	716	0	0	0	0	0	0	97
Confl. Peds. (#/hr)			168	168		350			584	584		
Confl. Bikes (#/hr)			6			7		7				1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	6%	6%	6%	5%	5%	5%
Turn Type	Prot	NA	Perm	Perm	NA							Over
Protected Phases	2	1			1							2
Permitted Phases			1	1								
Actuated Green, G (s)	15.1	34.9	34.9	34.9	34.9							15.1
Effective Green, g (s)	15.1	34.9	34.9	34.9	34.9							15.1
Actuated g/C Ratio	0.25	0.58	0.58	0.58	0.58							0.25
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0							5.0
Vehicle Extension (s)	2.0	0.2	0.2	0.2	0.2							2.0
Lane Grp Cap (vph)	454	2099	660	152	2048							393
v/s Ratio Prot	c0.18	c0.37			0.20							0.06
v/s Ratio Perm			0.03	0.18								
v/c Ratio	0.73	0.63	0.06	0.32	0.35							0.25
Uniform Delay, d1	20.6	8.3	5.4	6.4	6.6							17.9
Progression Factor	1.00	1.00	1.00	0.98	0.95							0.94
Incremental Delay, d2	5.2	1.4	0.2	5.2	0.5							0.1
Delay (s)	25.8	9.7	5.6	11.5	6.7							17.0
Level of Service	C	A	A	B	A							B
Approach Delay (s)		12.7			7.0			0.0				17.0
Approach LOS		B			A			A				B
Intersection Summary												
HCM 2000 Control Delay			11.2		HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)			10.0				
Intersection Capacity Utilization			57.3%		ICU Level of Service				B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

76: Hospital Access & NE Pacific St

UW Master Plan EIS
Future (2028) No Action PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	1215	15	40	670	65	65
Future Volume (vph)	1215	15	40	670	65	65
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frbp, ped/bikes	1.00	0.80	1.00	1.00	1.00	0.99
Flpb, ped/bikes	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)	3438	1227	1656	3312	1805	1591
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3438	1227	1656	3312	1805	1591
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1293	16	43	713	69	69
RTOR Reduction (vph)	0	2	0	0	0	64
Lane Group Flow (vph)	1293	14	43	713	69	5
Confl. Peds. (#/hr)		61	61		34	
Confl. Bikes (#/hr)		6				1
Heavy Vehicles (%)	5%	5%	9%	9%	0%	0%
Turn Type	NA	Perm	Prot	NA	pm+pt	Perm
Protected Phases	2		7!	6!	1!	
Permitted Phases		2		3	3!	1
Actuated Green, G (s)	83.4	83.4	14.1	96.9	9.0	9.0
Effective Green, g (s)	83.4	83.4	14.1	96.9	9.0	9.0
Actuated g/C Ratio	0.70	0.70	0.12	0.81	0.08	0.08
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	0.2	0.2	2.0	0.2	2.0	2.0
Lane Grp Cap (vph)	2389	852	194	2674	135	119
v/s Ratio Prot	c0.38		c0.03	0.22	c0.04	
v/s Ratio Perm		0.01				0.00
v/c Ratio	0.54	0.02	0.22	0.27	0.51	0.04
Uniform Delay, d1	8.9	5.6	48.0	2.8	53.4	51.5
Progression Factor	1.37	1.73	0.75	3.65	1.00	1.00
Incremental Delay, d2	0.7	0.0	0.2	0.0	1.4	0.1
Delay (s)	12.9	9.8	36.2	10.4	54.7	51.6
Level of Service	B	A	D	B	D	D
Approach Delay (s)	12.9			11.8	53.2	
Approach LOS	B			B	D	

Intersection Summary

HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

77: Montlake Blvd NE & NE Pacific St/Husky Stadium Parking Access Future (2028) No Action PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗↘		↑	↗	↗↘	↗↘		↘	↗↘	↗
Traffic Volume (vph)	0	0	1280	0	55	20	630	1665	15	5	1035	25
Future Volume (vph)	0	0	1280	0	55	20	630	1665	15	5	1035	25
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.5		5.0	5.0	7.0	5.0		6.0	5.0	5.0
Lane Util. Factor			0.88		1.00	1.00	0.97	0.95		1.00	0.95	1.00
Frbp, ped/bikes			1.00		1.00	1.00	1.00	1.00		1.00	1.00	0.68
Flpb, ped/bikes			1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt			0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected			1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)			2787		1863	1583	3433	3517		1752	3505	1063
Flt Permitted			1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)			2787		1863	1583	3433	3517		1752	3505	1063
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)	0	0	1320	0	57	21	649	1716	15	5	1067	26
RTOR Reduction (vph)	0	0	260	0	0	19	0	0	0	0	0	14
Lane Group Flow (vph)	0	0	1060	0	57	2	649	1731	0	5	1067	12
Confl. Peds. (#/hr)							199		261	261		199
Confl. Bikes (#/hr)												3
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type			Perm		NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases					3!		4 5	1 5		7!	1	
Permitted Phases			9 1 3			3						1
Actuated Green, G (s)			101.4		13.2	13.2	27.6	68.8		1.0	55.2	55.2
Effective Green, g (s)			96.4		13.2	13.2	27.6	61.8		1.0	55.2	55.2
Actuated g/C Ratio			0.80		0.11	0.11	0.23	0.51		0.01	0.46	0.46
Clearance Time (s)					5.0	5.0				6.0	5.0	5.0
Vehicle Extension (s)					2.0	2.0				2.0	0.2	0.2
Lane Grp Cap (vph)			2238		204	174	789	1811		14	1612	488
v/s Ratio Prot					0.03		c0.19	c0.49		0.00	0.30	
v/s Ratio Perm			c0.38			0.00						0.01
v/c Ratio			0.47		0.28	0.01	0.82	0.96		0.36	0.66	0.02
Uniform Delay, d1			3.7		49.0	47.6	43.9	27.8		59.2	25.2	17.7
Progression Factor			1.00		1.00	1.00	0.91	0.97		1.03	0.92	1.00
Incremental Delay, d2			0.0		0.3	0.0	5.7	10.9		5.2	2.0	0.1
Delay (s)			3.8		49.3	47.6	45.7	37.7		66.0	25.1	17.8
Level of Service			A		D	D	D	D		E	C	B
Approach Delay (s)		3.8			48.8			39.9			25.1	
Approach LOS		A			D			D			C	

Intersection Summary		
HCM 2000 Control Delay	26.9	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.87	C
Actuated Cycle Length (s)	120.0	Sum of lost time (s)
Intersection Capacity Utilization	83.8%	24.0
Analysis Period (min)	15	ICU Level of Service
		E

! Phase conflict between lane groups.
 c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

78: Montlake Blvd NE & 520 EB/WB HOV Ramp & 520 WB Off Ramp Future (2028) No Action PM Peak Hour



Movement	WBR	NBL	NBT	NBR2	SBL	SBT	SBR	NWR
Lane Configurations	↗↗	↘↘	↑↑	↗	↘	↑↑↑		↗
Traffic Volume (vph)	715	200	1810	30	30	1630	640	30
Future Volume (vph)	715	200	1810	30	30	1630	640	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5	4.5	4.0	4.5		4.0
Lane Util. Factor	0.88	0.97	0.95	1.00	1.00	0.91		1.00
Frt	0.85	1.00	1.00	0.85	1.00	0.96		0.86
Flt Protected	1.00	0.95	1.00	1.00	0.95	1.00		1.00
Satd. Flow (prot)	2787	3433	3539	1583	1770	4864		1611
Flt Permitted	1.00	0.95	1.00	1.00	0.95	1.00		1.00
Satd. Flow (perm)	2787	3433	3539	1583	1770	4864		1611
Peak-hour factor, PHF	0.96	0.92	0.96	0.92	0.92	0.96	0.92	0.92
Adj. Flow (vph)	745	217	1885	33	33	1698	696	33
RTOR Reduction (vph)	266	0	0	14	0	45	0	0
Lane Group Flow (vph)	479	217	1885	19	33	2349	0	33
Turn Type	custom	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	3 1	5	2		1	6		4
Permitted Phases				2		3		
Actuated Green, G (s)	28.8	13.0	69.1	69.1	11.0	84.9		5.6
Effective Green, g (s)	28.8	13.0	69.1	69.1	11.0	84.9		5.6
Actuated g/C Ratio	0.24	0.11	0.58	0.58	0.09	0.71		0.05
Clearance Time (s)		4.0	4.5	4.5	4.0	4.5		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	668	371	2037	911	162	3441		75
v/s Ratio Prot	c0.17	0.06	c0.53		0.02	c0.38		c0.02
v/s Ratio Perm				0.01		0.10		
v/c Ratio	0.72	0.58	0.93	0.02	0.20	0.68		0.44
Uniform Delay, d1	41.9	50.9	23.1	10.9	50.4	9.9		55.7
Progression Factor	1.00	0.94	0.90	1.00	0.90	2.53		1.00
Incremental Delay, d2	3.7	1.8	6.8	0.0	0.6	0.5		4.1
Delay (s)	45.5	49.8	27.5	11.0	45.7	25.6		59.8
Level of Service	D	D	C	B	D	C		E
Approach Delay (s)			29.5			25.9		
Approach LOS			C			C		

Intersection Summary

HCM 2000 Control Delay	30.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

79: Montlake Blvd NE & SR-520 EB Ramps/E Lake Washington Blvd Future (2028) No Action PM Peak Hour





















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖	↖	↖	↑	↖	↖↗	↖↗		↖	↖↗	↖
Traffic Volume (vph)	575	35	80	135	5	320	90	920	10	170	735	725
Future Volume (vph)	575	35	80	135	5	320	90	920	10	170	735	725
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	0.97	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.92	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.92
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1695	1462	1752	1845	1568	3367	3457		1752	3505	1443
Flt Permitted	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1695	1462	1752	1845	1568	3367	3457		1752	3505	1443
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	605	37	84	142	5	337	95	968	11	179	774	763
RTOR Reduction (vph)	0	0	66	0	0	67	0	1	0	0	0	451
Lane Group Flow (vph)	321	321	18	142	5	270	95	978	0	179	774	312
Confl. Peds. (#/hr)	2		48	48		2	89		136	136		89
Confl. Bikes (#/hr)						4			6			8
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Turn Type	Split	NA	Perm	Split	NA	custom	Prot	NA		Prot	NA	Perm
Protected Phases	3	3		4	4	4	6	2		1	5	
Permitted Phases			3			4						5
Actuated Green, G (s)	26.3	26.3	26.3	15.2	15.2	35.0	11.5	45.2		15.3	49.0	49.0
Effective Green, g (s)	26.3	26.3	26.3	15.2	15.2	35.0	11.5	45.2		15.3	49.0	49.0
Actuated g/C Ratio	0.22	0.22	0.22	0.13	0.13	0.29	0.10	0.38		0.13	0.41	0.41
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)	2.0	2.0	2.0	3.0	3.0		2.0	0.2		2.0	0.2	0.2
Lane Grp Cap (vph)	368	371	320	221	233	457	322	1302		223	1431	589
v/s Ratio Prot	c0.19	0.19		0.08	0.00	c0.17	0.03	c0.28		c0.10	0.22	
v/s Ratio Perm			0.01									0.22
v/c Ratio	0.87	0.87	0.06	0.64	0.02	0.59	0.30	0.75		0.80	0.54	0.53
Uniform Delay, d1	45.2	45.1	37.0	49.8	45.9	36.4	50.5	32.5		50.9	27.0	26.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.98	1.09	5.05
Incremental Delay, d2	19.2	18.0	0.0	6.3	0.0	2.0	0.2	4.0		14.6	1.2	2.7
Delay (s)	64.4	63.1	37.1	56.1	45.9	38.4	50.7	36.6		64.3	30.5	138.1
Level of Service	E	E	D	E	D	D	D	D		E	C	F
Approach Delay (s)		60.7			43.7			37.8			81.9	
Approach LOS		E			D			D			F	

Intersection Summary		
HCM 2000 Control Delay	61.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.78	E
Actuated Cycle Length (s)	120.0	Sum of lost time (s)
Intersection Capacity Utilization	74.3%	18.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		D

HCM 2010 Signalized Intersection Summary
1: 5th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	660	290	185	1095	0	0	0	0	139	125	180
Future Volume (veh/h)	0	660	290	185	1095	0	0	0	0	139	125	180
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00				1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1900	1863	1863	0				1900	1900	1900
Adj Flow Rate, veh/h	0	673	296	189	1117	0				151	116	184
Adj No. of Lanes	0	2	0	1	2	0				2	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	1	1	2	2	0				0	0	0
Cap, veh/h	0	1417	623	223	2700	0				514	270	226
Arrive On Green	0.00	0.59	0.59	0.25	1.00	0.00				0.14	0.14	0.14
Sat Flow, veh/h	0	2487	1053	1774	3632	0				3619	1900	1586
Grp Volume(v), veh/h	0	503	466	189	1117	0				151	116	184
Grp Sat Flow(s),veh/h/ln	0	1787	1659	1774	1770	0				1810	1900	1586
Q Serve(g_s), s	0.0	16.0	16.0	10.1	0.0	0.0				3.7	5.6	11.3
Cycle Q Clear(g_c), s	0.0	16.0	16.0	10.1	0.0	0.0				3.7	5.6	11.3
Prop In Lane	0.00		0.63	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	1058	982	223	2700	0				514	270	226
V/C Ratio(X)	0.00	0.48	0.48	0.85	0.41	0.00				0.29	0.43	0.82
Avail Cap(c_a), veh/h	0	1058	982	381	2700	0				724	380	317
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.71	0.71	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	11.6	11.6	36.5	0.0	0.0				38.4	39.2	41.6
Incr Delay (d2), s/veh	0.0	1.5	1.6	8.6	0.3	0.0				0.2	0.8	9.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.3	7.7	5.5	0.1	0.0				1.9	3.0	5.5
LnGrp Delay(d),s/veh	0.0	13.1	13.2	45.0	0.3	0.0				38.6	40.0	51.0
LnGrp LOS		B	B	D	A					D	D	D
Approach Vol, veh/h		969			1306						451	
Approach Delay, s/veh		13.2			6.8						44.0	
Approach LOS		B			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	17.1	63.7		19.2		80.8						
Change Period (Y+Rc), s	4.5	4.5		5.0		4.5						
Max Green Setting (Gmax), s	21.5	44.5		20.0		70.5						
Max Q Clear Time (g_c+I1), s	12.1	18.0		13.3		2.0						
Green Ext Time (p_c), s	0.5	19.8		0.9		36.3						
Intersection Summary												
HCM 2010 Ctrl Delay				15.2								
HCM 2010 LOS				B								
Notes												

HCM Signalized Intersection Capacity Analysis

2: 7th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↕			↕	↰	↰	↕	↰			
Traffic Volume (vph)	320	489	0	0	690	361	580	180	300	0	0	0
Future Volume (vph)	320	489	0	0	690	361	580	180	300	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Lane Util. Factor	1.00	0.95			0.95	1.00	0.95	0.95	1.00			
Frbp, ped/bikes	1.00	1.00			1.00	0.87	1.00	1.00	0.98			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (prot)	1787	3574			3539	1381	1698	1741	1563			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (perm)	1787	3574			3539	1381	1698	1741	1563			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	333	509	0	0	719	376	604	188	312	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	103	0	0	218	0	0	0
Lane Group Flow (vph)	333	509	0	0	719	273	393	399	95	0	0	0
Confl. Peds. (#/hr)	24		22	22		24			6	6		
Confl. Bikes (#/hr)			2			1			1			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Prot	NA			NA	Perm	Split	NA	Perm			
Protected Phases	5	2			6		8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	21.9	60.5			34.1	34.1	30.5	30.5	30.5			
Effective Green, g (s)	21.9	60.5			34.1	34.1	30.5	30.5	30.5			
Actuated g/C Ratio	0.22	0.60			0.34	0.34	0.30	0.30	0.30			
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Vehicle Extension (s)	2.5	2.5			2.5	2.5	2.5	2.5	2.5			
Lane Grp Cap (vph)	391	2162			1206	470	517	531	476			
v/s Ratio Prot	c0.19	0.14			c0.20		c0.23	0.23				
v/s Ratio Perm						0.20			0.06			
v/c Ratio	0.85	0.24			0.60	0.58	0.76	0.75	0.20			
Uniform Delay, d1	37.5	9.1			27.3	27.1	31.4	31.3	25.7			
Progression Factor	0.86	0.92			1.17	1.26	1.00	1.00	1.00			
Incremental Delay, d2	14.8	0.2			2.0	4.7	10.1	9.4	0.9			
Delay (s)	47.1	8.6			34.0	38.8	41.5	40.8	26.7			
Level of Service	D	A			C	D	D	D	C			
Approach Delay (s)		23.8			35.6			37.1			0.0	
Approach LOS		C			D			D			A	

Intersection Summary

HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	74.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

















HCM 2010 Signalized Intersection Summary
3: 9th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	664	30	5	961	5	40	20	30	15	10	15
Future Volume (veh/h)	20	664	30	5	961	5	40	20	30	15	10	15
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.99		0.95	1.00		0.95	0.97		0.95	0.97		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1900	1900	1863	1900	1900	1792	1900	1900	1900	1900
Adj Flow Rate, veh/h	20	678	31	5	981	5	41	20	31	15	10	15
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	2	2	2	6	6	6	0	0	0
Cap, veh/h	65	1907	86	39	2062	10	246	122	160	221	151	193
Arrive On Green	0.78	0.78	0.78	1.00	1.00	1.00	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	46	3260	147	4	3525	18	587	369	486	519	457	585
Grp Volume(v), veh/h	376	0	353	519	0	472	92	0	0	40	0	0
Grp Sat Flow(s),veh/h/ln	1776	0	1677	1857	0	1691	1442	0	0	1561	0	0
Q Serve(g_s), s	0.0	0.0	6.5	0.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.0	0.0	6.5	0.0	0.0	0.0	4.2	0.0	0.0	1.6	0.0	0.0
Prop In Lane	0.05		0.09	0.01		0.01	0.45		0.34	0.37		0.37
Lane Grp Cap(c), veh/h	1077	0	981	1122	0	989	528	0	0	565	0	0
V/C Ratio(X)	0.35	0.00	0.36	0.46	0.00	0.48	0.17	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	1077	0	981	1122	0	989	528	0	0	565	0	0
HCM Platoon Ratio	1.33	1.33	1.33	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	5.3	0.0	5.3	0.0	0.0	0.0	23.8	0.0	0.0	23.0	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	1.0	1.4	0.0	1.7	0.7	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.0	3.2	0.4	0.0	0.5	1.9	0.0	0.0	0.8	0.0	0.0
LnGrp Delay(d),s/veh	6.2	0.0	6.4	1.4	0.0	1.7	24.5	0.0	0.0	23.2	0.0	0.0
LnGrp LOS	A		A	A		A	C			C		
Approach Vol, veh/h		729			991			92				40
Approach Delay, s/veh		6.3			1.5			24.5				23.2
Approach LOS		A			A			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		63.0		37.0		63.0		37.0				
Change Period (Y+Rc), s		4.5		4.0		4.5		4.0				
Max Green Setting (Gmax), s		58.5		33.0		58.5		33.0				
Max Q Clear Time (g_c+I1), s		2.0		6.2		8.5		3.6				
Green Ext Time (p_c), s		2.1		0.1		2.1		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				5.0								
HCM 2010 LOS				A								
















HCM 2010 Signalized Intersection Summary
4: Roosevelt Way NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	624	95	110	871	0	0	0	0	124	905	110
Future Volume (veh/h)	0	624	95	110	871	0	0	0	0	124	905	110
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		1.00				1.00		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1900	1900	1900	0				1900	1881	1881
Adj Flow Rate, veh/h	0	643	98	113	898	0				128	933	113
Adj No. of Lanes	0	2	0	0	2	0				0	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	1	1	0	0	0				1	1	1
Cap, veh/h	0	1186	180	0	2004	0				149	1146	511
Arrive On Green	0.00	0.38	0.38	0.25	1.00	0.00				0.35	0.35	0.35
Sat Flow, veh/h	0	3175	469	0	3705	0				421	3227	1438
Grp Volume(v), veh/h	0	372	369	0	898	0				566	495	113
Grp Sat Flow(s),veh/h/ln	0	1787	1762	0	1805	0				1860	1787	1438
Q Serve(g_s), s	0.0	16.2	16.3	0.0	0.0	0.0				28.2	24.7	5.5
Cycle Q Clear(g_c), s	0.0	16.2	16.3	0.0	0.0	0.0				28.2	24.7	5.5
Prop In Lane	0.00		0.27	0.00		0.00				0.23		1.00
Lane Grp Cap(c), veh/h	0	688	678	0	2004	0				660	634	511
V/C Ratio(X)	0.00	0.54	0.54	0.00	0.45	0.00				0.86	0.78	0.22
Avail Cap(c_a), veh/h	0	688	678	0	2004	0				660	634	511
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	23.9	23.9	0.0	0.0	0.0				29.9	28.8	22.6
Incr Delay (d2), s/veh	0.0	3.0	3.1	0.0	0.7	0.0				13.5	9.2	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.5	8.5	0.0	0.2	0.0				17.0	13.7	2.3
LnGrp Delay(d),s/veh	0.0	26.9	27.0	0.0	0.7	0.0				43.4	38.0	23.6
LnGrp LOS		C	C		A					D	D	C
Approach Vol, veh/h		741			898						1174	
Approach Delay, s/veh		27.0			0.7						39.2	
Approach LOS		C			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		60.0			17.0	43.0		40.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		55.5			12.5	38.5		35.5				
Max Q Clear Time (g_c+I1), s		2.0			0.0	18.3		30.2				
Green Ext Time (p_c), s		1.4			0.0	0.8		0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			23.7									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
5: 11th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	663	0	0	679	83	292	920	90	0	0	0
Future Volume (veh/h)	70	663	0	0	679	83	292	920	90	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.90	1.00		0.92			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1881	0	0	1881	1900	1900	1863	1900			
Adj Flow Rate, veh/h	74	705	0	0	722	88	311	979	96			
Adj No. of Lanes	0	2	0	0	2	0	0	2	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	1	1	0	0	1	1	0	2	0			
Cap, veh/h	44	837	0	0	1012	123	376	1249	127			
Arrive On Green	0.85	0.85	0.00	0.00	0.64	0.64	0.16	0.16	0.16			
Sat Flow, veh/h	1	2056	0	0	3257	385	776	2574	262			
Grp Volume(v), veh/h	369	410	0	0	408	402	731	0	655			
Grp Sat Flow(s),veh/h/ln	345	1627	0	0	1787	1761	1824	0	1788			
Q Serve(g_s), s	18.0	7.6	0.0	0.0	15.1	15.1	38.8	0.0	35.0			
Cycle Q Clear(g_c), s	18.0	7.6	0.0	0.0	15.1	15.1	38.8	0.0	35.0			
Prop In Lane	0.20		0.00	0.00		0.22	0.43		0.15			
Lane Grp Cap(c), veh/h	0	691	0	0	572	564	885	0	867			
V/C Ratio(X)	0.00	0.59	0.00	0.00	0.71	0.71	0.83	0.00	0.75			
Avail Cap(c_a), veh/h	0	691	0	0	572	564	885	0	867			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	4.9	0.0	0.0	15.0	15.0	37.9	0.0	36.3			
Incr Delay (d2), s/veh	0.0	3.7	0.0	0.0	7.4	7.5	8.7	0.0	6.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	3.9	0.0	0.0	8.4	8.3	21.8	0.0	18.8			
LnGrp Delay(d),s/veh	0.0	8.6	0.0	0.0	22.3	22.5	46.7	0.0	42.4			
LnGrp LOS		A			C	C	D		D			
Approach Vol, veh/h		779			810			1386				
Approach Delay, s/veh		4.5			22.4			44.6				
Approach LOS		A			C			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		36.5		53.0		47.0						
Change Period (Y+Rc), s		* 4.5		4.5		4.5						
Max Green Setting (Gmax), s		* 32		48.5		42.5						
Max Q Clear Time (g_c+I1), s		17.1		40.8		20.0						
Green Ext Time (p_c), s		0.9		1.5		1.1						
Intersection Summary												
HCM 2010 Ctrl Delay				28.1								
HCM 2010 LOS				C								
Notes												

HCM Signalized Intersection Capacity Analysis
6: Brooklyn Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	90	553	73	35	732	30	10	40	60	10	100	60
Future Volume (vph)	90	553	73	35	732	30	10	40	60	10	100	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.95			0.99			0.93			0.97	
Flpb, ped/bikes		0.99			0.99			1.00			0.99	
Frt		0.98			0.99			0.93			0.95	
Flt Protected		0.99			1.00			1.00			1.00	
Satd. Flow (prot)		3245			3408			1626			1713	
Flt Permitted		0.68			0.89			0.98			0.99	
Satd. Flow (perm)		2208			3046			1597			1696	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	94	576	76	36	762	31	10	42	62	10	104	62
RTOR Reduction (vph)	0	8	0	0	3	0	0	35	0	0	20	0
Lane Group Flow (vph)	0	738	0	0	827	0	0	80	0	0	157	0
Confl. Peds. (#/hr)	120		200	200		120	92		159	159		92
Confl. Bikes (#/hr)			1			3			14			1
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	0%	0%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		47.5			47.5			44.0			44.0	
Effective Green, g (s)		47.5			47.5			44.0			44.0	
Actuated g/C Ratio		0.48			0.48			0.44			0.44	
Clearance Time (s)		4.5			4.5			4.0			4.0	
Lane Grp Cap (vph)		1048			1446			702			746	
v/s Ratio Prot												
v/s Ratio Perm		c0.33			0.27			0.05			c0.09	
v/c Ratio		0.70			0.57			0.11			0.21	
Uniform Delay, d1		20.7			18.9			16.5			17.3	
Progression Factor		0.39			0.33			0.00			1.00	
Incremental Delay, d2		2.7			1.4			0.3			0.6	
Delay (s)		10.8			7.7			0.3			17.9	
Level of Service		B			A			A			B	
Approach Delay (s)		10.8			7.7			0.3			17.9	
Approach LOS		B			A			A			B	

















Intersection Summary

HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	91.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

















HCM 2010 Signalized Intersection Summary
7: University Way NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	440	53	50	680	20	47	130	45	45	95	80
Future Volume (veh/h)	160	440	53	50	680	20	47	130	45	45	95	80
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		0.80	0.91		0.80	0.90		0.82	0.89		0.84
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1845	1900	1900	1792	1900	1900	1743	1900
Adj Flow Rate, veh/h	170	468	56	53	723	21	50	138	48	48	101	85
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	3	3	3	6	6	6	9	9	9
Cap, veh/h	341	904	109	122	1576	45	143	370	120	129	255	194
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.78	0.78	0.39	0.39	0.39
Sat Flow, veh/h	542	1739	210	157	3031	87	254	948	307	220	654	499
Grp Volume(v), veh/h	267	0	427	400	0	397	236	0	0	234	0	0
Grp Sat Flow(s),veh/h/ln	892	0	1598	1636	0	1638	1509	0	0	1373	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	11.7	0.0	0.0
Prop In Lane	0.64		0.13	0.13		0.05	0.21		0.20	0.21		0.36
Lane Grp Cap(c), veh/h	523	0	831	892	0	852	632	0	0	579	0	0
V/C Ratio(X)	0.51	0.00	0.51	0.45	0.00	0.47	0.37	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	523	0	831	892	0	852	632	0	0	579	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	7.2	0.0	0.0	22.0	0.0	0.0
Incr Delay (d2), s/veh	3.5	0.0	2.3	1.6	0.0	1.8	1.7	0.0	0.0	2.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.5	0.4	0.0	0.4	2.3	0.0	0.0	5.0	0.0	0.0
LnGrp Delay(d),s/veh	3.5	0.0	2.3	1.6	0.0	1.8	8.9	0.0	0.0	24.1	0.0	0.0
LnGrp LOS	A		A	A		A	A			C		
Approach Vol, veh/h		694			797			236			234	
Approach Delay, s/veh		2.8			1.7			8.9			24.1	
Approach LOS		A			A			A			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		56.5		43.5		56.5		43.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		52.0		39.0		52.0		39.0				
Max Q Clear Time (g_c+I1), s		2.0		6.4		2.0		13.7				
Green Ext Time (p_c), s		2.5		0.7		2.5		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			5.6									
HCM 2010 LOS			A									

HCM 2010 Signalized Intersection Summary
 8: 15th Ave NE & NE 50th St

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	345	80	35	427	35	258	655	45	15	355	25
Future Volume (veh/h)	95	345	80	35	427	35	258	655	45	15	355	25
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.74	0.99		0.84	0.99		0.92	0.98		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1900	1900	1881	1900	1900	1827	1900	1900	1845	1900
Adj Flow Rate, veh/h	100	363	84	37	449	37	272	689	47	16	374	26
Adj No. of Lanes	0	2	0	0	2	0	0	2	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	1	1	1	4	4	4	3	3	3
Cap, veh/h	163	603	151	86	990	84	441	1021	71	53	904	61
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	1.00	1.00	1.00	0.56	0.56	0.56
Sat Flow, veh/h	319	1698	426	126	2789	236	687	1840	127	29	1628	110
Grp Volume(v), veh/h	269	0	278	269	0	254	406	0	602	416	0	0
Grp Sat Flow(s),veh/h/ln	1030	0	1413	1532	0	1619	1027	0	1628	1767	0	0
Q Serve(g_s), s	14.0	0.0	15.8	0.8	0.0	12.0	1.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	26.0	0.0	15.8	16.6	0.0	12.0	14.9	0.0	0.0	13.2	0.0	0.0
Prop In Lane	0.37		0.30	0.14		0.15	0.67		0.08	0.04		0.06
Lane Grp Cap(c), veh/h	415	0	502	585	0	575	630	0	903	1018	0	0
V/C Ratio(X)	0.65	0.00	0.55	0.46	0.00	0.44	0.65	0.00	0.67	0.41	0.00	0.00
Avail Cap(c_a), veh/h	415	0	502	585	0	575	630	0	903	1018	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	30.7	0.0	25.9	24.4	0.0	24.7	0.1	0.0	0.0	12.8	0.0	0.0
Incr Delay (d2), s/veh	7.6	0.0	4.4	2.6	0.0	2.5	5.0	0.0	3.9	1.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	0.0	6.8	6.0	0.0	5.8	0.9	0.0	1.0	6.9	0.0	0.0
LnGrp Delay(d),s/veh	38.2	0.0	30.3	27.0	0.0	27.1	5.2	0.0	3.9	14.1	0.0	0.0
LnGrp LOS	D		C	C		C	A		A	B		
Approach Vol, veh/h		547			523			1008			416	
Approach Delay, s/veh		34.2			27.0			4.4			14.1	
Approach LOS		C			C			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.0		60.0		40.0		60.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		35.5		55.5		35.5		55.5				
Max Q Clear Time (g_c+I1), s		18.6		16.9		28.0		15.2				
Green Ext Time (p_c), s		6.7		14.0		4.0		14.2				
Intersection Summary												
HCM 2010 Ctrl Delay				17.3								
HCM 2010 LOS				B								

HCM Signalized Intersection Capacity Analysis

9: 17th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕			↕			↕	
Traffic Volume (vph)	20	389	116	25	345	10	227	80	20	15	80	30
Future Volume (vph)	20	389	116	25	345	10	227	80	20	15	80	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frbp, ped/bikes		0.96			1.00			0.99			0.96	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.99			0.97	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		3270			1836			1787			1738	
Flt Permitted		0.93			0.94			0.97			0.99	
Satd. Flow (perm)		3043			1734			1787			1738	
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)	22	427	127	27	379	11	249	88	22	16	88	33
RTOR Reduction (vph)	0	24	0	0	1	0	0	2	0	0	10	0
Lane Group Flow (vph)	0	552	0	0	416	0	0	357	0	0	127	0
Confl. Peds. (#/hr)	56		83	83		56	87		66	66		87
Confl. Bikes (#/hr)						2			42			4
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			2		4	4		3	3	
Permitted Phases	2			2								
Actuated Green, G (s)		42.0			42.0			33.5			21.5	
Effective Green, g (s)		42.0			42.0			33.5			21.5	
Actuated g/C Ratio		0.38			0.38			0.30			0.19	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			3.0			3.0	
Lane Grp Cap (vph)		1156			659			541			338	
v/s Ratio Prot								c0.20			c0.07	
v/s Ratio Perm		0.18			c0.24							
v/c Ratio		0.48			0.63			0.66			0.37	
Uniform Delay, d1		25.9			27.9			33.5			38.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.4			4.6			6.2			3.2	
Delay (s)		27.4			32.5			39.7			41.8	
Level of Service		C			C			D			D	
Approach Delay (s)		27.4			32.5			39.7			41.8	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	110.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	16.8
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	315	30	59	0	5	30	5	0	100	60	5
Future Vol, veh/h	0	315	30	59	0	5	30	5	0	100	60	5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	3	3	3	3	1	1	1	1
Mvmt Flow	0	354	34	66	0	6	34	6	0	112	67	6
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	21.3	10	12
HCM LOS	C	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	61%	78%	12%	2%
Vol Thru, %	36%	7%	75%	17%
Vol Right, %	3%	15%	12%	82%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	165	404	40	330
LT Vol	100	315	5	5
Through Vol	60	30	30	55
RT Vol	5	59	5	270
Lane Flow Rate	185	454	45	371
Geometry Grp	1	1	1	1
Degree of Util (X)	0.315	0.709	0.079	0.544
Departure Headway (Hd)	6.115	5.621	6.341	5.279
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	584	640	560	679
Service Time	4.198	3.678	4.439	3.349
HCM Lane V/C Ratio	0.317	0.709	0.08	0.546
HCM Control Delay	12	21.3	10	14.5
HCM Lane LOS	B	C	A	B
HCM 95th-tile Q	1.3	5.8	0.3	3.3

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	5	55	270
Future Vol, veh/h	0	5	55	270
Peak Hour Factor	0.89	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3
Mvmt Flow	0	6	62	303
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	14.5
HCM LOS	B

HCM Signalized Intersection Capacity Analysis
 11: Roosevelt Way NE & NE 47th St

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Traffic Volume (vph)	0	90	45	145	70	0	0	0	0	105	1030	35
Future Volume (vph)	0	90	45	145	70	0	0	0	0	105	1030	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0						4.5	
Lane Util. Factor		1.00			1.00						0.95	
Frbp, ped/bikes		0.96			1.00						0.99	
Flpb, ped/bikes		1.00			0.94						0.99	
Frt		0.95			1.00						1.00	
Flt Protected		1.00			0.97						1.00	
Satd. Flow (prot)		1742			1713						3451	
Flt Permitted		1.00			0.71						1.00	
Satd. Flow (perm)		1742			1259						3451	
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	96	48	154	74	0	0	0	0	112	1096	37
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	133	0	0	228	0	0	0	0	0	1241	0
Confl. Peds. (#/hr)	78		113	113		78	114		59	59		114
Confl. Bikes (#/hr)			6			23						11
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		14.7			14.7						25.8	
Effective Green, g (s)		14.7			14.7						25.8	
Actuated g/C Ratio		0.29			0.29						0.52	
Clearance Time (s)		5.0			5.0						4.5	
Vehicle Extension (s)		4.0			4.0						0.2	
Lane Grp Cap (vph)		512			370						1780	
v/s Ratio Prot		0.08										
v/s Ratio Perm					0.18						0.36	
v/c Ratio		0.26			0.62						0.70	
Uniform Delay, d1		13.5			15.2						9.1	
Progression Factor		1.00			0.92						0.88	
Incremental Delay, d2		0.4			2.3						1.3	
Delay (s)		13.9			16.3						9.4	
Level of Service		B			B						A	
Approach Delay (s)		13.9			16.3			0.0			9.4	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			10.8		HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			50.0		Sum of lost time (s)			9.5				
Intersection Capacity Utilization			74.7%		ICU Level of Service			D				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 12: 11th Ave NE & NE 47th St

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↔				
Traffic Volume (vph)	0	135	0	0	160	180	50	1072	185	0	0	0
Future Volume (vph)	0	135	0	0	160	180	50	1072	185	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			0.93			0.98				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.93			0.98				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1900			1612			3405				
Flt Permitted		1.00			1.00			1.00				
Satd. Flow (perm)		1900			1612			3405				
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)	0	145	0	0	172	194	54	1153	199	0	0	0
RTOR Reduction (vph)	0	0	0	0	32	0	0	25	0	0	0	0
Lane Group Flow (vph)	0	145	0	0	334	0	0	1381	0	0	0	0
Confl. Peds. (#/hr)	89		93	93		89	44		48	48		44
Confl. Bikes (#/hr)			14			30			81			
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type		NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		12.6			12.6			27.4				
Effective Green, g (s)		12.6			12.6			27.4				
Actuated g/C Ratio		0.25			0.25			0.55				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.0			2.0			0.2				
Lane Grp Cap (vph)		478			406			1865				
v/s Ratio Prot		0.08			0.21							
v/s Ratio Perm								0.41				
v/c Ratio		0.30			0.82			0.74				
Uniform Delay, d1		15.1			17.6			8.6				
Progression Factor		1.02			0.99			1.14				
Incremental Delay, d2		0.1			12.0			1.8				
Delay (s)		15.6			29.5			11.6				
Level of Service		B			C			B				
Approach Delay (s)		15.6			29.5			11.6			0.0	
Approach LOS		B			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.3					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			50.0					Sum of lost time (s)		10.0		
Intersection Capacity Utilization			71.6%					ICU Level of Service			C	
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
 13: 15th Ave NE & NE 47th St


















UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	50	75	70	25	65	65	50	868	30	30	455	15
Future Volume (vph)	50	75	70	25	65	65	50	868	30	30	455	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frbp, ped/bikes		0.94			0.94			0.99			0.99	
Flpb, ped/bikes		0.97			0.98			0.99			1.00	
Frt		0.95			0.94			1.00			1.00	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1624			1607			3422			1754	
Flt Permitted		0.89			0.93			0.91			0.91	
Satd. Flow (perm)		1464			1513			3108			1607	
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)	54	81	75	27	70	70	54	933	32	32	489	16
RTOR Reduction (vph)	0	40	0	0	37	0	0	5	0	0	2	0
Lane Group Flow (vph)	0	170		0	130		0	1014		0	535	
Confl. Peds. (#/hr)	140		146	146		140	175		131	131		175
Confl. Bikes (#/hr)			6			4			24			4
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	3%	3%	3%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		15.0			15.0			26.5			26.5	
Effective Green, g (s)		15.0			15.0			26.5			26.5	
Actuated g/C Ratio		0.30			0.30			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		439			453			1647			851	
v/s Ratio Prot												
v/s Ratio Perm		c0.12			0.09			0.33			c0.33	
v/c Ratio		0.39			0.29			0.62			0.63	
Uniform Delay, d1		13.9			13.4			8.2			8.3	
Progression Factor		1.20			1.00			0.66			0.70	
Incremental Delay, d2		2.2			1.6			0.7			3.2	
Delay (s)		18.8			15.0			6.1			9.0	
Level of Service		B			B			A			A	
Approach Delay (s)		18.8			15.0			6.1			9.0	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay		9.0			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.54										
Actuated Cycle Length (s)		50.0			Sum of lost time (s)			8.5				
Intersection Capacity Utilization		77.0%			ICU Level of Service			D				
Analysis Period (min)		15										
c Critical Lane Group												

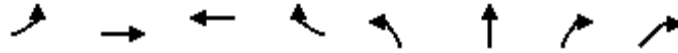
HCM 2010 Signalized Intersection Summary
 14: 5th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	671	260	531	904	0	0	0	0	199	225	160
Future Volume (veh/h)	0	671	260	531	904	0	0	0	0	199	225	160
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.87	1.00		1.00				1.00		0.95
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1900	1863	1863	0				1827	1827	1900
Adj Flow Rate, veh/h	0	699	271	553	942	0				203	240	167
Adj No. of Lanes	0	2	0	2	2	0				1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				0.96	0.96	0.96
Percent Heavy Veh, %	0	1	1	2	2	0				4	4	4
Cap, veh/h	0	814	316	1106	2495	0				348	402	265
Arrive On Green	0.00	0.34	0.34	0.64	1.00	0.00				0.20	0.20	0.20
Sat Flow, veh/h	0	2498	932	3442	3632	0				1740	2010	1324
Grp Volume(v), veh/h	0	520	450	553	942	0				203	217	190
Grp Sat Flow(s),veh/h/ln	0	1787	1549	1721	1770	0				1740	1827	1507
Q Serve(g_s), s	0.0	27.1	27.1	8.5	0.0	0.0				10.6	10.8	11.6
Cycle Q Clear(g_c), s	0.0	27.1	27.1	8.5	0.0	0.0				10.6	10.8	11.6
Prop In Lane	0.00		0.60	1.00		0.00				1.00		0.88
Lane Grp Cap(c), veh/h	0	605	524	1106	2495	0				348	365	301
V/C Ratio(X)	0.00	0.86	0.86	0.50	0.38	0.00				0.58	0.59	0.63
Avail Cap(c_a), veh/h	0	706	612	1106	2495	0				348	365	301
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.39	0.39	0.00				0.81	0.81	0.81
Uniform Delay (d), s/veh	0.0	30.8	30.8	13.6	0.0	0.0				36.2	36.3	36.6
Incr Delay (d2), s/veh	0.0	9.3	10.5	0.2	0.2	0.0				5.7	5.7	7.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	14.8	13.0	3.9	0.1	0.0				5.6	6.0	5.5
LnGrp Delay(d),s/veh	0.0	40.1	41.3	13.8	0.2	0.0				41.9	42.0	44.5
LnGrp LOS		D	D	B	A					D	D	D
Approach Vol, veh/h		970			1495						610	
Approach Delay, s/veh		40.7			5.2						42.8	
Approach LOS		D			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	36.6	38.4		25.0		75.0						
Change Period (Y+Rc), s	4.5	4.5		5.0		4.5						
Max Green Setting (Gmax), s	26.5	39.5		20.0		70.5						
Max Q Clear Time (g_c+I1), s	10.5	29.1		13.6		2.0						
Green Ext Time (p_c), s	10.4	4.7		1.7		20.7						
Intersection Summary												
HCM 2010 Ctrl Delay			23.9									
HCM 2010 LOS			C									
Notes												

HCM Signalized Intersection Capacity Analysis
 15: 7th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	NER
Lane Configurations								
Traffic Volume (vph)	230	650	902	315	563	440	513	60
Future Volume (vph)	230	650	902	315	563	440	513	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5	4.5	3.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.95	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.91		1.00	0.99	0.96	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.96		1.00	0.98	0.85	0.86
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1736	3471	3046		3400	1706	1430	1596
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	1.00
Satd. Flow (perm)	1736	3471	3046		3400	1706	1430	1596
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	242	684	949	332	593	463	540	63
RTOR Reduction (vph)	0	0	35	0	0	6	80	0
Lane Group Flow (vph)	242	684	1246	0	593	533	384	63
Confl. Peds. (#/hr)	294			294	95		24	
Confl. Bikes (#/hr)				24				
Heavy Vehicles (%)	4%	4%	4%	4%	3%	3%	3%	3%
Turn Type	Prot	NA	NA		Split	NA	Perm	custom
Protected Phases	5	2	6		4	4		1
Permitted Phases							4	2
Actuated Green, G (s)	15.5	55.1	40.5		30.5	30.5	30.5	57.5
Effective Green, g (s)	15.5	55.1	40.5		30.5	30.5	30.5	57.5
Actuated g/C Ratio	0.16	0.55	0.40		0.30	0.30	0.30	0.58
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5	4.5	3.0
Vehicle Extension (s)	3.0	4.0	4.0		4.0	4.0	4.0	1.0
Lane Grp Cap (vph)	269	1912	1233		1037	520	436	917
v/s Ratio Prot	c0.14	0.20	c0.41		0.17	c0.31		0.00
v/s Ratio Perm							0.27	0.04
v/c Ratio	0.90	0.36	1.01		0.57	1.02	0.88	0.07
Uniform Delay, d1	41.5	12.6	29.8		29.3	34.8	33.0	9.4
Progression Factor	1.22	0.82	0.74		1.00	1.00	1.00	1.00
Incremental Delay, d2	23.5	0.4	26.6		2.3	45.8	21.7	0.0
Delay (s)	74.3	10.7	48.6		31.5	80.6	54.8	9.4
Level of Service	E	B	D		C	F	D	A
Approach Delay (s)		27.3	48.6			54.9		
Approach LOS		C	D			D		

Intersection Summary			
HCM 2000 Control Delay	45.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Int Delay, s/veh 2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑		↑
Traffic Vol, veh/h	1094	10	10	1207	5	95
Future Vol, veh/h	1094	10	10	1207	5	95
Conflicting Peds, #/hr	0	224	224	0	224	224
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	10	-	-	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	1176	11	11	1298	5	102

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	1411	2300
Stage 1	-	-	1406
Stage 2	-	-	894
Critical Hdwy	-	4.16	6.8
Critical Hdwy Stg 1	-	-	5.8
Critical Hdwy Stg 2	-	-	5.8
Follow-up Hdwy	-	2.23	3.5
Pot Cap-1 Maneuver	-	474	33
Stage 1	-	-	196
Stage 2	-	-	365
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	386	21
Mov Cap-2 Maneuver	-	-	102
Stage 1	-	-	159
Stage 2	-	-	288

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	67.2
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	152	-	-	386	-
HCM Lane V/C Ratio	0.672	-	-	0.028	-
HCM Control Delay (s)	67.2	-	-	14.6	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	3.8	-	-	0.1	-

Intersection

Int Delay, s/veh 1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	95	1099	1192	30	5	25
Future Vol, veh/h	95	1099	1192	30	5	25
Conflicting Peds, #/hr	150	0	0	148	148	150
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	10	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	100	1157	1255	32	5	26

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1436	0	2347
Stage 1	-	-	1421
Stage 2	-	-	926
Critical Hdwy	4.16	-	6.8
Critical Hdwy Stg 1	-	-	5.8
Critical Hdwy Stg 2	-	-	5.8
Follow-up Hdwy	2.23	-	3.5
Pot Cap-1 Maneuver	464	-	31
Stage 1	-	-	192
Stage 2	-	-	351
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	406	-	18
Mov Cap-2 Maneuver	-	-	97
Stage 1	-	-	168
Stage 2	-	-	231

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	30.6
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	406	-	-	-	172
HCM Lane V/C Ratio	0.246	-	-	-	0.184
HCM Control Delay (s)	16.7	-	-	-	30.6
HCM Lane LOS	C	-	-	-	D
HCM 95th %tile Q(veh)	1	-	-	-	0.7

HCM Signalized Intersection Capacity Analysis
18: Roosevelt Way NE & NE 45th St

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑						↖↑	↖
Traffic Volume (vph)	0	879	240	307	1082	0	0	0	0	45	1030	135
Future Volume (vph)	0	879	240	307	1082	0	0	0	0	45	1030	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5						4.5	4.5
Lane Util. Factor		0.95		1.00	0.95						0.95	1.00
Frbp, ped/bikes		0.93		1.00	1.00						1.00	0.65
Flpb, ped/bikes		1.00		1.00	1.00						0.99	1.00
Frt		0.97		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						1.00	1.00
Satd. Flow (prot)		3162		1736	3471						3512	1036
Flt Permitted		1.00		0.11	1.00						1.00	1.00
Satd. Flow (perm)		3162		195	3471						3512	1036
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	916	250	320	1127	0	0	0	0	47	1073	141
RTOR Reduction (vph)	0	24	0	0	0	0	0	0	0	0	0	43
Lane Group Flow (vph)	0	1142	0	320	1127	0	0	0	0	0	1120	98
Confl. Peds. (#/hr)	269		232	232		269	298		90	90		298
Confl. Bikes (#/hr)			2			17						35
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	0%	0%	0%	2%	2%	2%
Turn Type		NA		D.P+P	NA					Perm	NA	Perm
Protected Phases		2		3	2 3						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		37.4		53.4	57.9						33.1	33.1
Effective Green, g (s)		37.4		53.4	57.9						33.1	33.1
Actuated g/C Ratio		0.37		0.53	0.58						0.33	0.33
Clearance Time (s)		4.5		4.5							4.5	4.5
Vehicle Extension (s)		0.2		1.0							1.0	1.0
Lane Grp Cap (vph)		1182		350	2009						1162	342
v/s Ratio Prot		c0.36		c0.15	0.32							
v/s Ratio Perm				0.34							0.32	0.09
v/c Ratio		0.97		0.91	0.56						0.96	0.29
Uniform Delay, d1		30.7		27.8	13.1						32.9	24.7
Progression Factor		0.49		1.46	0.60						0.97	0.93
Incremental Delay, d2		17.3		21.9	0.2						15.0	0.1
Delay (s)		32.3		62.5	8.0						47.0	23.0
Level of Service		C		E	A						D	C
Approach Delay (s)		32.3			20.1			0.0			44.3	
Approach LOS		C			C			A			D	

Intersection Summary			
HCM 2000 Control Delay	31.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 19: 11th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑		↖	↑↑	↗			
Traffic Volume (vph)	10	884	0	0	988	35	386	1207	261	0	0	0
Future Volume (vph)	10	884	0	0	988	35	386	1207	261	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5	4.5			
Lane Util. Factor		0.95			0.95		1.00	0.95	1.00			
Frbp, ped/bikes		1.00			0.99		1.00	1.00	0.77			
Flpb, ped/bikes		1.00			1.00		0.91	1.00	1.00			
Frt		1.00			0.99		1.00	1.00	0.85			
Flt Protected		1.00			1.00		0.95	1.00	1.00			
Satd. Flow (prot)		3503			3414		1623	3574	1237			
Flt Permitted		0.94			1.00		0.95	1.00	1.00			
Satd. Flow (perm)		3289			3414		1623	3574	1237			
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)	11	940	0	0	1051	37	411	1284	278	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	17	0	0	0
Lane Group Flow (vph)	0	951	0	0	1085	0	411	1284	261	0	0	0
Confl. Peds. (#/hr)	243		130	130		243	55		112	112		55
Confl. Bikes (#/hr)						16			93			
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		2			2			4				
Permitted Phases	2						4		4			
Actuated Green, G (s)		45.5			45.5		45.5	45.5	45.5			
Effective Green, g (s)		45.5			45.5		45.5	45.5	45.5			
Actuated g/C Ratio		0.46			0.46		0.46	0.46	0.46			
Clearance Time (s)		4.5			4.5		4.5	4.5	4.5			
Vehicle Extension (s)		0.2			0.2		2.0	2.0	2.0			
Lane Grp Cap (vph)		1496			1553		738	1626	562			
v/s Ratio Prot					c0.32			c0.36				
v/s Ratio Perm		0.29					0.25		0.21			
v/c Ratio		0.64			0.70		0.56	0.79	0.46			
Uniform Delay, d1		20.9			21.8		19.9	23.2	18.8			
Progression Factor		0.11			0.92		0.60	0.58	0.57			
Incremental Delay, d2		0.6			2.3		0.3	0.4	0.2			
Delay (s)		2.9			22.4		12.2	13.8	11.0			
Level of Service		A			C		B	B	B			
Approach Delay (s)		2.9			22.4			13.0			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

20: 12th Ave NE & NE 45th St

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1035	60	48	958	15	35	60	40	15	52	30
Future Volume (vph)	85	1035	60	48	958	15	35	60	40	15	52	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.0	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frbp, ped/bikes	1.00	0.96		1.00	0.99			0.94			0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98			0.98	
Frt	1.00	0.99		1.00	1.00			0.96			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1736	3318		1703	3367			1610			1596	
Flt Permitted	0.95	1.00		0.95	1.00			0.91			0.95	
Satd. Flow (perm)	1736	3318		1703	3367			1484			1533	
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)	90	1101	64	51	1019	16	37	64	43	16	55	32
RTOR Reduction (vph)	0	3	0	0	1	0	0	17	0	0	18	0
Lane Group Flow (vph)	90	1162	0	51	1034	0	0	127	0	0	85	0
Confl. Peds. (#/hr)	214		302	302		214	72		98	98		72
Confl. Bikes (#/hr)			2			9			30			3
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	3%	3%	3%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4			4		
Actuated Green, G (s)	10.2	65.3		5.1	59.7			16.6			16.6	
Effective Green, g (s)	10.2	65.3		5.1	59.7			16.6			16.6	
Actuated g/C Ratio	0.10	0.65		0.05	0.60			0.17			0.17	
Clearance Time (s)	4.5	4.5		4.0	4.5			4.5			4.5	
Vehicle Extension (s)	0.5	0.2		0.5	0.2			1.0			1.0	
Lane Grp Cap (vph)	177	2166		86	2010			246			254	
v/s Ratio Prot	c0.05	c0.35		0.03	0.31							
v/s Ratio Perm								c0.09			0.06	
v/c Ratio	0.51	0.54		0.59	0.51			0.52			0.34	
Uniform Delay, d1	42.5	9.3		46.4	11.7			38.0			36.8	
Progression Factor	0.83	0.33		0.96	0.31			1.00			1.00	
Incremental Delay, d2	0.7	0.8		5.8	0.8			0.8			0.3	
Delay (s)	35.8	3.9		50.5	4.4			38.8			37.1	
Level of Service	D	A		D	A			D			D	
Approach Delay (s)		6.2			6.6			38.8			37.1	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 21: Brooklyn Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	963	37	45	883	15	63	5	10	50	18	155
Future Volume (vph)	120	963	37	45	883	15	63	5	10	50	18	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5			4.5			4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95			0.95			1.00	1.00		1.00	1.00
Frbp, ped/bikes	1.00	0.97			0.99			1.00	0.68		1.00	0.74
Flpb, ped/bikes	1.00	1.00			0.99			0.79	1.00		0.80	1.00
Frt	1.00	0.99			1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00			1.00			0.96	1.00		0.96	1.00
Satd. Flow (prot)	1736	3338			3360			1428	1104		1447	1179
Flt Permitted	0.95	1.00			0.84			0.69	1.00		0.75	1.00
Satd. Flow (perm)	1736	3338			2830			1030	1104		1125	1179
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)	128	1024	39	48	939	16	67	5	11	53	19	165
RTOR Reduction (vph)	0	2	0	0	1	0	0	0	9	0	0	139
Lane Group Flow (vph)	128	1061	0	0	1002	0	0	72	2	0	72	26
Confl. Peds. (#/hr)	337		693	693		337	152		193	193		152
Confl. Bikes (#/hr)			9			12			9			3
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			4			4	
Permitted Phases				6			4		4	4		4
Actuated Green, G (s)	14.0	75.2			57.2			15.8	15.8		15.8	15.8
Effective Green, g (s)	14.0	75.2			57.2			15.8	15.8		15.8	15.8
Actuated g/C Ratio	0.14	0.75			0.57			0.16	0.16		0.16	0.16
Clearance Time (s)	4.0	4.5			4.5			4.5	4.5		4.5	4.5
Vehicle Extension (s)	0.5	0.2			0.2			1.0	1.0		1.0	1.0
Lane Grp Cap (vph)	243	2510			1618			162	174		177	186
v/s Ratio Prot	c0.07	0.32										
v/s Ratio Perm					c0.35			c0.07	0.00		0.06	0.02
v/c Ratio	0.53	0.42			0.62			0.44	0.01		0.41	0.14
Uniform Delay, d1	39.9	4.5			14.2			38.1	35.5		37.9	36.3
Progression Factor	0.72	0.09			0.60			1.00	1.00		1.05	1.52
Incremental Delay, d2	0.8	0.5			1.7			0.7	0.0		0.5	0.1
Delay (s)	29.5	0.9			10.2			38.8	35.5		40.1	55.4
Level of Service	C	A			B			D	D		D	E
Approach Delay (s)		4.0			10.2			38.4			50.7	
Approach LOS		A			B			D			D	

Intersection Summary

HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	80.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

22: University Way NE & NE 45th St

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour
























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↓			↑↓	
Traffic Volume (vph)	5	859	89	5	827	40	31	137	92	5	163	55
Future Volume (vph)	5	859	89	5	827	40	31	137	92	5	163	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.92			0.96			0.84			0.88	
Flpb, ped/bikes		1.00			1.00			0.97			1.00	
Frt		0.99			0.99			0.95			0.97	
Flt Protected		1.00			1.00			0.99			1.00	
Satd. Flow (prot)		3140			3417			1366			1525	
Flt Permitted		0.95			0.95			0.94			0.99	
Satd. Flow (perm)		2988			3249			1289			1516	
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)	5	914	95	5	880	43	33	146	98	5	173	59
RTOR Reduction (vph)	0	1	0	0	2	0	0	3	0	0	7	0
Lane Group Flow (vph)	0	1013	0	0	926	0	0	274	0	0	230	0
Confl. Peds. (#/hr)	493		608	608		493	754		597	597		754
Confl. Bikes (#/hr)			1			7			71			20
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	7%	7%	7%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		65.2			65.2			25.8			25.8	
Effective Green, g (s)		65.2			65.2			25.8			25.8	
Actuated g/C Ratio		0.65			0.65			0.26			0.26	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			1.0			1.0	
Lane Grp Cap (vph)		1948			2118			332			391	
v/s Ratio Prot												
v/s Ratio Perm		c0.34			0.28			c0.21			0.15	
v/c Ratio		0.52			0.44			0.83			0.59	
Uniform Delay, d1		9.2			8.5			35.0			32.5	
Progression Factor		0.52			0.32			0.95			1.09	
Incremental Delay, d2		0.9			0.5			14.0			1.3	
Delay (s)		5.6			3.2			47.3			36.9	
Level of Service		A			A			D			D	
Approach Delay (s)		5.6			3.2			47.3			36.9	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	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 2010 Signalized Intersection Summary
 23: 15th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	750	131	148	745	90	45	793	192	95	480	40
Future Volume (veh/h)	85	750	131	148	745	90	45	793	192	95	480	40
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.79	1.00		0.81	1.00		0.81	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1810	1810	1900	1776	1776	1900	1810	1810	1900
Adj Flow Rate, veh/h	89	781	136	154	776	94	47	826	200	99	500	42
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	5	5	5	7	7	7	5	5	5
Cap, veh/h	106	937	163	178	1119	136	62	852	206	103	1140	95
Arrive On Green	0.12	0.65	0.65	0.21	0.75	0.75	0.07	0.66	0.66	0.12	0.72	0.72
Sat Flow, veh/h	1774	2882	502	1723	3000	363	1691	2566	621	1723	3162	264
Grp Volume(v), veh/h	89	479	438	154	444	426	47	543	483	99	270	272
Grp Sat Flow(s),veh/h/ln	1774	1770	1614	1723	1719	1645	1691	1687	1500	1723	1719	1707
Q Serve(g_s), s	4.9	20.7	20.7	8.6	13.6	13.6	2.7	30.4	30.4	5.7	6.4	6.5
Cycle Q Clear(g_c), s	4.9	20.7	20.7	8.6	13.6	13.6	2.7	30.4	30.4	5.7	6.4	6.5
Prop In Lane	1.00		0.31	1.00		0.22	1.00		0.41	1.00		0.15
Lane Grp Cap(c), veh/h	106	575	525	178	641	614	62	560	498	103	620	615
V/C Ratio(X)	0.84	0.83	0.83	0.87	0.69	0.69	0.76	0.97	0.97	0.96	0.44	0.44
Avail Cap(c_a), veh/h	106	575	525	178	641	614	118	582	518	103	620	615
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	0.84	0.84	0.84	0.83	0.83	0.83	0.74	0.74	0.74	0.74	0.74	0.74
Uniform Delay (d), s/veh	43.5	15.4	15.4	39.0	9.7	9.7	45.9	16.3	16.3	43.9	9.8	9.8
Incr Delay (d2), s/veh	34.5	11.5	12.4	28.2	5.1	5.3	5.3	24.1	26.0	62.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.4	11.7	10.8	5.5	7.1	6.8	1.4	17.3	15.7	4.5	2.9	3.0
LnGrp Delay(d),s/veh	78.1	26.9	27.9	67.2	14.8	15.0	51.2	40.5	42.4	106.3	10.0	10.0
LnGrp LOS	E	C	C	E	B	B	D	D	D	F	A	A
Approach Vol, veh/h		1006			1024			1073			641	
Approach Delay, s/veh		31.8			22.7			41.8			24.8	
Approach LOS		C			C			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.0	41.8	10.5	37.7	14.8	37.0	7.6	40.5				
Change Period (Y+Rc), s	4.0	4.5	4.5	* 4.5	4.5	* 4.5	4.0	4.5				
Max Green Setting (Gmax), s	6.0	36.5	6.0	* 35	10.0	* 33	7.0	33.5				
Max Q Clear Time (g_c+I1), s	6.9	15.6	7.7	32.4	10.6	22.7	4.7	8.5				
Green Ext Time (p_c), s	0.0	2.0	0.0	0.8	0.0	1.9	0.0	1.1				
Intersection Summary												
HCM 2010 Ctrl Delay			31.0									
HCM 2010 LOS			C									
Notes												

HCM Signalized Intersection Capacity Analysis
 24: Memorial Way NE/17th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	763	274	55	785	50	178	177	46	45	96	25
Future Volume (vph)	20	763	274	55	785	50	178	177	46	45	96	25
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frbp, ped/bikes	1.00	0.93		1.00	0.97		1.00	1.00	0.54		0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85		0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1752	3124		1770	3396		1770	1863	863		1717	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (perm)	1752	3124		1770	3396		1770	1863	863		1717	
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)	22	820	295	59	844	54	191	190	49	48	103	27
RTOR Reduction (vph)	0	33	0	0	4	0	0	0	42	0	7	0
Lane Group Flow (vph)	22	1082	0	59	894	0	191	190	7	0	171	0
Confl. Peds. (#/hr)	218		185	185		218	329		437	437		329
Confl. Bikes (#/hr)			2			3			75			10
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases									4			
Actuated Green, G (s)	2.0	49.3		4.9	52.2		14.0	14.0	14.0		15.3	
Effective Green, g (s)	2.0	49.3		4.9	52.2		14.0	14.0	14.0		15.3	
Actuated g/C Ratio	0.02	0.49		0.05	0.52		0.14	0.14	0.14		0.15	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.0	4.0		4.0	
Vehicle Extension (s)	1.0	0.2		1.0	0.2		0.5	0.5	0.5		2.0	
Lane Grp Cap (vph)	35	1540		86	1772		247	260	120		262	
v/s Ratio Prot	0.01	c0.35		c0.03	c0.26		c0.11	0.10			c0.10	
v/s Ratio Perm									0.01			
v/c Ratio	0.63	0.70		0.69	0.50		0.77	0.73	0.06		0.65	
Uniform Delay, d1	48.6	19.7		46.8	15.5		41.5	41.2	37.3		39.9	
Progression Factor	1.23	0.27		1.62	0.03		1.00	1.00	1.00		1.00	
Incremental Delay, d2	12.8	1.5		15.8	1.0		12.8	8.8	0.1		4.4	
Delay (s)	72.4	6.8		91.8	1.5		54.3	50.0	37.4		44.3	
Level of Service	E	A		F	A		D	D	D		D	
Approach Delay (s)		8.1			7.0			50.4			44.3	
Approach LOS		A			A			D			D	

Intersection Summary		
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.69	B
Actuated Cycle Length (s)	100.0	Sum of lost time (s)
Intersection Capacity Utilization	76.4%	16.5
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		D

HCM Signalized Intersection Capacity Analysis
 25: NE 45th St & 18th Ave NE

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Volume (vph)	0	904	890	0	15	25
Future Volume (vph)	0	904	890	0	15	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.0	
Lane Util. Factor		0.95	0.95		1.00	
Frbp, ped/bikes		1.00	1.00		0.86	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	1.00		0.92	
Flt Protected		1.00	1.00		0.98	
Satd. Flow (prot)		3574	3539		1470	
Flt Permitted		1.00	1.00		0.98	
Satd. Flow (perm)		3574	3539		1470	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	983	967	0	16	27
RTOR Reduction (vph)	0	0	0	0	22	0
Lane Group Flow (vph)	0	983	967	0	21	0
Confl. Peds. (#/hr)	209			209	123	121
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	1%	1%	2%	2%	0%	0%
Turn Type		NA	NA		Prot	
Protected Phases		2	2		4	
Permitted Phases						
Actuated Green, G (s)		74.5	74.5		17.0	
Effective Green, g (s)		74.5	74.5		17.0	
Actuated g/C Ratio		0.74	0.74		0.17	
Clearance Time (s)		4.5	4.5		4.0	
Vehicle Extension (s)		0.2	0.2		1.0	
Lane Grp Cap (vph)		2662	2636		249	
v/s Ratio Prot		c0.28	0.27		c0.01	
v/s Ratio Perm						
v/c Ratio		0.37	0.37		0.08	
Uniform Delay, d1		4.5	4.5		34.9	
Progression Factor		0.96	0.00		1.00	
Incremental Delay, d2		0.3	0.3		0.1	
Delay (s)		4.6	0.3		35.0	
Level of Service		A	A		C	
Approach Delay (s)		4.6	0.3		35.0	
Approach LOS		A	A		C	
Intersection Summary						
HCM 2000 Control Delay			3.2		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.32			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	8.5
Intersection Capacity Utilization			49.9%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
 26: NE 45th St & 19th Ave NE

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	25	884	895	35	0	0
Future Volume (vph)	25	884	895	35	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.5			
Lane Util. Factor	1.00	1.00	0.95			
Frpb, ped/bikes	1.00	1.00	0.98			
Flpb, ped/bikes	1.00	1.00	1.00			
Frt	1.00	1.00	0.99			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1787	1881	3447			
Flt Permitted	0.14	1.00	1.00			
Satd. Flow (perm)	269	1881	3447			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	961	973	38	0	0
RTOR Reduction (vph)	0	0	2	0	0	0
Lane Group Flow (vph)	27	961	1009	0	0	0
Confl. Peds. (#/hr)	144			144	305	125
Confl. Bikes (#/hr)				8		1
Heavy Vehicles (%)	1%	1%	2%	2%	0%	0%
Turn Type	pm+pt	NA	NA			
Protected Phases	1	1 2	2			
Permitted Phases	1 2					
Actuated Green, G (s)	71.5	74.5	40.9			
Effective Green, g (s)	71.5	74.5	40.9			
Actuated g/C Ratio	0.72	0.74	0.41			
Clearance Time (s)	3.0		4.5			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	656	1401	1409			
v/s Ratio Prot	0.01	c0.51	0.29			
v/s Ratio Perm	0.02					
v/c Ratio	0.04	0.69	0.72			
Uniform Delay, d1	6.3	6.6	24.7			
Progression Factor	1.89	2.22	0.21			
Incremental Delay, d2	0.0	1.3	2.4			
Delay (s)	11.9	16.1	7.6			
Level of Service	B	B	A			
Approach Delay (s)		16.0	7.6		0.0	
Approach LOS		B	A		A	
Intersection Summary						
HCM 2000 Control Delay			11.7		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.57			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	10.5
Intersection Capacity Utilization			49.9%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
 27: NE 45th St & 20th Ave NE

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑	↑↑		↘	
Traffic Volume (vph)	35	839	905	95	39	30
Future Volume (vph)	35	839	905	95	39	30
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.5		4.0	
Lane Util. Factor	1.00	1.00	0.95		1.00	
Frbp, ped/bikes	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.94	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1787	1881	3482		1711	
Flt Permitted	0.15	1.00	1.00		0.97	
Satd. Flow (perm)	283	1881	3482		1711	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	38	902	973	102	42	32
RTOR Reduction (vph)	0	0	0	0	27	0
Lane Group Flow (vph)	38	902	1075	0	47	0
Confl. Bikes (#/hr)				2		3
Heavy Vehicles (%)	1%	1%	2%	2%	1%	1%
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	1	1 2	2		4	
Permitted Phases	1 2					
Actuated Green, G (s)	71.5	74.5	46.3		17.0	
Effective Green, g (s)	71.5	74.5	46.3		17.0	
Actuated g/C Ratio	0.72	0.74	0.46		0.17	
Clearance Time (s)	3.0		4.5		4.0	
Vehicle Extension (s)	1.0		0.2		1.0	
Lane Grp Cap (vph)	581	1401	1612		290	
v/s Ratio Prot	0.02	c0.48	0.31		c0.03	
v/s Ratio Perm	0.03					
v/c Ratio	0.07	0.64	0.67		0.16	
Uniform Delay, d1	6.3	6.2	20.9		35.4	
Progression Factor	0.28	0.10	1.00		1.00	
Incremental Delay, d2	0.0	0.6	2.2		0.1	
Delay (s)	1.8	1.2	23.1		35.5	
Level of Service	A	A	C		D	
Approach Delay (s)		1.2	23.1		35.5	
Approach LOS		A	C		D	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	56.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Montlake Blvd NE & NE 45th St

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour



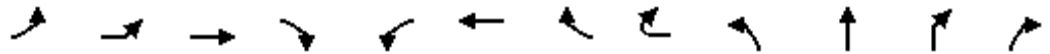
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↓	↑	↑	↑↓
Traffic Volume (vph)	548	40	591	734	166	1526
Future Volume (vph)	548	40	591	734	166	1526
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	0.88
Frpb, ped/bikes	1.00	0.89	1.00	1.00	1.00	1.00
Flpb, ped/bikes	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)	3574	1419	3400	1845	1770	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3574	1419	3400	1845	1770	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	583	43	629	781	177	1623
RTOR Reduction (vph)	0	7	0	0	0	6
Lane Group Flow (vph)	583	36	629	781	177	1617
Confl. Peds. (#/hr)		46	46			
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	1%	1%	3%	3%	2%	2%
Turn Type	NA	Perm	Split	NA	Prot	pt+ov
Protected Phases	3		1	1	2	1 2
Permitted Phases		3				
Actuated Green, G (s)	27.5	27.5	75.5	75.5	23.5	103.5
Effective Green, g (s)	27.5	27.5	75.5	75.5	23.5	103.5
Actuated g/C Ratio	0.20	0.20	0.54	0.54	0.17	0.74
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.5	3.5	0.2	0.2	3.0	
Lane Grp Cap (vph)	702	278	1833	994	297	2060
v/s Ratio Prot	c0.16		0.19	0.42	0.10	c0.58
v/s Ratio Perm		0.03				
v/c Ratio	0.83	0.13	0.34	0.79	0.60	0.78
Uniform Delay, d1	54.0	46.4	18.2	25.8	53.9	11.3
Progression Factor	1.00	1.00	0.32	0.54	1.00	0.98
Incremental Delay, d2	8.5	0.2	0.3	4.1	2.8	1.8
Delay (s)	62.5	46.6	6.1	18.0	56.7	12.9
Level of Service	E	D	A	B	E	B
Approach Delay (s)	61.4			12.7	17.2	
Approach LOS	E			B	B	

Intersection Summary

HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 29: Union Bay PI NE & NE 45th St & NE 45th PI

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Traffic Volume (vph)	35	290	1199	240	31	870	120	25	190	105	35	37
Future Volume (vph)	35	290	1199	240	31	870	120	25	190	105	35	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.86		0.86	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	0.92	1.00	0.99		0.94	1.00	1.00	0.92	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	1.00	0.98		0.85	1.00	1.00	0.85	
Flt Protected	0.95	0.95	1.00	1.00	0.95	1.00		1.00	0.95	0.99	1.00	
Satd. Flow (prot)	1752	1752	3505	1441	1736	4569		1260	1698	1760	1467	
Flt Permitted	0.95	0.11	1.00	1.00	0.12	1.00		1.00	0.95	0.99	1.00	
Satd. Flow (perm)	1752	196	3505	1441	227	4569		1260	1698	1760	1467	
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)	36	299	1236	247	32	897	124	26	196	108	36	38
RTOR Reduction (vph)	0	0	0	85	0	0	0	18	0	0	62	0
Lane Group Flow (vph)	36	299	1236	162	32	1024	0	5	149	155	12	0
Confl. Peds. (#/hr)	20	20		17	17		20	20	38		20	19
Confl. Bikes (#/hr)				3				1				5
Heavy Vehicles (%)	3%	3%	3%	3%	4%	4%	4%	4%	1%	1%	1%	1%
Turn Type	Prot	pm+pt	NA	Perm	Perm	NA		Perm	Split	NA	Perm	
Protected Phases	1	1 9	6			2			4	4		
Permitted Phases		6		6	2			2				4
Actuated Green, G (s)	14.7	61.7	52.4	52.4	32.2	32.2		32.2	22.1	22.1	22.1	
Effective Green, g (s)	14.7	61.7	52.4	52.4	32.2	32.2		32.2	22.1	22.1	22.1	
Actuated g/C Ratio	0.10	0.44	0.37	0.37	0.23	0.23		0.23	0.16	0.16	0.16	
Clearance Time (s)	5.5		5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	
Vehicle Extension (s)	2.5		2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	183	353	1311	539	52	1050		289	268	277	231	
v/s Ratio Prot	0.02	c0.15	c0.35			0.22			0.09	c0.09		
v/s Ratio Perm		0.23		0.11	0.14			0.00			0.01	
v/c Ratio	0.20	0.85	0.94	0.30	0.62	0.98		0.02	0.56	0.56	0.05	
Uniform Delay, d1	57.3	39.3	42.4	30.9	48.3	53.5		41.7	54.4	54.5	50.0	
Progression Factor	0.93	0.90	0.88	0.78	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	10.7	9.8	0.9	44.1	22.4		0.1	1.4	1.4	0.0	
Delay (s)	53.5	45.8	47.0	24.8	92.5	75.9		41.8	55.8	55.8	50.1	
Level of Service	D	D	D	C	F	E		D	E	E	D	
Approach Delay (s)			43.9			75.7				54.7		
Approach LOS			D			E				D		

Intersection Summary		
HCM 2000 Control Delay	56.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.81	E
Actuated Cycle Length (s)	140.0	Sum of lost time (s)
Intersection Capacity Utilization	86.4%	31.5
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		E

HCM Signalized Intersection Capacity Analysis
 29: Union Bay PI NE & NE 45th St & NE 45th PI

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour

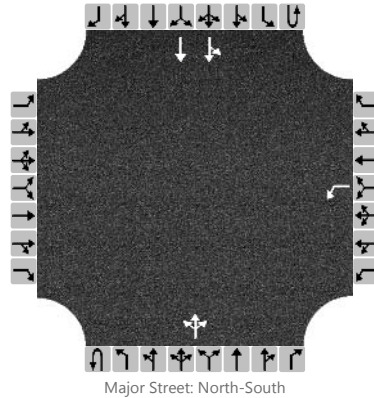


Movement	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Traffic Volume (vph)	30	165	85	35	25	40	180	15
Future Volume (vph)	30	165	85	35	25	40	180	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5			5.5	5.5	
Lane Util. Factor		0.95	0.95			1.00	0.88	
Frbp, ped/bikes		1.00	0.98			1.00	1.00	
Flpb, ped/bikes		1.00	1.00			1.00	1.00	
Frt		1.00	0.97			1.00	0.85	
Flt Protected		0.95	0.99			0.95	1.00	
Satd. Flow (prot)		1698	1681			1787	2814	
Flt Permitted		0.95	0.99			0.95	1.00	
Satd. Flow (perm)		1698	1681			1787	2814	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	31	170	88	36	26	41	186	15
RTOR Reduction (vph)	0	0	7	0	0	0	127	0
Lane Group Flow (vph)	0	162	156	0	0	67	74	0
Confl. Peds. (#/hr)	19	20		38	19	17	38	20
Confl. Bikes (#/hr)				1			1	1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split	Split	NA		Prot	Prot	Prot	
Protected Phases	3	3	3		7	7	8	
Permitted Phases								
Actuated Green, G (s)		23.8	23.8			6.4	19.7	
Effective Green, g (s)		23.8	23.8			6.4	19.7	
Actuated g/C Ratio		0.17	0.17			0.05	0.14	
Clearance Time (s)		5.5	5.5			5.5	5.5	
Vehicle Extension (s)		2.0	2.0			2.5	2.5	
Lane Grp Cap (vph)		288	285			81	395	
v/s Ratio Prot		c0.10	0.09			c0.04	0.03	
v/s Ratio Perm								
v/c Ratio		0.56	0.55			0.83	0.19	
Uniform Delay, d1		53.3	53.2			66.3	53.1	
Progression Factor		1.00	1.00			1.00	1.00	
Incremental Delay, d2		1.5	1.1			46.4	0.2	
Delay (s)		54.8	54.3			112.6	53.2	
Level of Service		D	D			F	D	
Approach Delay (s)			54.6			68.1		
Approach LOS			D			E		
Intersection Summary								

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Transpo			Intersection	Roosevelt Way & 43rd St		
Agency/Co.				Jurisdiction	Seattle		
Date Performed	3/17/2017			East/West Street	NE 43rd St (east)		
Analysis Year	2015			North/South Street	Roosevelt Way NE		
Time Analyzed	PM Peak Hour			Peak Hour Factor	0.91		
Intersection Orientation	North-South			Analysis Time Period (hrs)	1.00		
Project Description	UW Master Plan EIS, Alternative 1 (2028) PM Peak						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	0		0	1	0		0	2	0
Configuration						L					LTR			LT	T	
Volume, V (veh/h)						205				0	0	0		67	1610	
Percent Heavy Vehicles (%)						6				3				1		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.5				4.1				4.1		
Critical Headway (sec)						6.92				4.16				4.12		
Base Follow-Up Headway (sec)						3.5				2.2				2.2		
Follow-Up Headway (sec)						3.56				2.23				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						225				0				74		
Capacity, c (veh/h)						151				344				1241		
v/c Ratio						1.49				0.00				0.06		
95% Queue Length, Q ₉₅ (veh)						44.6				0.0				0.2		
Control Delay (s/veh)						978.3				15.5				8.1		
Level of Service, LOS						F				C				A		
Approach Delay (s/veh)					978.3								12.7			
Approach LOS					F											

Intersection

Int Delay, s/veh 3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔					↕↕
Traffic Vol, veh/h	205	0	0	0	67	1610
Future Vol, veh/h	205	0	0	0	67	1610
Conflicting Peds, #/hr	75	153	0	75	153	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	6	6	0	0	1	1
Mvmt Flow	225	0	0	0	74	1769

Major/Minor

	Minor1	Major2
Conflicting Flow All	1260	153
Stage 1	153	-
Stage 2	1107	-
Critical Hdwy	6.92	4.12
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	5.92	-
Follow-up Hdwy	3.56	2.21
Pot Cap-1 Maneuver	~ 157	1433
Stage 1	-	0
Stage 2	269	0
Platoon blocked, %		-
Mov Cap-1 Maneuver	0	1433
Mov Cap-2 Maneuver	0	-
Stage 1	-	-
Stage 2	0	-

Approach

WB SB
 HCM Control Delay, s 3.7
 HCM LOS -

Minor Lane/Major Mvmt




	WBLn1	SBL	SBT
Capacity (veh/h)	-	1433	-
HCM Lane V/C Ratio	-	0.051	-
HCM Control Delay (s)	-	7.6	3.5
HCM Lane LOS	-	A	A
HCM 95th %tile Q(veh)	-	0.2	-

Notes

-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 4.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	69	0	0	1770	40
Future Vol, veh/h	0	69	0	0	1770	40
Conflicting Peds, #/hr	277	151	151	0	0	277
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	0	0	2	2
Mvmt Flow	0	75	0	0	1924	43

Major/Minor

	Minor2	Major2
Conflicting Flow All	-	1412
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	6.94
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	3.32
Pot Cap-1 Maneuver	0	127
Stage 1	0	-
Stage 2	0	-
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	98
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach
















	EB	SB
HCM Control Delay, s	113.2	0
HCM LOS	F	

Minor Lane/Major Mvmt

	EBLn1	SBT	SBR
Capacity (veh/h)	98	-	-
HCM Lane V/C Ratio	0.765	-	-
HCM Control Delay (s)	113.2	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	4.1	-	-

HCM 2010 Signalized Intersection Summary
 32: 11th Ave NE & NE 43rd St

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	57	0	0	170	25	20	1634	25	0	0	0
Future Volume (veh/h)	45	57	0	0	170	25	20	1634	25	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	0.95		1.00	1.00		0.90	1.00		0.84			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1776	1900	1900	1863	1900			
Adj Flow Rate, veh/h	49	62	0	0	185	27	22	1776	27			
Adj No. of Lanes	0	1	0	0	1	0	0	2	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	0	0	0	7	7	0	2	0			
Cap, veh/h	303	348	0	0	626	91	18	1476	23			
Arrive On Green	0.42	0.42	0.00	0.00	0.14	0.14	0.14	0.14	0.14			
Sat Flow, veh/h	474	828	0	0	1492	218	43	3601	57			
Grp Volume(v), veh/h	111	0	0	0	0	212	957	0	868			
Grp Sat Flow(s),veh/h/ln	1303	0	0	0	0	1709	1861	0	1840			
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	5.6	20.5	0.0	20.5			
Cycle Q Clear(g_c), s	5.8	0.0	0.0	0.0	0.0	5.6	20.5	0.0	20.5			
Prop In Lane	0.44		0.00	0.00		0.13	0.02		0.03			
Lane Grp Cap(c), veh/h	651	0	0	0	0	718	763	0	754			
V/C Ratio(X)	0.17	0.00	0.00	0.00	0.00	0.30	1.25	0.00	1.15			
Avail Cap(c_a), veh/h	651	0	0	0	0	718	763	0	754			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	0.33	0.33	0.33			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	9.0	0.0	0.0	0.0	0.0	14.9	21.6	0.0	21.6			
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.0	0.0	1.0	125.0	0.0	82.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.0	0.0	2.8	37.0	0.0	27.8			
LnGrp Delay(d),s/veh	9.6	0.0	0.0	0.0	0.0	15.9	146.6	0.0	104.5			
LnGrp LOS	A					B	F		F			
Approach Vol, veh/h		111			212			1825				
Approach Delay, s/veh		9.6			15.9			126.6				
Approach LOS		A			B			F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		25.0		25.0				25.0				
Change Period (Y+Rc), s		4.5		4.0				4.0				
Max Green Setting (Gmax), s		20.5		21.0				21.0				
Max Q Clear Time (g_c+I1), s		22.5		7.8				7.6				
Green Ext Time (p_c), s		0.0		1.1				1.1				
Intersection Summary												
HCM 2010 Ctrl Delay				109.6								
HCM 2010 LOS				F								

HCM Signalized Intersection Capacity Analysis
 33: University Way NE & NE 43rd St

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	20	25	7	40	20	50	5	200	55	45	202	5
Future Volume (vph)	20	25	7	40	20	50	5	200	55	45	202	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.93			0.85			0.87			0.99	
Flpb, ped/bikes		0.90			0.83			0.99			0.93	
Frt		0.98			0.94			0.97			1.00	
Flt Protected		0.98			0.98			1.00			0.99	
Satd. Flow (prot)		1493			1234			1466			1632	
Flt Permitted		0.90			0.90			1.00			0.91	
Satd. Flow (perm)		1367			1131			1461			1503	
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)	22	27	8	43	22	54	5	215	59	48	217	5
RTOR Reduction (vph)	0	5	0	0	15	0	0	19	0	0	2	0
Lane Group Flow (vph)	0	52	0	0	104	0	0	260	0	0	268	0
Confl. Peds. (#/hr)	179		298	298		179	690		591	591		690
Confl. Bikes (#/hr)			2			3			63			25
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	8%	8%	8%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		17.0			17.0			24.5			24.5	
Effective Green, g (s)		17.0			17.0			24.5			24.5	
Actuated g/C Ratio		0.34			0.34			0.49			0.49	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		464			384			715			736	
v/s Ratio Prot												
v/s Ratio Perm		0.04			c0.09			0.18			c0.18	
v/c Ratio		0.11			0.27			0.36			0.36	
Uniform Delay, d1		11.3			12.0			7.9			7.9	
Progression Factor		0.49			1.29			0.62			0.50	
Incremental Delay, d2		0.4			1.7			1.4			1.3	
Delay (s)		6.0			17.1			6.2			5.2	
Level of Service		A			B			A			A	
Approach Delay (s)		6.0			17.1			6.2			5.2	
Approach LOS		A			B			A			A	

Intersection Summary		
HCM 2000 Control Delay	7.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.33	A
Actuated Cycle Length (s)	50.0	Sum of lost time (s)
Intersection Capacity Utilization	52.5%	8.5
Analysis Period (min)	15	ICU Level of Service
		A

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 34: 15th Ave NE & NE 43rd St

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	45	30	955	639	130
Future Volume (vph)	60	45	30	955	639	130
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	4.5
Lane Util. Factor	1.00			0.95	0.95	1.00
Frbp, ped/bikes	0.87			1.00	1.00	0.64
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.94			1.00	1.00	0.85
Flt Protected	0.97			1.00	1.00	1.00
Satd. Flow (prot)	1478			3355	3343	950
Flt Permitted	0.97			0.92	1.00	1.00
Satd. Flow (perm)	1478			3102	3343	950
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	47	32	1005	673	137
RTOR Reduction (vph)	32	0	0	0	0	69
Lane Group Flow (vph)	78	0	0	1037	673	69
Confl. Peds. (#/hr)	262	361	182			182
Confl. Bikes (#/hr)						3
Heavy Vehicles (%)	2%	2%	7%	7%	8%	8%
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	2	
Permitted Phases			2			2
Actuated Green, G (s)	16.0			25.0	25.0	25.0
Effective Green, g (s)	16.0			25.0	25.0	25.0
Actuated g/C Ratio	0.32			0.50	0.50	0.50
Clearance Time (s)	4.5			4.5	4.5	4.5
Lane Grp Cap (vph)				1551	1671	475
v/s Ratio Prot	c0.05				0.20	
v/s Ratio Perm				c0.33		0.07
v/c Ratio	0.17			0.67	0.40	0.14
Uniform Delay, d1	12.2			9.4	7.8	6.7
Progression Factor	1.27			0.39	0.88	1.70
Incremental Delay, d2	0.7			1.9	0.6	0.5
Delay (s)	16.3			5.6	7.5	12.0
Level of Service	B			A	A	B
Approach Delay (s)	16.3			5.6	8.2	
Approach LOS	B			A	A	

Intersection Summary

HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	68.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

UW Master Plan EIS

35: Memorial Way NE & Burke Museum Access/East Stevens Way NE Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Yield	
Traffic Volume (vph)	109	12	5	10	21	242	0	55	15	252	65	103
Future Volume (vph)	109	12	5	10	21	242	0	55	15	252	65	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	118	13	5	11	23	263	0	60	16	274	71	112




















Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	136	297	30	46	310	148
Volume Left (vph)	118	11	0	0	274	0
Volume Right (vph)	5	263	0	16	0	112
Hadj (s)	0.15	-0.52	0.44	0.20	0.53	-0.45
Departure Headway (s)	5.9	5.0	6.9	6.6	6.4	5.4
Degree Utilization, x	0.22	0.41	0.06	0.08	0.55	0.22
Capacity (veh/h)	558	673	465	490	545	642
Control Delay (s)	10.6	11.5	9.1	9.0	15.6	8.7
Approach Delay (s)	10.6	11.5	9.0		13.4	
Approach LOS	B	B	A		B	

Intersection Summary

Delay	12.1
Level of Service	B
Intersection Capacity Utilization	68.4%
ICU Level of Service	C
Analysis Period (min)	15

HCM 2010 Signalized Intersection Summary
 36: Montlake Blvd NE & Stevens Way

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	106	108	5	65	210	90	791	5	65	459	142
Future Volume (veh/h)	187	106	108	5	65	210	90	791	5	65	459	142
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.90	0.97		0.85	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1900	1900	1827	1900	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	197	112	114	5	68	221	95	833	5	68	483	149
Adj No. of Lanes	1	2	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	4	4	4	0	0	0	1	1	1
Cap, veh/h	239	541	436	39	326	226	369	1978	12	87	1024	314
Arrive On Green	0.11	0.32	0.32	0.19	0.19	0.19	0.20	0.54	0.54	0.05	0.38	0.38
Sat Flow, veh/h	1707	1703	1372	62	1724	1195	1810	3678	22	1792	2681	821
Grp Volume(v), veh/h	197	112	114	73	0	221	95	409	429	68	321	311
Grp Sat Flow(s),veh/h/ln	1707	1703	1372	1786	0	1195	1810	1805	1895	1792	1787	1715
Q Serve(g_s), s	12.6	6.7	8.7	0.0	0.0	25.7	6.2	18.9	18.9	5.3	18.9	19.2
Cycle Q Clear(g_c), s	12.6	6.7	8.7	4.6	0.0	25.7	6.2	18.9	18.9	5.3	18.9	19.2
Prop In Lane	1.00		1.00	0.07		1.00	1.00		0.01	1.00		0.48
Lane Grp Cap(c), veh/h	239	541	436	594	0	226	369	971	1019	87	683	655
V/C Ratio(X)	0.82	0.21	0.26	0.12	0.00	0.98	0.26	0.42	0.42	0.78	0.47	0.47
Avail Cap(c_a), veh/h	350	651	524	594	0	226	369	971	1019	198	683	655
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.00	0.99	0.84	0.84	0.84	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	34.9	35.6	47.9	0.0	56.4	46.8	19.3	19.3	65.9	32.6	32.6
Incr Delay (d2), s/veh	9.8	0.2	0.3	0.0	0.0	52.5	0.1	1.1	1.1	5.7	2.3	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	3.2	3.3	2.0	0.0	11.8	3.1	9.7	10.2	2.7	9.8	9.5
LnGrp Delay(d),s/veh	50.3	35.1	35.9	47.9	0.0	108.9	46.9	20.5	20.4	71.6	34.9	35.1
LnGrp LOS	D	D	D	D		F	D	C	C	E	C	D
Approach Vol, veh/h		423			294			933			700	
Approach Delay, s/veh		42.4			93.8			23.1			38.6	
Approach LOS		D			F			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	11.3	79.8	18.0	31.0	33.0	58.0		49.0				
Change Period (Y+Rc), s	4.5	4.5	3.0	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	15.5	57.5	24.0	26.5	19.5	53.5		53.5				
Max Q Clear Time (g_c+I1), s	7.3	20.9	14.6	27.7	8.2	21.2		10.7				
Green Ext Time (p_c), s	0.0	5.4	0.4	0.0	3.0	0.6		3.2				
Intersection Summary												
HCM 2010 Ctrl Delay			40.0									
HCM 2010 LOS			D									

HCM Signalized Intersection Capacity Analysis

37: Montlake Blvd NE & Stevens Way

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	13	0	23	23	57	0	1452	48	8	531	272
Future Volume (vph)	148	13	0	23	23	57	0	1452	48	8	531	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lane Util. Factor	0.95	0.95			0.95	1.00		0.95			0.95	1.00
Frbp, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	0.97
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00			1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	0.96			0.98	1.00		1.00			1.00	1.00
Satd. Flow (prot)	1618	1634			3292	1509		3554			3536	1537
Flt Permitted	0.72	0.73			0.79	1.00		1.00			0.92	1.00
Satd. Flow (perm)	1233	1236			2663	1509		3554			3255	1537
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)	157	14	0	24	24	61	0	1545	51	9	565	289
RTOR Reduction (vph)	0	0	0	0	0	55	0	1	0	0	0	48
Lane Group Flow (vph)	85	86	0	0	48	6	0	1595	0	0	574	241
Confl. Peds. (#/hr)							7		2	2		7
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	1%	1%	1%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm		NA		Perm	NA	Perm
Protected Phases		2			2			1			1	
Permitted Phases	2			2		2				1		1
Actuated Green, G (s)	14.1	14.1			14.1	14.1		116.9			116.9	116.9
Effective Green, g (s)	14.1	14.1			14.1	14.1		116.9			116.9	116.9
Actuated g/C Ratio	0.10	0.10			0.10	0.10		0.84			0.84	0.84
Clearance Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Vehicle Extension (s)	2.0	2.0			2.0	2.0		0.2			0.2	0.2
Lane Grp Cap (vph)	124	124			268	151		2967			2717	1283
v/s Ratio Prot								c0.45				
v/s Ratio Perm	0.07	c0.07			0.02	0.00					0.18	0.16
v/c Ratio	0.69	0.69			0.18	0.04		0.54			0.21	0.19
Uniform Delay, d1	60.8	60.9			57.6	56.8		3.5			2.3	2.3
Progression Factor	0.54	0.54			1.00	1.00		1.08			0.42	0.15
Incremental Delay, d2	11.6	12.5			0.1	0.0		0.6			0.2	0.3
Delay (s)	44.5	45.4			57.8	56.9		4.3			1.1	0.7
Level of Service	D	D			E	E		A			A	A
Approach Delay (s)		45.0			57.3			4.3			1.0	
Approach LOS		D			E			A			A	

Intersection Summary

HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis










38: Montlake Blvd NE

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour

	↑	↗	↘	↓	↙	↖
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↑↑	↗↗		↑↑	↘↘	
Traffic Volume (vph)	856	1440	0	577	644	0
Future Volume (vph)	856	1440	0	577	644	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	
Lane Util. Factor	0.95	0.88		0.95	0.97	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	1.00	1.00		1.00	0.95	
Satd. Flow (prot)	3574	2814		3610	3433	
Flt Permitted	1.00	1.00		1.00	0.95	
Satd. Flow (perm)	3574	2814		3610	3433	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	882	1485	0	595	664	0
RTOR Reduction (vph)	0	784	0	0	0	0
Lane Group Flow (vph)	882	701	0	595	664	0
Heavy Vehicles (%)	1%	1%	0%	0%	2%	2%
Turn Type	NA	Perm		NA	Prot	
Protected Phases	2			2	1	
Permitted Phases		2				
Actuated Green, G (s)	66.1	66.1		66.1	64.9	
Effective Green, g (s)	66.1	66.1		66.1	64.9	
Actuated g/C Ratio	0.47	0.47		0.47	0.46	
Clearance Time (s)	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	0.2	
Lane Grp Cap (vph)	1687	1328		1704	1591	
v/s Ratio Prot	0.25			0.16	c0.19	
v/s Ratio Perm		c0.25				
v/c Ratio	0.52	0.53		0.35	0.42	
Uniform Delay, d1	25.9	26.0		23.4	25.0	
Progression Factor	1.00	1.00		0.47	0.48	
Incremental Delay, d2	0.1	0.2		0.0	0.8	
Delay (s)	26.0	26.2		11.1	12.9	
Level of Service	C	C		B	B	
Approach Delay (s)	26.1			11.1	12.9	
Approach LOS	C			B	B	
Intersection Summary						
HCM 2000 Control Delay			21.2		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.47			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	9.0
Intersection Capacity Utilization			54.1%		ICU Level of Service	A
Analysis Period (min)			15			
c	Critical Lane Group					

HCM 2010 Signalized Intersection Summary
 39: Roosevelt Way NE & NE 42nd St (north)

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations						 		
Traffic Volume (veh/h)	100	0	0	0	175	1724		
Future Volume (veh/h)	100	0	0	0	175	1724		
Number	7	14			5	2		
Initial Q (Qb), veh	0	0			0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00			
Parking Bus, Adj	1.00	1.00			1.00	1.00		
Adj Sat Flow, veh/h/ln	1881	0			1900	1863		
Adj Flow Rate, veh/h	109	0			190	1874		
Adj No. of Lanes	1	0			0	2		
Peak Hour Factor	0.92	0.92			0.92	0.92		
Percent Heavy Veh, %	1	0			2	2		
Cap, veh/h	0	0			321	2948		
Arrive On Green	0.00	0.00			0.32	0.32		
Sat Flow, veh/h	0				292	3172		
Grp Volume(v), veh/h	0.0				1109	955		
Grp Sat Flow(s),veh/h/ln					1769	1610		
Q Serve(g_s), s					50.8	50.5		
Cycle Q Clear(g_c), s					54.0	50.5		
Prop In Lane					0.17			
Lane Grp Cap(c), veh/h					1732	1538		
V/C Ratio(X)					0.64	0.62		
Avail Cap(c_a), veh/h					1732	1538		
HCM Platoon Ratio					0.33	0.33		
Upstream Filter(I)					1.00	1.00		
Uniform Delay (d), s/veh					20.0	18.8		
Incr Delay (d2), s/veh					1.8	1.9		
Initial Q Delay(d3),s/veh					0.0	0.0		
%ile BackOfQ(50%),veh/ln					27.4	23.3		
LnGrp Delay(d),s/veh					21.8	20.7		
LnGrp LOS					C	C		
Approach Vol, veh/h						2064		
Approach Delay, s/veh						21.3		
Approach LOS						C		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						
Phs Duration (G+Y+Rc), s		100.0						
Change Period (Y+Rc), s		4.5						
Max Green Setting (Gmax), s		72.5						
Max Q Clear Time (g_c+I1), s		56.0						
Green Ext Time (p_c), s		3.0						
Intersection Summary								
HCM 2010 Ctrl Delay			21.3					
HCM 2010 LOS			C					

HCM Signalized Intersection Capacity Analysis
40: NE 42nd St (north)/NE 42nd St & 11th Ave NE

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↔				
Traffic Volume (vph)	60	120	0	0	70	199	25	1380	105	0	0	0
Future Volume (vph)	60	120	0	0	70	199	25	1380	105	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			0.84			0.99				
Flpb, ped/bikes		0.96			1.00			1.00				
Frt		1.00			0.90			0.99				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1799			1429			3446				
Flt Permitted		0.72			1.00			1.00				
Satd. Flow (perm)		1325			1429			3446				
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)	66	132	0	0	77	219	27	1516	115	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	198	0	0	286	0	0	1648	0	0	0	0
Confl. Peds. (#/hr)	200		131	131		200	28		72	72		28
Confl. Bikes (#/hr)			9			26			95			1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	2%	2%	2%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		13.2			13.2			28.3				
Effective Green, g (s)		13.2			13.2			28.3				
Actuated g/C Ratio		0.26			0.26			0.57				
Clearance Time (s)		4.0			4.0			4.5				
Vehicle Extension (s)		2.0			2.0			0.2				
Lane Grp Cap (vph)		349			377			1950				
v/s Ratio Prot					c0.20							
v/s Ratio Perm		0.15						0.48				
v/c Ratio		0.57			0.76			0.85				
Uniform Delay, d1		15.9			16.9			9.0				
Progression Factor		0.90			0.99			1.00				
Incremental Delay, d2		0.8			7.6			4.7				
Delay (s)		15.1			24.4			13.8				
Level of Service		B			C			B				
Approach Delay (s)		15.1			24.4			13.8			0.0	
Approach LOS		B			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.3					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			50.0					Sum of lost time (s)			8.5	
Intersection Capacity Utilization			91.3%					ICU Level of Service			F	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

41: University Way NE & NE 42nd St

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	35	155	23	10	81	25	30	190	15	15	164	40
Future Volume (vph)	35	155	23	10	81	25	30	190	15	15	164	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.93			0.87			0.96			0.86	
Flpb, ped/bikes		0.92			0.96			0.94			0.97	
Frt		0.99			0.97			0.99			0.98	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1592			1531			1565			1468	
Flt Permitted		0.95			0.97			0.95			0.98	
Satd. Flow (perm)		1517			1496			1491			1436	
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)	37	165	24	11	86	27	32	202	16	16	174	43
RTOR Reduction (vph)	0	1	0	0	6	0	0	3	0	0	6	0
Lane Group Flow (vph)	0	225		0	118		0	247		0	227	
Confl. Peds. (#/hr)	596		653	653		596	903		681	681		903
Confl. Bikes (#/hr)			26			33			80			29
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	7%	7%	7%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		19.0			19.0			22.5			22.5	
Effective Green, g (s)		19.0			19.0			22.5			22.5	
Actuated g/C Ratio		0.38			0.38			0.45			0.45	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		576			568			670			646	
v/s Ratio Prot												
v/s Ratio Perm		c0.15			0.08			c0.17			0.16	
v/c Ratio		0.39			0.21			0.37			0.35	
Uniform Delay, d1		11.3			10.4			9.1			9.0	
Progression Factor		1.20			0.65			0.95			1.36	
Incremental Delay, d2		1.5			0.8			1.5			1.4	
Delay (s)		15.1			7.6			10.2			13.6	
Level of Service		B			A			B			B	
Approach Delay (s)		15.1			7.6			10.2			13.6	
Approach LOS		B			A			B			B	
Intersection Summary												
HCM 2000 Control Delay		12.1			HCM 2000 Level of Service			B				
HCM 2000 Volume to Capacity ratio		0.38										
Actuated Cycle Length (s)		50.0			Sum of lost time (s)			8.5				
Intersection Capacity Utilization		47.1%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
42: 15th Ave NE & NE 42nd St

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	110	85	61	870	644	45
Future Volume (vph)	110	85	61	870	644	45
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.5	4.5	4.5	
Lane Util. Factor	1.00		1.00	0.95	0.95	
Frpb, ped/bikes	0.85		1.00	1.00	0.97	
Flpb, ped/bikes	1.00		0.84	1.00	1.00	
Frt	0.94		1.00	1.00	0.99	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	1481		1403	3343	3166	
Flt Permitted	0.97		0.32	1.00	1.00	
Satd. Flow (perm)	1481		475	3343	3166	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	92	66	946	700	49
RTOR Reduction (vph)	17	0	0	0	10	0
Lane Group Flow (vph)	195	0	66	946	739	0
Confl. Peds. (#/hr)	722	512	293			293
Confl. Bikes (#/hr)		6				17
Heavy Vehicles (%)	0%	0%	8%	8%	9%	9%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	18.0		23.5	23.5	23.5	
Effective Green, g (s)	18.0		23.5	23.5	23.5	
Actuated g/C Ratio	0.36		0.47	0.47	0.47	
Clearance Time (s)	4.0		4.5	4.5	4.5	
Lane Grp Cap (vph)	533		223	1571	1488	
v/s Ratio Prot	c0.13			c0.28	0.23	
v/s Ratio Perm			0.14			
v/c Ratio	0.37		0.30	0.60	0.50	
Uniform Delay, d1	11.8		8.2	9.8	9.2	
Progression Factor	0.44		0.51	0.60	1.48	
Incremental Delay, d2	1.8		3.2	1.6	1.1	
Delay (s)	7.1		7.3	7.5	14.7	
Level of Service	A		A	A	B	
Approach Delay (s)	7.1			7.5	14.7	
Approach LOS	A			A	B	

Intersection Summary

HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations									
Traffic Vol, veh/h	0	147	148	0	65	133	0	89	85
Future Vol, veh/h	0	147	148	0	65	133	0	89	85
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	6	6	6	8	8	8	17	17	17
Mvmt Flow	0	167	168	0	74	151	0	101	97
Number of Lanes	0	1	0	0	1	0	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	11.8	9.8	10.8
HCM LOS	B	A	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	50%	51%
Vol Thru, %	33%	0%	49%
Vol Right, %	67%	50%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	198	295	174
LT Vol	0	147	89
Through Vol	65	0	85
RT Vol	133	148	0
Lane Flow Rate	225	335	198
Geometry Grp	1	1	1
Degree of Util (X)	0.296	0.45	0.297
Departure Headway (Hd)	4.741	4.828	5.401
Convergence, Y/N	Yes	Yes	Yes
Cap	749	741	658
Service Time	2.822	2.898	3.487
HCM Lane V/C Ratio	0.3	0.452	0.301
HCM Control Delay	9.8	11.8	10.8
HCM Lane LOS	A	B	B
HCM 95th-tile Q	1.2	2.3	1.2

HCM Signalized Intersection Capacity Analysis

44: I-5 NB Express Lane Off Ramp & 7th Ave NE & NE 42nd St/NE 42nd St (south) 1 PM Peak Hour



Movement	WBL2	WBT	WBR	NBL	NBT	NBR	NEL	NER	NER2
Lane Configurations									
Traffic Volume (vph)	138	15	85	5	278	143	307	204	202
Future Volume (vph)	138	15	85	5	278	143	307	204	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.93		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.97	1.00		1.00	1.00	
Frt	1.00	0.87		1.00	0.95		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1513		1740	1772		1736	1553	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1513		1740	1772		1736	1553	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	152	16	93	5	305	157	337	224	222
RTOR Reduction (vph)	0	76	0	0	20	0	0	55	0
Lane Group Flow (vph)	152	33	0	5	442	0	337	391	0
Confl. Peds. (#/hr)			54	13					
Confl. Bikes (#/hr)			1			1			
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	4%	4%	4%
Turn Type	Split	NA		Perm	NA		Prot	Perm	
Protected Phases	3	3			2		4		
Permitted Phases				2				4	
Actuated Green, G (s)	14.4	14.4		25.9	25.9		25.5	25.5	
Effective Green, g (s)	14.4	14.4		25.9	25.9		25.5	25.5	
Actuated g/C Ratio	0.18	0.18		0.32	0.32		0.32	0.32	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	315	269		557	568		547	490	
v/s Ratio Prot	c0.09	0.02			c0.25		0.19		
v/s Ratio Perm				0.00				c0.25	
v/c Ratio	0.48	0.12		0.01	0.78		0.62	0.80	
Uniform Delay, d1	29.9	27.9		18.7	24.9		23.5	25.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.2		0.0	7.8		3.0	10.0	
Delay (s)	31.0	28.1		18.7	32.6		26.5	35.3	
Level of Service	C	C		B	C		C	D	
Approach Delay (s)		29.8			32.5		31.5		
Approach LOS		C			C		C		

Intersection Summary				
HCM 2000 Control Delay		31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio		0.72		
Actuated Cycle Length (s)		80.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization		68.6%	ICU Level of Service	C
Analysis Period (min)		15		
c	Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
45: Roosevelt Way NE & NE 42nd St (south)

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗			↕↕	↗
Traffic Volume (vph)	0	352	0	0	1699	175
Future Volume (vph)	0	352	0	0	1699	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5	4.5
Lane Util. Factor		1.00			0.95	1.00
Frbp, ped/bikes		1.00			1.00	0.73
Flpb, ped/bikes		1.00			1.00	1.00
Frt		0.86			1.00	0.85
Flt Protected		1.00			1.00	1.00
Satd. Flow (prot)		1580			3539	1163
Flt Permitted		1.00			1.00	1.00
Satd. Flow (perm)		1580			3539	1163
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	367	0	0	1770	182
RTOR Reduction (vph)	0	9	0	0	0	25
Lane Group Flow (vph)	0	358	0	0	1770	157
Confl. Peds. (#/hr)	178		117			117
Confl. Bikes (#/hr)		2				38
Heavy Vehicles (%)	4%	4%	0%	0%	2%	2%
Turn Type		Prot			NA	Perm
Protected Phases		4			2	
Permitted Phases						2
Actuated Green, G (s)		25.9			64.6	64.6
Effective Green, g (s)		25.9			64.6	64.6
Actuated g/C Ratio		0.26			0.65	0.65
Clearance Time (s)		5.0			4.5	4.5
Vehicle Extension (s)		2.0			0.2	0.2
Lane Grp Cap (vph)		409			2286	751
v/s Ratio Prot		c0.23			c0.50	
v/s Ratio Perm						0.13
v/c Ratio		0.88			0.77	0.21
Uniform Delay, d1		35.5			12.5	7.2
Progression Factor		1.00			0.42	0.20
Incremental Delay, d2		18.0			1.7	0.4
Delay (s)		53.5			7.0	1.9
Level of Service		D			A	A
Approach Delay (s)	53.5			0.0	6.5	
Approach LOS	D			A	A	

Intersection Summary

HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Int Delay, s/veh 1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔					↕↕
Traffic Vol, veh/h	10	0	0	0	213	1843
Future Vol, veh/h	10	0	0	0	213	1843
Conflicting Peds, #/hr	15	30	0	15	30	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	2	2
Mvmt Flow	11	0	0	0	224	1940

Major/Minor

	Minor1	Major2
Conflicting Flow All	1463	30
Stage 1	30	-
Stage 2	1433	-
Critical Hdwy	6.8	4.14
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	5.8	-
Follow-up Hdwy	3.5	2.22
Pot Cap-1 Maneuver	122	1581
Stage 1	-	-
Stage 2	189	-
Platoon blocked, %		
Mov Cap-1 Maneuver	119	1581
Mov Cap-2 Maneuver	119	-
Stage 1	-	-
Stage 2	189	-

Approach

	WB	SB
HCM Control Delay, s	38.2	0.8
HCM LOS	E	

Minor Lane/Major Mvmt

	WBLn1	SBL	SBT
Capacity (veh/h)	119	1581	-
HCM Lane V/C Ratio	0.088	0.142	-
HCM Control Delay (s)	38.2	7.7	0
HCM Lane LOS	E	A	A
HCM 95th %tile Q(veh)	0.3	0.5	-

Intersection

Int Delay, s/veh 184.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	40	15	15	80	20	22	25	5	15	80	51
Future Vol, veh/h	10	40	15	15	80	20	22	25	5	15	80	51
Conflicting Peds, #/hr	408	0	441	416	0	383	441	0	416	383	0	408
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	4	4	4	10	10	10	0	0	0	0	0	0
Mvmt Flow	12	48	18	18	95	24	26	30	6	18	95	61

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1155	1106	1008	1136	1134	857	597	0	0	452	0	0
Stage 1	602	602	-	501	501	-	-	-	-	-	-	-
Stage 2	553	504	-	635	633	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.2	6.6	6.3	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.2	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.2	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.59	4.09	3.39	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	172	209	289	173	196	345	989	-	-	1119	-	-
Stage 1	483	486	-	538	530	-	-	-	-	-	-	-
Stage 2	514	538	-	453	461	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	-	81	116	31	~ 75	149	626	-	-	739	-	-
Mov Cap-2 Maneuver	-	81	-	31	~ 75	-	-	-	-	-	-	-
Stage 1	293	299	-	337	332	-	-	-	-	-	-	-
Stage 2	195	337	-	198	284	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		\$ 602.1	4.7	1
HCM LOS	-	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	626	-	-	- 68	739	-	-
HCM Lane V/C Ratio	0.042	-	-	- 2.013	0.024	-	-
HCM Control Delay (s)	11	0	-	-\$ 602.1	10	0	-
HCM Lane LOS	B	A	-	F	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	- 12.7	0.1	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A


Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	5	50	10	0	20	75	25	0	40	220	10
Future Vol, veh/h	0	5	50	10	0	20	75	25	0	40	220	10
Peak Hour Factor	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	1	1	1	1	5	5	5	5
Mvmt Flow	0	6	56	11	0	22	84	28	0	45	247	11
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.8	9.2	10.8
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	15%	8%	17%	16%
Vol Thru, %	81%	77%	62%	73%
Vol Right, %	4%	15%	21%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	270	65	120	128
LT Vol	40	5	20	20
Through Vol	220	50	75	93
RT Vol	10	10	25	15
Lane Flow Rate	303	73	135	144
Geometry Grp	1	1	1	1
Degree of Util (X)	0.395	0.104	0.187	0.199
Departure Headway (Hd)	4.692	5.132	4.993	4.983
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	764	693	715	716
Service Time	2.745	3.202	3.056	3.044
HCM Lane V/C Ratio	0.397	0.105	0.189	0.201
HCM Control Delay	10.8	8.8	9.2	9.3
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.9	0.3	0.7	0.7

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations				
Traffic Vol, veh/h	0	20	93	15
Future Vol, veh/h	0	20	93	15
Peak Hour Factor	0.85	0.89	0.89	0.89
Heavy Vehicles, %	14	14	14	14
Mvmt Flow	0	22	104	17
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.3
HCM LOS	A

Intersection

Int Delay, s/veh 323.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	50	10	28	70	30	10	175	17	35	152	30
Future Vol, veh/h	10	50	10	28	70	30	10	175	17	35	152	30
Conflicting Peds, #/hr	1133	0	1232	1287	0	1188	1232	0	1287	1188	0	1133
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	13	13	13	6	6	6
Mvmt Flow	11	56	11	31	79	34	11	197	19	39	171	34

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2971	3023	2707	3103	3031	2681	1436	0	0	1503	0	0
Stage 1	1498	1498	-	1516	1516	-	-	-	-	-	-	-
Stage 2	1473	1525	-	1587	1515	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.23	-	-	4.16	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.317	-	-	2.254	-	-
Pot Cap-1 Maneuver	~ 9	~ 13	28	~ 7	~ 13	~ 29	440	-	-	434	-	-
Stage 1	154	187	-	151	184	-	-	-	-	-	-	-
Stage 2	159	182	-	137	184	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	-	0	0	-	0	0	~ -32	-	-	~ 4	-	-
Mov Cap-2 Maneuver	-	0	-	-	0	-	-	-	-	-	-	-
Stage 1	~ 4	0	-	~ 11	~ -13	-	-	-	-	-	-	-
Stage 2	~ 11	~ -13	-	-	0	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s				\$ 920.7
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	+	-	-	-	~ 4	-	-
HCM Lane V/C Ratio	-	-	-	-	9.831	-	-
HCM Control Delay (s)	-	-	-	-	\$ 5708.1	0	-
HCM Lane LOS	-	-	-	-	F	A	-
HCM 95th %tile Q(veh)	-	-	-	-	6.6	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis
 50: 15th Ave NE & NE 41st St/UW Campus Parking Access

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↔			↕	↕	↕	↕↕	↕	↕	↕↔	
Traffic Volume (vph)	36	15	48	65	30	115	36	780	75	90	586	53
Future Volume (vph)	36	15	48	65	30	115	36	780	75	90	586	53
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	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes		0.87			1.00	0.60	1.00	1.00	0.48	1.00	0.95	
Flpb, ped/bikes		0.88			0.87	1.00	0.79	1.00	1.00	0.86	1.00	
Frt		0.93			1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1331			1579	960	1326	3343	724	1454	3169	
Flt Permitted		0.87			0.73	1.00	0.37	1.00	1.00	0.31	1.00	
Satd. Flow (perm)		1175			1196	960	523	3343	724	479	3169	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	16	52	71	33	125	39	848	82	98	637	58
RTOR Reduction (vph)	0	39	0	0	0	59	0	0	22	0	1	0
Lane Group Flow (vph)	0	68	0	0	104	66	39	848	60	98	694	0
Confl. Peds. (#/hr)	540		179	179		540	368		213	213		368
Confl. Bikes (#/hr)			11			3			17			11
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	8%	8%	8%	7%	7%	7%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2				2
Permitted Phases	4			4		4	2		2	2		
Actuated Green, G (s)		18.4			18.4	18.4	73.1	73.1	73.1	73.1	73.1	
Effective Green, g (s)		18.4			18.4	18.4	73.1	73.1	73.1	73.1	73.1	
Actuated g/C Ratio		0.18			0.18	0.18	0.73	0.73	0.73	0.73	0.73	
Clearance Time (s)		4.0			4.0	4.0	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	0.2	0.2	
Lane Grp Cap (vph)		216			220	176	382	2443	529	350	2316	
v/s Ratio Prot								c0.25				0.22
v/s Ratio Perm		0.06			c0.09	0.07	0.07		0.08	0.20		
v/c Ratio		0.31			0.47	0.38	0.10	0.35	0.11	0.28	0.30	
Uniform Delay, d1		35.3			36.5	35.8	3.9	4.8	3.9	4.5	4.6	
Progression Factor		1.19			1.00	1.00	0.24	0.20	0.01	1.12	1.10	
Incremental Delay, d2		0.8			1.6	1.4	0.5	0.4	0.4	1.8	0.3	
Delay (s)		42.7			38.1	37.1	1.5	1.4	0.5	6.9	5.4	
Level of Service		D			D	D	A	A	A	A	A	
Approach Delay (s)		42.7			37.6			1.3			5.6	
Approach LOS		D			D			A			A	

Intersection Summary

HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	58.1
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↔				↔				↔	↔
Traffic Vol, veh/h	0	100	150	15	0	185	300	25	0	5	271	255
Future Vol, veh/h	0	100	150	15	0	185	300	25	0	5	271	255
Peak Hour Factor	0.25	0.98	0.98	0.98	0.25	0.98	0.98	0.98	0.92	0.98	0.98	0.98
Heavy Vehicles, %	3	3	3	3	4	4	4	4	2	1	1	1
Mvmt Flow	0	102	153	15	0	189	306	26	0	5	277	260
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	1	1
HCM Control Delay	27.8	123.4	24.8
HCM LOS	D	F	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	0%	38%	36%	8%
Vol Thru, %	98%	0%	57%	59%	55%
Vol Right, %	0%	100%	6%	5%	37%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	276	255	265	510	325
LT Vol	5	0	100	185	25
Through Vol	271	0	150	300	180
RT Vol	0	255	15	25	120
Lane Flow Rate	282	260	270	520	332
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.666	0.564	0.65	1.165	0.759
Departure Headway (Hd)	9.094	8.356	9.235	8.059	8.879
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	400	435	395	453	411
Service Time	6.794	6.056	7.235	6.133	6.879
HCM Lane V/C Ratio	0.705	0.598	0.684	1.148	0.808
HCM Control Delay	28.1	21.3	27.8	123.4	34.9
HCM Lane LOS	D	C	D	F	D
HCM 95th-tile Q	4.7	3.4	4.4	19.2	6.3

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	25	180	120
Future Vol, veh/h	0	25	180	120
Peak Hour Factor	0.25	0.98	0.98	0.98
Heavy Vehicles, %	1	1	1	1
Mvmt Flow	0	26	184	122
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	34.9
HCM LOS	D

Intersection											
Int Delay, s/veh	0.9										
Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR	
Lane Configurations			↑		↑		↑				
Traffic Vol, veh/h	0	0	415	0	235	0	0	60	0	0	
Future Vol, veh/h	0	0	415	0	235	0	0	60	0	0	
Conflicting Peds, #/hr	0	0	0	0	0	0	79	87	0	79	
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	
RT Channelized	-	-	None	-	-	None	-	None	-	-	
Storage Length	-	-	0	-	-	-	0	-	-	-	
Veh in Median Storage, #	-	0	-	-	0	-	0	-	-	-	
Grade, %	-	0	-	-	0	-	0	-	0	-	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	
Heavy Vehicles, %	1	1	1	0	0	0	0	0	3	3	
Mvmt Flow	0	0	451	0	255	0	0	65	0	0	
Major/Minor	Major1			Major2			Minor2				
Conflicting Flow All	-	-	0	-	-	0	334	342			
Stage 1	-	-	-	-	-	-	255	-			
Stage 2	-	-	-	-	-	-	79	-			
Critical Hdwy	-	-	-	-	-	-	6.4	6.2			
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	-			
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-			
Follow-up Hdwy	-	-	-	-	-	-	3.5	3.3			
Pot Cap-1 Maneuver	0	0	-	0	-	0	665	705			
Stage 1	0	0	-	0	-	0	792	-			
Stage 2	0	0	-	0	-	0	-	-			
Platoon blocked, %			-			-					
Mov Cap-1 Maneuver	-	-	-	-	-	-	665	654			
Mov Cap-2 Maneuver	-	-	-	-	-	-	665	-			
Stage 1	-	-	-	-	-	-	792	-			
Stage 2	-	-	-	-	-	-	-	-			
Approach	EB			WB			SB				
HCM Control Delay, s	0			0			11.1				
HCM LOS							B				
Minor Lane/Major Mvmt	EBR	WBT	SBLn1								
Capacity (veh/h)	-	-	654								
HCM Lane V/C Ratio	-	-	0.1								
HCM Control Delay (s)	-	-	11.1								
HCM Lane LOS	-	-	B								
HCM 95th %tile Q(veh)	-	-	0.3								

HCM Signalized Intersection Capacity Analysis

53: University Bridge/Roosevelt Way NE & NE Campus Pkwy & Eastlake Ave NE

Alt 1 PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations			↑↑	↑	↑	↑↑		
Traffic Volume (vph)	0	0	1171	283	116	1692	0	0
Future Volume (vph)	0	0	1171	283	116	1692	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5	4.5	4.5	4.5		
Lane Util. Factor			0.95	1.00	1.00	0.95		
Frbp, ped/bikes			1.00	0.92	1.00	1.00		
Flpb, ped/bikes			1.00	1.00	1.00	1.00		
Frt			1.00	0.85	1.00	1.00		
Flt Protected			1.00	1.00	0.95	1.00		
Satd. Flow (prot)			3539	1464	1752	3505		
Flt Permitted			1.00	1.00	0.95	1.00		
Satd. Flow (perm)			3539	1464	1752	3505		
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	1246	301	123	1800	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	1246	301	123	1800	0	0
Confl. Peds. (#/hr)	17	15		17	15			
Confl. Bikes (#/hr)				153				
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%	3%	3%
Turn Type			NA	Perm	Prot	NA		
Protected Phases			2		4	2		
Permitted Phases				2				
Actuated Green, G (s)			36.7	36.7	14.5	60.2		
Effective Green, g (s)			36.7	36.7	14.5	60.2		
Actuated g/C Ratio			0.61	0.61	0.24	1.00		
Clearance Time (s)			4.5	4.5	4.5			
Vehicle Extension (s)			0.2	0.2	2.0			
Lane Grp Cap (vph)			2157	892	421	3505		
v/s Ratio Prot			c0.35		0.07	c0.51		
v/s Ratio Perm				0.21				
v/c Ratio			0.58	0.34	0.29	0.51		
Uniform Delay, d1			7.1	5.8	18.7	0.0		
Progression Factor			1.00	1.00	1.00	1.00		
Incremental Delay, d2			0.2	0.1	0.1	0.1		
Delay (s)			7.3	5.9	18.8	0.1		
Level of Service			A	A	B	A		
Approach Delay (s)	0.0		7.0			1.3	0.0	
Approach LOS	A		A			A	A	

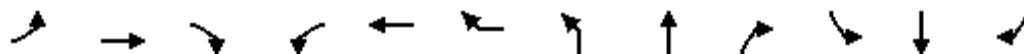
Intersection Summary

HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	60.2	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			

HCM Signalized Intersection Capacity Analysis

54: Brooklyn Ave NE & NE Campus Pkwy

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	5	256	116	5	215	15	117	270	20	5	88	20
Future Volume (vph)	5	256	116	5	215	15	117	270	20	5	88	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.95			0.99			0.99			0.98	
Flt Protected		1.00			1.00			0.99			1.00	
Satd. Flow (prot)		3374			3503			1824			1814	
Flt Permitted		0.95			0.95			0.87			0.99	
Satd. Flow (perm)		3213			3322			1609			1794	
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)	5	281	127	5	236	16	129	297	22	5	97	22
RTOR Reduction (vph)	0	51	0	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	362	0	0	257	0	0	446	0	0	124	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		29.5			29.5			61.5			61.5	
Effective Green, g (s)		29.5			29.5			61.5			61.5	
Actuated g/C Ratio		0.29			0.29			0.62			0.62	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		947			979			989			1103	
v/s Ratio Prot												
v/s Ratio Perm		c0.11			0.08			c0.28			0.07	
v/c Ratio		0.38			0.26			0.45			0.11	
Uniform Delay, d1		28.0			26.9			10.3			8.0	
Progression Factor		1.00			0.64			1.00			1.00	
Incremental Delay, d2		1.2			0.6			1.5			0.2	
Delay (s)		29.2			17.8			11.7			8.2	
Level of Service		C			B			B			A	
Approach Delay (s)		29.2			17.8			11.7			8.2	
Approach LOS		C			B			B			A	

Intersection Summary

HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	50.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
55: University Way NE & NE Campus Pkwy

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	190	19	5	142	5	43	165	30	15	135	50
Future Volume (veh/h)	77	190	19	5	142	5	43	165	30	15	135	50
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	84	207	21	5	154	5	47	179	33	16	147	54
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	407	1014	106	62	1591	51	146	536	93	68	541	189
Arrive On Green	0.95	0.95	0.95	0.47	0.47	0.47	0.44	0.44	0.44	0.87	0.87	0.87
Sat Flow, veh/h	740	2135	223	51	3350	107	238	1233	215	67	1244	434
Grp Volume(v), veh/h	156	0	156	86	0	78	259	0	0	217	0	0
Grp Sat Flow(s),veh/h/ln	1442	0	1656	1831	0	1676	1686	0	0	1746	0	0
Q Serve(g_s), s	0.2	0.0	0.6	0.0	0.0	2.6	0.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.8	0.0	0.6	2.5	0.0	2.6	9.4	0.0	0.0	2.1	0.0	0.0
Prop In Lane	0.54		0.13	0.06		0.06	0.18		0.13	0.07		0.25
Lane Grp Cap(c), veh/h	740	0	786	908	0	796	776	0	0	798	0	0
V/C Ratio(X)	0.21	0.00	0.20	0.09	0.00	0.10	0.33	0.00	0.00	0.27	0.00	0.00
Avail Cap(c_a), veh/h	740	0	786	908	0	796	776	0	0	798	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.3	0.0	1.3	14.4	0.0	14.5	18.6	0.0	0.0	3.8	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.6	0.2	0.0	0.2	1.2	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.3	1.3	0.0	1.2	4.9	0.0	0.0	1.2	0.0	0.0
LnGrp Delay(d),s/veh	2.0	0.0	1.9	14.7	0.0	14.7	19.8	0.0	0.0	4.6	0.0	0.0
LnGrp LOS	A		A	B		B	B			A		
Approach Vol, veh/h		312			164			259			217	
Approach Delay, s/veh		1.9			14.7			19.8			4.6	
Approach LOS		A			B			B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		52.0		48.0		52.0		48.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		47.5		43.5		47.5		43.5				
Max Q Clear Time (g_c+I1), s		4.6		11.4		4.8		4.1				
Green Ext Time (p_c), s		0.5		0.5		0.5		0.5				
Intersection Summary												
HCM 2010 Ctrl Delay			9.6									
HCM 2010 LOS			A									

HCM Signalized Intersection Capacity Analysis

56: 15th Ave NE & NE Campus Pkwy

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	105	120	77	791	624	75
Future Volume (vph)	105	120	77	791	624	75
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		6.0	6.0	6.0	
Lane Util. Factor	0.97		1.00	0.95	0.95	
Frbp, ped/bikes	0.99		1.00	1.00	0.96	
Flpb, ped/bikes	1.00		0.87	1.00	1.00	
Frt	0.92		1.00	1.00	0.98	
Flt Protected	0.98		0.95	1.00	1.00	
Satd. Flow (prot)	2918		1419	3252	3142	
Flt Permitted	0.98		0.35	1.00	1.00	
Satd. Flow (perm)	2918		525	3252	3142	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	109	125	80	824	650	78
RTOR Reduction (vph)	0	0	0	0	9	0
Lane Group Flow (vph)	234	0	80	824	719	0
Confl. Peds. (#/hr)	6	3	375			375
Confl. Bikes (#/hr)						11
Heavy Vehicles (%)	12%	12%	11%	11%	8%	8%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	26.5		63.0	63.0	63.0	
Effective Green, g (s)	26.5		63.0	63.0	63.0	
Actuated g/C Ratio	0.26		0.63	0.63	0.63	
Clearance Time (s)	4.5		6.0	6.0	6.0	
Lane Grp Cap (vph)			330	2048	1979	
v/s Ratio Prot	c0.08			c0.25	0.23	
v/s Ratio Perm			0.15			
v/c Ratio	0.30		0.24	0.40	0.36	
Uniform Delay, d1	29.4		8.1	9.2	8.9	
Progression Factor	1.18		0.32	0.28	1.36	
Incremental Delay, d2	1.0		1.3	0.4	0.5	
Delay (s)	35.5		3.8	3.0	12.5	
Level of Service	D		A	A	B	
Approach Delay (s)	35.5			3.1	12.5	
Approach LOS	D			A	B	

Intersection Summary

HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	106.1
Intersection LOS	F

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Lane Configurations									
Traffic Vol, veh/h	0	330	257	0	140	265	0	384	206
Future Vol, veh/h	0	330	257	0	140	265	0	384	206
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	1	1	1	0	0	0
Mvmt Flow	0	359	279	0	152	288	0	417	224
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	121.7	44.2	133.2
HCM LOS	F	E	F

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	65%	0%	35%
Vol Thru, %	0%	56%	65%
Vol Right, %	35%	44%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	590	587	405
LT Vol	384	0	140
Through Vol	0	330	265
RT Vol	206	257	0
Lane Flow Rate	641	638	440
Geometry Grp	1	1	1
Degree of Util (X)	1.204	1.172	0.867
Departure Headway (Hd)	7.106	7.205	7.942
Convergence, Y/N	Yes	Yes	Yes
Cap	513	510	458
Service Time	5.106	5.205	5.942
HCM Lane V/C Ratio	1.25	1.251	0.961
HCM Control Delay	133.2	121.7	44.2
HCM Lane LOS	F	F	E
HCM 95th-tile Q	22.9	21.1	8.9

Intersection	
Intersection Delay, s/veh	12.8
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	95	53	56	0	45	41	45	0	35	252	25
Future Vol, veh/h	0	95	53	56	0	45	41	45	0	35	252	25
Peak Hour Factor	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89
Heavy Vehicles, %	1	1	1	1	2	2	2	2	7	7	7	7
Mvmt Flow	0	107	60	63	0	51	46	51	0	39	283	28
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	12.2	10.8	14.8
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	47%	34%	5%
Vol Thru, %	81%	26%	31%	69%
Vol Right, %	8%	27%	34%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	312	204	131	219
LT Vol	35	95	45	10
Through Vol	252	53	41	152
RT Vol	25	56	45	57
Lane Flow Rate	351	229	147	246
Geometry Grp	1	1	1	1
Degree of Util (X)	0.537	0.367	0.241	0.375
Departure Headway (Hd)	5.511	5.768	5.89	5.486
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	652	621	606	652
Service Time	3.569	3.836	3.965	3.551
HCM Lane V/C Ratio	0.538	0.369	0.243	0.377
HCM Control Delay	14.8	12.2	10.8	11.8
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	3.2	1.7	0.9	1.7

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	10	152	57
Future Vol, veh/h	0	10	152	57
Peak Hour Factor	0.85	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	11	171	64
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	11.8
HCM LOS	B

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	20	68	10	0	35	106	25	0	5	188	16
Future Vol, veh/h	0	20	68	10	0	35	106	25	0	5	188	16
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	1	1	1	1	2	2	2	2	3	3	3	3
Mvmt Flow	0	23	78	11	0	40	122	29	0	6	216	18
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9.4	10.1	10.5
HCM LOS	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	20%	21%	3%
Vol Thru, %	90%	69%	64%	86%
Vol Right, %	8%	10%	15%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	209	98	166	179
LT Vol	5	20	35	5
Through Vol	188	68	106	154
RT Vol	16	10	25	20
Lane Flow Rate	240	113	191	206
Geometry Grp	1	1	1	1
Degree of Util (X)	0.33	0.167	0.271	0.281
Departure Headway (Hd)	4.944	5.352	5.118	4.92
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	718	675	693	720
Service Time	3.037	3.352	3.218	3.017
HCM Lane V/C Ratio	0.334	0.167	0.276	0.286
HCM Control Delay	10.5	9.4	10.1	10
HCM Lane LOS	B	A	B	A
HCM 95th-tile Q	1.4	0.6	1.1	1.2

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	5	154	20
Future Vol, veh/h	0	5	154	20
Peak Hour Factor	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	0	0	0
Mvmt Flow	0	6	177	23
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	10
HCM LOS	A

HCM Signalized Intersection Capacity Analysis

61: 15th Ave NE & Stevens Way

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕↔		↕	↕↔	
Traffic Volume (vph)	31	32	26	139	94	174	18	663	54	92	618	34
Future Volume (vph)	31	32	26	139	94	174	18	663	54	92	618	34
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	4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frbp, ped/bikes		0.84			1.00	0.57	1.00	0.97		1.00	0.98	
Flpb, ped/bikes		0.91			0.74	1.00	0.91	1.00		0.92	1.00	
Frt		0.96			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1348			1237	832	1511	3191		1522	3233	
Flt Permitted		0.86			0.77	1.00	0.23	1.00		0.19	1.00	
Satd. Flow (perm)		1178			980	832	370	3191		308	3233	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	33	34	27	146	99	183	19	698	57	97	651	36
RTOR Reduction (vph)	0	14	0	0	0	130	0	6	0	0	4	0
Lane Group Flow (vph)	0	80	0	0	245	53	19	749	0	97	683	0
Confl. Peds. (#/hr)	809		1604	1604		809	180		191	191		180
Confl. Bikes (#/hr)			219			89			26			12
Heavy Vehicles (%)	2%	2%	2%	10%	10%	10%	9%	9%	9%	9%	9%	9%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2				2
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)		29.0			29.0	29.0	31.5	31.5		31.5	31.5	
Effective Green, g (s)		29.0			29.0	29.0	31.5	31.5		31.5	31.5	
Actuated g/C Ratio		0.29			0.29	0.29	0.32	0.32		0.32	0.32	
Clearance Time (s)		3.0			3.0	3.0	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		341			284	241	116	1005		97	1018	
v/s Ratio Prot								0.23				0.21
v/s Ratio Perm		0.07			c0.25	0.06	0.05			c0.31		
v/c Ratio		0.23			0.86	0.22	0.16	0.75		1.00	0.67	
Uniform Delay, d1		27.0			33.6	26.9	24.7	30.7		34.2	29.7	
Progression Factor		1.00			1.00	1.00	0.92	0.92		0.47	0.45	
Incremental Delay, d2		1.6			27.5	2.1	2.2	3.7		89.2	3.4	
Delay (s)		28.6			61.2	29.0	25.0	32.0		105.2	16.7	
Level of Service		C			E	C	C	C		F	B	
Approach Delay (s)		28.6			47.4			31.8			27.7	
Approach LOS		C			D			C			C	

Intersection Summary

HCM 2000 Control Delay	33.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Lane Configurations									
Traffic Vol, veh/h	0	5	153	0	15	20	0	257	5
Future Vol, veh/h	0	5	153	0	15	20	0	257	5
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	11	11	11	0	0	0	14	14	14
Mvmt Flow	0	6	178	0	17	23	0	299	6
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.6	8.3	11.2
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	98%	0%	43%
Vol Thru, %	0%	3%	57%
Vol Right, %	2%	97%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	262	158	35
LT Vol	257	0	15
Through Vol	0	5	20
RT Vol	5	153	0
Lane Flow Rate	305	184	41
Geometry Grp	1	1	1
Degree of Util (X)	0.408	0.222	0.056
Departure Headway (Hd)	4.827	4.343	4.982
Convergence, Y/N	Yes	Yes	Yes
Cap	746	829	718
Service Time	2.859	2.364	3.015
HCM Lane V/C Ratio	0.409	0.222	0.057
HCM Control Delay	11.2	8.6	8.3
HCM Lane LOS	B	A	A
HCM 95th-tile Q	2	0.8	0.2

Intersection	
Intersection Delay, s/veh	78.2
Intersection LOS	F

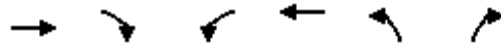
Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↘	↗		↕	↗		↘	↕
Traffic Vol, veh/h	0	455	445	0	130	574	0	342	55
Future Vol, veh/h	0	455	445	0	130	574	0	342	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	1	1	1	4	4	4
Mvmt Flow	0	479	468	0	137	604	0	360	58
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	70.2	108.7	42
HCM LOS	F	F	E

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	574	455	445	342	55
LT Vol	0	0	455	0	342	0
Through Vol	130	0	0	0	0	55
RT Vol	0	574	0	445	0	0
Lane Flow Rate	137	604	479	468	360	58
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.297	1.194	1.076	0.897	0.856	0.131
Departure Headway (Hd)	8.038	7.314	8.443	7.206	9.081	8.561
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	450	501	436	506	403	421
Service Time	5.738	5.014	6.143	4.906	6.781	6.261
HCM Lane V/C Ratio	0.304	1.206	1.099	0.925	0.893	0.138
HCM Control Delay	14.1	130.1	94.4	45.4	46.8	12.5
HCM Lane LOS	B	F	F	E	E	B
HCM 95th-tile Q	1.2	22	15.3	10.1	8.3	0.4

HCM Signalized Intersection Capacity Analysis
64: NE Boat St & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour























Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩		↩	↩	↩	
Traffic Volume (vph)	762	85	15	740	115	15
Future Volume (vph)	762	85	15	740	115	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	5.0	5.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frbp, ped/bikes	0.99		1.00	1.00	0.99	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.99		1.00	1.00	0.98	
Flt Protected	1.00		0.95	1.00	0.96	
Satd. Flow (prot)	1819		1787	1881	1744	
Flt Permitted	1.00		0.22	1.00	0.96	
Satd. Flow (perm)	1819		421	1881	1744	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	819	91	16	796	124	16
RTOR Reduction (vph)	3	0	0	0	5	0
Lane Group Flow (vph)	907	0	16	796	135	0
Confl. Peds. (#/hr)		33	33		27	18
Confl. Bikes (#/hr)		5				17
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			2	4	
Permitted Phases			2			
Actuated Green, G (s)	72.6		72.6	72.6	17.4	
Effective Green, g (s)	72.6		72.6	72.6	17.4	
Actuated g/C Ratio	0.73		0.73	0.73	0.17	
Clearance Time (s)	5.0		5.0	5.0	5.0	
Vehicle Extension (s)	0.2		0.2	0.2	2.0	
Lane Grp Cap (vph)	1320		305	1365	303	
v/s Ratio Prot	c0.50			0.42	c0.08	
v/s Ratio Perm			0.04			
v/c Ratio	0.69		0.05	0.58	0.45	
Uniform Delay, d1	7.5		3.9	6.5	37.0	
Progression Factor	1.00		0.32	0.64	1.00	
Incremental Delay, d2	2.9		0.3	1.6	0.4	
Delay (s)	10.4		1.5	5.8	37.4	
Level of Service	B		A	A	D	
Approach Delay (s)	10.4			5.7	37.4	
Approach LOS	B			A	D	

Intersection Summary

HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
 65: Brooklyn Ave NE & NE Pacific St

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	180	843	43	35	594	52	72	105	30	53	40	185
Future Volume (veh/h)	180	843	43	35	594	52	72	105	30	53	40	185
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.91	1.00		0.88	1.00		0.80	1.00		0.82
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1881	1881	1900	1792	1792	1900	1827	1827	1900
Adj Flow Rate, veh/h	196	916	47	38	646	57	78	114	33	58	43	201
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	1	1	1	6	6	6	4	4	4
Cap, veh/h	423	1535	79	199	1067	94	111	193	56	183	47	221
Arrive On Green	0.24	0.46	0.46	0.22	0.65	0.65	0.06	0.15	0.15	0.11	0.20	0.20
Sat Flow, veh/h	1757	3374	173	1792	3283	289	1707	1259	364	1740	237	1109
Grp Volume(v), veh/h	196	476	487	38	351	352	78	0	147	58	0	244
Grp Sat Flow(s),veh/h/ln	1757	1752	1795	1792	1787	1785	1707	0	1623	1740	0	1346
Q Serve(g_s), s	9.5	20.3	20.3	1.7	11.3	11.4	4.5	0.0	8.4	3.1	0.0	17.7
Cycle Q Clear(g_c), s	9.5	20.3	20.3	1.7	11.3	11.4	4.5	0.0	8.4	3.1	0.0	17.7
Prop In Lane	1.00		0.10	1.00		0.16	1.00		0.22	1.00		0.82
Lane Grp Cap(c), veh/h	423	797	817	199	581	580	111	0	249	183	0	268
V/C Ratio(X)	0.46	0.60	0.60	0.19	0.60	0.61	0.70	0.00	0.59	0.32	0.00	0.91
Avail Cap(c_a), veh/h	423	797	817	199	581	580	171	0	365	183	0	289
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.67	0.67	0.67	0.93	0.93	0.93	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.4	20.4	20.4	35.3	13.8	13.8	45.8	0.0	39.4	41.4	0.0	39.2
Incr Delay (d2), s/veh	0.2	2.2	2.1	0.2	4.3	4.3	3.0	0.0	0.8	0.4	0.0	28.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.7	10.3	10.5	0.9	6.2	6.2	2.2	0.0	3.9	1.5	0.0	8.7
LnGrp Delay(d),s/veh	32.6	22.6	22.5	35.4	18.1	18.1	48.8	0.0	40.2	41.8	0.0	67.6
LnGrp LOS	C	C	C	D	B	B	D		D	D		E
Approach Vol, veh/h		1159			741			225			302	
Approach Delay, s/veh		24.3			19.0			43.2			62.7	
Approach LOS		C			B			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.1	37.0	15.0	19.9	15.1	50.0	10.5	24.4				
Change Period (Y+Rc), s	4.0	4.5	4.5	* 4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	19.0	32.5	9.0	* 23	6.0	45.5	10.0	21.5				
Max Q Clear Time (g_c+I1), s	11.5	13.4	5.1	10.4	3.7	22.3	6.5	19.7				
Green Ext Time (p_c), s	0.2	2.8	0.5	0.4	0.1	4.3	0.0	0.2				
Intersection Summary												
HCM 2010 Ctrl Delay			29.2									
HCM 2010 LOS			C									
Notes												

HCM Signalized Intersection Capacity Analysis
66: Campus Parking Access/University Way NE & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	858	0	5	578	68	40	60	75	158	5	58
Future Volume (vph)	63	858	0	5	578	68	40	60	75	158	5	58
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5			4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.94			1.00	0.90		0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		0.94	
Frt	1.00	1.00		1.00	0.98			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.97	
Satd. Flow (prot)	1787	3574		1752	3257			1838	1448		1622	
Flt Permitted	0.95	1.00		0.95	1.00			0.84	1.00		0.72	
Satd. Flow (perm)	1787	3574		1752	3257			1576	1448		1216	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	64	876	0	5	590	69	41	61	77	161	5	59
RTOR Reduction (vph)	0	0	0	0	8	0	0	0	56	0	15	0
Lane Group Flow (vph)	64	876	0	5	651	0	0	102	21	0	210	0
Confl. Peds. (#/hr)	258		203	203		258	53		93	93		53
Confl. Bikes (#/hr)						6						2
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			4	
Permitted Phases							4		4	4		
Actuated Green, G (s)	11.2	58.6		1.1	48.5			27.3	27.3		27.3	
Effective Green, g (s)	11.2	58.6		1.1	48.5			27.3	27.3		27.3	
Actuated g/C Ratio	0.11	0.59		0.01	0.48			0.27	0.27		0.27	
Clearance Time (s)	4.0	4.5		4.0	4.5			4.5	4.5		4.5	
Vehicle Extension (s)	2.0	0.2		2.0	0.2			3.0	3.0		3.0	
Lane Grp Cap (vph)	200	2094		19	1579			430	395		331	
v/s Ratio Prot	0.04	c0.25		0.00	c0.20							
v/s Ratio Perm								0.06	0.01		c0.17	
v/c Ratio	0.32	0.42		0.26	0.41			0.24	0.05		0.64	
Uniform Delay, d1	40.9	11.4		49.0	16.6			28.3	26.8		32.0	
Progression Factor	0.67	0.16		1.70	0.32			1.00	1.00		1.00	
Incremental Delay, d2	0.3	0.6		2.0	0.6			0.3	0.1		4.0	
Delay (s)	27.8	2.4		85.5	5.9			28.5	26.9		35.9	
Level of Service	C	A		F	A			C	C		D	
Approach Delay (s)		4.1			6.5			27.8			35.9	
Approach LOS		A			A			C			D	

Intersection Summary

HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

67: 15th Ave NE & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	999	15	113	524	353	15	265	399	515	166	112
Future Volume (vph)	82	999	15	113	524	353	15	265	399	515	166	112
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		0.95		0.95	0.95	
Frbp, ped/bikes	1.00	0.99		1.00	1.00	0.89		0.81		1.00	0.92	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	1.00		1.00	1.00	0.85		0.91		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00		0.95	0.99	
Satd. Flow (prot)	1787	3532		1703	3406	1356		2624		1573	1437	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		1.00		0.95	0.99	
Satd. Flow (perm)	1787	3532		1703	3406	1356		2624		1573	1437	
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)	87	1063	16	120	557	376	16	282	424	548	177	119
RTOR Reduction (vph)	0	1	0	0	0	31	0	119	0	0	14	0
Lane Group Flow (vph)	87	1078	0	120	557	345	0	603	0	427	403	0
Confl. Peds. (#/hr)	138		426	426		138	195		260	260		195
Confl. Bikes (#/hr)			2			27			36			18
Heavy Vehicles (%)	1%	1%	1%	6%	6%	6%	1%	1%	1%	9%	9%	9%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	
Protected Phases	1	6		5	2	4	3	3		4	4	
Permitted Phases						2						
Actuated Green, G (s)	6.0	28.0		6.5	28.5	53.0		23.0		24.5	24.5	
Effective Green, g (s)	6.0	28.0		6.5	28.5	53.0		23.0		24.5	24.5	
Actuated g/C Ratio	0.06	0.28		0.06	0.28	0.53		0.23		0.24	0.24	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.0	0.2		2.0	0.2	3.0		2.0		3.0	3.0	
Lane Grp Cap (vph)	107	988		110	970	718		603		385	352	
v/s Ratio Prot	0.05	c0.31		c0.07	0.16	0.12		c0.23		0.27	c0.28	
v/s Ratio Perm						0.14						
v/c Ratio	0.81	1.09		1.09	0.57	0.48		1.00		1.11	1.14	
Uniform Delay, d1	46.4	36.0		46.8	30.6	14.8		38.5		37.8	37.8	
Progression Factor	0.78	0.75		1.00	1.00	1.00		1.00		0.40	0.36	
Incremental Delay, d2	32.7	56.2		112.4	2.5	0.5		36.2		72.5	86.8	
Delay (s)	68.8	83.3		159.1	33.0	15.3		74.7		87.5	100.4	
Level of Service	E	F		F	C	B		E		F	F	
Approach Delay (s)		82.2			41.1			74.7			93.9	
Approach LOS		F			D			E			F	

Intersection Summary

HCM 2000 Control Delay	71.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	98.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Int Delay, s/veh 4.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	30	150	110	92	103	15
Future Vol, veh/h	30	150	110	92	103	15
Conflicting Peds, #/hr	75	0	0	53	53	75
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	6	6	4	4
Mvmt Flow	33	165	121	101	113	16

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	297	0	530
Stage 1	-	-	246
Stage 2	-	-	284
Critical Hdwy	4.13	-	6.44
Critical Hdwy Stg 1	-	-	5.44
Critical Hdwy Stg 2	-	-	5.44
Follow-up Hdwy	2.227	-	3.536
Pot Cap-1 Maneuver	1259	-	506
Stage 1	-	-	790
Stage 2	-	-	760
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1180	-	431
Mov Cap-2 Maneuver	-	-	431
Stage 1	-	-	741
Stage 2	-	-	690

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	16.2
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1180	-	-	-	449
HCM Lane V/C Ratio	0.028	-	-	-	0.289
HCM Control Delay (s)	8.1	0	-	-	16.2
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.2

Intersection	
Intersection Delay, s/veh	60.9
Intersection LOS	F

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations									
Traffic Vol, veh/h	0	145	108	0	162	513	0	204	40
Future Vol, veh/h	0	145	108	0	162	513	0	204	40
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	5	5	5	2	2	2	3	3	3
Mvmt Flow	0	161	120	0	180	570	0	227	44
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	15.6	95.1	13.4
HCM LOS	C	F	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	24%	57%	0%
Vol Thru, %	76%	0%	84%
Vol Right, %	0%	43%	16%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	675	253	244
LT Vol	162	145	0
Through Vol	513	0	204
RT Vol	0	108	40
Lane Flow Rate	750	281	271
Geometry Grp	1	1	1
Degree of Util (X)	1.123	0.487	0.429
Departure Headway (Hd)	5.39	6.544	5.98
Convergence, Y/N	Yes	Yes	Yes
Cap	683	554	607
Service Time	3.39	4.544	3.98
HCM Lane V/C Ratio	1.098	0.507	0.446
HCM Control Delay	95.1	15.6	13.4
HCM Lane LOS	F	C	B
HCM 95th-tile Q	22.7	2.6	2.1

HCM Unsignalized Intersection Capacity Analysis

UW Master Plan EIS

70: Parking Access/Campus Parking Access & NE Boat St/Columbia Rd Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Stop			Stop			Stop	
Traffic Volume (vph)	10	272	10	5	661	5	0	0	5	0	0	10
Future Volume (vph)	10	272	10	5	661	5	0	0	5	0	0	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	286	11	5	696	5	0	0	5	0	0	11

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	11	297	706	5	11
Volume Left (vph)	11	0	5	0	0
Volume Right (vph)	0	11	5	5	11
Hadj (s)	0.62	0.09	0.08	-0.60	-0.60
Departure Headway (s)	5.6	5.1	4.5	5.6	5.5
Degree Utilization, x	0.02	0.42	0.88	0.01	0.02
Capacity (veh/h)	626	689	799	596	592
Control Delay (s)	7.5	10.6	30.2	8.6	8.6
Approach Delay (s)	10.5		30.2	8.6	8.6
Approach LOS	B		D	A	A

Intersection Summary

Delay	24.0
Level of Service	C
Intersection Capacity Utilization	59.1%
ICU Level of Service	B
Analysis Period (min)	15

Intersection

Int Delay, s/veh 10.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	81	115	2236	75	79	1062
Future Vol, veh/h	81	115	2236	75	79	1062
Conflicting Peds, #/hr	0	3	0	0	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	85	121	2354	79	83	1118

Major/Minor	Minor1	Minor2	Major1	Major2	Major3	Major4
Conflicting Flow All	3121	1222	0	0	2436	0
Stage 1	2396	-	-	-	-	-
Stage 2	725	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.14	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.22	-
Pot Cap-1 Maneuver	~ 9	174	-	-	190	-
Stage 1	~ 56	-	-	-	-	-
Stage 2	446	-	-	-	-	-
Platoon blocked, %			-	-	-	-
Mov Cap-1 Maneuver	0	173	-	-	190	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	~ 56	-	-	-	-	-
Stage 2	0	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	183.4	0	2.6
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	173	190
HCM Lane V/C Ratio	-	-	1.193	0.438
HCM Control Delay (s)	-	-	183.4	37.9
HCM Lane LOS	-	-	F	E
HCM 95th %tile Q(veh)	-	-	11.1	2

Notes

-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑			↑↑
Traffic Vol, veh/h	5	40	2261	5	0	1153
Future Vol, veh/h	5	40	2261	5	0	1153
Conflicting Peds, #/hr	3	3	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	5	42	2380	5	0	1214

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2996	1199	0	0	-	-
Stage 1	2386	-	-	-	-	-
Stage 2	610	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	-	-
Pot Cap-1 Maneuver	11	178	-	-	0	-
Stage 1	55	-	-	-	0	-
Stage 2	505	-	-	-	0	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	11	177	-	-	-	-
Mov Cap-2 Maneuver	52	-	-	-	-	-
Stage 1	55	-	-	-	-	-
Stage 2	504	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	43.3		0		0
HCM LOS	E				

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	- 140	-
HCM Lane V/C Ratio	-	- 0.338	-
HCM Control Delay (s)	-	- 43.3	-
HCM Lane LOS	-	- E	-
HCM 95th %tile Q(veh)	-	- 1.4	-

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑		↑	↑↑
Traffic Vol, veh/h	0	5	2271	25	10	1143
Future Vol, veh/h	0	5	2271	25	10	1143
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	0	5	2366	26	10	1191

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	1206	0 0 2397 0
Stage 1	-	-	- - - -
Stage 2	-	-	- - - -
Critical Hdwy	-	6.9	- - 4.14 -
Critical Hdwy Stg 1	-	-	- - - -
Critical Hdwy Stg 2	-	-	- - - -
Follow-up Hdwy	-	3.3	- - 2.22 -
Pot Cap-1 Maneuver	0	179	- - 197 -
Stage 1	0	-	- - - -
Stage 2	0	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	-	178	- - 196 -
Mov Cap-2 Maneuver	-	-	- - - -
Stage 1	-	-	- - - -
Stage 2	-	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	25.8	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 178	196	-
HCM Lane V/C Ratio	-	- 0.029	0.053	-
HCM Control Delay (s)	-	- 25.8	24.4	-
HCM Lane LOS	-	- D	C	-
HCM 95th %tile Q(veh)	-	- 0.1	0.2	-

HCM Signalized Intersection Capacity Analysis
 74: Montlake Blvd NE & Husky Stadium Parking Access

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	449	25	65	148	0	70	0	1717	5	18	934	176
Future Volume (vph)	449	25	65	148	0	70	0	1717	5	18	934	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5			4.5	
Lane Util. Factor	0.95	0.95	1.00	1.00		1.00		0.95			0.95	
Frbp, ped/bikes	1.00	1.00	0.86	1.00		0.99		1.00			0.98	
Flpb, ped/bikes	1.00	1.00	1.00	0.93		1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00		0.85		1.00			0.98	
Flt Protected	0.95	0.96	1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	1681	1694	1362	1685		1594		3568			3354	
Flt Permitted	0.95	0.96	1.00	0.36		1.00		1.00			0.89	
Satd. Flow (perm)	1681	1694	1362	638		1594		3568			2985	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	468	26	68	154	0	73	0	1789	5	19	973	183
RTOR Reduction (vph)	0	0	52	0	0	11	0	0	0	0	10	0
Lane Group Flow (vph)	248	246	16	154	0	62	0	1794	0	0	1165	0
Confl. Peds. (#/hr)			76	76			37		176	176		37
Confl. Bikes (#/hr)			8			1						1
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	3%	3%	3%
Turn Type	Perm	NA	Perm	D.Pm		Perm		NA		Perm	NA	
Protected Phases		4						2				2
Permitted Phases	4		4	4		4			2			
Actuated Green, G (s)	27.6	27.6	27.6	27.6		27.6		83.4			83.4	
Effective Green, g (s)	27.6	27.6	27.6	27.6		27.6		83.4			83.4	
Actuated g/C Ratio	0.23	0.23	0.23	0.23		0.23		0.70			0.70	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5			4.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0		0.2			0.2	
Lane Grp Cap (vph)	386	389	313	146		366		2479			2074	
v/s Ratio Prot								c0.50				
v/s Ratio Perm	0.15	0.15	0.01	c0.24		0.04					0.39	
v/c Ratio	0.64	0.63	0.05	1.05		0.17		0.72			0.56	
Uniform Delay, d1	41.7	41.6	36.0	46.2		37.0		11.2			9.2	
Progression Factor	0.87	0.87	1.59	1.00		1.00		0.03			1.00	
Incremental Delay, d2	1.9	1.7	0.0	89.8		0.1		0.9			1.1	
Delay (s)	38.4	38.1	57.4	136.0		37.1		1.3			10.3	
Level of Service	D	D	E	F		D		A			B	
Approach Delay (s)		40.6			104.2			1.3			10.3	
Approach LOS		D			F			A			B	

Intersection Summary			
HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

75: NE Pacific St & NE Pacific Pl

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	444	1429	60	45	769	35	0	0	0	0	0	216
Future Volume (vph)	444	1429	60	45	769	35	0	0	0	0	0	216
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0							5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95							1.00
Frpb, ped/bikes	1.00	1.00	0.64	1.00	0.99							1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00							1.00
Frt	1.00	1.00	0.85	1.00	0.99							0.86
Flt Protected	0.95	1.00	1.00	0.95	1.00							1.00
Satd. Flow (prot)	1805	3610	1037	1805	3534							1565
Flt Permitted	0.95	1.00	1.00	0.13	1.00							1.00
Satd. Flow (perm)	1805	3610	1037	240	3534							1565
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)	477	1537	65	48	827	38	0	0	0	0	0	232
RTOR Reduction (vph)	0	0	31	0	5	0	0	0	0	0	0	25
Lane Group Flow (vph)	477	1537	34	48	860	0	0	0	0	0	0	207
Confl. Peds. (#/hr)			205	205		427			712	712		
Confl. Bikes (#/hr)			7			9		9				1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	6%	6%	6%	5%	5%	5%
Turn Type	Prot	NA	Perm	Perm	NA							Over
Protected Phases	2	1			1							2
Permitted Phases			1	1								
Actuated Green, G (s)	18.3	31.7	31.7	31.7	31.7							18.3
Effective Green, g (s)	18.3	31.7	31.7	31.7	31.7							18.3
Actuated g/C Ratio	0.31	0.53	0.53	0.53	0.53							0.31
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0							5.0
Vehicle Extension (s)	2.0	0.2	0.2	0.2	0.2							2.0
Lane Grp Cap (vph)	550	1907	547	126	1867							477
v/s Ratio Prot	c0.26	c0.43			0.24							0.13
v/s Ratio Perm			0.03	0.20								
v/c Ratio	0.87	0.81	0.06	0.38	0.46							0.43
Uniform Delay, d1	19.7	11.6	6.9	8.4	8.8							16.7
Progression Factor	1.00	1.00	1.00	0.74	0.47							1.30
Incremental Delay, d2	13.1	3.8	0.2	8.2	0.8							0.2
Delay (s)	32.8	15.4	7.1	14.4	4.9							22.0
Level of Service	C	B	A	B	A							C
Approach Delay (s)		19.1			5.4			0.0			22.0	
Approach LOS		B			A			A			C	
Intersection Summary												
HCM 2000 Control Delay			15.5			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			60.0			Sum of lost time (s)		10.0				
Intersection Capacity Utilization			62.8%			ICU Level of Service			B			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
76: Hospital Access & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 1 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵	↑
Traffic Volume (vph)	1414	15	40	804	65	65
Future Volume (vph)	1414	15	40	804	65	65
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.76	1.00	1.00	1.00	0.99
Flpb, ped/bikes	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)	3438	1168	1656	3312	1805	1591
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3438	1168	1656	3312	1805	1591
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1504	16	43	855	69	69
RTOR Reduction (vph)	0	1	0	0	0	64
Lane Group Flow (vph)	1504	15	43	855	69	5
Confl. Peds. (#/hr)		74	74		41	
Confl. Bikes (#/hr)		7				1
Heavy Vehicles (%)	5%	5%	9%	9%	0%	0%
Turn Type	NA	Perm	Prot	NA	pm+pt	Perm
Protected Phases	2		7!	6!	1!	
Permitted Phases		2		3	3!	1
Actuated Green, G (s)	83.3	83.3	14.1	96.9	9.1	9.1
Effective Green, g (s)	83.3	83.3	14.1	96.9	9.1	9.1
Actuated g/C Ratio	0.69	0.69	0.12	0.81	0.08	0.08
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	0.2	0.2	2.0	0.2	2.0	2.0
Lane Grp Cap (vph)	2386	810	194	2674	136	120
v/s Ratio Prot	c0.44		c0.03	0.26	c0.04	
v/s Ratio Perm		0.01				0.00
v/c Ratio	0.63	0.02	0.22	0.32	0.51	0.04
Uniform Delay, d1	10.0	5.7	48.0	3.0	53.3	51.4
Progression Factor	0.82	0.51	0.90	0.29	1.00	1.00
Incremental Delay, d2	0.7	0.0	0.1	0.0	1.1	0.1
Delay (s)	8.9	2.9	43.1	0.9	54.4	51.5
Level of Service	A	A	D	A	D	D
Approach Delay (s)	8.8			2.9	52.9	
Approach LOS	A			A	D	

Intersection Summary

HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	50.8%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

UW Master Plan EIS

77: Montlake Blvd NE & NE Pacific St/Husky Stadium Parking Access

Future (2028) Alt 1 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗↘		↑	↗	↗↘	↗↘		↗	↗↘	↗
Traffic Volume (vph)	0	0	1479	0	63	20	756	1702	28	5	1107	25
Future Volume (vph)	0	0	1479	0	63	20	756	1702	28	5	1107	25
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.5		5.0	5.0	7.0	5.0		6.0	5.0	5.0
Lane Util. Factor			0.88		1.00	1.00	0.97	0.95		1.00	0.95	1.00
Frbp, ped/bikes			1.00		1.00	1.00	1.00	0.99		1.00	1.00	0.66
Flpb, ped/bikes			1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt			0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected			1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)			2787		1863	1583	3433	3496		1752	3505	1037
Flt Permitted			1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)			2787		1863	1583	3433	3496		1752	3505	1037
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)	0	0	1525	0	65	21	779	1755	29	5	1141	26
RTOR Reduction (vph)	0	0	291	0	0	19	0	1	0	0	0	15
Lane Group Flow (vph)	0	0	1234	0	65	2	779	1783	0	5	1141	11
Confl. Peds. (#/hr)							243		318	318		243
Confl. Bikes (#/hr)												4
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type			Perm		NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases					3!		4 5	1 5		7!	1	
Permitted Phases			9 1 3			3						1
Actuated Green, G (s)			102.1		13.1	13.1	30.7	65.1		1.0	52.2	52.2
Effective Green, g (s)			97.1		13.1	13.1	30.7	58.1		1.0	52.2	52.2
Actuated g/C Ratio			0.81		0.11	0.11	0.26	0.48		0.01	0.44	0.44
Clearance Time (s)					5.0	5.0				6.0	5.0	5.0
Vehicle Extension (s)					2.0	2.0				2.0	0.2	0.2
Lane Grp Cap (vph)			2255		203	172	878	1692		14	1524	451
v/s Ratio Prot					0.03		c0.23	c0.51		0.00	0.33	
v/s Ratio Perm			c0.44			0.00						0.01
v/c Ratio			0.55		0.32	0.01	0.89	1.05		0.36	0.75	0.03
Uniform Delay, d1			3.9		49.3	47.7	43.0	30.9		59.2	28.4	19.4
Progression Factor			1.00		1.00	1.00	1.25	0.51		0.89	0.74	1.00
Incremental Delay, d2			0.1		0.3	0.0	9.0	35.9		4.7	2.8	0.1
Delay (s)			4.0		49.7	47.7	62.8	51.8		57.3	23.8	19.4
Level of Service			A		D	D	E	D		E	C	B
Approach Delay (s)		4.0			49.2			55.1			23.9	
Approach LOS		A			D			E			C	

Intersection Summary

HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 78: Montlake Blvd NE & 520 EB/WB HOV Ramp & 520 WB Off Ramp

UW Master Plan EIS
 Future (2028) Alt 1 PM Peak Hour



Movement	WBR	NBL	NBT	NBR2	SBL	SBT	SBR	NWR
Lane Configurations	↗↗	↘↘	↑↑	↗	↘	↑↑↑		↗
Traffic Volume (vph)	802	200	1899	30	30	1867	674	30
Future Volume (vph)	802	200	1899	30	30	1867	674	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5	4.5	4.0	4.5		4.0
Lane Util. Factor	0.88	0.97	0.95	1.00	1.00	0.91		1.00
Frt	0.85	1.00	1.00	0.85	1.00	0.96		0.86
Flt Protected	1.00	0.95	1.00	1.00	0.95	1.00		1.00
Satd. Flow (prot)	2787	3433	3539	1583	1770	4877		1611
Flt Permitted	1.00	0.95	1.00	1.00	0.95	1.00		1.00
Satd. Flow (perm)	2787	3433	3539	1583	1770	4877		1611
Peak-hour factor, PHF	0.96	0.92	0.96	0.92	0.92	0.96	0.92	0.92
Adj. Flow (vph)	835	217	1978	33	33	1945	733	33
RTOR Reduction (vph)	247	0	0	16	0	38	0	0
Lane Group Flow (vph)	588	217	1978	17	33	2640	0	33
Turn Type	custom	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	3 1	5	2		1	6		4
Permitted Phases				2		3		
Actuated Green, G (s)	34.7	4.0	63.2	63.2	16.7	93.9		5.6
Effective Green, g (s)	34.7	4.0	63.2	63.2	16.7	93.9		5.6
Actuated g/C Ratio	0.29	0.03	0.53	0.53	0.14	0.78		0.05
Clearance Time (s)		4.0	4.5	4.5	4.0	4.5		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	805	114	1863	833	246	3816		75
v/s Ratio Prot	c0.21	c0.06	c0.56		0.02	c0.44		c0.02
v/s Ratio Perm				0.01		0.10		
v/c Ratio	0.73	1.90	1.06	0.02	0.13	0.69		0.44
Uniform Delay, d1	38.4	58.0	28.4	13.6	45.3	6.2		55.7
Progression Factor	1.00	0.97	0.94	1.00	0.86	1.74		1.00
Incremental Delay, d2	3.4	428.8	36.7	0.0	0.2	0.5		4.1
Delay (s)	41.9	485.1	63.5	13.6	39.3	11.2		59.8
Level of Service	D	F	E	B	D	B		E
Approach Delay (s)			103.8			11.6		
Approach LOS			F			B		

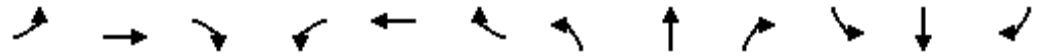
Intersection Summary

HCM 2000 Control Delay	51.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	94.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

79: Montlake Blvd NE & SR-520 EB Ramps/E Lake Washington Blvd





















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	584	35	80	135	5	320	90	1000	10	170	851	846
Future Volume (vph)	584	35	80	135	5	320	90	1000	10	170	851	846
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	0.97	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.91
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1694	1436	1752	1845	1568	3367	3457		1752	3505	1421
Flt Permitted	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1694	1436	1752	1845	1568	3367	3457		1752	3505	1421
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	615	37	84	142	5	337	95	1053	11	179	896	891
RTOR Reduction (vph)	0	0	66	0	0	68	0	1	0	0	0	515
Lane Group Flow (vph)	326	326	18	142	5	269	95	1063	0	179	896	376
Confl. Peds. (#/hr)	3		60	60		3	111		170	170		111
Confl. Bikes (#/hr)						5			8			10
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Turn Type	Split	NA	Perm	Split	NA	custom	Prot	NA		Prot	NA	Perm
Protected Phases	3	3		4	4	4	6	2		1	5	
Permitted Phases			3			4						5
Actuated Green, G (s)	26.1	26.1	26.1	14.2	14.2	33.7	11.1	46.7		15.0	50.6	50.6
Effective Green, g (s)	26.1	26.1	26.1	14.2	14.2	33.7	11.1	46.7		15.0	50.6	50.6
Actuated g/C Ratio	0.22	0.22	0.22	0.12	0.12	0.28	0.09	0.39		0.12	0.42	0.42
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)	2.0	2.0	2.0	3.0	3.0		2.0	0.2		2.0	0.2	0.2
Lane Grp Cap (vph)	365	368	312	207	218	440	311	1345		219	1477	599
v/s Ratio Prot	c0.19	0.19		0.08	0.00	c0.17	0.03	c0.31		c0.10	0.26	
v/s Ratio Perm			0.01									0.26
v/c Ratio	0.89	0.89	0.06	0.69	0.02	0.61	0.31	0.79		0.82	0.61	0.63
Uniform Delay, d1	45.6	45.5	37.2	50.8	46.8	37.5	50.9	32.3		51.2	27.0	27.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.90	0.89	2.77
Incremental Delay, d2	22.5	21.1	0.0	9.1	0.0	2.5	0.2	4.8		15.4	1.4	3.7
Delay (s)	68.1	66.6	37.2	59.8	46.8	40.0	51.1	37.1		61.3	25.5	79.3
Level of Service	E	E	D	E	D	D	D	D		E	C	E
Approach Delay (s)		63.9			45.9			38.3			53.1	
Approach LOS		E			D			D			D	

Intersection Summary

HCM 2000 Control Delay	50.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
 1: 5th Ave NE & NE 50th St

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	660	290	185	1095	0	0	0	0	138	125	180
Future Volume (veh/h)	0	660	290	185	1095	0	0	0	0	138	125	180
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00				1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1900	1863	1863	0				1900	1900	1900
Adj Flow Rate, veh/h	0	673	296	189	1117	0				150	115	184
Adj No. of Lanes	0	2	0	1	2	0				2	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	1	1	2	2	0				0	0	0
Cap, veh/h	0	1064	468	484	2700	0				514	270	225
Arrive On Green	0.00	0.44	0.44	0.55	1.00	0.00				0.14	0.14	0.14
Sat Flow, veh/h	0	2485	1052	1774	3632	0				3619	1900	1586
Grp Volume(v), veh/h	0	503	466	189	1117	0				150	115	184
Grp Sat Flow(s),veh/h/ln	0	1787	1655	1774	1770	0				1810	1900	1586
Q Serve(g_s), s	0.0	21.7	21.7	6.1	0.0	0.0				3.7	5.5	11.3
Cycle Q Clear(g_c), s	0.0	21.7	21.7	6.1	0.0	0.0				3.7	5.5	11.3
Prop In Lane	0.00		0.64	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	795	737	484	2700	0				514	270	225
V/C Ratio(X)	0.00	0.63	0.63	0.39	0.41	0.00				0.29	0.43	0.82
Avail Cap(c_a), veh/h	0	795	737	484	2700	0				724	380	317
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.71	0.71	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	21.4	21.4	17.9	0.0	0.0				38.4	39.2	41.6
Incr Delay (d2), s/veh	0.0	3.8	4.1	0.5	0.3	0.0				0.2	0.8	9.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.5	10.7	3.0	0.1	0.0				1.9	3.0	5.5
LnGrp Delay(d),s/veh	0.0	25.2	25.5	18.4	0.3	0.0				38.6	40.0	51.0
LnGrp LOS		C	C	B	A					D	D	D
Approach Vol, veh/h		969			1306						449	
Approach Delay, s/veh		25.4			3.0						44.0	
Approach LOS		C			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	31.8	49.0		19.2		80.8						
Change Period (Y+Rc), s	4.5	4.5		5.0		4.5						
Max Green Setting (Gmax), s	21.5	44.5		20.0		70.5						
Max Q Clear Time (g_c+I1), s	8.1	23.7		13.3		2.0						
Green Ext Time (p_c), s	8.7	6.8		0.8		19.7						
Intersection Summary												
HCM 2010 Ctrl Delay			17.7									
HCM 2010 LOS			B									
Notes												

HCM Signalized Intersection Capacity Analysis

2: 7th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	488	0	0	690	359	580	180	300	0	0	0
Future Volume (vph)	320	488	0	0	690	359	580	180	300	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Lane Util. Factor	1.00	0.95			0.95	1.00	0.95	0.95	1.00			
Frbp, ped/bikes	1.00	1.00			1.00	0.87	1.00	1.00	0.98			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (prot)	1787	3574			3539	1381	1698	1741	1563			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (perm)	1787	3574			3539	1381	1698	1741	1563			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	333	508	0	0	719	374	604	188	312	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	103	0	0	218	0	0	0
Lane Group Flow (vph)	333	508	0	0	719	271	393	399	95	0	0	0
Confl. Peds. (#/hr)	24		22	22		24			6	6		
Confl. Bikes (#/hr)			2			1			1			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Prot	NA			NA	Perm	Split	NA	Perm			
Protected Phases	5	2			6		8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	21.9	60.5			34.1	34.1	30.5	30.5	30.5			
Effective Green, g (s)	21.9	60.5			34.1	34.1	30.5	30.5	30.5			
Actuated g/C Ratio	0.22	0.60			0.34	0.34	0.30	0.30	0.30			
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Vehicle Extension (s)	2.5	2.5			2.5	2.5	2.5	2.5	2.5			
Lane Grp Cap (vph)	391	2162			1206	470	517	531	476			
v/s Ratio Prot	c0.19	0.14			c0.20		c0.23	0.23				
v/s Ratio Perm						0.20			0.06			
v/c Ratio	0.85	0.23			0.60	0.58	0.76	0.75	0.20			
Uniform Delay, d1	37.5	9.1			27.3	27.0	31.4	31.3	25.7			
Progression Factor	1.31	0.64			1.01	1.22	1.00	1.00	1.00			
Incremental Delay, d2	14.6	0.2			2.0	4.6	10.1	9.4	0.9			
Delay (s)	63.6	6.1			29.6	37.7	41.5	40.8	26.7			
Level of Service	E	A			C	D	D	D	C			
Approach Delay (s)		28.8			32.4			37.1			0.0	
Approach LOS		C			C			D			A	

Intersection Summary

HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	74.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

















HCM 2010 Signalized Intersection Summary
 3: 9th Ave NE & NE 50th St

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	663	30	5	959	5	40	20	30	15	10	15
Future Volume (veh/h)	20	663	30	5	959	5	40	20	30	15	10	15
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	0.97		0.95	0.97		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1900	1900	1863	1900	1900	1792	1900	1900	1900	1900
Adj Flow Rate, veh/h	20	677	31	5	979	5	41	20	31	15	10	15
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	2	2	2	6	6	6	0	0	0
Cap, veh/h	65	1907	86	39	2062	10	246	122	160	221	151	193
Arrive On Green	0.19	0.19	0.19	0.58	0.58	0.58	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	46	3260	147	4	3525	18	587	369	486	519	457	585
Grp Volume(v), veh/h	375	0	353	518	0	471	92	0	0	40	0	0
Grp Sat Flow(s),veh/h/ln	1777	0	1677	1857	0	1691	1442	0	0	1561	0	0
Q Serve(g_s), s	0.0	0.0	18.2	0.0	0.0	16.0	1.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	17.2	0.0	18.2	16.0	0.0	16.0	4.2	0.0	0.0	1.6	0.0	0.0
Prop In Lane	0.05		0.09	0.01		0.01	0.45		0.34	0.37		0.37
Lane Grp Cap(c), veh/h	1077	0	981	1122	0	989	528	0	0	565	0	0
V/C Ratio(X)	0.35	0.00	0.36	0.46	0.00	0.48	0.17	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	1077	0	981	1122	0	989	528	0	0	565	0	0
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.7	0.0	24.1	11.9	0.0	11.9	23.8	0.0	0.0	23.0	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	1.0	1.4	0.0	1.6	0.7	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	0.0	8.8	8.6	0.0	7.9	1.9	0.0	0.0	0.8	0.0	0.0
LnGrp Delay(d),s/veh	24.6	0.0	25.1	13.3	0.0	13.6	24.5	0.0	0.0	23.2	0.0	0.0
LnGrp LOS	C		C	B		B	C			C		
Approach Vol, veh/h		728			989			92				40
Approach Delay, s/veh		24.8			13.4			24.5				23.2
Approach LOS		C			B			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		63.0		37.0		63.0		37.0				
Change Period (Y+Rc), s		4.5		4.0		4.5		4.0				
Max Green Setting (Gmax), s		58.5		33.0		58.5		33.0				
Max Q Clear Time (g_c+I1), s		18.0		6.2		20.2		3.6				
Green Ext Time (p_c), s		2.0		0.1		2.0		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				18.7								
HCM 2010 LOS				B								
















HCM 2010 Signalized Intersection Summary
4: Roosevelt Way NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	624	94	110	869	0	0	0	0	128	902	110
Future Volume (veh/h)	0	624	94	110	869	0	0	0	0	128	902	110
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		1.00				1.00		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1900	1900	1900	0				1900	1881	1881
Adj Flow Rate, veh/h	0	643	97	113	896	0				132	930	113
Adj No. of Lanes	0	2	0	0	2	0				0	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	1	1	0	0	0				1	1	1
Cap, veh/h	0	1188	179	0	2004	0				154	1141	511
Arrive On Green	0.00	0.38	0.38	0.25	1.00	0.00				0.35	0.35	0.35
Sat Flow, veh/h	0	3180	465	0	3705	0				433	3213	1438
Grp Volume(v), veh/h	0	372	368	0	896	0				567	495	113
Grp Sat Flow(s),veh/h/ln	0	1787	1763	0	1805	0				1860	1787	1438
Q Serve(g_s), s	0.0	16.2	16.2	0.0	0.0	0.0				28.3	24.7	5.5
Cycle Q Clear(g_c), s	0.0	16.2	16.2	0.0	0.0	0.0				28.3	24.7	5.5
Prop In Lane	0.00		0.26	0.00		0.00				0.23		1.00
Lane Grp Cap(c), veh/h	0	688	679	0	2004	0				660	634	511
V/C Ratio(X)	0.00	0.54	0.54	0.00	0.45	0.00				0.86	0.78	0.22
Avail Cap(c_a), veh/h	0	688	679	0	2004	0				660	634	511
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	23.9	23.9	0.0	0.0	0.0				29.9	28.8	22.6
Incr Delay (d2), s/veh	0.0	3.0	3.1	0.0	0.7	0.0				13.6	9.2	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.5	8.5	0.0	0.2	0.0				17.0	13.7	2.3
LnGrp Delay(d),s/veh	0.0	26.9	27.0	0.0	0.7	0.0				43.5	38.0	23.6
LnGrp LOS		C	C		A					D	D	C
Approach Vol, veh/h		740			896						1175	
Approach Delay, s/veh		27.0			0.7						39.3	
Approach LOS		C			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		60.0			17.0	43.0		40.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		55.5			12.5	38.5		35.5				
Max Q Clear Time (g_c+I1), s		2.0			0.0	18.2		30.3				
Green Ext Time (p_c), s		1.4			0.0	0.8		0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			23.7									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
5: 11th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	667	0	0	680	88	289	915	90	0	0	0
Future Volume (veh/h)	70	667	0	0	680	88	289	915	90	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.90	1.00		0.91			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1881	0	0	1881	1900	1900	1863	1900			
Adj Flow Rate, veh/h	74	710	0	0	723	94	307	973	96			
Adj No. of Lanes	0	2	0	0	2	0	0	2	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	1	1	0	0	1	1	0	2	0			
Cap, veh/h	44	858	0	0	1035	134	366	1224	125			
Arrive On Green	0.87	0.87	0.00	0.00	0.66	0.66	0.16	0.16	0.16			
Sat Flow, veh/h	1	2058	0	0	3230	407	771	2576	264			
Grp Volume(v), veh/h	371	413	0	0	412	405	726	0	650			
Grp Sat Flow(s),veh/h/ln	347	1627	0	0	1787	1756	1824	0	1787			
Q Serve(g_s), s	17.8	6.7	0.0	0.0	14.5	14.6	38.7	0.0	34.8			
Cycle Q Clear(g_c), s	17.8	6.7	0.0	0.0	14.5	14.6	38.7	0.0	34.8			
Prop In Lane	0.20		0.00	0.00		0.23	0.42		0.15			
Lane Grp Cap(c), veh/h	0	708	0	0	590	580	866	0	849			
V/C Ratio(X)	0.00	0.58	0.00	0.00	0.70	0.70	0.84	0.00	0.77			
Avail Cap(c_a), veh/h	0	708	0	0	590	580	866	0	849			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	4.1	0.0	0.0	13.9	13.9	38.4	0.0	36.8			
Incr Delay (d2), s/veh	0.0	3.5	0.0	0.0	6.7	6.9	9.5	0.0	6.5			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	3.4	0.0	0.0	8.0	7.9	21.8	0.0	18.8			
LnGrp Delay(d),s/veh	0.0	7.6	0.0	0.0	20.6	20.7	47.9	0.0	43.3			
LnGrp LOS		A			C	C	D		D			
Approach Vol, veh/h		784			817			1376				
Approach Delay, s/veh		4.0			20.7			45.8				
Approach LOS		A			C			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		37.5		52.0		48.0						
Change Period (Y+Rc), s		* 4.5		4.5		4.5						
Max Green Setting (Gmax), s		* 33		47.5		43.5						
Max Q Clear Time (g_c+I1), s		16.6		40.7		19.8						
Green Ext Time (p_c), s		0.9		1.4		1.1						
Intersection Summary												
HCM 2010 Ctrl Delay				27.9								
HCM 2010 LOS				C								
Notes												

HCM Signalized Intersection Capacity Analysis
6: Brooklyn Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	90	560	71	35	738	30	10	40	60	10	100	60
Future Volume (vph)	90	560	71	35	738	30	10	40	60	10	100	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.95			0.99			0.93			0.97	
Flpb, ped/bikes		0.99			0.99			1.00			0.99	
Frt		0.99			0.99			0.93			0.95	
Flt Protected		0.99			1.00			1.00			1.00	
Satd. Flow (prot)		3253			3409			1626			1713	
Flt Permitted		0.67			0.89			0.98			0.99	
Satd. Flow (perm)		2209			3047			1597			1696	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	94	583	74	36	769	31	10	42	62	10	104	62
RTOR Reduction (vph)	0	8	0	0	3	0	0	35	0	0	20	0
Lane Group Flow (vph)	0	743	0	0	833	0	0	80	0	0	157	0
Confl. Peds. (#/hr)	120		200	200		120	92		159	159		92
Confl. Bikes (#/hr)			1			3			14			1
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	0%	0%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		47.5			47.5			44.0			44.0	
Effective Green, g (s)		47.5			47.5			44.0			44.0	
Actuated g/C Ratio		0.48			0.48			0.44			0.44	
Clearance Time (s)		4.5			4.5			4.0			4.0	
Lane Grp Cap (vph)		1049			1447			702			746	
v/s Ratio Prot												
v/s Ratio Perm		c0.34			0.27			0.05			c0.09	
v/c Ratio		0.71			0.58			0.11			0.21	
Uniform Delay, d1		20.8			19.0			16.5			17.3	
Progression Factor		0.28			0.31			0.00			1.00	
Incremental Delay, d2		2.8			1.5			0.3			0.6	
Delay (s)		8.6			7.3			0.3			17.9	
Level of Service		A			A			A			B	
Approach Delay (s)		8.6			7.3			0.3			17.9	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	8.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	91.2%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

















HCM 2010 Signalized Intersection Summary
7: University Way NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	448	52	50	687	20	46	130	45	45	95	80
Future Volume (veh/h)	160	448	52	50	687	20	46	130	45	45	95	80
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		0.80	0.91		0.80	0.90		0.82	0.89		0.84
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1845	1900	1900	1792	1900	1900	1743	1900
Adj Flow Rate, veh/h	170	477	55	53	731	21	49	138	48	48	101	85
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	3	3	3	6	6	6	9	9	9
Cap, veh/h	338	911	106	121	1578	45	141	372	120	129	255	194
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.78	0.78	0.39	0.39	0.39
Sat Flow, veh/h	537	1753	203	155	3035	86	249	954	309	220	654	499
Grp Volume(v), veh/h	269	0	433	404	0	401	235	0	0	234	0	0
Grp Sat Flow(s),veh/h/ln	892	0	1601	1637	0	1638	1512	0	0	1373	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	11.7	0.0	0.0
Prop In Lane	0.63		0.13	0.13		0.05	0.21		0.20	0.21		0.36
Lane Grp Cap(c), veh/h	523	0	832	892	0	852	633	0	0	579	0	0
V/C Ratio(X)	0.52	0.00	0.52	0.45	0.00	0.47	0.37	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	523	0	832	892	0	852	633	0	0	579	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	7.2	0.0	0.0	22.0	0.0	0.0
Incr Delay (d2), s/veh	3.6	0.0	2.3	1.7	0.0	1.9	1.7	0.0	0.0	2.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.5	0.4	0.0	0.4	2.1	0.0	0.0	5.0	0.0	0.0
LnGrp Delay(d),s/veh	3.6	0.0	2.3	1.7	0.0	1.9	8.9	0.0	0.0	24.1	0.0	0.0
LnGrp LOS	A		A	A		A	A			C		
Approach Vol, veh/h		702			805			235				234
Approach Delay, s/veh		2.8			1.8			8.9				24.1
Approach LOS		A			A			A				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		56.5		43.5		56.5		43.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		52.0		39.0		52.0		39.0				
Max Q Clear Time (g_c+I1), s		2.0		6.4		2.0		13.7				
Green Ext Time (p_c), s		2.6		0.7		2.6		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay				5.6								
HCM 2010 LOS				A								

HCM 2010 Signalized Intersection Summary
8: 15th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	353	80	35	438	35	254	655	45	15	355	25
Future Volume (veh/h)	95	353	80	35	438	35	254	655	45	15	355	25
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.75	0.99		0.85	0.99		0.92	0.98		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1900	1900	1881	1900	1900	1827	1900	1900	1845	1900
Adj Flow Rate, veh/h	100	372	84	37	461	37	267	689	47	16	374	26
Adj No. of Lanes	0	2	0	0	2	0	0	2	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	1	1	1	4	4	4	3	3	3
Cap, veh/h	165	628	154	87	1029	84	429	1007	70	53	887	60
Arrive On Green	0.37	0.37	0.37	0.37	0.37	0.37	1.00	1.00	1.00	0.55	0.55	0.55
Sat Flow, veh/h	318	1721	421	126	2818	231	677	1847	128	29	1628	110
Grp Volume(v), veh/h	272	0	284	275	0	260	404	0	599	416	0	0
Grp Sat Flow(s),veh/h/ln	1037	0	1422	1553	0	1622	1025	0	1627	1767	0	0
Q Serve(g_s), s	14.0	0.0	15.8	0.8	0.0	12.1	2.3	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	26.1	0.0	15.8	16.6	0.0	12.1	15.8	0.0	0.0	13.5	0.0	0.0
Prop In Lane	0.37		0.30	0.13		0.14	0.66		0.08	0.04		0.06
Lane Grp Cap(c), veh/h	428	0	519	608	0	592	618	0	887	1000	0	0
V/C Ratio(X)	0.64	0.00	0.55	0.45	0.00	0.44	0.65	0.00	0.68	0.42	0.00	0.00
Avail Cap(c_a), veh/h	428	0	519	608	0	592	618	0	887	1000	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	29.9	0.0	25.2	23.7	0.0	24.0	0.2	0.0	0.0	13.4	0.0	0.0
Incr Delay (d2), s/veh	7.1	0.0	4.1	2.4	0.0	2.4	5.3	0.0	4.1	1.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.6	0.0	6.8	6.1	0.0	5.8	1.5	0.0	1.0	7.1	0.0	0.0
LnGrp Delay(d),s/veh	36.9	0.0	29.3	26.1	0.0	26.4	5.5	0.0	4.1	14.7	0.0	0.0
LnGrp LOS	D		C	C		C	A		A	B		
Approach Vol, veh/h		556			535			1003			416	
Approach Delay, s/veh		33.0			26.2			4.7			14.7	
Approach LOS		C			C			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		41.0		59.0		41.0		59.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		36.5		54.5		36.5		54.5				
Max Q Clear Time (g_c+I1), s		18.6		17.8		28.1		15.5				
Green Ext Time (p_c), s		7.1		13.7		4.4		14.0				
Intersection Summary												
HCM 2010 Ctrl Delay				17.2								
HCM 2010 LOS				B								

HCM Signalized Intersection Capacity Analysis

9: 17th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕			↕↕	
Traffic Volume (vph)	20	397	116	25	356	10	227	80	20	15	80	30
Future Volume (vph)	20	397	116	25	356	10	227	80	20	15	80	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frbp, ped/bikes		0.96			1.00			0.99			0.96	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.99			0.97	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		3274			1837			1787			1738	
Flt Permitted		0.93			0.94			0.97			0.99	
Satd. Flow (perm)		3046			1736			1787			1738	
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)	22	436	127	27	391	11	249	88	22	16	88	33
RTOR Reduction (vph)	0	23	0	0	1	0	0	2	0	0	11	0
Lane Group Flow (vph)	0	562	0	0	428	0	0	357	0	0	126	0
Confl. Peds. (#/hr)	56		83	83		56	87		66	66		87
Confl. Bikes (#/hr)						2			42			4
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			2		4	4		3	3	
Permitted Phases	2			2								
Actuated Green, G (s)		42.4			42.4			33.5			21.1	
Effective Green, g (s)		42.4			42.4			33.5			21.1	
Actuated g/C Ratio		0.38			0.38			0.30			0.19	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			3.0			3.0	
Lane Grp Cap (vph)		1168			666			541			331	
v/s Ratio Prot								c0.20			c0.07	
v/s Ratio Perm		0.18			c0.25							
v/c Ratio		0.48			0.64			0.66			0.38	
Uniform Delay, d1		25.7			27.9			33.5			39.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.4			4.7			6.2			3.3	
Delay (s)		27.2			32.6			39.7			42.3	
Level of Service		C			C			D			D	
Approach Delay (s)		27.2			32.6			39.7			42.3	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	110.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	17.4
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	315	30	67	0	5	30	5	0	111	60	5
Future Vol, veh/h	0	315	30	67	0	5	30	5	0	111	60	5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	3	3	3	3	1	1	1	1
Mvmt Flow	0	354	34	75	0	6	34	6	0	125	67	6
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	22.4	10.1	12.4
HCM LOS	C	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	63%	76%	12%	2%
Vol Thru, %	34%	7%	75%	17%
Vol Right, %	3%	16%	12%	82%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	176	412	40	330
LT Vol	111	315	5	5
Through Vol	60	30	30	55
RT Vol	5	67	5	270
Lane Flow Rate	198	463	45	371
Geometry Grp	1	1	1	1
Degree of Util (X)	0.339	0.727	0.082	0.55
Departure Headway (Hd)	6.167	5.655	6.532	5.342
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	577	634	552	671
Service Time	4.257	3.719	4.532	3.421
HCM Lane V/C Ratio	0.343	0.73	0.082	0.553
HCM Control Delay	12.4	22.4	10.1	14.8
HCM Lane LOS	B	C	B	B
HCM 95th-tile Q	1.5	6.2	0.3	3.4

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	5	55	270
Future Vol, veh/h	0	5	55	270
Peak Hour Factor	0.89	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3
Mvmt Flow	0	6	62	303
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	14.8
HCM LOS	B

HCM Signalized Intersection Capacity Analysis
 11: Roosevelt Way NE & NE 47th St

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Traffic Volume (vph)	0	90	45	145	70	0	0	0	0	105	1026	35
Future Volume (vph)	0	90	45	145	70	0	0	0	0	105	1026	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0						4.5	
Lane Util. Factor		1.00			1.00						0.95	
Frbp, ped/bikes		0.96			1.00						0.99	
Flpb, ped/bikes		1.00			0.94						0.99	
Frt		0.95			1.00						1.00	
Flt Protected		1.00			0.97						1.00	
Satd. Flow (prot)		1742			1713						3451	
Flt Permitted		1.00			0.71						1.00	
Satd. Flow (perm)		1742			1259						3451	
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	96	48	154	74	0	0	0	0	112	1091	37
RTOR Reduction (vph)	0	12	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	132	0	0	228	0	0	0	0	0	1236	0
Confl. Peds. (#/hr)	78		113	113		78	114		59	59		114
Confl. Bikes (#/hr)			6			23						11
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		14.7			14.7						25.8	
Effective Green, g (s)		14.7			14.7						25.8	
Actuated g/C Ratio		0.29			0.29						0.52	
Clearance Time (s)		5.0			5.0						4.5	
Vehicle Extension (s)		4.0			4.0						0.2	
Lane Grp Cap (vph)		512			370						1780	
v/s Ratio Prot		0.08										
v/s Ratio Perm					0.18						0.36	
v/c Ratio		0.26			0.62						0.69	
Uniform Delay, d1		13.5			15.2						9.1	
Progression Factor		1.00			0.86						0.93	
Incremental Delay, d2		0.4			2.4						1.3	
Delay (s)		13.8			15.4						9.8	
Level of Service		B			B						A	
Approach Delay (s)		13.8			15.4			0.0			9.8	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			10.9		HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			50.0		Sum of lost time (s)			9.5				
Intersection Capacity Utilization			74.6%		ICU Level of Service			D				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

12: 11th Ave NE & NE 47th St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕				
Traffic Volume (vph)	0	135	0	0	160	180	50	1064	185	0	0	0
Future Volume (vph)	0	135	0	0	160	180	50	1064	185	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			0.93			0.98				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.93			0.98				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1900			1613			3404				
Flt Permitted		1.00			1.00			1.00				
Satd. Flow (perm)		1900			1613			3404				
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)	0	145	0	0	172	194	54	1144	199	0	0	0
RTOR Reduction (vph)	0	0	0	0	29	0	0	25	0	0	0	0
Lane Group Flow (vph)	0	145	0	0	337	0	0	1372	0	0	0	0
Confl. Peds. (#/hr)	89		93	93		89	44		48	48		44
Confl. Bikes (#/hr)			14			30			81			
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type		NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		13.2			13.2			26.8				
Effective Green, g (s)		13.2			13.2			26.8				
Actuated g/C Ratio		0.26			0.26			0.54				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.0			2.0			0.2				
Lane Grp Cap (vph)		501			425			1824				
v/s Ratio Prot		0.08			0.21							
v/s Ratio Perm								0.40				
v/c Ratio		0.29			0.79			0.75				
Uniform Delay, d1		14.7			17.1			9.0				
Progression Factor		1.01			0.99			1.20				
Incremental Delay, d2		0.1			9.1			1.9				
Delay (s)		14.9			26.0			12.8				
Level of Service		B			C			B				
Approach Delay (s)		14.9			26.0			12.8			0.0	
Approach LOS		B			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.5					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			50.0					Sum of lost time (s)		10.0		
Intersection Capacity Utilization			71.4%					ICU Level of Service		C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 13: 15th Ave NE & NE 47th St













UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	50	75	70	25	65	65	50	864	30	30	455	15
Future Volume (vph)	50	75	70	25	65	65	50	864	30	30	455	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frbp, ped/bikes		0.94			0.94			0.99			0.99	
Flpb, ped/bikes		0.97			0.98			0.99			1.00	
Frt		0.95			0.94			1.00			1.00	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1624			1607			3422			1754	
Flt Permitted		0.89			0.93			0.91			0.91	
Satd. Flow (perm)		1464			1513			3107			1607	
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)	54	81	75	27	70	70	54	929	32	32	489	16
RTOR Reduction (vph)	0	40	0	0	38	0	0	5	0	0	2	0
Lane Group Flow (vph)	0	170	0	0	129	0	0	1010	0	0	535	0
Confl. Peds. (#/hr)	140		146	146		140	175		131	131		175
Confl. Bikes (#/hr)			6			4			24			4
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	3%	3%	3%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		15.0			15.0			26.5			26.5	
Effective Green, g (s)		15.0			15.0			26.5			26.5	
Actuated g/C Ratio		0.30			0.30			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		439			453			1646			851	
v/s Ratio Prot												
v/s Ratio Perm		c0.12			0.09			0.33			c0.33	
v/c Ratio		0.39			0.29			0.61			0.63	
Uniform Delay, d1		13.9			13.4			8.2			8.3	
Progression Factor		1.11			1.00			0.90			0.65	
Incremental Delay, d2		2.2			1.6			0.7			3.2	
Delay (s)		17.6			15.0			8.1			8.6	
Level of Service		B			B			A			A	
Approach Delay (s)		17.6			15.0			8.1			8.6	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.8									A
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			50.0								8.5	
Intersection Capacity Utilization			77.0%									D
ICU Level of Service												
Analysis Period (min)			15									
c Critical Lane Group												

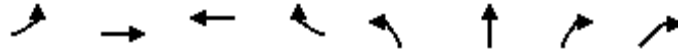
HCM Signalized Intersection Capacity Analysis
 14: 5th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑					↑	↑↑	
Traffic Volume (vph)	0	670	260	521	906	0	0	0	0	203	225	160
Future Volume (vph)	0	670	260	521	906	0	0	0	0	203	225	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5					5.0	5.0	
Lane Util. Factor		0.95		0.97	0.95					0.91	0.91	
Frbp, ped/bikes		0.96		1.00	1.00					1.00	0.97	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.96		1.00	1.00					1.00	0.94	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3278		3433	3539					1579	3042	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		3278		3433	3539					1579	3042	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	698	271	543	944	0	0	0	0	211	234	167
RTOR Reduction (vph)	0	43	0	0	0	0	0	0	0	0	88	0
Lane Group Flow (vph)	0	926	0	543	944	0	0	0	0	190	334	0
Confl. Peds. (#/hr)	128		138	138		128	35					35
Confl. Bikes (#/hr)			2			8						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type		NA		Prot	NA					Split	NA	
Protected Phases		2		1	6					4	4	
Permitted Phases												
Actuated Green, G (s)		34.2		30.8	69.5					21.0	21.0	
Effective Green, g (s)		34.2		30.8	69.5					21.0	21.0	
Actuated g/C Ratio		0.34		0.31	0.70					0.21	0.21	
Clearance Time (s)		4.5		4.5	4.5					5.0	5.0	
Vehicle Extension (s)		3.0		4.0	4.0					3.0	3.0	
Lane Grp Cap (vph)		1121		1057	2459					331	638	
v/s Ratio Prot		c0.28		c0.16	0.27					c0.12	0.11	
v/s Ratio Perm												
v/c Ratio		0.83		0.51	0.38					0.57	0.52	
Uniform Delay, d1		30.2		28.4	6.3					35.5	35.1	
Progression Factor		1.00		0.66	0.22					0.99	1.00	
Incremental Delay, d2		5.1		0.9	0.2					6.4	2.8	
Delay (s)		35.3		19.7	1.6					41.6	37.8	
Level of Service		D		B	A					D	D	
Approach Delay (s)		35.3			8.2			0.0			39.0	
Approach LOS		D			A			A			D	
Intersection Summary												
HCM 2000 Control Delay			22.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				14.0		
Intersection Capacity Utilization			77.1%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 15: 7th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	NER
Lane Configurations								
Traffic Volume (vph)	230	653	896	317	561	438	512	60
Future Volume (vph)	230	653	896	317	561	438	512	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5	4.5	3.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.95	0.95	1.00
Frbp, ped/bikes	1.00	1.00	0.91		1.00	0.99	0.96	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.96		1.00	0.98	0.85	0.86
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1736	3471	3042		3400	1706	1430	1596
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	1.00
Satd. Flow (perm)	1736	3471	3042		3400	1706	1430	1596
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	242	687	943	334	591	461	539	63
RTOR Reduction (vph)	0	0	36	0	0	6	80	0
Lane Group Flow (vph)	242	687	1241	0	591	530	384	63
Confl. Peds. (#/hr)	294			294	95		24	
Confl. Bikes (#/hr)				24				
Heavy Vehicles (%)	4%	4%	4%	4%	3%	3%	3%	3%
Turn Type	Prot	NA	NA		Split	NA	Perm	custom
Protected Phases	5	2	6		4	4		1
Permitted Phases							4	2
Actuated Green, G (s)	15.5	55.1	40.5		30.5	30.5	30.5	57.5
Effective Green, g (s)	15.5	55.1	40.5		30.5	30.5	30.5	57.5
Actuated g/C Ratio	0.16	0.55	0.40		0.30	0.30	0.30	0.58
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5	4.5	3.0
Vehicle Extension (s)	3.0	4.0	4.0		4.0	4.0	4.0	1.0
Lane Grp Cap (vph)	269	1912	1232		1037	520	436	917
v/s Ratio Prot	c0.14	0.20	c0.41		0.17	c0.31		0.00
v/s Ratio Perm							0.27	0.04
v/c Ratio	0.90	0.36	1.01		0.57	1.02	0.88	0.07
Uniform Delay, d1	41.5	12.6	29.8		29.2	34.8	33.0	9.4
Progression Factor	1.21	0.78	0.77		1.00	1.00	1.00	1.00
Incremental Delay, d2	23.3	0.4	25.9		2.3	44.6	21.7	0.0
Delay (s)	73.4	10.2	48.7		31.5	79.4	54.8	9.4
Level of Service	E	B	D		C	E	D	A
Approach Delay (s)		26.6	48.7			54.4		
Approach LOS		C	D			D		

Intersection Summary			
HCM 2000 Control Delay	45.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Int Delay, s/veh 2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑		↑
Traffic Vol, veh/h	1097	10	10	1203	5	95
Future Vol, veh/h	1097	10	10	1203	5	95
Conflicting Peds, #/hr	0	224	224	0	224	224
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	10	-	-	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	1180	11	11	1294	5	102

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	1414	2301
Stage 1	-	-	1409
Stage 2	-	-	892
Critical Hdwy	-	4.16	6.8
Critical Hdwy Stg 1	-	-	5.8
Critical Hdwy Stg 2	-	-	5.8
Follow-up Hdwy	-	2.23	3.5
Pot Cap-1 Maneuver	-	473	33
Stage 1	-	-	195
Stage 2	-	-	366
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	385	21
Mov Cap-2 Maneuver	-	-	102
Stage 1	-	-	159
Stage 2	-	-	289

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	67.2
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	152	-	-	385	-
HCM Lane V/C Ratio	0.672	-	-	0.028	-
HCM Control Delay (s)	67.2	-	-	14.6	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	3.8	-	-	0.1	-

Intersection

Int Delay, s/veh 1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	95	1102	1188	30	5	25
Future Vol, veh/h	95	1102	1188	30	5	25
Conflicting Peds, #/hr	150	0	0	148	148	150
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	10	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	100	1160	1251	32	5	26

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1432	0	2344
Stage 1	-	-	1416
Stage 2	-	-	928
Critical Hdwy	4.16	-	6.8
Critical Hdwy Stg 1	-	-	5.8
Critical Hdwy Stg 2	-	-	5.8
Follow-up Hdwy	2.23	-	3.5
Pot Cap-1 Maneuver	465	-	31
Stage 1	-	-	193
Stage 2	-	-	350
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	407	-	18
Mov Cap-2 Maneuver	-	-	97
Stage 1	-	-	169
Stage 2	-	-	231

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	30.4
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	407	-	-	-	173
HCM Lane V/C Ratio	0.246	-	-	-	0.183
HCM Control Delay (s)	16.7	-	-	-	30.4
HCM Lane LOS	C	-	-	-	D
HCM 95th %tile Q(veh)	1	-	-	-	0.6

HCM Signalized Intersection Capacity Analysis
18: Roosevelt Way NE & NE 45th St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑						↖↑	↖
Traffic Volume (vph)	0	883	239	307	1078	0	0	0	0	45	1026	135
Future Volume (vph)	0	883	239	307	1078	0	0	0	0	45	1026	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5						4.5	4.5
Lane Util. Factor		0.95		1.00	0.95						0.95	1.00
Frbp, ped/bikes		0.93		1.00	1.00						1.00	0.65
Flpb, ped/bikes		1.00		1.00	1.00						0.99	1.00
Frt		0.97		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						1.00	1.00
Satd. Flow (prot)		3165		1736	3471						3512	1036
Flt Permitted		1.00		0.11	1.00						1.00	1.00
Satd. Flow (perm)		3165		194	3471						3512	1036
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	920	249	320	1123	0	0	0	0	47	1069	141
RTOR Reduction (vph)	0	24	0	0	0	0	0	0	0	0	0	44
Lane Group Flow (vph)	0	1145	0	320	1123	0	0	0	0	0	1116	97
Confl. Peds. (#/hr)	269		232	232		269	298		90	90		298
Confl. Bikes (#/hr)			2			17						35
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	0%	0%	0%	2%	2%	2%
Turn Type		NA		D.P+P	NA					Perm	NA	Perm
Protected Phases		2		3	2 3						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		37.6		53.6	58.1						32.9	32.9
Effective Green, g (s)		37.6		53.6	58.1						32.9	32.9
Actuated g/C Ratio		0.38		0.54	0.58						0.33	0.33
Clearance Time (s)		4.5		4.5							4.5	4.5
Vehicle Extension (s)		0.2		1.0							1.0	1.0
Lane Grp Cap (vph)		1190		350	2016						1155	340
v/s Ratio Prot		c0.36		c0.15	0.32							
v/s Ratio Perm				0.34							0.32	0.09
v/c Ratio		0.96		0.91	0.56						0.97	0.29
Uniform Delay, d1		30.5		27.8	13.0						33.0	24.9
Progression Factor		0.42		1.47	0.59						0.94	0.90
Incremental Delay, d2		16.6		21.9	0.1						15.5	0.1
Delay (s)		29.4		62.7	7.8						46.6	22.5
Level of Service		C		E	A						D	C
Approach Delay (s)		29.4			20.0			0.0			43.9	
Approach LOS		C			C			A			D	

Intersection Summary

HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 19: 11th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑		↖	↑↑	↗			
Traffic Volume (vph)	10	888	0	0	996	35	374	1199	261	0	0	0
Future Volume (vph)	10	888	0	0	996	35	374	1199	261	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5	4.5			
Lane Util. Factor		0.95			0.95		1.00	0.95	1.00			
Frbp, ped/bikes		1.00			0.99		1.00	1.00	0.77			
Flpb, ped/bikes		1.00			1.00		0.91	1.00	1.00			
Frt		1.00			0.99		1.00	1.00	0.85			
Flt Protected		1.00			1.00		0.95	1.00	1.00			
Satd. Flow (prot)		3503			3414		1623	3574	1237			
Flt Permitted		0.94			1.00		0.95	1.00	1.00			
Satd. Flow (perm)		3289			3414		1623	3574	1237			
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)	11	945	0	0	1060	37	398	1276	278	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	16	0	0	0
Lane Group Flow (vph)	0	956	0	0	1094	0	398	1276	262	0	0	0
Confl. Peds. (#/hr)	243		130	130		243	55		112	112		55
Confl. Bikes (#/hr)						16			93			
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		2			2			4				
Permitted Phases	2						4		4			
Actuated Green, G (s)		45.5			45.5		45.5	45.5	45.5			
Effective Green, g (s)		45.5			45.5		45.5	45.5	45.5			
Actuated g/C Ratio		0.46			0.46		0.46	0.46	0.46			
Clearance Time (s)		4.5			4.5		4.5	4.5	4.5			
Vehicle Extension (s)		0.2			0.2		2.0	2.0	2.0			
Lane Grp Cap (vph)		1496			1553		738	1626	562			
v/s Ratio Prot					c0.32			c0.36				
v/s Ratio Perm		0.29					0.25		0.21			
v/c Ratio		0.64			0.70		0.54	0.78	0.47			
Uniform Delay, d1		20.9			21.9		19.7	23.1	18.8			
Progression Factor		0.11			0.78		0.60	0.58	0.57			
Incremental Delay, d2		0.6			2.4		0.3	0.4	0.3			
Delay (s)		2.9			19.4		12.1	13.7	11.0			
Level of Service		A			B		B	B	B			
Approach Delay (s)		2.9			19.4			13.0			0.0	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	100.0	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

20: 12th Ave NE & NE 45th St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1040	59	48	966	15	35	60	39	15	51	30
Future Volume (vph)	85	1040	59	48	966	15	35	60	39	15	51	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.0	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frbp, ped/bikes	1.00	0.96		1.00	0.99			0.94			0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98			0.98	
Frt	1.00	0.99		1.00	1.00			0.96			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1736	3321		1703	3367			1615			1594	
Flt Permitted	0.95	1.00		0.95	1.00			0.91			0.95	
Satd. Flow (perm)	1736	3321		1703	3367			1488			1531	
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)	90	1106	63	51	1028	16	37	64	41	16	54	32
RTOR Reduction (vph)	0	3	0	0	1	0	0	16	0	0	18	0
Lane Group Flow (vph)	90	1166	0	51	1043	0	0	126	0	0	84	0
Confl. Peds. (#/hr)	214		302	302		214	72		98	98		72
Confl. Bikes (#/hr)			2			9			30			3
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	3%	3%	3%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4			4		
Actuated Green, G (s)	10.2	65.3		5.1	59.7			16.6			16.6	
Effective Green, g (s)	10.2	65.3		5.1	59.7			16.6			16.6	
Actuated g/C Ratio	0.10	0.65		0.05	0.60			0.17			0.17	
Clearance Time (s)	4.5	4.5		4.0	4.5			4.5			4.5	
Vehicle Extension (s)	0.5	0.2		0.5	0.2			1.0			1.0	
Lane Grp Cap (vph)	177	2168		86	2010			247			254	
v/s Ratio Prot	c0.05	c0.35		0.03	0.31							
v/s Ratio Perm								c0.08			0.05	
v/c Ratio	0.51	0.54		0.59	0.52			0.51			0.33	
Uniform Delay, d1	42.5	9.3		46.4	11.8			38.0			36.8	
Progression Factor	0.84	0.31		1.00	0.28			1.00			1.00	
Incremental Delay, d2	0.7	0.8		5.8	0.8			0.7			0.3	
Delay (s)	36.4	3.7		52.3	4.0			38.7			37.1	
Level of Service	D	A		D	A			D			D	
Approach Delay (s)		6.0			6.3			38.7			37.1	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	61.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 21: Brooklyn Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑			↑↑			↘	↘		↘	↘
Traffic Volume (vph)	120	971	33	45	898	15	56	5	10	50	16	155
Future Volume (vph)	120	971	33	45	898	15	56	5	10	50	16	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5			4.5			4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95			0.95			1.00	1.00		1.00	1.00
Frbp, ped/bikes	1.00	0.97			0.99			1.00	0.68		1.00	0.74
Flpb, ped/bikes	1.00	1.00			0.99			0.79	1.00		0.79	1.00
Frt	1.00	1.00			1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00			1.00			0.96	1.00		0.96	1.00
Satd. Flow (prot)	1736	3352			3362			1431	1104		1431	1179
Flt Permitted	0.95	1.00			0.84			0.70	1.00		0.75	1.00
Satd. Flow (perm)	1736	3352			2833			1045	1104		1112	1179
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)	128	1033	35	48	955	16	60	5	11	53	17	165
RTOR Reduction (vph)	0	2	0	0	1	0	0	0	9	0	0	139
Lane Group Flow (vph)	128	1066	0	0	1018	0	0	65	2	0	70	26
Confl. Peds. (#/hr)	337		693	693		337	152		193	193		152
Confl. Bikes (#/hr)			9			12			9			3
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			4			4	
Permitted Phases				6			4		4	4		4
Actuated Green, G (s)	14.0	75.2			57.2			15.8	15.8		15.8	15.8
Effective Green, g (s)	14.0	75.2			57.2			15.8	15.8		15.8	15.8
Actuated g/C Ratio	0.14	0.75			0.57			0.16	0.16		0.16	0.16
Clearance Time (s)	4.0	4.5			4.5			4.5	4.5		4.5	4.5
Vehicle Extension (s)	0.5	0.2			0.2			1.0	1.0		1.0	1.0
Lane Grp Cap (vph)	243	2520			1620			165	174		175	186
v/s Ratio Prot	c0.07	0.32										
v/s Ratio Perm					c0.36			0.06	0.00		c0.06	0.02
v/c Ratio	0.53	0.42			0.63			0.39	0.01		0.40	0.14
Uniform Delay, d1	39.9	4.5			14.3			37.8	35.5		37.8	36.3
Progression Factor	0.71	0.18			0.71			1.00	1.00		1.05	1.49
Incremental Delay, d2	0.8	0.5			1.7			0.6	0.0		0.5	0.1
Delay (s)	29.2	1.3			11.9			38.4	35.5		40.2	54.0
Level of Service	C	A			B			D	D		D	D
Approach Delay (s)		4.3			11.9			38.0			49.9	
Approach LOS		A			B			D			D	

Intersection Summary

HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

22: University Way NE & NE 45th St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↓			↑↓	
Traffic Volume (vph)	5	872	84	4	846	40	27	136	91	5	162	55
Future Volume (vph)	5	872	84	4	846	40	27	136	91	5	162	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.92			0.96			0.84			0.88	
Flpb, ped/bikes		1.00			1.00			0.97			1.00	
Frt		0.99			0.99			0.95			0.97	
Flt Protected		1.00			1.00			0.99			1.00	
Satd. Flow (prot)		3163			3421			1367			1523	
Flt Permitted		0.95			0.95			0.95			0.99	
Satd. Flow (perm)		3010			3257			1302			1514	
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)	5	928	89	4	900	43	29	145	97	5	172	59
RTOR Reduction (vph)	0	1	0	0	2	0	0	4	0	0	7	0
Lane Group Flow (vph)	0	1021	0	0	945	0	0	267	0	0	229	0
Confl. Peds. (#/hr)	493		608	608		493	754		597	597		754
Confl. Bikes (#/hr)			1			7			71			20
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	7%	7%	7%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		66.0			66.0			25.0			25.0	
Effective Green, g (s)		66.0			66.0			25.0			25.0	
Actuated g/C Ratio		0.66			0.66			0.25			0.25	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			1.0			1.0	
Lane Grp Cap (vph)		1986			2149			325			378	
v/s Ratio Prot												
v/s Ratio Perm		c0.34			0.29			c0.21			0.15	
v/c Ratio		0.51			0.44			0.82			0.61	
Uniform Delay, d1		8.7			8.1			35.4			33.2	
Progression Factor		0.47			0.22			0.94			1.06	
Incremental Delay, d2		0.9			0.5			14.1			1.7	
Delay (s)		5.0			2.2			47.5			37.0	
Level of Service		A			A			D			D	
Approach Delay (s)		5.0			2.2			47.5			37.0	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
 23: 15th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (veh/h)	85	762	131	146	763	90	45	789	188	95	480	40
Future Volume (veh/h)	85	762	131	146	763	90	45	789	188	95	480	40
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.79	1.00		0.80	1.00		0.81	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1810	1810	1900	1776	1776	1900	1810	1810	1900
Adj Flow Rate, veh/h	89	794	136	152	795	94	47	822	196	99	500	42
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	5	5	5	7	7	7	5	5	5
Cap, veh/h	127	940	161	175	1067	126	62	845	201	121	1160	97
Arrive On Green	0.14	0.65	0.65	0.20	0.71	0.71	0.07	0.66	0.66	0.14	0.73	0.73
Sat Flow, veh/h	1774	2892	495	1723	3006	355	1691	2574	614	1723	3163	264
Grp Volume(v), veh/h	89	486	444	152	454	435	47	539	479	99	270	272
Grp Sat Flow(s),veh/h/ln	1774	1770	1618	1723	1719	1642	1691	1687	1501	1723	1719	1708
Q Serve(g_s), s	4.8	21.3	21.3	8.5	16.3	16.3	2.7	30.3	30.4	5.6	6.1	6.2
Cycle Q Clear(g_c), s	4.8	21.3	21.3	8.5	16.3	16.3	2.7	30.3	30.4	5.6	6.1	6.2
Prop In Lane	1.00		0.31	1.00		0.22	1.00		0.41	1.00		0.15
Lane Grp Cap(c), veh/h	127	575	526	175	610	583	62	554	493	121	630	626
V/C Ratio(X)	0.70	0.84	0.84	0.87	0.74	0.75	0.76	0.97	0.97	0.82	0.43	0.43
Avail Cap(c_a), veh/h	127	575	526	175	610	583	118	565	503	121	630	626
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	0.85	0.85	0.85	0.83	0.83	0.83	0.75	0.75	0.75	0.74	0.74	0.74
Uniform Delay (d), s/veh	41.8	15.5	15.5	39.2	11.7	11.7	45.9	16.8	16.8	42.4	9.3	9.3
Incr Delay (d2), s/veh	11.4	12.3	13.3	28.2	6.7	7.0	5.3	25.6	27.5	25.6	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	11.9	11.1	5.4	8.5	8.1	1.4	17.4	15.8	3.5	2.9	2.9
LnGrp Delay(d),s/veh	53.2	27.8	28.8	67.4	18.4	18.7	51.3	42.4	44.3	68.0	9.4	9.4
LnGrp LOS	D	C	C	E	B	B	D	D	D	E	A	A
Approach Vol, veh/h		1019			1041			1065			641	
Approach Delay, s/veh		30.5			25.7			43.6			18.4	
Approach LOS		C			C			D			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.2	40.0	11.5	37.3	14.2	37.0	7.6	41.2				
Change Period (Y+Rc), s	4.0	4.5	4.5	* 4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	7.0	35.5	7.0	* 34	10.0	32.5	7.0	33.5				
Max Q Clear Time (g_c+I1), s	6.8	18.3	7.6	32.4	10.5	23.3	4.7	8.2				
Green Ext Time (p_c), s	0.0	2.1	0.0	0.4	0.0	1.9	0.0	1.1				
Intersection Summary												
HCM 2010 Ctrl Delay			30.8									
HCM 2010 LOS			C									
Notes												

HCM Signalized Intersection Capacity Analysis
 24: Memorial Way NE/17th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↗		↗	↖
Traffic Volume (vph)	20	771	274	55	801	50	178	177	46	45	96	25
Future Volume (vph)	20	771	274	55	801	50	178	177	46	45	96	25
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frbp, ped/bikes	1.00	0.93		1.00	0.97		1.00	1.00	0.54		0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85		0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1752	3127		1770	3399		1770	1863	863		1717	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (perm)	1752	3127		1770	3399		1770	1863	863		1717	
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)	22	829	295	59	861	54	191	190	49	48	103	27
RTOR Reduction (vph)	0	32	0	0	4	0	0	0	42	0	7	0
Lane Group Flow (vph)	22	1092	0	59	911	0	191	190	7	0	171	0
Confl. Peds. (#/hr)	218		185	185		218	329		437	437		329
Confl. Bikes (#/hr)			2			3			75			10
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases									4			
Actuated Green, G (s)	2.0	49.3		4.9	52.2		14.0	14.0	14.0		15.3	
Effective Green, g (s)	2.0	49.3		4.9	52.2		14.0	14.0	14.0		15.3	
Actuated g/C Ratio	0.02	0.49		0.05	0.52		0.14	0.14	0.14		0.15	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.0	4.0		4.0	
Vehicle Extension (s)	1.0	0.2		1.0	0.2		0.5	0.5	0.5		2.0	
Lane Grp Cap (vph)	35	1541		86	1774		247	260	120		262	
v/s Ratio Prot	0.01	c0.35		c0.03	c0.27		c0.11	0.10			c0.10	
v/s Ratio Perm									0.01			
v/c Ratio	0.63	0.71		0.69	0.51		0.77	0.73	0.06		0.65	
Uniform Delay, d1	48.6	19.7		46.8	15.6		41.5	41.2	37.3		39.9	
Progression Factor	1.21	0.26		0.66	1.38		1.00	1.00	1.00		1.00	
Incremental Delay, d2	13.0	1.5		15.7	1.0		12.8	8.8	0.1		4.4	
Delay (s)	72.1	6.6		46.5	22.5		54.3	50.0	37.4		44.3	
Level of Service	E	A		D	C		D	D	D		D	
Approach Delay (s)		7.8			24.0			50.4			44.3	
Approach LOS		A			C			D			D	

Intersection Summary

HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 25: NE 45th St & 18th Ave NE

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Volume (vph)	0	912	906	0	15	25
Future Volume (vph)	0	912	906	0	15	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.0	
Lane Util. Factor		0.95	0.95		1.00	
Frbp, ped/bikes		1.00	1.00		0.86	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	1.00		0.92	
Flt Protected		1.00	1.00		0.98	
Satd. Flow (prot)		3574	3539		1470	
Flt Permitted		1.00	1.00		0.98	
Satd. Flow (perm)		3574	3539		1470	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	991	985	0	16	27
RTOR Reduction (vph)	0	0	0	0	22	0
Lane Group Flow (vph)	0	991	985	0	21	0
Confl. Peds. (#/hr)	209			209	123	121
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	1%	1%	2%	2%	0%	0%
Turn Type		NA	NA		Prot	
Protected Phases		2	2		4	
Permitted Phases						
Actuated Green, G (s)		74.5	74.5		17.0	
Effective Green, g (s)		74.5	74.5		17.0	
Actuated g/C Ratio		0.74	0.74		0.17	
Clearance Time (s)		4.5	4.5		4.0	
Vehicle Extension (s)		0.2	0.2		1.0	
Lane Grp Cap (vph)		2662	2636		249	
v/s Ratio Prot		0.28	c0.28		c0.01	
v/s Ratio Perm						
v/c Ratio		0.37	0.37		0.08	
Uniform Delay, d1		4.5	4.5		34.9	
Progression Factor		0.22	1.11		1.00	
Incremental Delay, d2		0.3	0.3		0.1	
Delay (s)		1.3	5.3		35.0	
Level of Service		A	A		C	
Approach Delay (s)		1.3	5.3		35.0	
Approach LOS		A	A		C	
Intersection Summary						
HCM 2000 Control Delay			4.0		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.32			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	8.5
Intersection Capacity Utilization			50.3%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
 26: NE 45th St & 19th Ave NE

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	25	892	911	35	0	0
Future Volume (vph)	25	892	911	35	0	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.5			
Lane Util. Factor	1.00	1.00	0.95			
Frpb, ped/bikes	1.00	1.00	0.98			
Flpb, ped/bikes	1.00	1.00	1.00			
Frt	1.00	1.00	0.99			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1787	1881	3449			
Flt Permitted	0.14	1.00	1.00			
Satd. Flow (perm)	254	1881	3449			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	970	990	38	0	0
RTOR Reduction (vph)	0	0	2	0	0	0
Lane Group Flow (vph)	27	970	1026	0	0	0
Confl. Peds. (#/hr)	144			144	305	125
Confl. Bikes (#/hr)				8		1
Heavy Vehicles (%)	1%	1%	2%	2%	0%	0%
Turn Type	pm+pt	NA	NA			
Protected Phases	1	1 2	2			
Permitted Phases	1 2					
Actuated Green, G (s)	71.5	74.5	40.7			
Effective Green, g (s)	71.5	74.5	40.7			
Actuated g/C Ratio	0.72	0.74	0.41			
Clearance Time (s)	3.0		4.5			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	653	1401	1403			
v/s Ratio Prot	0.01	c0.52	0.30			
v/s Ratio Perm	0.02					
v/c Ratio	0.04	0.69	0.73			
Uniform Delay, d1	6.4	6.7	25.0			
Progression Factor	0.11	0.66	0.21			
Incremental Delay, d2	0.0	1.4	2.5			
Delay (s)	0.7	5.9	7.8			
Level of Service	A	A	A			
Approach Delay (s)		5.7	7.8		0.0	
Approach LOS		A	A		A	
Intersection Summary						
HCM 2000 Control Delay			6.8		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.58			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	10.5
Intersection Capacity Utilization			50.3%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
 27: NE 45th St & 20th Ave NE

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↑	↶↷		↶	
Traffic Volume (vph)	35	847	921	106	47	30
Future Volume (vph)	35	847	921	106	47	30
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.5		4.0	
Lane Util. Factor	1.00	1.00	0.95		1.00	
Frbp, ped/bikes	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.98		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1787	1881	3477		1720	
Flt Permitted	0.14	1.00	1.00		0.97	
Satd. Flow (perm)	267	1881	3477		1720	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	38	911	990	114	51	32
RTOR Reduction (vph)	0	0	0	0	23	0
Lane Group Flow (vph)	38	911	1104	0	60	0
Confl. Bikes (#/hr)				2		3
Heavy Vehicles (%)	1%	1%	2%	2%	1%	1%
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	1	1 2	2		4	
Permitted Phases	1 2					
Actuated Green, G (s)	71.5	74.5	46.5		17.0	
Effective Green, g (s)	71.5	74.5	46.5		17.0	
Actuated g/C Ratio	0.72	0.74	0.46		0.17	
Clearance Time (s)	3.0		4.5		4.0	
Vehicle Extension (s)	1.0		0.2		1.0	
Lane Grp Cap (vph)	570	1401	1616		292	
v/s Ratio Prot	0.02	c0.48	0.32		c0.03	
v/s Ratio Perm	0.03					
v/c Ratio	0.07	0.65	0.68		0.20	
Uniform Delay, d1	6.5	6.3	21.0		35.7	
Progression Factor	0.07	0.06	1.00		1.00	
Incremental Delay, d2	0.0	0.6	2.4		0.1	
Delay (s)	0.5	1.0	23.3		35.8	
Level of Service	A	A	C		D	
Approach Delay (s)		1.0	23.3		35.8	
Approach LOS		A	C		D	

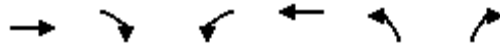
Intersection Summary			
HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	57.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Montlake Blvd NE & NE 45th St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



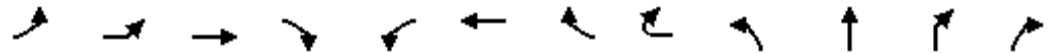
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↔	↑	↔	↔
Traffic Volume (vph)	542	62	592	731	196	1531
Future Volume (vph)	542	62	592	731	196	1531
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	0.88
Frpb, ped/bikes	1.00	0.88	1.00	1.00	1.00	1.00
Flpb, ped/bikes	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)	3574	1409	3400	1845	1770	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3574	1409	3400	1845	1770	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	577	66	630	778	209	1629
RTOR Reduction (vph)	0	11	0	0	0	5
Lane Group Flow (vph)	577	55	630	778	209	1624
Confl. Peds. (#/hr)		49	49			
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	1%	1%	3%	3%	2%	2%
Turn Type	NA	Perm	Split	NA	Prot	pt+ov
Protected Phases	3		1	1	2	1 2
Permitted Phases		3				
Actuated Green, G (s)	27.0	27.0	74.5	74.5	25.0	104.0
Effective Green, g (s)	27.0	27.0	74.5	74.5	25.0	104.0
Actuated g/C Ratio	0.19	0.19	0.53	0.53	0.18	0.74
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.5	3.5	0.2	0.2	3.0	
Lane Grp Cap (vph)	689	271	1809	981	316	2070
v/s Ratio Prot	c0.16		0.19	0.42	0.12	c0.58
v/s Ratio Perm		0.04				
v/c Ratio	0.84	0.20	0.35	0.79	0.66	0.78
Uniform Delay, d1	54.4	47.5	18.8	26.5	53.6	11.1
Progression Factor	1.00	1.00	0.91	0.96	1.07	0.80
Incremental Delay, d2	9.0	0.4	0.5	6.5	4.5	1.8
Delay (s)	63.4	47.9	17.7	31.9	61.6	10.6
Level of Service	E	D	B	C	E	B
Approach Delay (s)	61.8			25.5	16.4	
Approach LOS	E			C	B	

Intersection Summary

HCM 2000 Control Delay	27.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 29: Union Bay PI NE & NE 45th St & NE 45th PI

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Traffic Volume (vph)	35	290	1198	240	32	868	120	25	190	105	35	38
Future Volume (vph)	35	290	1198	240	32	868	120	25	190	105	35	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.86		0.86	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	0.91	1.00	0.99		0.94	1.00	1.00	0.91	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	1.00	0.98		0.85	1.00	1.00	0.85	
Flt Protected	0.95	0.95	1.00	1.00	0.95	1.00		1.00	0.95	0.99	1.00	
Satd. Flow (prot)	1752	1752	3505	1434	1736	4563		1255	1698	1760	1457	
Flt Permitted	0.95	0.11	1.00	1.00	0.12	1.00		1.00	0.95	0.99	1.00	
Satd. Flow (perm)	1752	194	3505	1434	225	4563		1255	1698	1760	1457	
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)	36	299	1235	247	33	895	124	26	196	108	36	39
RTOR Reduction (vph)	0	0	0	87	0	0	0	18	0	0	63	0
Lane Group Flow (vph)	36	299	1235	160	33	1022	0	5	149	155	12	0
Confl. Peds. (#/hr)	22	22		18	18		22	22	42		22	21
Confl. Bikes (#/hr)				4				1				5
Heavy Vehicles (%)	3%	3%	3%	3%	4%	4%	4%	4%	1%	1%	1%	1%
Turn Type	Prot	pm+pt	NA	Perm	Perm	NA		Perm	Split	NA	Perm	
Protected Phases	1	1 9	6			2			4	4		
Permitted Phases		6		6	2			2			4	
Actuated Green, G (s)	12.7	61.7	50.7	50.7	32.5	32.5		32.5	22.1	22.1	22.1	
Effective Green, g (s)	12.7	61.7	50.7	50.7	32.5	32.5		32.5	22.1	22.1	22.1	
Actuated g/C Ratio	0.09	0.44	0.36	0.36	0.23	0.23		0.23	0.16	0.16	0.16	
Clearance Time (s)	5.5		5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	
Vehicle Extension (s)	2.5		2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	158	349	1269	519	52	1059		291	268	277	229	
v/s Ratio Prot	0.02	c0.14	c0.35			0.22			0.09	c0.09		
v/s Ratio Perm		0.23		0.11	0.15			0.00			0.01	
v/c Ratio	0.23	0.86	0.97	0.31	0.63	0.97		0.02	0.56	0.56	0.05	
Uniform Delay, d1	59.1	39.5	44.0	32.1	48.4	53.2		41.4	54.4	54.5	50.1	
Progression Factor	0.94	0.90	0.88	0.82	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.3	11.6	14.1	0.9	46.8	20.4		0.1	1.4	1.4	0.0	
Delay (s)	56.0	47.0	52.7	27.2	95.2	73.6		41.6	55.8	55.8	50.1	
Level of Service	E	D	D	C	F	E		D	E	E	D	
Approach Delay (s)			48.4			73.6				54.7		
Approach LOS			D			E				D		
Intersection Summary												
HCM 2000 Control Delay			57.8		HCM 2000 Level of Service				E			
HCM 2000 Volume to Capacity ratio			0.83									
Actuated Cycle Length (s)			140.0		Sum of lost time (s)				31.5			
Intersection Capacity Utilization			87.5%		ICU Level of Service				E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 29: Union Bay PI NE & NE 45th St & NE 45th PI

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour



Movement	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Traffic Volume (vph)	30	165	85	35	25	40	180	15
Future Volume (vph)	30	165	85	35	25	40	180	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5			5.5	5.5	
Lane Util. Factor		0.95	0.95			1.00	0.88	
Frbp, ped/bikes		1.00	0.98			1.00	1.00	
Flpb, ped/bikes		1.00	1.00			1.00	1.00	
Frt		1.00	0.97			1.00	0.85	
Flt Protected		0.95	0.99			0.95	1.00	
Satd. Flow (prot)		1698	1678			1787	2814	
Flt Permitted		0.95	0.99			0.95	1.00	
Satd. Flow (perm)		1698	1678			1787	2814	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	31	170	88	36	26	41	186	15
RTOR Reduction (vph)	0	0	7	0	0	0	130	0
Lane Group Flow (vph)	0	162	156	0	0	67	71	0
Confl. Peds. (#/hr)	21	22		42	21	18	42	22
Confl. Bikes (#/hr)				1			1	1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split	Split	NA		Prot	Prot	Prot	
Protected Phases	3	3	3		7	7	8	
Permitted Phases								
Actuated Green, G (s)		23.8	23.8			6.4	16.6	
Effective Green, g (s)		23.8	23.8			6.4	16.6	
Actuated g/C Ratio		0.17	0.17			0.05	0.12	
Clearance Time (s)		5.5	5.5			5.5	5.5	
Vehicle Extension (s)		2.0	2.0			2.5	2.5	
Lane Grp Cap (vph)		288	285			81	333	
v/s Ratio Prot		c0.10	0.09			c0.04	0.03	
v/s Ratio Perm								
v/c Ratio		0.56	0.55			0.83	0.21	
Uniform Delay, d1		53.3	53.2			66.3	55.8	
Progression Factor		1.00	1.00			1.00	1.00	
Incremental Delay, d2		1.5	1.1			46.4	0.2	
Delay (s)		54.8	54.3			112.6	56.0	
Level of Service		D	D			F	E	
Approach Delay (s)			54.6			70.2		
Approach LOS			D			E		

Intersection Summary

Intersection

Int Delay, s/veh 3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔					↕↕
Traffic Vol, veh/h	205	0	0	0	67	1605
Future Vol, veh/h	205	0	0	0	67	1605
Conflicting Peds, #/hr	75	153	0	75	153	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	6	6	0	0	1	1
Mvmt Flow	225	0	0	0	74	1764

Major/Minor

	Minor1	Minor2	Major2
Conflicting Flow All	1257	-	153
Stage 1	153	-	-
Stage 2	1104	-	-
Critical Hdwy	6.92	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.92	-	-
Follow-up Hdwy	3.56	-	2.21
Pot Cap-1 Maneuver	~ 158	0	1433
Stage 1	-	0	-
Stage 2	270	0	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	0	-	1433
Mov Cap-2 Maneuver	0	-	-
Stage 1	-	-	-
Stage 2	0	-	-

Approach

WB SB
 HCM Control Delay, s 3.7
 HCM LOS -

Minor Lane/Major Mvmt

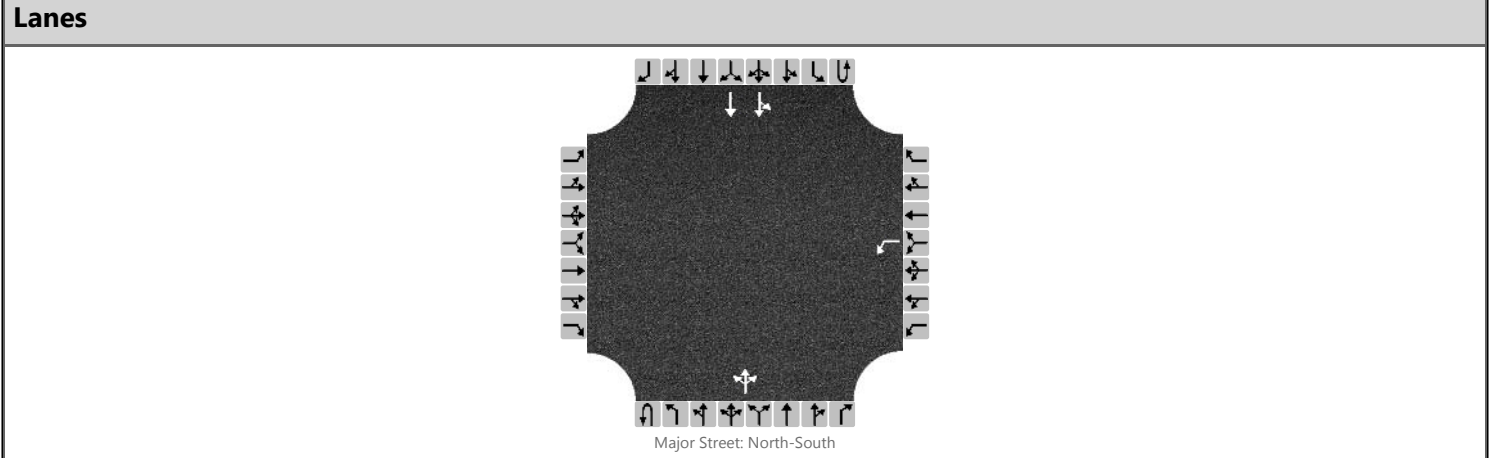
	WBLn1	SBL	SBT
Capacity (veh/h)	-	1433	-
HCM Lane V/C Ratio	-	0.051	-
HCM Control Delay (s)	-	7.6	3.5
HCM Lane LOS	-	A	A
HCM 95th %tile Q(veh)	-	0.2	-

Notes

-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Transpo	Intersection	Roosevelt Way & 43rd St
Agency/Co.		Jurisdiction	Seattle
Date Performed	3/17/2017	East/West Street	NE 43rd St (east)
Analysis Year	2015	North/South Street	Roosevelt Way NE
Time Analyzed	PM Peak Hour	Peak Hour Factor	0.91
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	UW Master Plan EIS, Alternative 2 (2028) PM Peak		



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	0		0	1	0		0	2	0
Configuration						L					LTR			LT	T	
Volume, V (veh/h)						205				0	0	0		67	1605	
Percent Heavy Vehicles (%)						6				3				1		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways




Base Critical Headway (sec)						7.5				4.1				4.1		
Critical Headway (sec)						6.92				4.16				4.12		
Base Follow-Up Headway (sec)						3.5				2.2				2.2		
Follow-Up Headway (sec)						3.56				2.23				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						225				0				74		
Capacity, c (veh/h)						152				346				1241		
v/c Ratio						1.48				0.00				0.06		
95% Queue Length, Q ₉₅ (veh)						44.3				0.0				0.2		
Control Delay (s/veh)						966.3				15.4				8.1		
Level of Service, LOS						F				C				A		
Approach Delay (s/veh)					966.3								11.0			
Approach LOS					F											

Intersection

Int Delay, s/veh 4.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	69	0	0	1765	40
Future Vol, veh/h	0	69	0	0	1765	40
Conflicting Peds, #/hr	277	151	151	0	0	277
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	0	0	2	2
Mvmt Flow	0	75	0	0	1918	43

Major/Minor

	Minor2	Major2
Conflicting Flow All	-	1409
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	6.94
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	3.32
Pot Cap-1 Maneuver	0	128
Stage 1	0	-
Stage 2	0	-
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	98
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach
















	EB	SB
HCM Control Delay, s	113.2	0
HCM LOS	F	

Minor Lane/Major Mvmt

	EBLn1	SBT	SBR
Capacity (veh/h)	98	-	-
HCM Lane V/C Ratio	0.765	-	-
HCM Control Delay (s)	113.2	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	4.1	-	-

HCM 2010 Signalized Intersection Summary
32: 11th Ave NE & NE 43rd St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	57	0	0	170	25	20	1614	25	0	0	0
Future Volume (veh/h)	45	57	0	0	170	25	20	1614	25	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	0.95		1.00	1.00		0.90	1.00		0.84			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1776	1900	1900	1863	1900			
Adj Flow Rate, veh/h	49	62	0	0	185	27	22	1754	27			
Adj No. of Lanes	0	1	0	0	1	0	0	2	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	0	0	0	7	7	0	2	0			
Cap, veh/h	303	348	0	0	626	91	18	1476	24			
Arrive On Green	0.42	0.42	0.00	0.00	0.14	0.14	0.14	0.14	0.14			
Sat Flow, veh/h	474	828	0	0	1492	218	43	3599	58			
Grp Volume(v), veh/h	111	0	0	0	0	212	945	0	858			
Grp Sat Flow(s),veh/h/ln	1303	0	0	0	0	1709	1861	0	1840			
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	5.6	20.5	0.0	20.5			
Cycle Q Clear(g_c), s	5.8	0.0	0.0	0.0	0.0	5.6	20.5	0.0	20.5			
Prop In Lane	0.44		0.00	0.00		0.13	0.02		0.03			
Lane Grp Cap(c), veh/h	651	0	0	0	0	718	763	0	754			
V/C Ratio(X)	0.17	0.00	0.00	0.00	0.00	0.30	1.24	0.00	1.14			
Avail Cap(c_a), veh/h	651	0	0	0	0	718	763	0	754			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	0.33	0.33	0.33			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	9.0	0.0	0.0	0.0	0.0	14.9	21.6	0.0	21.6			
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.0	0.0	1.0	118.8	0.0	77.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.0	0.0	2.8	35.7	0.0	26.6			
LnGrp Delay(d),s/veh	9.6	0.0	0.0	0.0	0.0	15.9	140.4	0.0	99.1			
LnGrp LOS	A					B	F		F			
Approach Vol, veh/h		111			212			1803				
Approach Delay, s/veh		9.6			15.9			120.7				
Approach LOS		A			B			F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		25.0		25.0				25.0				
Change Period (Y+Rc), s		4.5		4.0				4.0				
Max Green Setting (Gmax), s		20.5		21.0				21.0				
Max Q Clear Time (g_c+I1), s		22.5		7.8				7.6				
Green Ext Time (p_c), s		0.0		1.1				1.1				
Intersection Summary												
HCM 2010 Ctrl Delay				104.5								
HCM 2010 LOS				F								

HCM Signalized Intersection Capacity Analysis

33: University Way NE & NE 43rd St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	20	25	7	40	20	50	5	194	55	45	195	5
Future Volume (vph)	20	25	7	40	20	50	5	194	55	45	195	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.93			0.85			0.86			0.99	
Flpb, ped/bikes		0.90			0.83			0.99			0.93	
Frt		0.98			0.94			0.97			1.00	
Flt Protected		0.98			0.98			1.00			0.99	
Satd. Flow (prot)		1493			1234			1460			1626	
Flt Permitted		0.90			0.90			1.00			0.91	
Satd. Flow (perm)		1367			1131			1454			1496	
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)	22	27	8	43	22	54	5	209	59	48	210	5
RTOR Reduction (vph)	0	5	0	0	15	0	0	20	0	0	2	0
Lane Group Flow (vph)	0	52	0	0	104	0	0	253	0	0	261	0
Confl. Peds. (#/hr)	179		298	298		179	690		591	591		690
Confl. Bikes (#/hr)			2			3			63			25
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	8%	8%	8%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		17.0			17.0			24.5			24.5	
Effective Green, g (s)		17.0			17.0			24.5			24.5	
Actuated g/C Ratio		0.34			0.34			0.49			0.49	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		464			384			712			733	
v/s Ratio Prot												
v/s Ratio Perm		0.04			c0.09			0.17			c0.17	
v/c Ratio		0.11			0.27			0.36			0.36	
Uniform Delay, d1		11.3			12.0			7.9			7.9	
Progression Factor		0.63			1.16			1.02			0.58	
Incremental Delay, d2		0.4			1.7			1.3			1.2	
Delay (s)		7.6			15.5			9.4			5.8	
Level of Service		A			B			A			A	
Approach Delay (s)		7.6			15.5			9.4			5.8	
Approach LOS		A			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			8.9									A
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			50.0								8.5	
Intersection Capacity Utilization			51.9%									A
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

34: 15th Ave NE & NE 43rd St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	45	30	947	637	130
Future Volume (vph)	60	45	30	947	637	130
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	4.5
Lane Util. Factor	1.00			0.95	0.95	1.00
Frbp, ped/bikes	0.87			1.00	1.00	0.64
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.94			1.00	1.00	0.85
Flt Protected	0.97			1.00	1.00	1.00
Satd. Flow (prot)	1478			3355	3343	950
Flt Permitted	0.97			0.92	1.00	1.00
Satd. Flow (perm)	1478			3101	3343	950
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	47	32	997	671	137
RTOR Reduction (vph)	32	0	0	0	0	69
Lane Group Flow (vph)	78	0	0	1029	671	69
Confl. Peds. (#/hr)	262	361	182			182
Confl. Bikes (#/hr)						3
Heavy Vehicles (%)	2%	2%	7%	7%	8%	8%
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	2	
Permitted Phases			2			2
Actuated Green, G (s)	16.0			25.0	25.0	25.0
Effective Green, g (s)	16.0			25.0	25.0	25.0
Actuated g/C Ratio	0.32			0.50	0.50	0.50
Clearance Time (s)	4.5			4.5	4.5	4.5
Lane Grp Cap (vph)				1550	1671	475
v/s Ratio Prot	c0.05				0.20	
v/s Ratio Perm				c0.33		0.07
v/c Ratio	0.17			0.66	0.40	0.14
Uniform Delay, d1	12.2			9.4	7.8	6.7
Progression Factor	1.58			0.78	0.98	2.24
Incremental Delay, d2	0.7			1.9	0.6	0.5
Delay (s)	20.0			9.1	8.3	15.6
Level of Service	C			A	A	B
Approach Delay (s)	20.0			9.1	9.5	
Approach LOS	C			A	A	

Intersection Summary

HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

UW Master Plan EIS

35: Memorial Way NE & Burke Museum Access/East Stevens Way NE Future (2028) Alt 2 PM Peak Hour






















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Yield	
Traffic Volume (vph)	109	12	5	10	21	242	0	55	15	252	65	103
Future Volume (vph)	109	12	5	10	21	242	0	55	15	252	65	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	118	13	5	11	23	263	0	60	16	274	71	112

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	136	297	30	46	310	148
Volume Left (vph)	118	11	0	0	274	0
Volume Right (vph)	5	263	0	16	0	112
Hadj (s)	0.15	-0.52	0.44	0.20	0.53	-0.45
Departure Headway (s)	5.9	5.0	6.9	6.6	6.4	5.4
Degree Utilization, x	0.22	0.41	0.06	0.08	0.55	0.22
Capacity (veh/h)	558	673	465	490	545	642
Control Delay (s)	10.6	11.5	9.1	9.0	15.6	8.7
Approach Delay (s)	10.6	11.5	9.0		13.4	
Approach LOS	B	B	A		B	

Intersection Summary	
Delay	12.1
Level of Service	B
Intersection Capacity Utilization	68.4%
ICU Level of Service	C
Analysis Period (min)	15

HCM 2010 Signalized Intersection Summary
36: Montlake Blvd NE & Stevens Way

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	184	106	108	5	65	213	90	791	5	67	461	138
Future Volume (veh/h)	184	106	108	5	65	213	90	791	5	67	461	138
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.90	0.97		0.85	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1900	1900	1827	1900	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	194	112	114	5	68	224	95	833	5	71	485	145
Adj No. of Lanes	1	2	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	4	4	4	0	0	0	1	1	1
Cap, veh/h	231	557	450	39	326	226	352	1936	12	90	1033	307
Arrive On Green	0.11	0.33	0.33	0.19	0.19	0.19	0.19	0.53	0.53	0.05	0.38	0.38
Sat Flow, veh/h	1707	1703	1376	63	1722	1195	1810	3678	22	1792	2703	802
Grp Volume(v), veh/h	194	112	114	73	0	224	95	409	429	71	319	311
Grp Sat Flow(s),veh/h/ln	1707	1703	1376	1785	0	1195	1810	1805	1895	1792	1787	1718
Q Serve(g_s), s	11.3	6.6	8.5	0.0	0.0	26.2	6.2	19.4	19.4	5.5	18.8	19.1
Cycle Q Clear(g_c), s	11.3	6.6	8.5	4.6	0.0	26.2	6.2	19.4	19.4	5.5	18.8	19.1
Prop In Lane	1.00		1.00	0.07		1.00	1.00		0.01	1.00		0.47
Lane Grp Cap(c), veh/h	231	557	450	611	0	226	352	950	998	90	683	657
V/C Ratio(X)	0.84	0.20	0.25	0.12	0.00	0.99	0.27	0.43	0.43	0.79	0.47	0.47
Avail Cap(c_a), veh/h	344	651	526	611	0	226	352	950	998	211	683	657
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.00	0.99	0.84	0.84	0.84	1.00	1.00	1.00
Uniform Delay (d), s/veh	59.6	33.9	34.6	47.9	0.0	56.6	47.9	20.3	20.3	65.7	32.5	32.6
Incr Delay (d2), s/veh	11.0	0.2	0.3	0.0	0.0	56.4	0.1	1.2	1.1	5.6	2.3	2.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.0	3.1	3.3	2.0	0.0	12.2	3.1	10.0	10.5	2.9	9.8	9.5
LnGrp Delay(d),s/veh	70.6	34.1	34.9	47.9	0.0	113.0	48.1	21.5	21.4	71.3	34.8	35.1
LnGrp LOS	E	C	C	D		F	D	C	C	E	C	D
Approach Vol, veh/h		420			297			933			701	
Approach Delay, s/veh		51.2			97.0			24.2			38.6	
Approach LOS		D			F			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	11.6	78.2	19.3	31.0	31.7	58.0		50.3				
Change Period (Y+Rc), s	4.5	4.5	4.5	* 4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	16.5	56.5	24.0	* 27	19.5	53.5		53.5				
Max Q Clear Time (g_c+I1), s	7.5	21.4	13.3	28.2	8.2	21.1		10.5				
Green Ext Time (p_c), s	0.0	5.4	1.5	0.0	2.3	0.6		2.1				
Intersection Summary												
HCM 2010 Ctrl Delay			42.5									
HCM 2010 LOS			D									
Notes												

HCM Signalized Intersection Capacity Analysis

37: Montlake Blvd NE & Stevens Way

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	13	0	23	23	57	0	1452	48	8	531	272
Future Volume (vph)	148	13	0	23	23	57	0	1452	48	8	531	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lane Util. Factor	0.95	0.95			0.95	1.00		0.95			0.95	1.00
Frbp, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	0.97
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00			1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	0.96			0.98	1.00		1.00			1.00	1.00
Satd. Flow (prot)	1618	1634			3292	1509		3554			3536	1537
Flt Permitted	0.72	0.73			0.79	1.00		1.00			0.92	1.00
Satd. Flow (perm)	1233	1236			2663	1509		3554			3255	1537
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)	157	14	0	24	24	61	0	1545	51	9	565	289
RTOR Reduction (vph)	0	0	0	0	0	55	0	1	0	0	0	48
Lane Group Flow (vph)	85	86	0	0	48	6	0	1595	0	0	574	241
Confl. Peds. (#/hr)							7		2	2		7
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	1%	1%	1%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm		NA		Perm	NA	Perm
Protected Phases		2			2			1			1	
Permitted Phases	2			2		2				1		1
Actuated Green, G (s)	14.1	14.1			14.1	14.1		116.9			116.9	116.9
Effective Green, g (s)	14.1	14.1			14.1	14.1		116.9			116.9	116.9
Actuated g/C Ratio	0.10	0.10			0.10	0.10		0.84			0.84	0.84
Clearance Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Vehicle Extension (s)	2.0	2.0			2.0	2.0		0.2			0.2	0.2
Lane Grp Cap (vph)	124	124			268	151		2967			2717	1283
v/s Ratio Prot								c0.45				
v/s Ratio Perm	0.07	c0.07			0.02	0.00					0.18	0.16
v/c Ratio	0.69	0.69			0.18	0.04		0.54			0.21	0.19
Uniform Delay, d1	60.8	60.9			57.6	56.8		3.5			2.3	2.3
Progression Factor	0.90	0.90			1.00	1.00		1.00			0.20	0.00
Incremental Delay, d2	11.6	12.5			0.1	0.0		0.6			0.2	0.3
Delay (s)	66.5	67.5			57.8	56.9		4.0			0.6	0.3
Level of Service	E	E			E	E		A			A	A
Approach Delay (s)		67.0			57.3			4.0			0.5	
Approach LOS		E			E			A			A	

Intersection Summary

HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
38: Montlake Blvd NE

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour

	↑	↗	↘	↓	↙	↖
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↑↑	↗↘		↑↑	↙↘	
Traffic Volume (vph)	856	1440	0	577	644	0
Future Volume (vph)	856	1440	0	577	644	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	
Lane Util. Factor	0.95	0.88		0.95	0.97	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	1.00	1.00		1.00	0.95	
Satd. Flow (prot)	3574	2814		3610	3433	
Flt Permitted	1.00	1.00		1.00	0.95	
Satd. Flow (perm)	3574	2814		3610	3433	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	882	1485	0	595	664	0
RTOR Reduction (vph)	0	784	0	0	0	0
Lane Group Flow (vph)	882	701	0	595	664	0
Heavy Vehicles (%)	1%	1%	0%	0%	2%	2%
Turn Type	NA	Perm		NA	Prot	
Protected Phases	2			2	1	
Permitted Phases		2				
Actuated Green, G (s)	66.1	66.1		66.1	64.9	
Effective Green, g (s)	66.1	66.1		66.1	64.9	
Actuated g/C Ratio	0.47	0.47		0.47	0.46	
Clearance Time (s)	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	0.2	
Lane Grp Cap (vph)	1687	1328		1704	1591	
v/s Ratio Prot	0.25			0.16	c0.19	
v/s Ratio Perm		c0.25				
v/c Ratio	0.52	0.53		0.35	0.42	
Uniform Delay, d1	25.9	26.0		23.4	25.0	
Progression Factor	1.00	1.00		0.50	0.65	
Incremental Delay, d2	0.1	0.2		0.0	0.8	
Delay (s)	26.0	26.2		11.7	17.0	
Level of Service	C	C		B	B	
Approach Delay (s)	26.1			11.7	17.0	
Approach LOS	C			B	B	
Intersection Summary						
HCM 2000 Control Delay			22.1		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.47			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	9.0
Intersection Capacity Utilization			54.1%		ICU Level of Service	A
Analysis Period (min)			15			
c	Critical Lane Group					

HCM 2010 Signalized Intersection Summary
 39: Roosevelt Way NE & NE 42nd St (north)

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations								
Traffic Volume (veh/h)	100	0	0	0	175	1724		
Future Volume (veh/h)	100	0	0	0	175	1724		
Number	7	14			5	2		
Initial Q (Qb), veh	0	0			0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00			
Parking Bus, Adj	1.00	1.00			1.00	1.00		
Adj Sat Flow, veh/h/ln	1881	0			1900	1863		
Adj Flow Rate, veh/h	109	0			190	1874		
Adj No. of Lanes	1	0			0	2		
Peak Hour Factor	0.92	0.92			0.92	0.92		
Percent Heavy Veh, %	1	0			2	2		
Cap, veh/h	0	0			321	2948		
Arrive On Green	0.00	0.00			0.32	0.32		
Sat Flow, veh/h	0				292	3172		
Grp Volume(v), veh/h	0.0				1109	955		
Grp Sat Flow(s),veh/h/ln					1769	1610		
Q Serve(g_s), s					50.8	50.5		
Cycle Q Clear(g_c), s					54.0	50.5		
Prop In Lane					0.17			
Lane Grp Cap(c), veh/h					1732	1538		
V/C Ratio(X)					0.64	0.62		
Avail Cap(c_a), veh/h					1732	1538		
HCM Platoon Ratio					0.33	0.33		
Upstream Filter(I)					1.00	1.00		
Uniform Delay (d), s/veh					20.0	18.8		
Incr Delay (d2), s/veh					1.8	1.9		
Initial Q Delay(d3),s/veh					0.0	0.0		
%ile BackOfQ(50%),veh/ln					27.4	23.3		
LnGrp Delay(d),s/veh					21.8	20.7		
LnGrp LOS					C	C		
Approach Vol, veh/h						2064		
Approach Delay, s/veh						21.3		
Approach LOS						C		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						
Phs Duration (G+Y+Rc), s		100.0						
Change Period (Y+Rc), s		4.5						
Max Green Setting (Gmax), s		72.5						
Max Q Clear Time (g_c+I1), s		56.0						
Green Ext Time (p_c), s		3.0						
Intersection Summary								
HCM 2010 Ctrl Delay			21.3					
HCM 2010 LOS			C					

HCM Signalized Intersection Capacity Analysis

40: NE 42nd St (north)/NE 42nd St & 11th Ave NE

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↗			↖↗				
Traffic Volume (vph)	60	120	0	0	70	199	25	1380	105	0	0	0
Future Volume (vph)	60	120	0	0	70	199	25	1380	105	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			0.84			0.99				
Flpb, ped/bikes		0.96			1.00			1.00				
Frt		1.00			0.90			0.99				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1799			1429			3446				
Flt Permitted		0.72			1.00			1.00				
Satd. Flow (perm)		1325			1429			3446				
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)	66	132	0	0	77	219	27	1516	115	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	198	0	0	286	0	0	1648	0	0	0	0
Confl. Peds. (#/hr)	200		131	131		200	28		72	72		28
Confl. Bikes (#/hr)			9			26			95			1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	2%	2%	2%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		13.2			13.2			28.3				
Effective Green, g (s)		13.2			13.2			28.3				
Actuated g/C Ratio		0.26			0.26			0.57				
Clearance Time (s)		4.0			4.0			4.5				
Vehicle Extension (s)		2.0			2.0			0.2				
Lane Grp Cap (vph)		349			377			1950				
v/s Ratio Prot					c0.20							
v/s Ratio Perm		0.15						0.48				
v/c Ratio		0.57			0.76			0.85				
Uniform Delay, d1		15.9			16.9			9.0				
Progression Factor		1.05			0.75			1.00				
Incremental Delay, d2		0.8			7.6			4.7				
Delay (s)		17.5			20.4			13.8				
Level of Service		B			C			B				
Approach Delay (s)		17.5			20.4			13.8			0.0	
Approach LOS		B			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.0					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			50.0					Sum of lost time (s)		8.5		
Intersection Capacity Utilization			91.3%					ICU Level of Service		F		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

41: University Way NE & NE 42nd St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	35	155	23	10	81	25	30	190	15	15	164	40
Future Volume (vph)	35	155	23	10	81	25	30	190	15	15	164	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.93			0.87			0.96			0.86	
Flpb, ped/bikes		0.92			0.96			0.94			0.97	
Frt		0.99			0.97			0.99			0.98	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1598			1538			1570			1476	
Flt Permitted		0.95			0.97			0.95			0.98	
Satd. Flow (perm)		1522			1502			1496			1444	
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)	37	165	24	11	86	27	32	202	16	16	174	43
RTOR Reduction (vph)	0	2	0	0	7	0	0	4	0	0	8	0
Lane Group Flow (vph)	0	224	0	0	117	0	0	246	0	0	225	0
Confl. Peds. (#/hr)	556		609	609		556	843		636	636		843
Confl. Bikes (#/hr)			24			31			74			27
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	7%	7%	7%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		19.0			19.0			22.5			22.5	
Effective Green, g (s)		19.0			19.0			22.5			22.5	
Actuated g/C Ratio		0.38			0.38			0.45			0.45	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		578			570			673			649	
v/s Ratio Prot												
v/s Ratio Perm		c0.15			0.08			c0.16			0.16	
v/c Ratio		0.39			0.20			0.37			0.35	
Uniform Delay, d1		11.3			10.4			9.1			9.0	
Progression Factor		1.08			0.97			0.60			0.79	
Incremental Delay, d2		1.5			0.8			1.5			1.4	
Delay (s)		13.7			10.9			6.9			8.5	
Level of Service		B			B			A			A	
Approach Delay (s)		13.7			10.9			6.9			8.5	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.8									A
HCM 2000 Volume to Capacity ratio			0.38									
Actuated Cycle Length (s)			50.0								8.5	
Intersection Capacity Utilization			47.0%									A
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
42: 15th Ave NE & NE 42nd St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	110	85	61	870	644	45
Future Volume (vph)	110	85	61	870	644	45
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.5	4.5	4.5	
Lane Util. Factor	1.00		1.00	0.95	0.95	
Frbp, ped/bikes	0.85		1.00	1.00	0.97	
Flpb, ped/bikes	1.00		0.84	1.00	1.00	
Frt	0.94		1.00	1.00	0.99	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	1485		1407	3343	3168	
Flt Permitted	0.97		0.32	1.00	1.00	
Satd. Flow (perm)	1485		476	3343	3168	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	92	66	946	700	49
RTOR Reduction (vph)	19	0	0	0	10	0
Lane Group Flow (vph)	193	0	66	946	739	0
Confl. Peds. (#/hr)	673	477	273			273
Confl. Bikes (#/hr)		6				15
Heavy Vehicles (%)	0%	0%	8%	8%	9%	9%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	18.0		23.5	23.5	23.5	
Effective Green, g (s)	18.0		23.5	23.5	23.5	
Actuated g/C Ratio	0.36		0.47	0.47	0.47	
Clearance Time (s)	4.0		4.5	4.5	4.5	
Lane Grp Cap (vph)	534		223	1571	1488	
v/s Ratio Prot	c0.13			c0.28	0.23	
v/s Ratio Perm			0.14			
v/c Ratio	0.36		0.30	0.60	0.50	
Uniform Delay, d1	11.8		8.2	9.8	9.2	
Progression Factor	0.31		0.49	0.54	1.50	
Incremental Delay, d2	1.8		3.2	1.6	1.1	
Delay (s)	5.5		7.2	6.9	14.9	
Level of Service	A		A	A	B	
Approach Delay (s)	5.5			6.9	14.9	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	52.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations									
Traffic Vol, veh/h	0	147	148	0	65	133	0	89	85
Future Vol, veh/h	0	147	148	0	65	133	0	89	85
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	6	6	6	8	8	8	17	17	17
Mvmt Flow	0	167	168	0	74	151	0	101	97
Number of Lanes	0	1	0	0	1	0	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	11.8	9.8	10.8
HCM LOS	B	A	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	50%	51%
Vol Thru, %	33%	0%	49%
Vol Right, %	67%	50%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	198	295	174
LT Vol	0	147	89
Through Vol	65	0	85
RT Vol	133	148	0
Lane Flow Rate	225	335	198
Geometry Grp	1	1	1
Degree of Util (X)	0.296	0.45	0.297
Departure Headway (Hd)	4.741	4.828	5.401
Convergence, Y/N	Yes	Yes	Yes
Cap	749	741	658
Service Time	2.822	2.898	3.487
HCM Lane V/C Ratio	0.3	0.452	0.301
HCM Control Delay	9.8	11.8	10.8
HCM Lane LOS	A	B	B
HCM 95th-tile Q	1.2	2.3	1.2

HCM Signalized Intersection Capacity Analysis

44: I-5 NB Express Lane Off Ramp & 7th Ave NE & NE 42nd St/NE 42nd St (south) 2 PM Peak Hour



Movement	WBL2	WBT	WBR	NBL	NBT	NBR	NEL	NER	NER2
Lane Configurations									
Traffic Volume (vph)	138	15	85	5	278	143	307	204	202
Future Volume (vph)	138	15	85	5	278	143	307	204	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.93		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.97	1.00		1.00	1.00	
Frt	1.00	0.87		1.00	0.95		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1513		1740	1772		1736	1553	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1513		1740	1772		1736	1553	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	152	16	93	5	305	157	337	224	222
RTOR Reduction (vph)	0	76	0	0	20	0	0	55	0
Lane Group Flow (vph)	152	33	0	5	442	0	337	391	0
Confl. Peds. (#/hr)			54	13					
Confl. Bikes (#/hr)			1			1			
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	4%	4%	4%
Turn Type	Split	NA		Perm	NA		Prot	Perm	
Protected Phases	3	3			2		4		
Permitted Phases				2				4	
Actuated Green, G (s)	14.4	14.4		25.9	25.9		25.5	25.5	
Effective Green, g (s)	14.4	14.4		25.9	25.9		25.5	25.5	
Actuated g/C Ratio	0.18	0.18		0.32	0.32		0.32	0.32	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	315	269		557	568		547	490	
v/s Ratio Prot	c0.09	0.02			c0.25		0.19		
v/s Ratio Perm				0.00				c0.25	
v/c Ratio	0.48	0.12		0.01	0.78		0.62	0.80	
Uniform Delay, d1	29.9	27.9		18.7	24.9		23.5	25.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.2		0.0	7.8		3.0	10.0	
Delay (s)	31.0	28.1		18.7	32.6		26.5	35.3	
Level of Service	C	C		B	C		C	D	
Approach Delay (s)		29.8			32.5		31.5		
Approach LOS		C			C		C		

Intersection Summary

HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	80.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
45: Roosevelt Way NE & NE 42nd St (south)

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗			↕↕	↗
Traffic Volume (vph)	0	352	0	0	1699	175
Future Volume (vph)	0	352	0	0	1699	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5	4.5
Lane Util. Factor		1.00			0.95	1.00
Frbp, ped/bikes		1.00			1.00	0.73
Flpb, ped/bikes		1.00			1.00	1.00
Frt		0.86			1.00	0.85
Flt Protected		1.00			1.00	1.00
Satd. Flow (prot)		1580			3539	1163
Flt Permitted		1.00			1.00	1.00
Satd. Flow (perm)		1580			3539	1163
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	367	0	0	1770	182
RTOR Reduction (vph)	0	10	0	0	0	26
Lane Group Flow (vph)	0	357	0	0	1770	156
Confl. Peds. (#/hr)	178		117			117
Confl. Bikes (#/hr)		2				38
Heavy Vehicles (%)	4%	4%	0%	0%	2%	2%
Turn Type		Prot			NA	Perm
Protected Phases		4			2	
Permitted Phases						2
Actuated Green, G (s)		25.6			64.9	64.9
Effective Green, g (s)		25.6			64.9	64.9
Actuated g/C Ratio		0.26			0.65	0.65
Clearance Time (s)		5.0			4.5	4.5
Vehicle Extension (s)		2.0			0.2	0.2
Lane Grp Cap (vph)		404			2296	754
v/s Ratio Prot		c0.23			c0.50	
v/s Ratio Perm						0.13
v/c Ratio		0.88			0.77	0.21
Uniform Delay, d1		35.8			12.3	7.1
Progression Factor		1.00			0.46	0.12
Incremental Delay, d2		19.5			1.6	0.4
Delay (s)		55.2			7.3	1.3
Level of Service		E			A	A
Approach Delay (s)	55.2			0.0	6.8	
Approach LOS	E			A	A	
Intersection Summary						
HCM 2000 Control Delay			14.4		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.80			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	9.5
Intersection Capacity Utilization			76.7%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Intersection

Int Delay, s/veh 1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘					↗↗
Traffic Vol, veh/h	10	0	0	0	213	1843
Future Vol, veh/h	10	0	0	0	213	1843
Conflicting Peds, #/hr	14	28	0	14	28	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	2	2
Mvmt Flow	11	0	0	0	224	1940

Major/Minor

	Minor1	Major2
Conflicting Flow All	1460	28
Stage 1	28	-
Stage 2	1432	-
Critical Hdwy	6.8	4.14
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	5.8	-
Follow-up Hdwy	3.5	2.22
Pot Cap-1 Maneuver	122	1584
Stage 1	-	-
Stage 2	190	-
Platoon blocked, %		-
Mov Cap-1 Maneuver	119	1584
Mov Cap-2 Maneuver	119	-
Stage 1	-	-
Stage 2	190	-

Approach

	WB	SB
HCM Control Delay, s	38.2	0.8
HCM LOS	E	

Minor Lane/Major Mvmt

	WBLn1	SBL	SBT
Capacity (veh/h)	119	1584	-
HCM Lane V/C Ratio	0.088	0.142	-
HCM Control Delay (s)	38.2	7.6	0
HCM Lane LOS	E	A	A
HCM 95th %tile Q(veh)	0.3	0.5	-

Intersection

Int Delay, s/veh 130.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	40	15	15	80	20	22	25	5	15	80	51
Future Vol, veh/h	10	40	15	15	80	20	22	25	5	15	80	51
Conflicting Peds, #/hr	381	0	412	388	0	357	412	0	388	357	0	381
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	4	4	4	10	10	10	0	0	0	0	0	0
Mvmt Flow	12	48	18	18	95	24	26	30	6	18	95	61

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1099	1049	950	1079	1077	802	568	0	0	424	0	0
Stage 1	573	573	-	473	473	-	-	-	-	-	-	-
Stage 2	526	476	-	606	604	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.2	6.6	6.3	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.2	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.2	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.59	4.09	3.39	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	188	226	313	189	212	372	1014	-	-	1146	-	-
Stage 1	501	501	-	557	545	-	-	-	-	-	-	-
Stage 2	532	553	-	471	475	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	-	94	135	42	~ 88	172	666	-	-	782	-	-
Mov Cap-2 Maneuver	-	94	-	42	~ 88	-	-	-	-	-	-	-
Stage 1	316	321	-	362	354	-	-	-	-	-	-	-
Stage 2	220	359	-	223	304	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		\$ 425.9	4.5	1
HCM LOS	-	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	666	-	-	- 83	782	-	-
HCM Lane V/C Ratio	0.039	-	-	- 1.649	0.023	-	-
HCM Control Delay (s)	10.6	0	-	-\$ 425.9	9.7	0	-
HCM Lane LOS	B	A	-	- F	A	A	-
HCM 95th %tile Q(veh)	0.1	-	-	- 11.3	0.1	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	5	50	10	0	20	75	25	0	40	220	10
Future Vol, veh/h	0	5	50	10	0	20	75	25	0	40	220	10
Peak Hour Factor	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	1	1	1	1	5	5	5	5
Mvmt Flow	0	6	56	11	0	22	84	28	0	45	247	11
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.8	9.2	10.8
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	15%	8%	17%	16%
Vol Thru, %	81%	77%	62%	73%
Vol Right, %	4%	15%	21%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	270	65	120	128
LT Vol	40	5	20	20
Through Vol	220	50	75	93
RT Vol	10	10	25	15
Lane Flow Rate	303	73	135	144
Geometry Grp	1	1	1	1
Degree of Util (X)	0.395	0.104	0.187	0.199
Departure Headway (Hd)	4.692	5.132	4.993	4.983
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	764	693	715	716
Service Time	2.745	3.202	3.056	3.044
HCM Lane V/C Ratio	0.397	0.105	0.189	0.201
HCM Control Delay	10.8	8.8	9.2	9.3
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.9	0.3	0.7	0.7

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	20	93	15
Future Vol, veh/h	0	20	93	15
Peak Hour Factor	0.85	0.89	0.89	0.89
Heavy Vehicles, %	14	14	14	14
Mvmt Flow	0	22	104	17
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.3
HCM LOS	A

Intersection

Int Delay, s/veh 19.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	50	10	28	70	30	10	175	17	35	152	30
Future Vol, veh/h	10	50	10	28	70	30	10	175	17	35	152	30
Conflicting Peds, #/hr	1057	0	1149	1201	0	1109	1149	0	1201	1109	0	1057
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	13	13	13	6	6	6
Mvmt Flow	11	56	11	31	79	34	11	197	19	39	171	34

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	2809	2854	2538	2931	2862	2516	1353	0	0	1417	0	0
Stage 1	1415	1415	-	1430	1430	-	-	-	-	-	-	-
Stage 2	1394	1439	-	1501	1432	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.23	-	-	4.16	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.317	-	-	2.254	-	-
Pot Cap-1 Maneuver	12	~ 17	36	~ 10	~ 17	37	475	-	-	469	-	-
Stage 1	172	206	-	169	202	-	-	-	-	-	-	-
Stage 2	177	200	-	154	202	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	-	0	0	-	0	0	0	-	-	~ 36	-	-
Mov Cap-2 Maneuver	-	0	-	-	0	-	-	-	-	-	-	-
Stage 1	172	0	-	0	0	-	-	-	-	-	-	-
Stage 2	13	0	-	-	0	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s				56.2
HCM LOS	-	-		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	-	-	-	-	~ 36	-	-
HCM Lane V/C Ratio	-	-	-	-	1.092	-	-
HCM Control Delay (s)	-	-	-	-	\$ 348.5	0	-
HCM Lane LOS	-	-	-	-	F	A	-
HCM 95th %tile Q(veh)	-	-	-	-	4.1	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis
 50: 15th Ave NE & NE 41st St/UW Campus Parking Access

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕↕	↕	↕	↕↕	
Traffic Volume (vph)	36	15	48	65	30	115	36	780	75	90	586	53
Future Volume (vph)	36	15	48	65	30	115	36	780	75	90	586	53
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	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes		0.88			1.00	0.61	1.00	1.00	0.51	1.00	0.95	
Flpb, ped/bikes		0.88			0.88	1.00	0.80	1.00	1.00	0.87	1.00	
Frt		0.93			1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1348			1595	976	1333	3343	765	1466	3172	
Flt Permitted		0.87			0.73	1.00	0.38	1.00	1.00	0.31	1.00	
Satd. Flow (perm)		1190			1206	976	526	3343	765	484	3172	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	16	52	71	33	125	39	848	82	98	637	58
RTOR Reduction (vph)	0	38	0	0	0	65	0	0	22	0	2	0
Lane Group Flow (vph)	0	69	0	0	104	60	39	848	60	98	693	0
Confl. Peds. (#/hr)	504		167	167		504	343		199	199		343
Confl. Bikes (#/hr)			10			3			15			10
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	8%	8%	8%	7%	7%	7%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2				2
Permitted Phases	4			4		4	2		2	2		
Actuated Green, G (s)		18.3			18.3	18.3	73.2	73.2	73.2	73.2	73.2	
Effective Green, g (s)		18.3			18.3	18.3	73.2	73.2	73.2	73.2	73.2	
Actuated g/C Ratio		0.18			0.18	0.18	0.73	0.73	0.73	0.73	0.73	
Clearance Time (s)		4.0			4.0	4.0	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	0.2	0.2	
Lane Grp Cap (vph)		217			220	178	385	2447	559	354	2321	
v/s Ratio Prot								c0.25				0.22
v/s Ratio Perm		0.06			c0.09	0.06	0.07		0.08	0.20		
v/c Ratio		0.32			0.47	0.34	0.10	0.35	0.11	0.28	0.30	
Uniform Delay, d1		35.4			36.5	35.6	3.9	4.8	3.9	4.5	4.6	
Progression Factor		1.01			1.00	1.00	0.45	0.38	0.13	0.66	0.58	
Incremental Delay, d2		0.8			1.6	1.1	0.5	0.4	0.4	1.7	0.3	
Delay (s)		36.6			38.1	36.7	2.3	2.2	0.9	4.7	2.9	
Level of Service		D			D	D	A	A	A	A	A	
Approach Delay (s)		36.6			37.3			2.1			3.2	
Approach LOS		D			D			A			A	

Intersection Summary

HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	56.1
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	↕
Traffic Vol, veh/h	0	100	150	15	0	184	299	25	0	5	267	255
Future Vol, veh/h	0	100	150	15	0	184	299	25	0	5	267	255
Peak Hour Factor	0.25	0.98	0.98	0.98	0.25	0.98	0.98	0.98	0.92	0.98	0.98	0.98
Heavy Vehicles, %	3	3	3	3	4	4	4	4	2	1	1	1
Mvmt Flow	0	102	153	15	0	188	305	26	0	5	272	260
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	1	1
HCM Control Delay	27.4	118.5	24.2
HCM LOS	D	F	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	0%	38%	36%	8%
Vol Thru, %	98%	0%	57%	59%	55%
Vol Right, %	0%	100%	6%	5%	38%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	272	255	265	508	320
LT Vol	5	0	100	184	25
Through Vol	267	0	150	299	175
RT Vol	0	255	15	25	120
Lane Flow Rate	278	260	270	518	327
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.654	0.562	0.646	1.152	0.744
Departure Headway (Hd)	9.029	8.291	9.147	8	8.82
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	402	437	398	451	415
Service Time	6.729	5.991	7.147	6.078	6.82
HCM Lane V/C Ratio	0.692	0.595	0.678	1.149	0.788
HCM Control Delay	27.2	21.1	27.4	118.5	33.4
HCM Lane LOS	D	C	D	F	D
HCM 95th-tile Q	4.5	3.4	4.4	18.7	6

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	25	175	120
Future Vol, veh/h	0	25	175	120
Peak Hour Factor	0.25	0.98	0.98	0.98
Heavy Vehicles, %	1	1	1	1
Mvmt Flow	0	26	179	122
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	33.4
HCM LOS	D

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations			↑		↑		↑			
Traffic Vol, veh/h	0	0	415	0	233	0	0	60	0	0
Future Vol, veh/h	0	0	415	0	233	0	0	60	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	79	87	0	79
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None	-	-
Storage Length	-	-	0	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	-	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	0	0	0	0	0	3	3
Mvmt Flow	0	0	451	0	253	0	0	65	0	0

Major/Minor	Major1			Major2			Minor2	
Conflicting Flow All	-	-	0	-	-	0	332	340
Stage 1	-	-	-	-	-	-	253	-
Stage 2	-	-	-	-	-	-	79	-
Critical Hdwy	-	-	-	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	0	0	-	0	-	0	667	707
Stage 1	0	0	-	0	-	0	794	-
Stage 2	0	0	-	0	-	0	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	667	656
Mov Cap-2 Maneuver	-	-	-	-	-	-	667	-
Stage 1	-	-	-	-	-	-	794	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBR	WBT	SBLn1
Capacity (veh/h)	-	-	656
HCM Lane V/C Ratio	-	-	0.099
HCM Control Delay (s)	-	-	11.1
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.3

HCM Signalized Intersection Capacity Analysis

53: University Bridge/Roosevelt Way NE & NE Campus Pkwy & Eastlake Ave NE

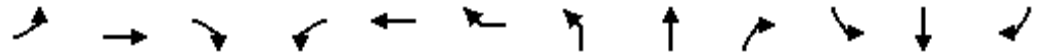
Full 2 PM Peak Hour



Movement	WBL	WBR	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations			↑↑	↗	↖	↑↑		
Traffic Volume (vph)	0	0	1171	279	112	1692	0	0
Future Volume (vph)	0	0	1171	279	112	1692	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5	4.5	4.5	4.5		
Lane Util. Factor			0.95	1.00	1.00	0.95		
Frbp, ped/bikes			1.00	0.93	1.00	1.00		
Flpb, ped/bikes			1.00	1.00	1.00	1.00		
Frt			1.00	0.85	1.00	1.00		
Flt Protected			1.00	1.00	0.95	1.00		
Satd. Flow (prot)			3539	1471	1752	3505		
Flt Permitted			1.00	1.00	0.95	1.00		
Satd. Flow (perm)			3539	1471	1752	3505		
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	1246	297	119	1800	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	1246	297	119	1800	0	0
Confl. Peds. (#/hr)	15	14		15	14			
Confl. Bikes (#/hr)				143				
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%	3%	3%
Turn Type			NA	Perm	Prot	NA		
Protected Phases			2		4	2		
Permitted Phases				2				
Actuated Green, G (s)			36.7	36.7	14.5	60.2		
Effective Green, g (s)			36.7	36.7	14.5	60.2		
Actuated g/C Ratio			0.61	0.61	0.24	1.00		
Clearance Time (s)			4.5	4.5	4.5			
Vehicle Extension (s)			0.2	0.2	2.0			
Lane Grp Cap (vph)			2157	896	421	3505		
v/s Ratio Prot			c0.35		0.07	c0.51		
v/s Ratio Perm				0.20				
v/c Ratio			0.58	0.33	0.28	0.51		
Uniform Delay, d1			7.1	5.7	18.6	0.0		
Progression Factor			1.00	1.00	1.00	1.00		
Incremental Delay, d2			0.2	0.1	0.1	0.1		
Delay (s)			7.3	5.8	18.7	0.1		
Level of Service			A	A	B	A		
Approach Delay (s)	0.0		7.0			1.2	0.0	
Approach LOS	A		A			A	A	
Intersection Summary								
HCM 2000 Control Delay			3.8			HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.60					
Actuated Cycle Length (s)			60.2			Sum of lost time (s)		9.0
Intersection Capacity Utilization			60.9%			ICU Level of Service		B
Analysis Period (min)			15					
c Critical Lane Group								

HCM Signalized Intersection Capacity Analysis
54: Brooklyn Ave NE & NE Campus Pkwy

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Volume (vph)	5	255	110	5	209	15	113	255	20	5	80	20
Future Volume (vph)	5	255	110	5	209	15	113	255	20	5	80	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.96			0.99			0.99			0.97	
Flt Protected		1.00			1.00			0.99			1.00	
Satd. Flow (prot)		3379			3502			1823			1811	
Flt Permitted		0.95			0.95			0.87			0.99	
Satd. Flow (perm)		3217			3321			1614			1790	
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)	5	280	121	5	230	16	124	280	22	5	88	22
RTOR Reduction (vph)	0	47	0	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	359	0	0	251	0	0	424	0	0	115	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		29.5			29.5			61.5			61.5	
Effective Green, g (s)		29.5			29.5			61.5			61.5	
Actuated g/C Ratio		0.29			0.29			0.62			0.62	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		949			979			992			1100	
v/s Ratio Prot												
v/s Ratio Perm		c0.11			0.08			c0.26			0.06	
v/c Ratio		0.38			0.26			0.43			0.10	
Uniform Delay, d1		28.0			26.9			10.1			7.9	
Progression Factor		1.00			0.37			1.00			1.00	
Incremental Delay, d2		1.2			0.6			1.3			0.2	
Delay (s)		29.1			10.7			11.4			8.1	
Level of Service		C			B			B			A	
Approach Delay (s)		29.1			10.7			11.4			8.1	
Approach LOS		C			B			B			A	

Intersection Summary

HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	49.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
55: University Way NE & NE Campus Pkwy

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	190	18	5	139	5	41	155	30	15	129	49
Future Volume (veh/h)	77	190	18	5	139	5	41	155	30	15	129	49
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	84	207	20	5	151	5	45	168	33	16	140	53
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	409	1019	101	63	1589	52	147	530	98	70	535	192
Arrive On Green	0.95	0.95	0.95	0.47	0.47	0.47	0.44	0.44	0.44	0.87	0.87	0.87
Sat Flow, veh/h	743	2145	213	52	3345	109	241	1218	226	71	1230	442
Grp Volume(v), veh/h	156	0	155	84	0	77	246	0	0	209	0	0
Grp Sat Flow(s),veh/h/ln	1445	0	1657	1830	0	1676	1685	0	0	1743	0	0
Q Serve(g_s), s	0.2	0.0	0.6	0.0	0.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.7	0.0	0.6	2.5	0.0	2.5	8.8	0.0	0.0	2.0	0.0	0.0
Prop In Lane	0.54		0.13	0.06		0.07	0.18		0.13	0.08		0.25
Lane Grp Cap(c), veh/h	742	0	787	908	0	796	776	0	0	797	0	0
V/C Ratio(X)	0.21	0.00	0.20	0.09	0.00	0.10	0.32	0.00	0.00	0.26	0.00	0.00
Avail Cap(c_a), veh/h	742	0	787	908	0	796	776	0	0	797	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.3	0.0	1.3	14.4	0.0	14.4	18.5	0.0	0.0	3.8	0.0	0.0
Incr Delay (d2), s/veh	0.6	0.0	0.6	0.2	0.0	0.2	1.1	0.0	0.0	0.8	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.3	1.3	0.0	1.2	4.7	0.0	0.0	1.1	0.0	0.0
LnGrp Delay(d),s/veh	2.0	0.0	1.9	14.6	0.0	14.7	19.5	0.0	0.0	4.6	0.0	0.0
LnGrp LOS	A		A	B		B	B			A		
Approach Vol, veh/h		311			161			246			209	
Approach Delay, s/veh		1.9			14.7			19.5			4.6	
Approach LOS		A			B			B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		52.0		48.0		52.0		48.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		47.5		43.5		47.5		43.5				
Max Q Clear Time (g_c+I1), s		4.5		10.8		4.7		4.0				
Green Ext Time (p_c), s		0.5		0.5		0.5		0.5				
Intersection Summary												
HCM 2010 Ctrl Delay				9.4								
HCM 2010 LOS				A								

HCM Signalized Intersection Capacity Analysis
56: 15th Ave NE & NE Campus Pkwy

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	105	120	74	783	618	75
Future Volume (vph)	105	120	74	783	618	75
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		6.0	6.0	6.0	
Lane Util. Factor	0.97		1.00	0.95	0.95	
Frbp, ped/bikes	0.99		1.00	1.00	0.96	
Flpb, ped/bikes	1.00		0.88	1.00	1.00	
Frt	0.92		1.00	1.00	0.98	
Flt Protected	0.98		0.95	1.00	1.00	
Satd. Flow (prot)	2918		1425	3252	3144	
Flt Permitted	0.98		0.35	1.00	1.00	
Satd. Flow (perm)	2918		528	3252	3144	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	109	125	77	816	644	78
RTOR Reduction (vph)	0	0	0	0	9	0
Lane Group Flow (vph)	234	0	77	816	713	0
Confl. Peds. (#/hr)	6	3	350			350
Confl. Bikes (#/hr)						10
Heavy Vehicles (%)	12%	12%	11%	11%	8%	8%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	27.5		62.0	62.0	62.0	
Effective Green, g (s)	27.5		62.0	62.0	62.0	
Actuated g/C Ratio	0.28		0.62	0.62	0.62	
Clearance Time (s)	4.5		6.0	6.0	6.0	
Lane Grp Cap (vph)	802		327	2016	1949	
v/s Ratio Prot	c0.08			c0.25	0.23	
v/s Ratio Perm			0.15			
v/c Ratio	0.29		0.24	0.40	0.37	
Uniform Delay, d1	28.6		8.5	9.6	9.3	
Progression Factor	0.61		0.17	0.17	0.87	
Incremental Delay, d2	0.9		1.2	0.4	0.5	
Delay (s)	18.4		2.7	2.1	8.7	
Level of Service	B		A	A	A	
Approach Delay (s)	18.4			2.1	8.7	
Approach LOS	B			A	A	

Intersection Summary

HCM 2000 Control Delay	6.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	102.9
Intersection LOS	F

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Lane Configurations									
Traffic Vol, veh/h	0	330	256	0	134	265	0	383	202
Future Vol, veh/h	0	330	256	0	134	265	0	383	202
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	1	1	1	0	0	0
Mvmt Flow	0	359	278	0	146	288	0	416	220
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	119.3	41.8	128.2
HCM LOS	F	E	F

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	65%	0%	34%
Vol Thru, %	0%	56%	66%
Vol Right, %	35%	44%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	585	586	399
LT Vol	383	0	134
Through Vol	0	330	265
RT Vol	202	256	0
Lane Flow Rate	636	637	434
Geometry Grp	1	1	1
Degree of Util (X)	1.191	1.166	0.851
Departure Headway (Hd)	7.082	7.154	7.9
Convergence, Y/N	Yes	Yes	Yes
Cap	515	516	464
Service Time	5.082	5.154	5.9
HCM Lane V/C Ratio	1.235	1.234	0.935
HCM Control Delay	128.2	119.3	41.8
HCM Lane LOS	F	F	E
HCM 95th-tile Q	22.3	20.9	8.5

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	86	50	50	0	45	39	45	0	31	241	25
Future Vol, veh/h	0	86	50	50	0	45	39	45	0	31	241	25
Peak Hour Factor	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89
Heavy Vehicles, %	1	1	1	1	2	2	2	2	7	7	7	7
Mvmt Flow	0	97	56	56	0	51	44	51	0	35	271	28
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	11.4	10.5	13.7
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	10%	46%	35%	5%
Vol Thru, %	81%	27%	30%	71%
Vol Right, %	8%	27%	35%	24%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	297	186	129	205
LT Vol	31	86	45	10
Through Vol	241	50	39	145
RT Vol	25	50	45	50
Lane Flow Rate	334	209	145	230
Geometry Grp	1	1	1	1
Degree of Util (X)	0.498	0.327	0.23	0.343
Departure Headway (Hd)	5.377	5.637	5.709	5.357
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	667	635	626	670
Service Time	3.424	3.691	3.769	3.407
HCM Lane V/C Ratio	0.501	0.329	0.232	0.343
HCM Control Delay	13.7	11.4	10.5	11.2
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.8	1.4	0.9	1.5

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	10	145	50
Future Vol, veh/h	0	10	145	50
Peak Hour Factor	0.85	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	11	163	56
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	11.2
HCM LOS	B

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	20	65	10	0	34	104	25	0	5	176	15
Future Vol, veh/h	0	20	65	10	0	34	104	25	0	5	176	15
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	1	1	1	1	2	2	2	2	3	3	3	3
Mvmt Flow	0	23	75	11	0	39	120	29	0	6	202	17
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9.3	10	10.2
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	21%	21%	3%
Vol Thru, %	90%	68%	64%	85%
Vol Right, %	8%	11%	15%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	196	95	163	172
LT Vol	5	20	34	5
Through Vol	176	65	104	147
RT Vol	15	10	25	20
Lane Flow Rate	225	109	187	198
Geometry Grp	1	1	1	1
Degree of Util (X)	0.307	0.157	0.263	0.268
Departure Headway (Hd)	4.906	5.174	5.049	4.871
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	725	685	704	730
Service Time	2.988	3.272	3.136	2.954
HCM Lane V/C Ratio	0.31	0.159	0.266	0.271
HCM Control Delay	10.2	9.3	10	9.8
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.3	0.6	1.1	1.1

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	5	147	20
Future Vol, veh/h	0	5	147	20
Peak Hour Factor	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	0	0	0
Mvmt Flow	0	6	169	23
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.8
HCM LOS	A

HCM Signalized Intersection Capacity Analysis

61: 15th Ave NE & Stevens Way

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕↕		↕	↕↕	
Traffic Volume (vph)	30	30	25	139	92	172	17	655	54	91	613	34
Future Volume (vph)	30	30	25	139	92	172	17	655	54	91	613	34
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	4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frbp, ped/bikes		0.84			1.00	0.58	1.00	0.98		1.00	0.98	
Flpb, ped/bikes		0.91			0.73	1.00	0.92	1.00		0.92	1.00	
Frt		0.96			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1348			1229	849	1519	3195		1528	3235	
Flt Permitted		0.86			0.77	1.00	0.24	1.00		0.20	1.00	
Satd. Flow (perm)		1178			978	849	378	3195		318	3235	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	32	32	26	146	97	181	18	689	57	96	645	36
RTOR Reduction (vph)	0	15	0	0	0	129	0	6	0	0	4	0
Lane Group Flow (vph)	0	75	0	0	243	52	18	740	0	96	677	0
Confl. Peds. (#/hr)	755		1497	1497		755	168		178	178		168
Confl. Bikes (#/hr)			204			83			24			11
Heavy Vehicles (%)	2%	2%	2%	10%	10%	10%	9%	9%	9%	9%	9%	9%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2				2
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)		29.0			29.0	29.0	31.5	31.5		31.5	31.5	
Effective Green, g (s)		29.0			29.0	29.0	31.5	31.5		31.5	31.5	
Actuated g/C Ratio		0.29			0.29	0.29	0.32	0.32		0.32	0.32	
Clearance Time (s)		3.0			3.0	3.0	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		341			283	246	119	1006		100	1019	
v/s Ratio Prot								0.23				0.21
v/s Ratio Perm		0.06			c0.25	0.06	0.05			c0.30		
v/c Ratio		0.22			0.86	0.21	0.15	0.74		0.96	0.66	
Uniform Delay, d1		26.9			33.6	26.9	24.6	30.5		33.6	29.7	
Progression Factor		1.00			1.00	1.00	0.89	0.88		0.71	0.69	
Incremental Delay, d2		1.5			27.1	2.0	2.0	3.5		77.5	3.3	
Delay (s)		28.4			60.7	28.8	24.0	30.4		101.6	23.8	
Level of Service		C			E	C	C	C		F	C	
Approach Delay (s)		28.4			47.1			30.3			33.4	
Approach LOS		C			D			C			C	

Intersection Summary

HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	10
Intersection LOS	A

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Lane Configurations									
Traffic Vol, veh/h	0	5	150	0	15	20	0	253	5
Future Vol, veh/h	0	5	150	0	15	20	0	253	5
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	11	11	11	0	0	0	14	14	14
Mvmt Flow	0	6	174	0	17	23	0	294	6
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.6	8.3	11.1
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	98%	0%	43%
Vol Thru, %	0%	3%	57%
Vol Right, %	2%	97%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	258	155	35
LT Vol	253	0	15
Through Vol	0	5	20
RT Vol	5	150	0
Lane Flow Rate	300	180	41
Geometry Grp	1	1	1
Degree of Util (X)	0.402	0.217	0.056
Departure Headway (Hd)	4.819	4.329	4.964
Convergence, Y/N	Yes	Yes	Yes
Cap	747	829	721
Service Time	2.849	2.352	2.997
HCM Lane V/C Ratio	0.402	0.217	0.057
HCM Control Delay	11.1	8.6	8.3
HCM Lane LOS	B	A	A
HCM 95th-tile Q	1.9	0.8	0.2

Intersection	
Intersection Delay, s/veh	77.6
Intersection LOS	F

Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↘	↗		↗	↗		↘	↗
Traffic Vol, veh/h	0	457	440	0	130	575	0	336	54
Future Vol, veh/h	0	457	440	0	130	575	0	336	54
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	1	1	1	4	4	4
Mvmt Flow	0	481	463	0	137	605	0	354	57
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	69.8	108.3	40.2
HCM LOS	F	F	E

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	575	457	440	336	54
LT Vol	0	0	457	0	336	0
Through Vol	130	0	0	0	0	54
RT Vol	0	575	0	440	0	0
Lane Flow Rate	137	605	481	463	354	57
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.296	1.193	1.079	0.884	0.841	0.129
Departure Headway (Hd)	8.023	7.299	8.426	7.19	9.077	8.557
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	450	502	433	509	403	422
Service Time	5.723	4.999	6.126	4.89	6.777	6.257
HCM Lane V/C Ratio	0.304	1.205	1.111	0.91	0.878	0.135
HCM Control Delay	14.1	129.6	95.3	43.3	44.7	12.5
HCM Lane LOS	B	F	F	E	E	B
HCM 95th-tile Q	1.2	22	15.4	9.8	7.9	0.4

HCM Signalized Intersection Capacity Analysis
64: NE Boat St & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour























Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩		↩	↩	↩	
Traffic Volume (vph)	755	85	15	739	115	15
Future Volume (vph)	755	85	15	739	115	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	5.0	5.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	0.99	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.99		1.00	1.00	0.98	
Flt Protected	1.00		0.95	1.00	0.96	
Satd. Flow (prot)	1819		1787	1881	1745	
Flt Permitted	1.00		0.23	1.00	0.96	
Satd. Flow (perm)	1819		428	1881	1745	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	812	91	16	795	124	16
RTOR Reduction (vph)	4	0	0	0	5	0
Lane Group Flow (vph)	899	0	16	795	135	0
Confl. Peds. (#/hr)		31	31		25	17
Confl. Bikes (#/hr)		4				15
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			2	4	
Permitted Phases			2			
Actuated Green, G (s)	72.6		72.6	72.6	17.4	
Effective Green, g (s)	72.6		72.6	72.6	17.4	
Actuated g/C Ratio	0.73		0.73	0.73	0.17	
Clearance Time (s)	5.0		5.0	5.0	5.0	
Vehicle Extension (s)	0.2		0.2	0.2	2.0	
Lane Grp Cap (vph)	1320		310	1365	303	
v/s Ratio Prot	c0.49			0.42	c0.08	
v/s Ratio Perm			0.04			
v/c Ratio	0.68		0.05	0.58	0.45	
Uniform Delay, d1	7.4		3.9	6.5	37.0	
Progression Factor	1.00		0.34	0.59	1.00	
Incremental Delay, d2	2.9		0.3	1.6	0.4	
Delay (s)	10.3		1.6	5.5	37.4	
Level of Service	B		A	A	D	
Approach Delay (s)	10.3			5.4	37.4	
Approach LOS	B			A	D	

Intersection Summary

HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
65: Brooklyn Ave NE & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	167	831	43	35	593	51	72	105	30	50	40	176
Future Volume (veh/h)	167	831	43	35	593	51	72	105	30	50	40	176
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.92	1.00		0.89	1.00		0.81	1.00		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1881	1881	1900	1792	1792	1900	1827	1827	1900
Adj Flow Rate, veh/h	182	903	47	38	645	55	78	114	33	54	43	191
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	1	1	1	6	6	6	4	4	4
Cap, veh/h	423	1528	80	217	1098	93	111	192	55	173	48	212
Arrive On Green	0.24	0.45	0.45	0.24	0.67	0.67	0.06	0.15	0.15	0.10	0.19	0.19
Sat Flow, veh/h	1757	3372	176	1792	3298	281	1707	1263	366	1740	249	1107
Grp Volume(v), veh/h	182	469	481	38	349	351	78	0	147	54	0	234
Grp Sat Flow(s),veh/h/ln	1757	1752	1795	1792	1787	1791	1707	0	1629	1740	0	1357
Q Serve(g_s), s	8.8	20.0	20.0	1.7	10.7	10.8	4.5	0.0	8.4	2.9	0.0	16.9
Cycle Q Clear(g_c), s	8.8	20.0	20.0	1.7	10.7	10.8	4.5	0.0	8.4	2.9	0.0	16.9
Prop In Lane	1.00		0.10	1.00		0.16	1.00		0.22	1.00		0.82
Lane Grp Cap(c), veh/h	423	794	813	217	595	597	111	0	247	173	0	259
V/C Ratio(X)	0.43	0.59	0.59	0.18	0.59	0.59	0.70	0.00	0.60	0.31	0.00	0.90
Avail Cap(c_a), veh/h	423	794	813	217	595	597	171	0	386	173	0	294
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.67	0.67	0.67	0.90	0.90	0.90	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	32.1	20.4	20.4	34.0	12.9	12.9	45.8	0.0	39.6	41.8	0.0	39.5
Incr Delay (d2), s/veh	0.2	2.2	2.1	0.1	3.8	3.8	3.0	0.0	0.9	0.4	0.0	25.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.3	10.1	10.4	0.8	5.7	5.7	2.2	0.0	3.9	1.4	0.0	8.1
LnGrp Delay(d),s/veh	32.3	22.6	22.6	34.1	16.7	16.7	48.8	0.0	40.4	42.2	0.0	64.8
LnGrp LOS	C	C	C	C	B	B	D		D	D		E
Approach Vol, veh/h		1132			738			225			288	
Approach Delay, s/veh		24.2			17.6			43.3			60.6	
Approach LOS		C			B			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	28.1	37.8	14.5	19.7	16.1	49.8	10.5	23.6				
Change Period (Y+Rc), s	4.0	4.5	4.5	* 4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	18.0	33.3	8.0	* 24	6.0	45.3	10.0	21.7				
Max Q Clear Time (g_c+I1), s	10.8	12.8	4.9	10.4	3.7	22.0	6.5	18.9				
Green Ext Time (p_c), s	0.2	2.8	0.4	0.4	0.1	4.2	0.0	0.3				
Intersection Summary												
HCM 2010 Ctrl Delay			28.3									
HCM 2010 LOS			C									
Notes												

HCM Signalized Intersection Capacity Analysis
 66: Campus Parking Access/University Way NE & NE Pacific St

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↖	↗		↗	↖
Traffic Volume (vph)	59	987	0	5	690	64	40	60	75	153	5	54
Future Volume (vph)	59	987	0	5	690	64	40	60	75	153	5	54
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5			4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.96			1.00	0.90		0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		0.95	
Frt	1.00	1.00		1.00	0.99			1.00	0.85		0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.97	
Satd. Flow (prot)	1787	3574		1752	3306			1840	1458		1632	
Flt Permitted	0.95	1.00		0.95	1.00			0.84	1.00		0.72	
Satd. Flow (perm)	1787	3574		1752	3306			1582	1458		1221	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	60	1007	0	5	704	65	41	61	77	156	5	55
RTOR Reduction (vph)	0	0	0	0	6	0	0	0	56	0	14	0
Lane Group Flow (vph)	60	1007	0	5	763	0	0	102	21	0	202	0
Confl. Peds. (#/hr)	241		189	189		241	49		87	87		49
Confl. Bikes (#/hr)						6						1
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			4	
Permitted Phases							4		4	4		
Actuated Green, G (s)	10.3	59.0		1.1	49.8			26.9	26.9		26.9	
Effective Green, g (s)	10.3	59.0		1.1	49.8			26.9	26.9		26.9	
Actuated g/C Ratio	0.10	0.59		0.01	0.50			0.27	0.27		0.27	
Clearance Time (s)	4.0	4.5		4.0	4.5			4.5	4.5		4.5	
Vehicle Extension (s)	2.0	0.2		2.0	0.2			3.0	3.0		3.0	
Lane Grp Cap (vph)	184	2108		19	1646			425	392		328	
v/s Ratio Prot	0.03	c0.28		0.00	c0.23							
v/s Ratio Perm								0.06	0.01		c0.17	
v/c Ratio	0.33	0.48		0.26	0.46			0.24	0.05		0.62	
Uniform Delay, d1	41.6	11.7		49.0	16.4			28.6	27.1		32.0	
Progression Factor	0.67	0.19		1.43	0.34			1.00	1.00		1.00	
Incremental Delay, d2	0.3	0.7		1.6	0.6			0.3	0.1		3.4	
Delay (s)	28.2	3.0		71.8	6.2			28.9	27.2		35.4	
Level of Service	C	A		E	A			C	C		D	
Approach Delay (s)		4.4			6.6			28.1			35.4	
Approach LOS		A			A			C			D	

Intersection Summary		
HCM 2000 Control Delay	10.1	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.53	B
Actuated Cycle Length (s)	100.0	Sum of lost time (s)
Intersection Capacity Utilization	85.4%	13.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		E

HCM Signalized Intersection Capacity Analysis
67: 15th Ave NE & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	1043	60	113	522	349	125	225	344	509	166	112
Future Volume (vph)	117	1043	60	113	522	349	125	225	344	509	166	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		0.95		0.95	0.95	
Frbp, ped/bikes	1.00	0.97		1.00	1.00	0.90		0.84		1.00	0.92	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85		0.93		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	0.99	
Satd. Flow (prot)	1787	3423		1703	3406	1377		2750		1573	1444	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99		0.95	0.99	
Satd. Flow (perm)	1787	3423		1703	3406	1377		2750		1573	1444	
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)	124	1110	64	120	555	371	133	239	366	541	177	119
RTOR Reduction (vph)	0	4	0	0	0	38	0	120	0	0	14	0
Lane Group Flow (vph)	124	1170	0	120	555	333	0	618	0	422	401	0
Confl. Peds. (#/hr)	129		398	398		129	182		242	242		182
Confl. Bikes (#/hr)			1			25			34			17
Heavy Vehicles (%)	1%	1%	1%	6%	6%	6%	1%	1%	1%	9%	9%	9%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	
Protected Phases	1	6		5	2	4	3	3		4	4	
Permitted Phases						2						
Actuated Green, G (s)	9.9	28.0		6.5	24.6	49.1		23.0		24.5	24.5	
Effective Green, g (s)	9.9	28.0		6.5	24.6	49.1		23.0		24.5	24.5	
Actuated g/C Ratio	0.10	0.28		0.06	0.25	0.49		0.23		0.24	0.24	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.0	0.2		2.0	0.2	3.0		2.0		3.0	3.0	
Lane Grp Cap (vph)	176	958		110	837	676		632		385	353	
v/s Ratio Prot	0.07	c0.34		c0.07	0.16	0.12		c0.22		0.27	c0.28	
v/s Ratio Perm						0.12						
v/c Ratio	0.70	1.22		1.09	0.66	0.49		0.98		1.10	1.14	
Uniform Delay, d1	43.6	36.0		46.8	34.0	17.1		38.2		37.8	37.8	
Progression Factor	0.78	0.76		1.00	1.00	1.00		1.00		0.47	0.44	
Incremental Delay, d2	9.3	108.2		112.4	4.1	0.6		29.8		68.1	83.6	
Delay (s)	43.2	135.6		159.1	38.1	17.7		68.0		85.9	100.3	
Level of Service	D	F		F	D	B		E		F	F	
Approach Delay (s)		126.8			44.7			68.0			93.1	
Approach LOS		F			D			E			F	

Intersection Summary

HCM 2000 Control Delay	86.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	100.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Int Delay, s/veh 4.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	30	150	110	92	103	15
Future Vol, veh/h	30	150	110	92	103	15
Conflicting Peds, #/hr	70	0	0	49	49	70
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	6	6	4	4
Mvmt Flow	33	165	121	101	113	16

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	292	0	311
Stage 1	-	-	241
Stage 2	-	-	280
Critical Hdwy	4.13	-	6.24
Critical Hdwy Stg 1	-	-	5.44
Critical Hdwy Stg 2	-	-	5.44
Follow-up Hdwy	2.227	-	3.336
Pot Cap-1 Maneuver	1264	-	725
Stage 1	-	-	794
Stage 2	-	-	763
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1190	-	643
Mov Cap-2 Maneuver	-	-	440
Stage 1	-	-	748
Stage 2	-	-	696

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	15.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1190	-	-	-	458
HCM Lane V/C Ratio	0.028	-	-	-	0.283
HCM Control Delay (s)	8.1	0	-	-	15.9
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.2

Intersection	
Intersection Delay, s/veh	61.4
Intersection LOS	F

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations									
Traffic Vol, veh/h	0	145	108	0	162	514	0	204	40
Future Vol, veh/h	0	145	108	0	162	514	0	204	40
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	5	5	5	2	2	2	3	3	3
Mvmt Flow	0	161	120	0	180	571	0	227	44
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	15.6	95.8	13.4
HCM LOS	C	F	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	24%	57%	0%
Vol Thru, %	76%	0%	84%
Vol Right, %	0%	43%	16%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	676	253	244
LT Vol	162	145	0
Through Vol	514	0	204
RT Vol	0	108	40
Lane Flow Rate	751	281	271
Geometry Grp	1	1	1
Degree of Util (X)	1.125	0.487	0.429
Departure Headway (Hd)	5.39	6.547	5.982
Convergence, Y/N	Yes	Yes	Yes
Cap	676	554	605
Service Time	3.39	4.547	3.982
HCM Lane V/C Ratio	1.111	0.507	0.448
HCM Control Delay	95.8	15.6	13.4
HCM Lane LOS	F	C	B
HCM 95th-tile Q	22.8	2.6	2.1

HCM Unsignalized Intersection Capacity Analysis

UW Master Plan EIS

70: Parking Access/Campus Parking Access & NE Boat St/Columbia Rd Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Stop			Stop			Stop	
Traffic Volume (vph)	10	272	10	5	661	5	0	0	5	0	0	10
Future Volume (vph)	10	272	10	5	661	5	0	0	5	0	0	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	286	11	5	696	5	0	0	5	0	0	11

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	11	297	706	5	11
Volume Left (vph)	11	0	5	0	0
Volume Right (vph)	0	11	5	5	11
Hadj (s)	0.62	0.09	0.08	-0.60	-0.60
Departure Headway (s)	5.6	5.1	4.5	5.6	5.5
Degree Utilization, x	0.02	0.42	0.88	0.01	0.02
Capacity (veh/h)	626	689	799	596	592
Control Delay (s)	7.5	10.6	30.2	8.6	8.6
Approach Delay (s)	10.5		30.2	8.6	8.6
Approach LOS	B		D	A	A

Intersection Summary

Delay	24.0
Level of Service	C
Intersection Capacity Utilization	59.1%
ICU Level of Service	B
Analysis Period (min)	15

Intersection

Int Delay, s/veh 17.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑			↑↑
Traffic Vol, veh/h	96	131	2256	86	90	1083
Future Vol, veh/h	96	131	2256	86	90	1083
Conflicting Peds, #/hr	0	4	0	0	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	101	138	2375	91	95	1140

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	3183	1241	0	0	2469	0
Stage 1	2424	-	-	-	-	-
Stage 2	759	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.14	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.22	-
Pot Cap-1 Maneuver	~ 8	169	-	-	185	-
Stage 1	~ 54	-	-	-	-	-
Stage 2	428	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	0	168	-	-	184	-
Mov Cap-2 Maneuver	-	-	-	-	-	-
Stage 1	~ 54	-	-	-	-	-
Stage 2	0	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	272.3		0		3.3
HCM LOS	F				

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 168	184	-
HCM Lane V/C Ratio	-	- 1.422	0.515	-
HCM Control Delay (s)	-	- 272.3	43.7	-
HCM Lane LOS	-	- F	E	-
HCM 95th %tile Q(veh)	-	- 14.9	2.6	-

Notes

-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 0.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑			↑↑
Traffic Vol, veh/h	5	40	2292	5	0	1189
Future Vol, veh/h	5	40	2292	5	0	1189
Conflicting Peds, #/hr	4	4	0	4	4	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	5	42	2413	5	0	1252

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	3049	1217	0 0
Stage 1	2419	-	- -
Stage 2	630	-	- -
Critical Hdwy	7.54	6.94	- -
Critical Hdwy Stg 1	6.54	-	- -
Critical Hdwy Stg 2	6.54	-	- -
Follow-up Hdwy	3.52	3.32	- -
Pot Cap-1 Maneuver	~ 5	173	- - 0 -
Stage 1	33	-	- - 0 -
Stage 2	436	-	- - 0 -
Platoon blocked, %			- -
Mov Cap-1 Maneuver	~ 5	172	- - - -
Mov Cap-2 Maneuver	31	-	- - - -
Stage 1	33	-	- - - -
Stage 2	435	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	57.4	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	- 114	-
HCM Lane V/C Ratio	-	- 0.416	-
HCM Control Delay (s)	-	- 57.4	-
HCM Lane LOS	-	- F	-
HCM 95th %tile Q(veh)	-	- 1.8	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑		↑	↑↑
Traffic Vol, veh/h	0	5	2302	25	10	1179
Future Vol, veh/h	0	5	2302	25	10	1179
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	0	5	2398	26	10	1228

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	1222	0 0 2429 0
Stage 1	-	-	- - - -
Stage 2	-	-	- - - -
Critical Hdwy	-	6.9	- - 4.14 -
Critical Hdwy Stg 1	-	-	- - - -
Critical Hdwy Stg 2	-	-	- - - -
Follow-up Hdwy	-	3.3	- - 2.22 -
Pot Cap-1 Maneuver	0	174	- - 192 -
Stage 1	0	-	- - - -
Stage 2	0	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	-	173	- - 191 -
Mov Cap-2 Maneuver	-	-	- - - -
Stage 1	-	-	- - - -
Stage 2	-	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	26.5	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 173	191	-
HCM Lane V/C Ratio	-	- 0.03	0.055	-
HCM Control Delay (s)	-	- 26.5	24.9	-
HCM Lane LOS	-	- D	C	-
HCM 95th %tile Q(veh)	-	- 0.1	0.2	-

HCM Signalized Intersection Capacity Analysis
 74: Montlake Blvd NE & Husky Stadium Parking Access

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	446	29	65	162	0	90	0	1731	5	32	955	177
Future Volume (vph)	446	29	65	162	0	90	0	1731	5	32	955	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5			4.5	
Lane Util. Factor	0.95	0.95	1.00	1.00		1.00		0.95			0.95	
Frbp, ped/bikes	1.00	1.00	0.85	1.00		0.99		1.00			0.98	
Flpb, ped/bikes	1.00	1.00	1.00	0.93		1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00		0.85		1.00			0.98	
Flt Protected	0.95	0.96	1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	1681	1695	1350	1677		1594		3568			3353	
Flt Permitted	0.95	0.96	1.00	0.38		1.00		1.00			0.77	
Satd. Flow (perm)	1681	1695	1350	674		1594		3568			2600	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	465	30	68	169	0	94	0	1803	5	33	995	184
RTOR Reduction (vph)	0	0	51	0	0	11	0	0	0	0	10	0
Lane Group Flow (vph)	246	249	17	169	0	84	0	1808	0	0	1202	0
Confl. Peds. (#/hr)			81	81			39		188	188		39
Confl. Bikes (#/hr)			8			1						1
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	3%	3%	3%
Turn Type	Perm	NA	Perm	D.Pm		Perm		NA		Perm	NA	
Protected Phases		4						2				2
Permitted Phases	4		4	4		4			2			
Actuated Green, G (s)	30.0	30.0	30.0	30.0		30.0		81.0			81.0	
Effective Green, g (s)	30.0	30.0	30.0	30.0		30.0		81.0			81.0	
Actuated g/C Ratio	0.25	0.25	0.25	0.25		0.25		0.68			0.68	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5			4.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0		0.2			0.2	
Lane Grp Cap (vph)	420	423	337	168		398		2408			1755	
v/s Ratio Prot								c0.51				
v/s Ratio Perm	0.15	0.15	0.01	c0.25		0.05					0.46	
v/c Ratio	0.59	0.59	0.05	1.01		0.21		0.75			0.68	
Uniform Delay, d1	39.5	39.6	34.2	45.0		35.6		12.9			11.8	
Progression Factor	0.91	0.91	1.66	1.00		1.00		0.01			1.00	
Incremental Delay, d2	0.9	0.9	0.0	71.0		0.1		1.1			2.2	
Delay (s)	36.8	36.8	56.7	116.0		35.7		1.2			14.0	
Level of Service	D	D	E	F		D		A			B	
Approach Delay (s)		39.2			87.3			1.2			14.0	
Approach LOS		D			F			A			B	

Intersection Summary		
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.82	B
Actuated Cycle Length (s)	120.0	Sum of lost time (s)
Intersection Capacity Utilization	83.4%	9.0
Analysis Period (min)	15	ICU Level of Service
		E
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis

75: NE Pacific St & NE Pacific Pl

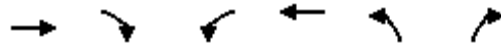
UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	445	1411	60	45	762	35	0	0	0	0	0	217
Future Volume (vph)	445	1411	60	45	762	35	0	0	0	0	0	217
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0							5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95							1.00
Frpb, ped/bikes	1.00	1.00	0.66	1.00	0.99							1.00
Flpb, ped/bikes	1.00	1.00	1.00	0.98	1.00							1.00
Frt	1.00	1.00	0.85	1.00	0.99							0.86
Flt Protected	0.95	1.00	1.00	0.95	1.00							1.00
Satd. Flow (prot)	1805	3610	1068	1769	3534							1565
Flt Permitted	0.95	1.00	1.00	0.13	1.00							1.00
Satd. Flow (perm)	1805	3610	1068	235	3534							1565
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)	478	1517	65	48	819	38	0	0	0	0	0	233
RTOR Reduction (vph)	0	0	31	0	5	0	0	0	0	0	0	25
Lane Group Flow (vph)	478	1517	34	48	852	0	0	0	0	0	0	208
Confl. Peds. (#/hr)			193	193		402			672	672		
Confl. Bikes (#/hr)			7			9		9				1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	6%	6%	6%	5%	5%	5%
Turn Type	Prot	NA	Perm	Perm	NA							Over
Protected Phases	2	1			1							2
Permitted Phases			1	1								
Actuated Green, G (s)	18.3	31.7	31.7	31.7	31.7							18.3
Effective Green, g (s)	18.3	31.7	31.7	31.7	31.7							18.3
Actuated g/C Ratio	0.31	0.53	0.53	0.53	0.53							0.31
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0							5.0
Vehicle Extension (s)	2.0	0.2	0.2	0.2	0.2							2.0
Lane Grp Cap (vph)	550	1907	564	124	1867							477
v/s Ratio Prot	c0.26	c0.42			0.24							0.13
v/s Ratio Perm			0.03	0.20								
v/c Ratio	0.87	0.80	0.06	0.39	0.46							0.44
Uniform Delay, d1	19.7	11.5	6.9	8.4	8.8							16.7
Progression Factor	1.00	1.00	1.00	0.80	0.49							1.24
Incremental Delay, d2	13.3	3.5	0.2	8.6	0.8							0.2
Delay (s)	33.0	15.0	7.1	15.3	5.1							20.9
Level of Service	C	B	A	B	A							C
Approach Delay (s)		19.0			5.6			0.0			20.9	
Approach LOS		B			A			A			C	
Intersection Summary												
HCM 2000 Control Delay			15.3		HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			60.0		Sum of lost time (s)			10.0				
Intersection Capacity Utilization			62.3%		ICU Level of Service				B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
76: Hospital Access & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 2 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	1396	15	40	797	65	65
Future Volume (vph)	1396	15	40	797	65	65
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frbp, ped/bikes	1.00	0.77	1.00	1.00	1.00	0.99
Flpb, ped/bikes	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)	3438	1186	1656	3312	1805	1591
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3438	1186	1656	3312	1805	1591
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1485	16	43	848	69	69
RTOR Reduction (vph)	0	1	0	0	0	64
Lane Group Flow (vph)	1485	15	43	848	69	5
Confl. Peds. (#/hr)		70	70		39	
Confl. Bikes (#/hr)		7				1
Heavy Vehicles (%)	5%	5%	9%	9%	0%	0%
Turn Type	NA	Perm	Prot	NA	pm+pt	Perm
Protected Phases	2		7!	6!	1!	
Permitted Phases		2		3	3!	1
Actuated Green, G (s)	83.3	83.3	14.1	96.9	9.1	9.1
Effective Green, g (s)	83.3	83.3	14.1	96.9	9.1	9.1
Actuated g/C Ratio	0.69	0.69	0.12	0.81	0.08	0.08
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	0.2	0.2	2.0	0.2	2.0	2.0
Lane Grp Cap (vph)	2386	823	194	2674	136	120
v/s Ratio Prot	c0.43		c0.03	0.26	c0.04	
v/s Ratio Perm		0.01				0.00
v/c Ratio	0.62	0.02	0.22	0.32	0.51	0.04
Uniform Delay, d1	9.9	5.7	48.0	3.0	53.3	51.4
Progression Factor	0.72	0.53	0.98	0.37	1.00	1.00
Incremental Delay, d2	0.7	0.0	0.1	0.0	1.1	0.1
Delay (s)	7.8	3.0	47.0	1.1	54.4	51.5
Level of Service	A	A	D	A	D	D
Approach Delay (s)	7.8			3.3	52.9	
Approach LOS	A			A	D	

Intersection Summary

HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	50.3%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

UW Master Plan EIS

77: Montlake Blvd NE & NE Pacific St/Husky Stadium Parking Access

Future (2028) Alt 2 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗↘		↑	↗	↗↘	↗↘		↗	↗↘	↗
Traffic Volume (vph)	0	0	1461	0	68	20	744	1716	37	5	1142	25
Future Volume (vph)	0	0	1461	0	68	20	744	1716	37	5	1142	25
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.5		5.0	5.0	7.0	5.0		6.0	5.0	5.0
Lane Util. Factor			0.88		1.00	1.00	0.97	0.95		1.00	0.95	1.00
Frbp, ped/bikes			1.00		1.00	1.00	1.00	0.99		1.00	1.00	0.66
Flpb, ped/bikes			1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt			0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected			1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)			2787		1863	1583	3433	3483		1752	3505	1036
Flt Permitted			1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)			2787		1863	1583	3433	3483		1752	3505	1036
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)	0	0	1506	0	70	21	767	1769	38	5	1177	26
RTOR Reduction (vph)	0	0	286	0	0	19	0	2	0	0	0	14
Lane Group Flow (vph)	0	0	1220	0	70	2	767	1805	0	5	1177	12
Confl. Peds. (#/hr)							245		321	321		245
Confl. Bikes (#/hr)												4
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type			Perm		NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases					3!		4 5	1 5		7!		1
Permitted Phases			9 1 3			3						1
Actuated Green, G (s)			102.2		12.8	12.8	30.0	66.0		1.0	53.2	53.2
Effective Green, g (s)			97.2		12.8	12.8	30.0	59.0		1.0	53.2	53.2
Actuated g/C Ratio			0.81		0.11	0.11	0.25	0.49		0.01	0.44	0.44
Clearance Time (s)					5.0	5.0				6.0	5.0	5.0
Vehicle Extension (s)					2.0	2.0				2.0	0.2	0.2
Lane Grp Cap (vph)			2257		198	168	858	1712		14	1553	459
v/s Ratio Prot					0.04		c0.22	c0.52		0.00	0.34	
v/s Ratio Perm			c0.44			0.00						0.01
v/c Ratio			0.54		0.35	0.01	0.89	1.05		0.36	0.76	0.03
Uniform Delay, d1			3.9		49.8	48.0	43.5	30.5		59.2	28.0	18.8
Progression Factor			1.00		1.00	1.00	0.68	1.11		0.91	0.82	1.00
Incremental Delay, d2			0.1		0.4	0.0	9.8	36.1		4.1	2.6	0.1
Delay (s)			4.0		50.2	48.0	39.1	69.9		58.2	25.7	18.9
Level of Service			A		D	D	D	E		E	C	B
Approach Delay (s)		4.0			49.7			60.7			25.7	
Approach LOS		A			D			E			C	

Intersection Summary

HCM 2000 Control Delay	36.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	93.1%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 78: Montlake Blvd NE & 520 EB/WB HOV Ramp & 520 WB Off Ramp

UW Master Plan EIS
 Future (2028) Alt 2 PM Peak Hour



Movement	WBR	NBL	NBT	NBR2	SBL	SBT	SBR	NWR
Lane Configurations	↗↗	↘↘	↕↕	↗	↘	↕↕↕		↗
Traffic Volume (vph)	806	200	1906	30	30	1874	684	30
Future Volume (vph)	806	200	1906	30	30	1874	684	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5	4.5	4.0	4.5		4.0
Lane Util. Factor	0.88	0.97	0.95	1.00	1.00	0.91		1.00
Frt	0.85	1.00	1.00	0.85	1.00	0.96		0.86
Flt Protected	1.00	0.95	1.00	1.00	0.95	1.00		1.00
Satd. Flow (prot)	2787	3433	3539	1583	1770	4875		1611
Flt Permitted	1.00	0.95	1.00	1.00	0.95	1.00		1.00
Satd. Flow (perm)	2787	3433	3539	1583	1770	4875		1611
Peak-hour factor, PHF	0.96	0.92	0.96	0.92	0.92	0.96	0.92	0.92
Adj. Flow (vph)	840	217	1985	33	33	1952	743	33
RTOR Reduction (vph)	249	0	0	15	0	41	0	0
Lane Group Flow (vph)	591	217	1985	18	33	2654	0	33
Turn Type	custom	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	3 1	5	2		1	6		4
Permitted Phases				2		3		
Actuated Green, G (s)	33.4	10.3	64.5	64.5	4.0	87.6		5.6
Effective Green, g (s)	33.4	10.3	64.5	64.5	4.0	87.6		5.6
Actuated g/C Ratio	0.28	0.09	0.54	0.54	0.03	0.73		0.05
Clearance Time (s)		4.0	4.5	4.5	4.0	4.5		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	775	294	1902	850	59	3558		75
v/s Ratio Prot	c0.21	0.06	c0.56		0.02	c0.36		c0.02
v/s Ratio Perm				0.01		0.18		
v/c Ratio	0.76	0.74	1.04	0.02	0.56	0.75		0.44
Uniform Delay, d1	39.7	53.5	27.8	13.0	57.1	9.6		55.7
Progression Factor	1.00	1.07	0.74	1.00	0.88	0.60		1.00
Incremental Delay, d2	4.5	6.5	29.9	0.0	9.5	0.8		4.1
Delay (s)	44.1	63.6	50.4	13.0	59.8	6.5		59.8
Level of Service	D	E	D	B	E	A		E
Approach Delay (s)			51.1			7.1		
Approach LOS			D			A		

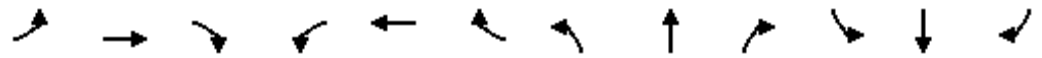
Intersection Summary

HCM 2000 Control Delay	29.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	94.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

79: Montlake Blvd NE & SR-520 EB Ramps/E Lake Washington Blvd





















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	591	35	80	135	5	320	90	1000	10	170	851	853
Future Volume (vph)	591	35	80	135	5	320	90	1000	10	170	851	853
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	0.97	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.91
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1694	1438	1752	1845	1568	3367	3457		1752	3505	1430
Flt Permitted	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1694	1438	1752	1845	1568	3367	3457		1752	3505	1430
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	622	37	84	142	5	337	95	1053	11	179	896	898
RTOR Reduction (vph)	0	0	65	0	0	72	0	1	0	0	0	485
Lane Group Flow (vph)	330	329	19	142	5	265	95	1063	0	179	896	413
Confl. Peds. (#/hr)	3		60	60		3	111		170	170		111
Confl. Bikes (#/hr)						5			8			10
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Turn Type	Split	NA	Perm	Split	NA	custom	Prot	NA		Prot	NA	Perm
Protected Phases	3	3		4	4	4	6	2		1	5	
Permitted Phases			3			4						5
Actuated Green, G (s)	26.5	26.5	26.5	12.8	12.8	29.3	7.9	46.2		16.5	54.8	54.8
Effective Green, g (s)	26.5	26.5	26.5	12.8	12.8	29.3	7.9	46.2		16.5	54.8	54.8
Actuated g/C Ratio	0.22	0.22	0.22	0.11	0.11	0.24	0.07	0.39		0.14	0.46	0.46
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)	2.0	2.0	2.0	3.0	3.0		2.0	0.2		2.0	0.2	0.2
Lane Grp Cap (vph)	371	374	317	186	196	382	221	1330		240	1600	653
v/s Ratio Prot	c0.20	0.19		c0.08	0.00	0.17	0.03	c0.31		c0.10	0.26	
v/s Ratio Perm			0.01									0.29
v/c Ratio	0.89	0.88	0.06	0.76	0.03	0.69	0.43	0.80		0.75	0.56	0.63
Uniform Delay, d1	45.3	45.2	36.9	52.1	48.0	41.3	53.9	32.8		49.7	23.8	24.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.90	0.87	1.99
Incremental Delay, d2	21.4	19.7	0.0	16.8	0.1	5.4	0.5	5.1		8.1	1.1	3.5
Delay (s)	66.7	65.0	36.9	69.0	48.1	46.7	54.4	37.9		52.8	21.8	53.1
Level of Service	E	E	D	E	D	D	D	D		D	C	D
Approach Delay (s)		62.6			53.2			39.2			38.9	
Approach LOS		E			D			D			D	

Intersection Summary		
HCM 2000 Control Delay	44.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.81	D
Actuated Cycle Length (s)	120.0	Sum of lost time (s)
Intersection Capacity Utilization	82.8%	18.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		E

HCM 2010 Signalized Intersection Summary
 1: 5th Ave NE & NE 50th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	660	290	185	1095	0	0	0	0	141	125	180
Future Volume (veh/h)	0	660	290	185	1095	0	0	0	0	141	125	180
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00				1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1900	1863	1863	0				1900	1900	1900
Adj Flow Rate, veh/h	0	673	296	189	1117	0				152	117	184
Adj No. of Lanes	0	2	0	1	2	0				2	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	1	1	2	2	0				0	0	0
Cap, veh/h	0	1064	468	484	2700	0				515	270	226
Arrive On Green	0.00	0.44	0.44	0.55	1.00	0.00				0.14	0.14	0.14
Sat Flow, veh/h	0	2485	1052	1774	3632	0				3619	1900	1586
Grp Volume(v), veh/h	0	503	466	189	1117	0				152	117	184
Grp Sat Flow(s),veh/h/ln	0	1787	1655	1774	1770	0				1810	1900	1586
Q Serve(g_s), s	0.0	21.7	21.7	6.2	0.0	0.0				3.8	5.6	11.3
Cycle Q Clear(g_c), s	0.0	21.7	21.7	6.2	0.0	0.0				3.8	5.6	11.3
Prop In Lane	0.00		0.64	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	795	737	484	2700	0				515	270	226
V/C Ratio(X)	0.00	0.63	0.63	0.39	0.41	0.00				0.30	0.43	0.82
Avail Cap(c_a), veh/h	0	795	737	484	2700	0				724	380	317
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.71	0.71	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	21.4	21.4	17.9	0.0	0.0				38.4	39.2	41.6
Incr Delay (d2), s/veh	0.0	3.8	4.1	0.5	0.3	0.0				0.2	0.8	9.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.5	10.7	3.0	0.1	0.0				1.9	3.0	5.5
LnGrp Delay(d),s/veh	0.0	25.2	25.5	18.4	0.3	0.0				38.6	40.0	51.0
LnGrp LOS		C	C	B	A					D	D	D
Approach Vol, veh/h		969			1306						453	
Approach Delay, s/veh		25.4			3.0						44.0	
Approach LOS		C			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	31.8	49.0		19.2		80.8						
Change Period (Y+Rc), s	4.5	4.5		5.0		4.5						
Max Green Setting (Gmax), s	21.5	44.5		20.0		70.5						
Max Q Clear Time (g_c+I1), s	8.2	23.7		13.3		2.0						
Green Ext Time (p_c), s	8.7	6.8		0.9		19.7						
Intersection Summary												
HCM 2010 Ctrl Delay				17.7								
HCM 2010 LOS				B								
Notes												

HCM Signalized Intersection Capacity Analysis

2: 7th Ave NE & NE 50th St



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	320	491	0	0	690	367	580	180	300	0	0	0
Future Volume (vph)	320	491	0	0	690	367	580	180	300	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Lane Util. Factor	1.00	0.95			0.95	1.00	0.95	0.95	1.00			
Frbp, ped/bikes	1.00	1.00			1.00	0.87	1.00	1.00	0.98			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (prot)	1787	3574			3539	1381	1698	1741	1563			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (perm)	1787	3574			3539	1381	1698	1741	1563			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	333	511	0	0	719	382	604	188	312	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	105	0	0	218	0	0	0
Lane Group Flow (vph)	333	511	0	0	719	277	393	399	95	0	0	0
Confl. Peds. (#/hr)	24		22	22		24			6	6		
Confl. Bikes (#/hr)			2			1			1			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Prot	NA			NA	Perm	Split	NA	Perm			
Protected Phases	5	2			6		8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	21.9	60.5			34.1	34.1	30.5	30.5	30.5			
Effective Green, g (s)	21.9	60.5			34.1	34.1	30.5	30.5	30.5			
Actuated g/C Ratio	0.22	0.60			0.34	0.34	0.30	0.30	0.30			
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Vehicle Extension (s)	2.5	2.5			2.5	2.5	2.5	2.5	2.5			
Lane Grp Cap (vph)	391	2162			1206	470	517	531	476			
v/s Ratio Prot	c0.19	0.14			c0.20		c0.23	0.23				
v/s Ratio Perm						0.20			0.06			
v/c Ratio	0.85	0.24			0.60	0.59	0.76	0.75	0.20			
Uniform Delay, d1	37.5	9.1			27.3	27.2	31.4	31.3	25.7			
Progression Factor	1.30	0.64			0.98	1.17	1.00	1.00	1.00			
Incremental Delay, d2	14.6	0.2			2.0	4.8	10.1	9.4	0.9			
Delay (s)	63.4	6.0			28.7	36.7	41.5	40.8	26.7			
Level of Service	E	A			C	D	D	D	C			
Approach Delay (s)		28.7			31.4			37.1			0.0	
Approach LOS		C			C			D			A	

Intersection Summary

HCM 2000 Control Delay	32.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

















HCM 2010 Signalized Intersection Summary
 3: 9th Ave NE & NE 50th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	666	30	5	967	5	40	20	30	15	10	15
Future Volume (veh/h)	20	666	30	5	967	5	40	20	30	15	10	15
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	0.97		0.95	0.97		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1900	1900	1863	1900	1900	1792	1900	1900	1900	1900
Adj Flow Rate, veh/h	20	680	31	5	987	5	41	20	31	15	10	15
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	2	2	2	6	6	6	0	0	0
Cap, veh/h	65	1908	86	39	2063	10	246	122	160	221	151	193
Arrive On Green	0.19	0.19	0.19	0.58	0.58	0.58	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	46	3261	147	4	3526	18	587	369	486	519	457	585
Grp Volume(v), veh/h	377	0	354	522	0	475	92	0	0	40	0	0
Grp Sat Flow(s),veh/h/ln	1776	0	1677	1857	0	1691	1442	0	0	1561	0	0
Q Serve(g_s), s	0.0	0.0	18.3	0.0	0.0	16.2	1.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	17.3	0.0	18.3	16.2	0.0	16.2	4.2	0.0	0.0	1.6	0.0	0.0
Prop In Lane	0.05		0.09	0.01		0.01	0.45		0.34	0.37		0.37
Lane Grp Cap(c), veh/h	1077	0	981	1122	0	989	528	0	0	565	0	0
V/C Ratio(X)	0.35	0.00	0.36	0.46	0.00	0.48	0.17	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	1077	0	981	1122	0	989	528	0	0	565	0	0
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.7	0.0	24.1	12.0	0.0	12.0	23.8	0.0	0.0	23.0	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	1.0	1.4	0.0	1.7	0.7	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	0.0	8.8	8.7	0.0	8.0	1.9	0.0	0.0	0.8	0.0	0.0
LnGrp Delay(d),s/veh	24.6	0.0	25.2	13.3	0.0	13.6	24.5	0.0	0.0	23.2	0.0	0.0
LnGrp LOS	C		C	B		B	C			C		
Approach Vol, veh/h		731			997			92				40
Approach Delay, s/veh		24.9			13.5			24.5				23.2
Approach LOS		C			B			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		63.0		37.0		63.0		37.0				
Change Period (Y+Rc), s		4.5		4.0		4.5		4.0				
Max Green Setting (Gmax), s		58.5		33.0		58.5		33.0				
Max Q Clear Time (g_c+I1), s		18.2		6.2		20.3		3.6				
Green Ext Time (p_c), s		2.1		0.1		2.1		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				18.7								
HCM 2010 LOS				B								
















HCM 2010 Signalized Intersection Summary
4: Roosevelt Way NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour - New PL11 Access

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	625	96	110	877	0	0	0	0	121	910	110
Future Volume (veh/h)	0	625	96	110	877	0	0	0	0	121	910	110
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		1.00				1.00		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1900	1900	1900	0				1900	1881	1881
Adj Flow Rate, veh/h	0	644	99	113	904	0				125	938	113
Adj No. of Lanes	0	2	0	0	2	0				0	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	1	1	0	0	0				1	1	1
Cap, veh/h	0	1184	182	0	2004	0				146	1149	511
Arrive On Green	0.00	0.38	0.38	0.17	0.74	0.00				0.35	0.35	0.35
Sat Flow, veh/h	0	3171	472	0	3705	0				410	3238	1438
Grp Volume(v), veh/h	0	374	369	0	904	0				567	496	113
Grp Sat Flow(s),veh/h/ln	0	1787	1761	0	1805	0				1861	1787	1438
Q Serve(g_s), s	0.0	16.3	16.3	0.0	9.8	0.0				28.3	24.8	5.5
Cycle Q Clear(g_c), s	0.0	16.3	16.3	0.0	9.8	0.0				28.3	24.8	5.5
Prop In Lane	0.00		0.27	0.00		0.00				0.22		1.00
Lane Grp Cap(c), veh/h	0	688	678	0	2004	0				661	634	511
V/C Ratio(X)	0.00	0.54	0.54	0.00	0.45	0.00				0.86	0.78	0.22
Avail Cap(c_a), veh/h	0	688	678	0	2004	0				661	634	511
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	23.9	23.9	0.0	7.1	0.0				29.9	28.8	22.6
Incr Delay (d2), s/veh	0.0	3.1	3.1	0.0	0.7	0.0				13.7	9.3	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.6	8.5	0.0	4.9	0.0				17.0	13.7	2.3
LnGrp Delay(d),s/veh	0.0	27.0	27.1	0.0	7.8	0.0				43.6	38.0	23.6
LnGrp LOS		C	C		A					D	D	C
Approach Vol, veh/h		743			904						1176	
Approach Delay, s/veh		27.0			7.8						39.3	
Approach LOS		C			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		60.0			17.0	43.0		40.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		55.5			12.5	38.5		35.5				
Max Q Clear Time (g_c+I1), s		11.8			0.0	18.3		30.3				
Green Ext Time (p_c), s		1.4			0.0	0.8		0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			26.0									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
5: 11th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour - New PL11 Access

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	661	0	0	685	78	292	924	90	0	0	0
Future Volume (veh/h)	70	661	0	0	685	78	292	924	90	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.90	1.00		0.92			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1881	0	0	1881	1900	1900	1863	1900			
Adj Flow Rate, veh/h	74	703	0	0	729	83	311	983	96			
Adj No. of Lanes	0	2	0	0	2	0	0	2	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	1	1	0	0	1	1	0	2	0			
Cap, veh/h	44	837	0	0	1022	116	375	1250	127			
Arrive On Green	0.85	0.85	0.00	0.00	0.64	0.64	0.16	0.16	0.16			
Sat Flow, veh/h	1	2056	0	0	3286	363	774	2578	261			
Grp Volume(v), veh/h	368	409	0	0	408	404	733	0	657			
Grp Sat Flow(s),veh/h/ln	345	1627	0	0	1787	1768	1824	0	1788			
Q Serve(g_s), s	18.0	7.6	0.0	0.0	15.1	15.2	38.9	0.0	35.1			
Cycle Q Clear(g_c), s	18.0	7.6	0.0	0.0	15.1	15.2	38.9	0.0	35.1			
Prop In Lane	0.20		0.00	0.00		0.21	0.42		0.15			
Lane Grp Cap(c), veh/h	0	691	0	0	572	566	885	0	867			
V/C Ratio(X)	0.00	0.59	0.00	0.00	0.71	0.71	0.83	0.00	0.76			
Avail Cap(c_a), veh/h	0	691	0	0	572	566	885	0	867			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	4.9	0.0	0.0	15.0	15.0	38.0	0.0	36.4			
Incr Delay (d2), s/veh	0.0	3.7	0.0	0.0	7.4	7.5	8.8	0.0	6.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	3.9	0.0	0.0	8.4	8.4	21.9	0.0	18.9			
LnGrp Delay(d),s/veh	0.0	8.6	0.0	0.0	22.4	22.5	46.8	0.0	42.5			
LnGrp LOS		A			C	C	D		D			
Approach Vol, veh/h		777			812			1390				
Approach Delay, s/veh		4.5			22.4			44.8				
Approach LOS		A			C			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		36.5		53.0		47.0						
Change Period (Y+Rc), s		* 4.5		4.5		4.5						
Max Green Setting (Gmax), s		* 32		48.5		42.5						
Max Q Clear Time (g_c+I1), s		17.2		40.9		20.0						
Green Ext Time (p_c), s		0.9		1.5		1.1						
Intersection Summary												
HCM 2010 Ctrl Delay				28.2								
HCM 2010 LOS				C								
Notes												

HCM Signalized Intersection Capacity Analysis

6: Brooklyn Ave NE & NE 50th St



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	90	550	74	35	733	30	10	40	60	10	100	60
Future Volume (vph)	90	550	74	35	733	30	10	40	60	10	100	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.94			0.99			0.93			0.97	
Flpb, ped/bikes		0.99			0.99			1.00			0.99	
Frt		0.98			0.99			0.93			0.95	
Flt Protected		0.99			1.00			1.00			1.00	
Satd. Flow (prot)		3241			3408			1626			1713	
Flt Permitted		0.68			0.89			0.98			0.99	
Satd. Flow (perm)		2203			3047			1597			1696	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	94	573	77	36	764	31	10	42	62	10	104	62
RTOR Reduction (vph)	0	9	0	0	3	0	0	35	0	0	20	0
Lane Group Flow (vph)	0	735	0	0	828	0	0	80	0	0	157	0
Confl. Peds. (#/hr)	120		200	200		120	92		159	159		92
Confl. Bikes (#/hr)			1			3			14			1
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	0%	0%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		47.5			47.5			44.0			44.0	
Effective Green, g (s)		47.5			47.5			44.0			44.0	
Actuated g/C Ratio		0.48			0.48			0.44			0.44	
Clearance Time (s)		4.5			4.5			4.0			4.0	
Lane Grp Cap (vph)		1046			1447			702			746	
v/s Ratio Prot												
v/s Ratio Perm		c0.33			0.27			0.05			c0.09	
v/c Ratio		0.70			0.57			0.11			0.21	
Uniform Delay, d1		20.7			18.9			16.5			17.3	
Progression Factor		0.44			0.36			0.03			1.00	
Incremental Delay, d2		2.7			1.4			0.2			0.6	
Delay (s)		11.7			8.2			0.7			17.9	
Level of Service		B			A			A			B	
Approach Delay (s)		11.7			8.2			0.7			17.9	
Approach LOS		B			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	91.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

















HCM 2010 Signalized Intersection Summary
7: University Way NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour - New PL11 Access

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	438	52	50	681	20	47	130	45	45	95	80
Future Volume (veh/h)	160	438	52	50	681	20	47	130	45	45	95	80
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		0.80	0.91		0.80	0.90		0.82	0.89		0.84
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1845	1900	1900	1792	1900	1900	1743	1900
Adj Flow Rate, veh/h	170	466	55	53	724	21	50	138	48	48	101	85
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	3	3	3	6	6	6	9	9	9
Cap, veh/h	342	904	107	122	1577	45	143	370	120	129	255	194
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.78	0.78	0.39	0.39	0.39
Sat Flow, veh/h	544	1738	207	157	3032	87	254	948	307	220	654	499
Grp Volume(v), veh/h	265	0	426	401	0	397	236	0	0	234	0	0
Grp Sat Flow(s),veh/h/ln	889	0	1599	1637	0	1638	1509	0	0	1373	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	11.7	0.0	0.0
Prop In Lane	0.64		0.13	0.13		0.05	0.21		0.20	0.21		0.36
Lane Grp Cap(c), veh/h	521	0	832	892	0	852	632	0	0	579	0	0
V/C Ratio(X)	0.51	0.00	0.51	0.45	0.00	0.47	0.37	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	521	0	832	892	0	852	632	0	0	579	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	7.2	0.0	0.0	22.0	0.0	0.0
Incr Delay (d2), s/veh	3.5	0.0	2.2	1.6	0.0	1.8	1.7	0.0	0.0	2.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.5	0.4	0.0	0.4	2.3	0.0	0.0	5.0	0.0	0.0
LnGrp Delay(d),s/veh	3.5	0.0	2.2	1.6	0.0	1.8	8.9	0.0	0.0	24.1	0.0	0.0
LnGrp LOS	A		A	A		A	A			C		
Approach Vol, veh/h		691			798			236			234	
Approach Delay, s/veh		2.7			1.7			8.9			24.1	
Approach LOS		A			A			A			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		56.5		43.5		56.5		43.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		52.0		39.0		52.0		39.0				
Max Q Clear Time (g_c+I1), s		2.0		6.4		2.0		13.7				
Green Ext Time (p_c), s		2.5		0.7		2.5		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay				5.6								
HCM 2010 LOS				A								

HCM 2010 Signalized Intersection Summary
 8: 15th Ave NE & NE 50th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	338	85	35	416	35	270	655	45	15	355	25
Future Volume (veh/h)	95	338	85	35	416	35	270	655	45	15	355	25
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.74	0.99		0.84	0.99		0.92	0.98		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1900	1900	1881	1900	1900	1827	1900	1900	1845	1900
Adj Flow Rate, veh/h	100	356	89	37	438	37	284	689	47	16	374	26
Adj No. of Lanes	0	2	0	0	2	0	0	2	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	1	1	1	4	4	4	3	3	3
Cap, veh/h	164	593	160	87	982	85	451	1005	69	53	904	61
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	1.00	1.00	1.00	0.56	0.56	0.56
Sat Flow, veh/h	323	1669	452	129	2765	240	702	1811	125	29	1628	110
Grp Volume(v), veh/h	269	0	276	263	0	249	408	0	612	416	0	0
Grp Sat Flow(s),veh/h/ln	1046	0	1399	1517	0	1617	1010	0	1628	1767	0	0
Q Serve(g_s), s	13.9	0.0	15.8	0.8	0.0	11.8	2.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	25.7	0.0	15.8	16.7	0.0	11.8	15.7	0.0	0.0	13.2	0.0	0.0
Prop In Lane	0.37		0.32	0.14		0.15	0.70		0.08	0.04		0.06
Lane Grp Cap(c), veh/h	421	0	496	580	0	574	622	0	904	1018	0	0
V/C Ratio(X)	0.64	0.00	0.55	0.45	0.00	0.43	0.66	0.00	0.68	0.41	0.00	0.00
Avail Cap(c_a), veh/h	421	0	496	580	0	574	622	0	904	1018	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	30.5	0.0	25.9	24.3	0.0	24.6	0.2	0.0	0.0	12.8	0.0	0.0
Incr Delay (d2), s/veh	7.3	0.0	4.4	2.5	0.0	2.4	5.4	0.0	4.1	1.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	0.0	6.7	5.8	0.0	5.6	1.7	0.0	1.0	6.9	0.0	0.0
LnGrp Delay(d),s/veh	37.8	0.0	30.3	26.8	0.0	27.0	5.5	0.0	4.1	14.1	0.0	0.0
LnGrp LOS	D		C	C		C	A		A	B		
Approach Vol, veh/h		545			512			1020			416	
Approach Delay, s/veh		34.0			26.9			4.7			14.1	
Approach LOS		C			C			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.0		60.0		40.0		60.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		35.5		55.5		35.5		55.5				
Max Q Clear Time (g_c+I1), s		18.7		17.7		27.7		15.2				
Green Ext Time (p_c), s		6.7		14.2		4.1		14.5				
Intersection Summary												
HCM 2010 Ctrl Delay				17.2								
HCM 2010 LOS				B								

HCM Signalized Intersection Capacity Analysis

UW Master Plan EIS

9: 17th Ave NE & NE 50th St

Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕			↕↕	
Traffic Volume (vph)	20	383	115	25	334	10	227	80	20	15	80	30
Future Volume (vph)	20	383	115	25	334	10	227	80	20	15	80	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frbp, ped/bikes		0.96			1.00			0.99			0.96	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.99			0.97	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		3268			1835			1787			1738	
Flt Permitted		0.93			0.94			0.97			0.99	
Satd. Flow (perm)		3042			1732			1787			1738	
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)	22	421	126	27	367	11	249	88	22	16	88	33
RTOR Reduction (vph)	0	24	0	0	1	0	0	2	0	0	10	0
Lane Group Flow (vph)	0	545	0	0	404	0	0	357	0	0	127	0
Confl. Peds. (#/hr)	56		83	83		56	87		66	66		87
Confl. Bikes (#/hr)						2			42			4
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			2		4	4		3	3	
Permitted Phases	2			2								
Actuated Green, G (s)		42.0			42.0			33.5			21.5	
Effective Green, g (s)		42.0			42.0			33.5			21.5	
Actuated g/C Ratio		0.38			0.38			0.30			0.19	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			3.0			3.0	
Lane Grp Cap (vph)		1156			658			541			338	
v/s Ratio Prot								c0.20			c0.07	
v/s Ratio Perm		0.18			c0.23							
v/c Ratio		0.47			0.61			0.66			0.37	
Uniform Delay, d1		25.9			27.7			33.5			38.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.4			4.3			6.2			3.2	
Delay (s)		27.3			32.0			39.7			41.8	
Level of Service		C			C			D			D	
Approach Delay (s)		27.3			32.0			39.7			41.8	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	110.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	16.3
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	315	30	53	0	5	30	5	0	89	60	5
Future Vol, veh/h	0	315	30	53	0	5	30	5	0	89	60	5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	3	3	3	3	1	1	1	1
Mvmt Flow	0	354	34	60	0	6	34	6	0	100	67	6
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	20.4	9.9	11.7
HCM LOS	C	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	58%	79%	12%	2%
Vol Thru, %	39%	8%	75%	17%
Vol Right, %	3%	13%	12%	82%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	154	398	40	330
LT Vol	89	315	5	5
Through Vol	60	30	30	55
RT Vol	5	53	5	270
Lane Flow Rate	173	447	45	371
Geometry Grp	1	1	1	1
Degree of Util (X)	0.292	0.694	0.078	0.538
Departure Headway (Hd)	6.074	5.586	6.263	5.226
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	588	644	567	686
Service Time	4.149	3.637	4.353	3.288
HCM Lane V/C Ratio	0.294	0.694	0.079	0.541
HCM Control Delay	11.7	20.4	9.9	14.3
HCM Lane LOS	B	C	A	B
HCM 95th-tile Q	1.2	5.5	0.3	3.2

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	5	55	270
Future Vol, veh/h	0	5	55	270
Peak Hour Factor	0.89	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3
Mvmt Flow	0	6	62	303
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	14.3
HCM LOS	B

HCM Signalized Intersection Capacity Analysis
 11: Roosevelt Way NE & NE 47th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Traffic Volume (vph)	0	90	45	145	70	0	0	0	0	105	1036	35
Future Volume (vph)	0	90	45	145	70	0	0	0	0	105	1036	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0						4.5	
Lane Util. Factor		1.00			1.00						0.95	
Frbp, ped/bikes		0.96			1.00						0.99	
Flpb, ped/bikes		1.00			0.94						0.99	
Frt		0.95			1.00						1.00	
Flt Protected		1.00			0.97						1.00	
Satd. Flow (prot)		1742			1713						3452	
Flt Permitted		1.00			0.71						1.00	
Satd. Flow (perm)		1742			1259						3452	
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	96	48	154	74	0	0	0	0	112	1102	37
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	133	0	0	228	0	0	0	0	0	1247	0
Confl. Peds. (#/hr)	78		113	113		78	114		59	59		114
Confl. Bikes (#/hr)			6			23						11
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		14.7			14.7						25.8	
Effective Green, g (s)		14.7			14.7						25.8	
Actuated g/C Ratio		0.29			0.29						0.52	
Clearance Time (s)		5.0			5.0						4.5	
Vehicle Extension (s)		4.0			4.0						0.2	
Lane Grp Cap (vph)		512			370						1781	
v/s Ratio Prot		0.08										
v/s Ratio Perm					0.18						0.36	
v/c Ratio		0.26			0.62						0.70	
Uniform Delay, d1		13.5			15.2						9.2	
Progression Factor		1.00			0.88						0.93	
Incremental Delay, d2		0.4			2.4						1.3	
Delay (s)		13.9			15.8						9.9	
Level of Service		B			B						A	
Approach Delay (s)		13.9			15.8			0.0			9.9	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			11.0		HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			50.0		Sum of lost time (s)			9.5				
Intersection Capacity Utilization			74.9%		ICU Level of Service			D				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

12: 11th Ave NE & NE 47th St

UW Master Plan EIS

Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕				
Traffic Volume (vph)	0	135	0	0	160	180	50	1076	185	0	0	0
Future Volume (vph)	0	135	0	0	160	180	50	1076	185	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			0.93			0.98				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.93			0.98				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1900			1613			3405				
Flt Permitted		1.00			1.00			1.00				
Satd. Flow (perm)		1900			1613			3405				
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)	0	145	0	0	172	194	54	1157	199	0	0	0
RTOR Reduction (vph)	0	0	0	0	27	0	0	25	0	0	0	0
Lane Group Flow (vph)	0	145	0	0	339	0	0	1385	0	0	0	0
Confl. Peds. (#/hr)	89		93	93		89	44		48	48		44
Confl. Bikes (#/hr)			14			30			81			
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type		NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		13.2			13.2			26.8				
Effective Green, g (s)		13.2			13.2			26.8				
Actuated g/C Ratio		0.26			0.26			0.54				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.0			2.0			0.2				
Lane Grp Cap (vph)		501			425			1825				
v/s Ratio Prot		0.08			0.21							
v/s Ratio Perm								0.41				
v/c Ratio		0.29			0.80			0.76				
Uniform Delay, d1		14.7			17.2			9.1				
Progression Factor		1.02			1.02			1.18				
Incremental Delay, d2		0.1			9.3			2.0				
Delay (s)		15.1			26.7			12.7				
Level of Service		B			C			B				
Approach Delay (s)		15.1			26.7			12.7			0.0	
Approach LOS		B			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.6					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			50.0					Sum of lost time (s)		10.0		
Intersection Capacity Utilization			71.7%					ICU Level of Service		C		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

13: 15th Ave NE & NE 47th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	50	75	70	25	65	65	50	880	30	30	460	15
Future Volume (vph)	50	75	70	25	65	65	50	880	30	30	460	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frbp, ped/bikes		0.94			0.94			0.99			0.99	
Flpb, ped/bikes		0.97			0.98			0.99			1.00	
Frt		0.95			0.94			1.00			1.00	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1624			1607			3424			1755	
Flt Permitted		0.89			0.93			0.91			0.91	
Satd. Flow (perm)		1464			1513			3109			1606	
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)	54	81	75	27	70	70	54	946	32	32	495	16
RTOR Reduction (vph)	0	40	0	0	36	0	0	5	0	0	2	0
Lane Group Flow (vph)	0	170	0	0	131	0	0	1027	0	0	541	0
Confl. Peds. (#/hr)	140		146	146		140	175		131	131		175
Confl. Bikes (#/hr)			6			4			24			4
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	3%	3%	3%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		15.0			15.0			26.5			26.5	
Effective Green, g (s)		15.0			15.0			26.5			26.5	
Actuated g/C Ratio		0.30			0.30			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		439			453			1647			851	
v/s Ratio Prot												
v/s Ratio Perm		c0.12			0.09			0.33			c0.34	
v/c Ratio		0.39			0.29			0.62			0.64	
Uniform Delay, d1		13.9			13.4			8.2			8.3	
Progression Factor		1.39			1.00			0.92			0.68	
Incremental Delay, d2		2.2			1.6			0.2			3.3	
Delay (s)		21.4			15.0			7.8			9.0	
Level of Service		C			B			A			A	
Approach Delay (s)		21.4			15.0			7.8			9.0	
Approach LOS		C			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			10.2									B
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			50.0								8.5	
Intersection Capacity Utilization			77.3%									D
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

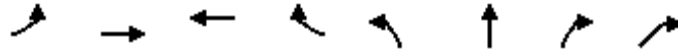
14: 5th Ave NE & NE 45th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑					↑	↑↑	
Traffic Volume (vph)	0	670	260	535	904	0	0	0	0	200	225	160
Future Volume (vph)	0	670	260	535	904	0	0	0	0	200	225	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5					5.0	5.0	
Lane Util. Factor		0.95		0.97	0.95					0.91	0.91	
Frbp, ped/bikes		0.96		1.00	1.00					1.00	0.97	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.96		1.00	1.00					1.00	0.94	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3278		3433	3539					1579	3042	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		3278		3433	3539					1579	3042	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	698	271	557	942	0	0	0	0	208	234	167
RTOR Reduction (vph)	0	43	0	0	0	0	0	0	0	0	88	0
Lane Group Flow (vph)	0	926	0	557	942	0	0	0	0	187	334	0
Confl. Peds. (#/hr)	128		138	138		128	35					35
Confl. Bikes (#/hr)			2			8						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type		NA		Prot	NA					Split	NA	
Protected Phases		2		1	6					4	4	
Permitted Phases												
Actuated Green, G (s)		34.2		30.8	69.5					21.0	21.0	
Effective Green, g (s)		34.2		30.8	69.5					21.0	21.0	
Actuated g/C Ratio		0.34		0.31	0.70					0.21	0.21	
Clearance Time (s)		4.5		4.5	4.5					5.0	5.0	
Vehicle Extension (s)		3.0		4.0	4.0					3.0	3.0	
Lane Grp Cap (vph)		1121		1057	2459					331	638	
v/s Ratio Prot		c0.28		c0.16	0.27					c0.12	0.11	
v/s Ratio Perm												
v/c Ratio		0.83		0.53	0.38					0.56	0.52	
Uniform Delay, d1		30.2		28.6	6.3					35.4	35.1	
Progression Factor		1.00		0.58	0.16					0.93	0.88	
Incremental Delay, d2		5.1		1.0	0.2					6.2	2.8	
Delay (s)		35.3		17.6	1.3					39.3	33.8	
Level of Service		D		B	A					D	C	
Approach Delay (s)		35.3			7.3			0.0			35.4	
Approach LOS		D			A			A			D	
Intersection Summary												
HCM 2000 Control Delay			21.7			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.65									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			14.0			
Intersection Capacity Utilization			77.1%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 15: 7th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	NER
Lane Configurations								
Traffic Volume (vph)	230	650	905	312	564	440	513	60
Future Volume (vph)	230	650	905	312	564	440	513	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5	4.5	3.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.91		1.00	0.99	0.96	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.96		1.00	0.98	0.85	0.86
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1736	3471	3051		3400	1706	1430	1596
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	1.00
Satd. Flow (perm)	1736	3471	3051		3400	1706	1430	1596
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	242	684	953	328	594	463	540	63
RTOR Reduction (vph)	0	0	34	0	0	6	80	0
Lane Group Flow (vph)	242	684	1247	0	594	533	384	63
Confl. Peds. (#/hr)	294			294	95		24	
Confl. Bikes (#/hr)				24				
Heavy Vehicles (%)	4%	4%	4%	4%	3%	3%	3%	3%
Turn Type	Prot	NA	NA		Split	NA	Perm	custom
Protected Phases	5	2	6		4	4		1
Permitted Phases							4	2
Actuated Green, G (s)	14.9	55.1	41.1		30.5	30.5	30.5	57.5
Effective Green, g (s)	14.9	55.1	41.1		30.5	30.5	30.5	57.5
Actuated g/C Ratio	0.15	0.55	0.41		0.30	0.30	0.30	0.58
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5	4.5	3.0
Vehicle Extension (s)	3.0	4.0	4.0		4.0	4.0	4.0	1.0
Lane Grp Cap (vph)	258	1912	1253		1037	520	436	917
v/s Ratio Prot	c0.14	0.20	c0.41		0.17	c0.31		0.00
v/s Ratio Perm							0.27	0.04
v/c Ratio	0.94	0.36	1.00		0.57	1.02	0.88	0.07
Uniform Delay, d1	42.1	12.6	29.3		29.3	34.8	33.0	9.4
Progression Factor	0.73	0.79	0.46		1.00	1.00	1.00	1.00
Incremental Delay, d2	31.5	0.4	22.6		2.3	45.8	21.7	0.0
Delay (s)	62.4	10.3	36.0		31.6	80.6	54.8	9.4
Level of Service	E	B	D		C	F	D	A
Approach Delay (s)		23.9	36.0			54.8		
Approach LOS		C	D			D		

Intersection Summary			
HCM 2000 Control Delay	40.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Int Delay, s/veh 2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑		↑
Traffic Vol, veh/h	1093	10	10	1207	5	95
Future Vol, veh/h	1093	10	10	1207	5	95
Conflicting Peds, #/hr	0	224	224	0	224	224
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	10	-	-	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	1175	11	11	1298	5	102

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	1410	2299
Stage 1	-	-	1405
Stage 2	-	-	894
Critical Hdwy	-	4.16	6.8
Critical Hdwy Stg 1	-	-	5.8
Critical Hdwy Stg 2	-	-	5.8
Follow-up Hdwy	-	2.23	3.5
Pot Cap-1 Maneuver	-	475	33
Stage 1	-	-	196
Stage 2	-	-	365
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	386	21
Mov Cap-2 Maneuver	-	-	102
Stage 1	-	-	159
Stage 2	-	-	288

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	67.2
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	152	-	-	386	-
HCM Lane V/C Ratio	0.672	-	-	0.028	-
HCM Control Delay (s)	67.2	-	-	14.6	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	3.8	-	-	0.1	-

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	95	1098	1192	30	5	25
Future Vol, veh/h	95	1098	1192	30	5	25
Conflicting Peds, #/hr	150	0	0	148	148	150
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	10	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	100	1156	1255	32	5	26

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1436	0	943
Stage 1	-	-	1421
Stage 2	-	-	926
Critical Hdwy	4.16	-	6.9
Critical Hdwy Stg 1	-	-	6.5
Critical Hdwy Stg 2	-	-	6.5
Follow-up Hdwy	2.23	-	3.3
Pot Cap-1 Maneuver	464	-	267
Stage 1	-	-	146
Stage 2	-	-	293
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	406	-	204
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	96
Stage 2	-	-	194

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	35.5
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	406	-	-	-	149
HCM Lane V/C Ratio	0.246	-	-	-	0.212
HCM Control Delay (s)	16.7	-	-	-	35.5
HCM Lane LOS	C	-	-	-	E
HCM 95th %tile Q(veh)	1	-	-	-	0.8

HCM Signalized Intersection Capacity Analysis
 18: Roosevelt Way NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access



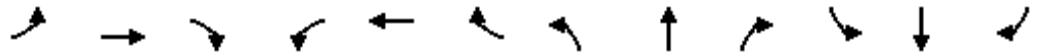
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑						↖↑	↖
Traffic Volume (vph)	0	877	241	307	1082	0	0	0	0	45	1036	135
Future Volume (vph)	0	877	241	307	1082	0	0	0	0	45	1036	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5						4.5	4.5
Lane Util. Factor		0.95		1.00	0.95						0.95	1.00
Frbp, ped/bikes		0.93		1.00	1.00						1.00	0.65
Flpb, ped/bikes		1.00		1.00	1.00						0.99	1.00
Frt		0.97		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						1.00	1.00
Satd. Flow (prot)		3161		1736	3471						3512	1037
Flt Permitted		1.00		0.11	1.00						1.00	1.00
Satd. Flow (perm)		3161		196	3471						3512	1037
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	914	251	320	1127	0	0	0	0	47	1079	141
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	0	0	0	43
Lane Group Flow (vph)	0	1140	0	320	1127	0	0	0	0	0	1126	98
Confl. Peds. (#/hr)	269		232	232		269	298		90	90		298
Confl. Bikes (#/hr)			2			17						35
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	0%	0%	0%	2%	2%	2%
Turn Type		NA		D.P+P	NA					Perm	NA	Perm
Protected Phases		2		3	2 3						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		37.2		53.2	57.7						33.3	33.3
Effective Green, g (s)		37.2		53.2	57.7						33.3	33.3
Actuated g/C Ratio		0.37		0.53	0.58						0.33	0.33
Clearance Time (s)		4.5		4.5							4.5	4.5
Vehicle Extension (s)		0.2		1.0							1.0	1.0
Lane Grp Cap (vph)		1175		350	2002						1169	345
v/s Ratio Prot		c0.36		c0.15	0.32							
v/s Ratio Perm				0.34							0.32	0.09
v/c Ratio		0.97		0.91	0.56						0.96	0.28
Uniform Delay, d1		30.9		27.8	13.3						32.7	24.6
Progression Factor		0.99		1.45	0.64						0.88	0.82
Incremental Delay, d2		18.1		21.9	0.2						14.8	0.1
Delay (s)		48.7		62.1	8.7						43.7	20.2
Level of Service		D		E	A						D	C
Approach Delay (s)		48.7			20.5			0.0			41.1	
Approach LOS		D			C			A			D	

Intersection Summary

HCM 2000 Control Delay	35.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

19: 11th Ave NE & NE 45th St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑		↖	↑↑	↗			
Traffic Volume (vph)	10	882	0	0	982	35	392	1211	261	0	0	0
Future Volume (vph)	10	882	0	0	982	35	392	1211	261	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5	4.5			
Lane Util. Factor		0.95			0.95		1.00	0.95	1.00			
Frbp, ped/bikes		1.00			0.99		1.00	1.00	0.77			
Flpb, ped/bikes		1.00			1.00		0.91	1.00	1.00			
Frt		1.00			0.99		1.00	1.00	0.85			
Flt Protected		1.00			1.00		0.95	1.00	1.00			
Satd. Flow (prot)		3503			3413		1623	3574	1237			
Flt Permitted		0.94			1.00		0.95	1.00	1.00			
Satd. Flow (perm)		3290			3413		1623	3574	1237			
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)	11	938	0	0	1045	37	417	1288	278	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	16	0	0	0
Lane Group Flow (vph)	0	949	0	0	1079	0	417	1288	262	0	0	0
Confl. Peds. (#/hr)	243		130	130		243	55		112	112		55
Confl. Bikes (#/hr)						16			93			
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		2			2			4				
Permitted Phases	2						4		4			
Actuated Green, G (s)		45.3			45.3		45.7	45.7	45.7			
Effective Green, g (s)		45.3			45.3		45.7	45.7	45.7			
Actuated g/C Ratio		0.45			0.45		0.46	0.46	0.46			
Clearance Time (s)		4.5			4.5		4.5	4.5	4.5			
Vehicle Extension (s)		0.2			0.2		2.0	2.0	2.0			
Lane Grp Cap (vph)		1490			1546		741	1633	565			
v/s Ratio Prot					c0.32			c0.36				
v/s Ratio Perm		0.29					0.26		0.21			
v/c Ratio		0.64			0.70		0.56	0.79	0.46			
Uniform Delay, d1		21.0			21.9		19.8	23.1	18.7			
Progression Factor		0.11			0.66		0.60	0.57	0.57			
Incremental Delay, d2		0.6			2.3		0.3	0.4	0.2			
Delay (s)		3.0			16.7		12.1	13.6	10.9			
Level of Service		A			B		B	B	B			
Approach Delay (s)		3.0			16.7			12.9			0.0	
Approach LOS		A			B			B			A	

Intersection Summary

HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

20: 12th Ave NE & NE 45th St

UW Master Plan EIS

Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1032	61	49	952	15	35	60	40	15	52	30
Future Volume (vph)	85	1032	61	49	952	15	35	60	40	15	52	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.0	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frbp, ped/bikes	1.00	0.96		1.00	0.99			0.94			0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98			0.98	
Frt	1.00	0.99		1.00	1.00			0.96			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1736	3315		1703	3367			1610			1596	
Flt Permitted	0.95	1.00		0.95	1.00			0.91			0.95	
Satd. Flow (perm)	1736	3315		1703	3367			1484			1533	
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)	90	1098	65	52	1013	16	37	64	43	16	55	32
RTOR Reduction (vph)	0	3	0	0	1	0	0	17	0	0	18	0
Lane Group Flow (vph)	90	1160	0	52	1028	0	0	127	0	0	85	0
Confl. Peds. (#/hr)	214		302	302		214	72		98	98		72
Confl. Bikes (#/hr)			2			9			30			3
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	3%	3%	3%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4			4		
Actuated Green, G (s)	10.2	65.3		5.1	59.7			16.6			16.6	
Effective Green, g (s)	10.2	65.3		5.1	59.7			16.6			16.6	
Actuated g/C Ratio	0.10	0.65		0.05	0.60			0.17			0.17	
Clearance Time (s)	4.5	4.5		4.0	4.5			4.5			4.5	
Vehicle Extension (s)	0.5	0.2		0.5	0.2			1.0			1.0	
Lane Grp Cap (vph)	177	2164		86	2010			246			254	
v/s Ratio Prot	c0.05	c0.35		0.03	0.31							
v/s Ratio Perm								c0.09			0.06	
v/c Ratio	0.51	0.54		0.60	0.51			0.52			0.34	
Uniform Delay, d1	42.5	9.3		46.5	11.7			38.0			36.8	
Progression Factor	0.76	0.37		0.82	0.59			1.00			1.00	
Incremental Delay, d2	0.7	0.8		6.8	0.8			0.8			0.3	
Delay (s)	33.2	4.2		44.8	7.6			38.8			37.1	
Level of Service	C	A		D	A			D			D	
Approach Delay (s)		6.3			9.4			38.8			37.1	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

UW Master Plan EIS

21: Brooklyn Ave NE & NE 45th St

Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	957	40	45	876	15	65	5	10	50	19	155
Future Volume (vph)	120	957	40	45	876	15	65	5	10	50	19	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5			4.5			4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95			0.95			1.00	1.00		1.00	1.00
Frbp, ped/bikes	1.00	0.96			0.99			1.00	0.68		1.00	0.74
Flpb, ped/bikes	1.00	1.00			0.99			0.79	1.00		0.80	1.00
Frt	1.00	0.99			1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00			1.00			0.96	1.00		0.96	1.00
Satd. Flow (prot)	1736	3324			3360			1428	1104		1453	1179
Flt Permitted	0.95	1.00			0.84			0.69	1.00		0.75	1.00
Satd. Flow (perm)	1736	3324			2831			1028	1104		1131	1179
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)	128	1018	43	48	932	16	69	5	11	53	20	165
RTOR Reduction (vph)	0	3	0	0	1	0	0	0	9	0	0	136
Lane Group Flow (vph)	128	1058	0	0	995	0	0	74	2	0	73	29
Confl. Peds. (#/hr)	337		693	693		337	152		193	193		152
Confl. Bikes (#/hr)			9			12			9			3
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			4			4	
Permitted Phases				6			4		4	4		4
Actuated Green, G (s)	9.0	75.2			62.2			15.8	15.8		15.8	15.8
Effective Green, g (s)	9.0	75.2			62.2			15.8	15.8		15.8	15.8
Actuated g/C Ratio	0.09	0.75			0.62			0.16	0.16		0.16	0.16
Clearance Time (s)	4.0	4.5			4.5			4.5	4.5		4.5	4.5
Vehicle Extension (s)	0.5	0.2			0.2			1.0	1.0		1.0	1.0
Lane Grp Cap (vph)	156	2499			1760			162	174		178	186
v/s Ratio Prot	c0.07	0.32										
v/s Ratio Perm					c0.35			c0.07	0.00		0.06	0.02
v/c Ratio	0.82	0.42			0.57			0.46	0.01		0.41	0.16
Uniform Delay, d1	44.7	4.5			11.0			38.2	35.5		37.9	36.4
Progression Factor	0.89	0.19			0.47			1.00	1.00		1.12	1.59
Incremental Delay, d2	24.0	0.5			1.2			0.7	0.0		0.5	0.1
Delay (s)	64.0	1.3			6.4			39.0	35.5		42.9	58.0
Level of Service	E	A			A			D	D		D	E
Approach Delay (s)		8.1			6.4			38.5			53.4	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	80.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

22: University Way NE & NE 45th St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour - New PL11 Access























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↓			↑↓	
Traffic Volume (vph)	5	852	90	5	818	40	33	137	92	5	162	55
Future Volume (vph)	5	852	90	5	818	40	33	137	92	5	162	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.92			0.96			0.84			0.88	
Flpb, ped/bikes		1.00			1.00			0.97			1.00	
Frt		0.99			0.99			0.95			0.97	
Flt Protected		1.00			1.00			0.99			1.00	
Satd. Flow (prot)		3135			3415			1366			1523	
Flt Permitted		0.95			0.95			0.93			0.99	
Satd. Flow (perm)		2983			3248			1285			1515	
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)	5	906	96	5	870	43	35	146	98	5	172	59
RTOR Reduction (vph)	0	1	0	0	2	0	0	2	0	0	4	0
Lane Group Flow (vph)	0	1006	0	0	916	0	0	277	0	0	232	0
Confl. Peds. (#/hr)	493		608	608		493	754		597	597		754
Confl. Bikes (#/hr)			1			7			71			20
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	7%	7%	7%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		64.6			64.6			26.4			26.4	
Effective Green, g (s)		64.6			64.6			26.4			26.4	
Actuated g/C Ratio		0.65			0.65			0.26			0.26	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			1.0			1.0	
Lane Grp Cap (vph)		1927			2098			339			399	
v/s Ratio Prot												
v/s Ratio Perm		c0.34			0.28			c0.22			0.15	
v/c Ratio		0.52			0.44			0.82			0.58	
Uniform Delay, d1		9.5			8.7			34.5			32.0	
Progression Factor		0.92			0.82			0.90			1.04	
Incremental Delay, d2		0.9			0.6			12.8			1.3	
Delay (s)		9.7			7.7			43.9			34.5	
Level of Service		A			A			D			C	
Approach Delay (s)		9.7			7.7			43.9			34.5	
Approach LOS		A			A			D			C	

Intersection Summary

HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
 23: 15th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	740	134	149	730	90	45	805	192	95	485	40
Future Volume (veh/h)	85	740	134	149	730	90	45	805	192	95	485	40
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.80	1.00		0.83	1.00		0.79	1.00		0.83
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1810	1810	1900	1776	1776	1900	1810	1810	1900
Adj Flow Rate, veh/h	89	771	140	155	760	94	47	839	200	99	505	42
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	5	5	5	7	7	7	5	5	5
Cap, veh/h	245	1019	185	341	1245	154	62	728	173	121	1022	84
Arrive On Green	0.28	0.71	0.71	0.40	0.83	0.83	0.07	0.57	0.57	0.14	0.65	0.65
Sat Flow, veh/h	1774	2870	521	1723	3001	371	1691	2553	608	1723	3159	261
Grp Volume(v), veh/h	89	475	436	155	435	419	47	554	485	99	273	274
Grp Sat Flow(s),veh/h/ln	1774	1770	1621	1723	1719	1653	1691	1687	1475	1723	1719	1701
Q Serve(g_s), s	4.0	16.8	16.8	6.6	8.7	8.7	2.7	28.5	28.5	5.6	8.2	8.4
Cycle Q Clear(g_c), s	4.0	16.8	16.8	6.6	8.7	8.7	2.7	28.5	28.5	5.6	8.2	8.4
Prop In Lane	1.00		0.32	1.00		0.22	1.00		0.41	1.00		0.15
Lane Grp Cap(c), veh/h	245	628	576	341	713	686	62	481	420	121	556	550
V/C Ratio(X)	0.36	0.76	0.76	0.45	0.61	0.61	0.76	1.15	1.15	0.82	0.49	0.50
Avail Cap(c_a), veh/h	245	628	576	341	713	686	169	481	420	121	556	550
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	0.84	0.84	0.84	0.84	0.84	0.84	0.73	0.73	0.73	0.73	0.73	0.73
Uniform Delay (d), s/veh	32.7	11.8	11.8	26.2	5.7	5.7	45.9	21.5	21.5	42.4	13.4	13.4
Incr Delay (d2), s/veh	0.3	7.0	7.7	0.3	3.2	3.4	5.2	85.4	87.7	25.4	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	9.1	8.5	3.1	4.5	4.4	1.4	24.2	21.4	3.5	3.8	3.8
LnGrp Delay(d),s/veh	33.0	18.8	19.4	26.5	8.9	9.1	51.2	106.9	109.2	67.8	13.6	13.6
LnGrp LOS	C	B	B	C	A	A	D	F	F	E	B	B
Approach Vol, veh/h		1000			1009			1086			646	
Approach Delay, s/veh		20.4			11.7			105.5			21.9	
Approach LOS		C			B			F			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	17.8	46.0	11.5	33.0	23.8	40.0	7.6	36.9				
Change Period (Y+Rc), s	4.0	4.5	4.5	* 4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	6.0	41.5	7.0	* 29	12.0	35.5	10.0	25.5				
Max Q Clear Time (g_c+I1), s	6.0	10.7	7.6	30.5	8.6	18.8	4.7	10.4				
Green Ext Time (p_c), s	0.0	2.1	0.0	0.0	0.0	2.2	0.0	1.1				
Intersection Summary												
HCM 2010 Ctrl Delay			43.0									
HCM 2010 LOS			D									
Notes												

HCM Signalized Intersection Capacity Analysis
 24: Memorial Way NE/17th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↗	↗		↗	↖
Traffic Volume (vph)	20	752	275	55	771	50	178	177	46	45	95	25
Future Volume (vph)	20	752	275	55	771	50	178	177	46	45	95	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frbp, ped/bikes	1.00	0.93		1.00	0.97		1.00	1.00	0.55		0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85		0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1752	3119		1770	3394		1770	1863	863		1716	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (perm)	1752	3119		1770	3394		1770	1863	863		1716	
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)	22	809	296	59	829	54	191	190	49	48	102	27
RTOR Reduction (vph)	0	33	0	0	4	0	0	0	42	0	7	0
Lane Group Flow (vph)	22	1072	0	59	879	0	191	190	7	0	170	0
Confl. Peds. (#/hr)	218		185	185		218	329		437	437		329
Confl. Bikes (#/hr)			2			3			75			10
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases									4			
Actuated Green, G (s)	2.1	48.6		5.4	51.9		14.2	14.2	14.2		15.3	
Effective Green, g (s)	2.1	48.6		5.4	51.9		14.2	14.2	14.2		15.3	
Actuated g/C Ratio	0.02	0.49		0.05	0.52		0.14	0.14	0.14		0.15	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.0	4.0		4.0	
Vehicle Extension (s)	1.0	0.2		1.0	0.2		0.5	0.5	0.5		2.0	
Lane Grp Cap (vph)	36	1515		95	1761		251	264	122		262	
v/s Ratio Prot	0.01	c0.34		c0.03	c0.26		c0.11	0.10			c0.10	
v/s Ratio Perm									0.01			
v/c Ratio	0.61	0.71		0.62	0.50		0.76	0.72	0.06		0.65	
Uniform Delay, d1	48.5	20.1		46.3	15.6		41.3	41.0	37.1		39.8	
Progression Factor	1.21	0.29		1.46	0.14		1.00	1.00	1.00		1.00	
Incremental Delay, d2	11.6	1.6		8.3	1.0		11.5	7.6	0.1		4.1	
Delay (s)	70.5	7.5		76.0	3.2		52.8	48.6	37.2		44.0	
Level of Service	E	A		E	A		D	D	D		D	
Approach Delay (s)		8.7			7.8			49.2			44.0	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	17.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

25: NE 45th St & 18th Ave NE

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Volume (vph)	0	893	876	0	15	25
Future Volume (vph)	0	893	876	0	15	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.0	
Lane Util. Factor		0.95	0.95		1.00	
Frbp, ped/bikes		1.00	1.00		0.86	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	1.00		0.92	
Flt Protected		1.00	1.00		0.98	
Satd. Flow (prot)		3574	3539		1470	
Flt Permitted		1.00	1.00		0.98	
Satd. Flow (perm)		3574	3539		1470	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	971	952	0	16	27
RTOR Reduction (vph)	0	0	0	0	22	0
Lane Group Flow (vph)	0	971	952	0	21	0
Confl. Peds. (#/hr)	209			209	123	121
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	1%	1%	2%	2%	0%	0%
Turn Type		NA	NA		Prot	
Protected Phases		2	2		4	
Permitted Phases						
Actuated Green, G (s)		74.5	74.5		17.0	
Effective Green, g (s)		74.5	74.5		17.0	
Actuated g/C Ratio		0.74	0.74		0.17	
Clearance Time (s)		4.5	4.5		4.0	
Vehicle Extension (s)		0.2	0.2		1.0	
Lane Grp Cap (vph)		2662	2636		249	
v/s Ratio Prot		c0.27	0.27		c0.01	
v/s Ratio Perm						
v/c Ratio		0.36	0.36		0.08	
Uniform Delay, d1		4.5	4.4		34.9	
Progression Factor		0.42	0.14		1.00	
Incremental Delay, d2		0.3	0.3		0.1	
Delay (s)		2.2	1.0		35.0	
Level of Service		A	A		C	
Approach Delay (s)		2.2	1.0		35.0	
Approach LOS		A	A		C	
Intersection Summary						
HCM 2000 Control Delay			2.3		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.31			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	8.5
Intersection Capacity Utilization			49.3%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

26: NE 45th St & 19th Ave NE

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	25	873	881	35	0	0
Future Volume (vph)	25	873	881	35	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.5			
Lane Util. Factor	1.00	1.00	0.95			
Frpb, ped/bikes	1.00	1.00	0.98			
Flpb, ped/bikes	1.00	1.00	1.00			
Frt	1.00	1.00	0.99			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1787	1881	3446			
Flt Permitted	0.19	1.00	1.00			
Satd. Flow (perm)	361	1881	3446			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	949	958	38	0	0
RTOR Reduction (vph)	0	0	3	0	0	0
Lane Group Flow (vph)	27	949	993	0	0	0
Confl. Peds. (#/hr)	144			144	305	125
Confl. Bikes (#/hr)				8		1
Heavy Vehicles (%)	1%	1%	2%	2%	0%	0%
Turn Type	pm+pt	NA	NA			
Protected Phases	1	1 2	2			
Permitted Phases	1 2					
Actuated Green, G (s)	71.5	76.0	49.2			
Effective Green, g (s)	71.5	71.5	49.2			
Actuated g/C Ratio	0.72	0.72	0.49			
Clearance Time (s)	3.0		4.5			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	576	1344	1695			
v/s Ratio Prot	0.01	c0.50	0.29			
v/s Ratio Perm	0.02					
v/c Ratio	0.05	0.71	0.59			
Uniform Delay, d1	10.6	8.2	18.1			
Progression Factor	0.37	1.12	0.33			
Incremental Delay, d2	0.0	1.6	1.3			
Delay (s)	4.0	10.8	7.3			
Level of Service	A	B	A			
Approach Delay (s)		10.6	7.3		0.0	
Approach LOS		B	A		A	
Intersection Summary						
HCM 2000 Control Delay			8.9		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.56			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	10.5
Intersection Capacity Utilization			49.3%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

27: NE 45th St & 20th Ave NE

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	35	828	891	84	33	30
Future Volume (vph)	35	828	891	84	33	30
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.5		4.0	
Lane Util. Factor	1.00	1.00	0.95		1.00	
Frbp, ped/bikes	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.94	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1787	1881	3487		1702	
Flt Permitted	0.21	1.00	1.00		0.97	
Satd. Flow (perm)	386	1881	3487		1702	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	38	890	958	90	35	32
RTOR Reduction (vph)	0	0	0	0	27	0
Lane Group Flow (vph)	38	890	1048	0	40	0
Confl. Bikes (#/hr)				2		3
Heavy Vehicles (%)	1%	1%	2%	2%	1%	1%
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	1	1 2	2		4	
Permitted Phases	1 2					
Actuated Green, G (s)	71.5	76.0	57.4		17.0	
Effective Green, g (s)	71.5	71.5	57.4		17.0	
Actuated g/C Ratio	0.72	0.72	0.57		0.17	
Clearance Time (s)	3.0		4.5		4.0	
Vehicle Extension (s)	1.0		0.2		1.0	
Lane Grp Cap (vph)	473	1344	2001		289	
v/s Ratio Prot	0.01	c0.47	0.30		c0.02	
v/s Ratio Perm	0.05					
v/c Ratio	0.08	0.66	0.52		0.14	
Uniform Delay, d1	9.9	7.7	13.0		35.3	
Progression Factor	0.79	0.51	1.00		1.00	
Incremental Delay, d2	0.0	0.8	1.0		0.1	
Delay (s)	7.9	4.7	14.0		35.4	
Level of Service	A	A	B		D	
Approach Delay (s)		4.8	14.0		35.4	
Approach LOS		A	B		D	

Intersection Summary

HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Montlake Blvd NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↖↗	↑	↖	↗
Traffic Volume (vph)	548	23	589	736	139	1527
Future Volume (vph)	548	23	589	736	139	1527
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	0.88
Frpb, ped/bikes	1.00	0.89	1.00	1.00	1.00	1.00
Flpb, ped/bikes	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)	3574	1419	3400	1845	1770	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3574	1419	3400	1845	1770	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	583	24	627	783	148	1624
RTOR Reduction (vph)	0	4	0	0	0	7
Lane Group Flow (vph)	583	20	627	783	148	1617
Confl. Peds. (#/hr)		46	46			
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	1%	1%	3%	3%	2%	2%
Turn Type	NA	Perm	Split	NA	Prot	pt+ov
Protected Phases	3		1	1	2	1 2
Permitted Phases		3				
Actuated Green, G (s)	28.0	28.0	76.5	76.5	22.0	103.0
Effective Green, g (s)	28.0	28.0	76.5	76.5	22.0	103.0
Actuated g/C Ratio	0.20	0.20	0.55	0.55	0.16	0.74
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.5	3.5	0.2	0.2	3.0	
Lane Grp Cap (vph)	714	283	1857	1008	278	2050
v/s Ratio Prot	c0.16		0.18	0.42	0.08	c0.58
v/s Ratio Perm		0.01				
v/c Ratio	0.82	0.07	0.34	0.78	0.53	0.79
Uniform Delay, d1	53.5	45.4	17.7	25.0	54.3	11.6
Progression Factor	1.00	1.00	0.32	0.55	1.07	0.78
Incremental Delay, d2	7.4	0.1	0.3	3.8	1.7	1.8
Delay (s)	60.9	45.6	5.9	17.5	59.6	10.9
Level of Service	E	D	A	B	E	B
Approach Delay (s)	60.3			12.3	14.9	
Approach LOS	E			B	B	

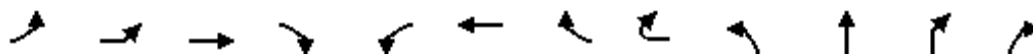
Intersection Summary

HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

29: Union Bay PI NE & NE 45th St & NE 45th PI

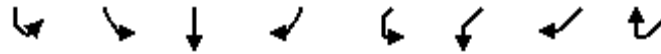
UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations												
Traffic Volume (vph)	35	290	1200	240	30	870	120	25	190	105	35	36
Future Volume (vph)	35	290	1200	240	30	870	120	25	190	105	35	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.86		0.86	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	0.92	1.00	0.99		0.95	1.00	1.00	0.92	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	1.00	0.98		0.85	1.00	1.00	0.85	
Flt Protected	0.95	0.95	1.00	1.00	0.95	1.00		1.00	0.95	0.99	1.00	
Satd. Flow (prot)	1752	1752	3505	1446	1736	4571		1263	1698	1760	1474	
Flt Permitted	0.95	0.11	1.00	1.00	0.12	1.00		1.00	0.95	0.99	1.00	
Satd. Flow (perm)	1752	196	3505	1446	227	4571		1263	1698	1760	1474	
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)	36	299	1237	247	31	897	124	26	196	108	36	37
RTOR Reduction (vph)	0	0	0	85	0	0	0	18	0	0	61	0
Lane Group Flow (vph)	36	299	1237	162	31	1024	0	5	149	155	12	0
Confl. Peds. (#/hr)	19	19		16	16		19	19	35		19	18
Confl. Bikes (#/hr)				3				1				4
Heavy Vehicles (%)	3%	3%	3%	3%	4%	4%	4%	4%	1%	1%	1%	1%
Turn Type	Prot	pm+pt	NA	Perm	Perm	NA		Perm	Split	NA	Perm	
Protected Phases	1	1 9	6			2			4	4		
Permitted Phases		6		6	2			2			4	
Actuated Green, G (s)	14.7	61.7	52.4	52.4	32.2	32.2		32.2	22.1	22.1	22.1	
Effective Green, g (s)	14.7	61.7	52.4	52.4	32.2	32.2		32.2	22.1	22.1	22.1	
Actuated g/C Ratio	0.10	0.44	0.37	0.37	0.23	0.23		0.23	0.16	0.16	0.16	
Clearance Time (s)	5.5		5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	
Vehicle Extension (s)	2.5		2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	183	353	1311	541	52	1051		290	268	277	232	
v/s Ratio Prot	0.02	c0.15	c0.35			0.22			0.09	c0.09		
v/s Ratio Perm		0.23		0.11	0.14			0.00			0.01	
v/c Ratio	0.20	0.85	0.94	0.30	0.60	0.97		0.02	0.56	0.56	0.05	
Uniform Delay, d1	57.3	39.3	42.4	30.9	48.1	53.5		41.7	54.4	54.5	50.0	
Progression Factor	0.94	0.90	0.88	0.80	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	10.8	9.9	0.9	41.6	22.2		0.1	1.4	1.4	0.0	
Delay (s)	54.2	46.1	47.3	25.5	89.7	75.7		41.8	55.8	55.8	50.1	
Level of Service	D	D	D	C	F	E		D	E	E	D	
Approach Delay (s)			44.3			75.4				54.7		
Approach LOS			D			E				D		
Intersection Summary												
HCM 2000 Control Delay			56.5			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			31.5			
Intersection Capacity Utilization			85.7%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 29: Union Bay PI NE & NE 45th St & NE 45th PI

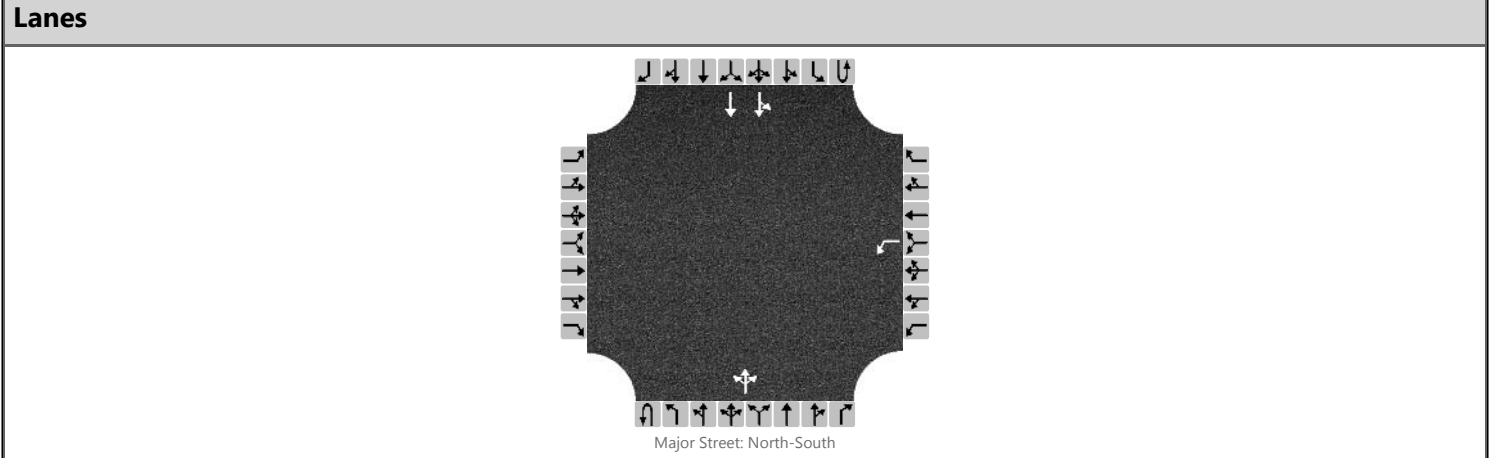
UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Traffic Volume (vph)	30	165	85	35	25	40	180	15
Future Volume (vph)	30	165	85	35	25	40	180	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5			5.5	5.5	
Lane Util. Factor		0.95	0.95			1.00	0.88	
Frbp, ped/bikes		1.00	0.99			1.00	1.00	
Flpb, ped/bikes		1.00	1.00			1.00	1.00	
Frt		1.00	0.97			1.00	0.85	
Flt Protected		0.95	0.99			0.95	1.00	
Satd. Flow (prot)		1698	1682			1787	2814	
Flt Permitted		0.95	0.99			0.95	1.00	
Satd. Flow (perm)		1698	1682			1787	2814	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	31	170	88	36	26	41	186	15
RTOR Reduction (vph)	0	0	7	0	0	0	127	0
Lane Group Flow (vph)	0	162	156	0	0	67	74	0
Confl. Peds. (#/hr)	18	19		35	18	16	35	19
Confl. Bikes (#/hr)				1			1	1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split	Split	NA		Prot	Prot	Prot	
Protected Phases	3	3	3		7	7	8	
Permitted Phases								
Actuated Green, G (s)		23.8	23.8			6.4	19.7	
Effective Green, g (s)		23.8	23.8			6.4	19.7	
Actuated g/C Ratio		0.17	0.17			0.05	0.14	
Clearance Time (s)		5.5	5.5			5.5	5.5	
Vehicle Extension (s)		2.0	2.0			2.5	2.5	
Lane Grp Cap (vph)		288	285			81	395	
v/s Ratio Prot		c0.10	0.09			c0.04	0.03	
v/s Ratio Perm								
v/c Ratio		0.56	0.55			0.83	0.19	
Uniform Delay, d1		53.3	53.2			66.3	53.1	
Progression Factor		1.00	1.00			1.00	1.00	
Incremental Delay, d2		1.5	1.1			46.4	0.2	
Delay (s)		54.8	54.3			112.6	53.2	
Level of Service		D	D			F	D	
Approach Delay (s)			54.6			68.1		
Approach LOS			D			E		
Intersection Summary								

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Transpo	Intersection	Roosevelt Way & 43rd St
Agency/Co.		Jurisdiction	Seattle
Date Performed	3/17/2017	East/West Street	NE 43rd St (east)
Analysis Year	2015	North/South Street	Roosevelt Way NE
Time Analyzed	PM Peak Hour	Peak Hour Factor	0.91
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	UW Master Plan EIS, Alternative 3 (2028) PM Peak		



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	0	0	0	1	0	0	0	2	0
Configuration						L					LTR			LT	T	
Volume, V (veh/h)						205				0	0	0		67	1617	
Percent Heavy Vehicles (%)						6				3				1		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.5				4.1				4.1		
Critical Headway (sec)						6.92				4.16				4.12		
Base Follow-Up Headway (sec)						3.5				2.2				2.2		
Follow-Up Headway (sec)						3.56				2.23				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						225				0				74		
Capacity, c (veh/h)						150				342				1241		
v/c Ratio						1.50				0.00				0.06		
95% Queue Length, Q ₉₅ (veh)						45.0				0.0				0.2		
Control Delay (s/veh)						994.5				15.5				8.1		
Level of Service, LOS						F				C				A		
Approach Delay (s/veh)					994.5								17.0			
Approach LOS					F											

Intersection

Int Delay, s/veh 3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔					↕↕
Traffic Vol, veh/h	205	0	0	0	67	1617
Future Vol, veh/h	205	0	0	0	67	1617
Conflicting Peds, #/hr	75	153	0	75	153	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	6	6	0	0	1	1
Mvmt Flow	225	0	0	0	74	1777

Major/Minor

	Minor1	Minor2	Major2
Conflicting Flow All	1264	-	153
Stage 1	153	-	-
Stage 2	1111	-	-
Critical Hdwy	6.92	-	4.12
Critical Hdwy Stg 1	-	-	-
Critical Hdwy Stg 2	5.92	-	-
Follow-up Hdwy	3.56	-	2.21
Pot Cap-1 Maneuver	~ 156	0	1433
Stage 1	-	0	-
Stage 2	268	0	-
Platoon blocked, %			-
Mov Cap-1 Maneuver	0	-	1433
Mov Cap-2 Maneuver	0	-	-
Stage 1	-	-	-
Stage 2	0	-	-

Approach

WB SB
 HCM Control Delay, s 3.7
 HCM LOS -

Minor Lane/Major Mvmt

	WBLn1	SBL	SBT
Capacity (veh/h)	-	1433	-
HCM Lane V/C Ratio	-	0.051	-
HCM Control Delay (s)	-	7.6	3.5
HCM Lane LOS	-	A	A
HCM 95th %tile Q(veh)	-	0.2	-

Notes

-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 4.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	69	0	0	1777	40
Future Vol, veh/h	0	69	0	0	1777	40
Conflicting Peds, #/hr	277	151	151	0	0	277
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	0	0	2	2
Mvmt Flow	0	75	0	0	1932	43

Major/Minor

	Minor2	Major2
Conflicting Flow All	-	1416
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	6.94
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	3.32
Pot Cap-1 Maneuver	0	127
Stage 1	0	-
Stage 2	0	-
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	98
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach
















	EB	SB
HCM Control Delay, s	113.2	0
HCM LOS	F	

Minor Lane/Major Mvmt

	EBLn1	SBT	SBR
Capacity (veh/h)	98	-	-
HCM Lane V/C Ratio	0.765	-	-
HCM Control Delay (s)	113.2	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	4.1	-	-

HCM 2010 Signalized Intersection Summary
 32: 11th Ave NE & NE 43rd St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	57	0	0	170	25	20	1644	25	0	0	0
Future Volume (veh/h)	45	57	0	0	170	25	20	1644	25	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	0.94		1.00	1.00		0.90	1.00		0.84			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1776	1900	1900	1863	1900			
Adj Flow Rate, veh/h	49	62	0	0	185	27	22	1787	27			
Adj No. of Lanes	0	1	0	0	1	0	0	2	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	0	0	0	7	7	0	2	0			
Cap, veh/h	341	396	0	0	626	91	17	1477	23			
Arrive On Green	0.42	0.42	0.00	0.00	0.84	0.84	0.14	0.14	0.14			
Sat Flow, veh/h	564	942	0	0	1492	218	43	3601	57			
Grp Volume(v), veh/h	111	0	0	0	0	212	962	0	874			
Grp Sat Flow(s),veh/h/ln	1506	0	0	0	0	1709	1861	0	1840			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	1.3	20.5	0.0	20.5			
Cycle Q Clear(g_c), s	1.8	0.0	0.0	0.0	0.0	1.3	20.5	0.0	20.5			
Prop In Lane	0.44		0.00	0.00		0.13	0.02		0.03			
Lane Grp Cap(c), veh/h	736	0	0	0	0	718	763	0	754			
V/C Ratio(X)	0.15	0.00	0.00	0.00	0.00	0.30	1.26	0.00	1.16			
Avail Cap(c_a), veh/h	736	0	0	0	0	718	763	0	754			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	2.00	2.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	8.9	0.0	0.0	0.0	0.0	2.4	21.6	0.0	21.6			
Incr Delay (d2), s/veh	0.4	0.0	0.0	0.0	0.0	1.0	128.1	0.0	85.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.0	0.0	0.7	37.7	0.0	28.4			
LnGrp Delay(d),s/veh	9.4	0.0	0.0	0.0	0.0	3.5	149.8	0.0	107.3			
LnGrp LOS	A					A	F		F			
Approach Vol, veh/h		111			212			1836				
Approach Delay, s/veh		9.4			3.5			129.5				
Approach LOS		A			A			F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		25.0		25.0				25.0				
Change Period (Y+Rc), s		4.5		4.0				4.0				
Max Green Setting (Gmax), s		20.5		21.0				21.0				
Max Q Clear Time (g_c+I1), s		22.5		3.8				3.3				
Green Ext Time (p_c), s		0.0		1.2				1.2				
Intersection Summary												
HCM 2010 Ctrl Delay				111.0								
HCM 2010 LOS				F								

HCM Signalized Intersection Capacity Analysis

33: University Way NE & NE 43rd St



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	20	25	7	40	20	50	5	202	55	45	202	5
Future Volume (vph)	20	25	7	40	20	50	5	202	55	45	202	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.93			0.85			0.87			0.99	
Flpb, ped/bikes		0.90			0.83			0.99			0.93	
Frt		0.98			0.94			0.97			1.00	
Flt Protected		0.98			0.98			1.00			0.99	
Satd. Flow (prot)		1493			1234			1469			1633	
Flt Permitted		0.90			0.90			1.00			0.91	
Satd. Flow (perm)		1367			1131			1463			1503	
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)	22	27	8	43	22	54	5	217	59	48	217	5
RTOR Reduction (vph)	0	5	0	0	15	0	0	19	0	0	2	0
Lane Group Flow (vph)	0	52	0	0	104	0	0	262	0	0	268	0
Confl. Peds. (#/hr)	179		298	298		179	690		591	591		690
Confl. Bikes (#/hr)			2			3			63			25
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	8%	8%	8%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		17.0			17.0			24.5			24.5	
Effective Green, g (s)		17.0			17.0			24.5			24.5	
Actuated g/C Ratio		0.34			0.34			0.49			0.49	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		464			384			716			736	
v/s Ratio Prot												
v/s Ratio Perm		0.04			0.09			0.18			0.18	
v/c Ratio		0.11			0.27			0.37			0.36	
Uniform Delay, d1		11.3			12.0			7.9			7.9	
Progression Factor		1.29			0.76			0.44			0.98	
Incremental Delay, d2		0.4			1.7			1.4			1.3	
Delay (s)		15.0			10.8			4.8			9.0	
Level of Service		B			B			A			A	
Approach Delay (s)		15.0			10.8			4.8			9.0	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

34: 15th Ave NE & NE 43rd St

UW Master Plan EIS

Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	45	30	967	648	130
Future Volume (vph)	60	45	30	967	648	130
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	4.5
Lane Util. Factor	1.00			0.95	0.95	1.00
Frbp, ped/bikes	0.87			1.00	1.00	0.64
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.94			1.00	1.00	0.85
Flt Protected	0.97			1.00	1.00	1.00
Satd. Flow (prot)	1478			3356	3343	950
Flt Permitted	0.97			0.92	1.00	1.00
Satd. Flow (perm)	1478			3102	3343	950
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	47	32	1018	682	137
RTOR Reduction (vph)	32	0	0	0	0	69
Lane Group Flow (vph)	78	0	0	1050	682	69
Confl. Peds. (#/hr)	262	361	182			182
Confl. Bikes (#/hr)						3
Heavy Vehicles (%)	2%	2%	7%	7%	8%	8%
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	2	
Permitted Phases			2			2
Actuated Green, G (s)	16.0			25.0	25.0	25.0
Effective Green, g (s)	16.0			25.0	25.0	25.0
Actuated g/C Ratio	0.32			0.50	0.50	0.50
Clearance Time (s)	4.5			4.5	4.5	4.5
Lane Grp Cap (vph)				1551	1671	475
v/s Ratio Prot	c0.05				0.20	
v/s Ratio Perm				c0.34		0.07
v/c Ratio	0.17			0.68	0.41	0.14
Uniform Delay, d1	12.2			9.4	7.9	6.7
Progression Factor	2.03			1.29	1.15	3.24
Incremental Delay, d2	0.7			2.0	0.6	0.5
Delay (s)	25.6			14.1	9.6	22.3
Level of Service	C			B	A	C
Approach Delay (s)	25.6			14.1	11.7	
Approach LOS	C			B	B	

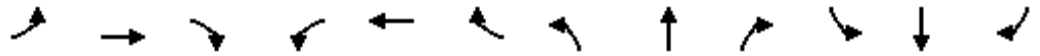
Intersection Summary

HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

35: Memorial Way NE & Burke Museum Access/East Stevens Way NE PM Peak Hour - New PL11 Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Yield	
Traffic Volume (vph)	109	12	5	10	21	242	0	55	15	252	65	103
Future Volume (vph)	109	12	5	10	21	242	0	55	15	252	65	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	118	13	5	11	23	263	0	60	16	274	71	112




















Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	136	297	30	46	310	148
Volume Left (vph)	118	11	0	0	274	0
Volume Right (vph)	5	263	0	16	0	112
Hadj (s)	0.15	-0.52	0.44	0.20	0.53	-0.45
Departure Headway (s)	5.9	5.0	6.9	6.6	6.4	5.4
Degree Utilization, x	0.22	0.41	0.06	0.08	0.55	0.22
Capacity (veh/h)	558	673	465	490	545	642
Control Delay (s)	10.6	11.5	9.1	9.0	15.6	8.7
Approach Delay (s)	10.6	11.5	9.0		13.4	
Approach LOS	B	B	A		B	

Intersection Summary

Delay	12.1
Level of Service	B
Intersection Capacity Utilization	68.4%
ICU Level of Service	C
Analysis Period (min)	15

HCM 2010 Signalized Intersection Summary
 36: Montlake Blvd NE & Stevens Way

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	107	107	5	65	208	90	791	5	63	464	142
Future Volume (veh/h)	187	107	107	5	65	208	90	791	5	63	464	142
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.90	0.97		0.84	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1900	1900	1827	1900	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	197	113	113	5	68	219	95	833	5	66	488	149
Adj No. of Lanes	1	2	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	4	4	4	0	0	0	1	1	1
Cap, veh/h	235	530	426	39	314	216	380	2005	12	84	1027	311
Arrive On Green	0.11	0.31	0.31	0.18	0.18	0.18	0.21	0.55	0.55	0.05	0.38	0.38
Sat Flow, veh/h	1707	1703	1370	61	1725	1187	1810	3678	22	1792	2688	815
Grp Volume(v), veh/h	197	113	113	73	0	219	95	409	429	66	323	314
Grp Sat Flow(s),veh/h/ln	1707	1703	1370	1786	0	1187	1810	1805	1895	1792	1787	1716
Q Serve(g_s), s	12.7	6.9	8.7	0.0	0.0	25.5	6.1	18.6	18.6	5.1	19.1	19.4
Cycle Q Clear(g_c), s	12.7	6.9	8.7	4.7	0.0	25.5	6.1	18.6	18.6	5.1	19.1	19.4
Prop In Lane	1.00		1.00	0.07		1.00	1.00		0.01	1.00		0.47
Lane Grp Cap(c), veh/h	235	530	426	583	0	216	380	984	1033	84	683	656
V/C Ratio(X)	0.84	0.21	0.27	0.13	0.00	1.01	0.25	0.42	0.42	0.78	0.47	0.48
Avail Cap(c_a), veh/h	356	651	523	583	0	216	380	984	1033	198	683	656
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.00	0.99	0.84	0.84	0.84	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.0	35.6	36.2	48.7	0.0	57.3	46.1	18.7	18.7	66.0	32.6	32.7
Incr Delay (d2), s/veh	10.3	0.2	0.3	0.0	0.0	64.1	0.1	1.1	1.0	5.8	2.3	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	3.3	3.3	2.0	0.0	12.2	3.1	9.6	10.1	2.7	9.9	9.6
LnGrp Delay(d),s/veh	51.3	35.8	36.5	48.8	0.0	121.4	46.2	19.8	19.8	71.8	35.0	35.2
LnGrp LOS	D	D	D	D		F	D	B	B	E	C	D
Approach Vol, veh/h		423			292			933			703	
Approach Delay, s/veh		43.2			103.2			22.5			38.5	
Approach LOS		D			F			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	11.1	80.8	18.1	30.0	33.9	58.0		48.1				
Change Period (Y+Rc), s	4.5	4.5	3.0	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	15.5	57.5	25.0	25.5	19.5	53.5		53.5				
Max Q Clear Time (g_c+I1), s	7.1	20.6	14.7	27.5	8.1	21.4		10.7				
Green Ext Time (p_c), s	0.0	5.4	0.4	0.0	2.9	0.6		3.2				
Intersection Summary												
HCM 2010 Ctrl Delay			41.0									
HCM 2010 LOS			D									

HCM Signalized Intersection Capacity Analysis
37: Montlake Blvd NE & Stevens Way

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	13	0	23	23	57	0	1452	48	8	531	272
Future Volume (vph)	148	13	0	23	23	57	0	1452	48	8	531	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lane Util. Factor	0.95	0.95			0.95	1.00		0.95			0.95	1.00
Frbp, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	0.97
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00			1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	0.96			0.98	1.00		1.00			1.00	1.00
Satd. Flow (prot)	1618	1634			3292	1509		3554			3536	1537
Flt Permitted	0.72	0.73			0.79	1.00		1.00			0.92	1.00
Satd. Flow (perm)	1233	1236			2663	1509		3554			3255	1537
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)	157	14	0	24	24	61	0	1545	51	9	565	289
RTOR Reduction (vph)	0	0	0	0	0	55	0	1	0	0	0	48
Lane Group Flow (vph)	85	86	0	0	48	6	0	1595	0	0	574	241
Confl. Peds. (#/hr)							7		2	2		7
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	1%	1%	1%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm		NA		Perm	NA	Perm
Protected Phases		2			2			1			1	
Permitted Phases	2			2		2				1		1
Actuated Green, G (s)	14.1	14.1			14.1	14.1		116.9			116.9	116.9
Effective Green, g (s)	14.1	14.1			14.1	14.1		116.9			116.9	116.9
Actuated g/C Ratio	0.10	0.10			0.10	0.10		0.84			0.84	0.84
Clearance Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Vehicle Extension (s)	2.0	2.0			2.0	2.0		0.2			0.2	0.2
Lane Grp Cap (vph)	124	124			268	151		2967			2717	1283
v/s Ratio Prot								c0.45				
v/s Ratio Perm	0.07	c0.07			0.02	0.00					0.18	0.16
v/c Ratio	0.69	0.69			0.18	0.04		0.54			0.21	0.19
Uniform Delay, d1	60.8	60.9			57.6	56.8		3.5			2.3	2.3
Progression Factor	0.87	0.87			1.00	1.00		1.03			0.22	0.00
Incremental Delay, d2	11.6	12.5			0.1	0.0		0.6			0.2	0.3
Delay (s)	64.6	65.5			57.8	56.9		4.1			0.7	0.3
Level of Service	E	E			E	E		A			A	A
Approach Delay (s)		65.0			57.3			4.1			0.6	
Approach LOS		E			E			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

38: Montlake Blvd NE

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access












Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↑↑	↑↑		↑↑	↑↑	
Traffic Volume (vph)	856	1440	0	577	644	0
Future Volume (vph)	856	1440	0	577	644	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	
Lane Util. Factor	0.95	0.88		0.95	0.97	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	1.00	1.00		1.00	0.95	
Satd. Flow (prot)	3574	2814		3610	3433	
Flt Permitted	1.00	1.00		1.00	0.95	
Satd. Flow (perm)	3574	2814		3610	3433	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	882	1485	0	595	664	0
RTOR Reduction (vph)	0	784	0	0	0	0
Lane Group Flow (vph)	882	701	0	595	664	0
Heavy Vehicles (%)	1%	1%	0%	0%	2%	2%
Turn Type	NA	Perm		NA	Prot	
Protected Phases	2			2	1	
Permitted Phases		2				
Actuated Green, G (s)	66.1	66.1		66.1	64.9	
Effective Green, g (s)	66.1	66.1		66.1	64.9	
Actuated g/C Ratio	0.47	0.47		0.47	0.46	
Clearance Time (s)	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	0.2	
Lane Grp Cap (vph)	1687	1328		1704	1591	
v/s Ratio Prot	0.25			0.16	c0.19	
v/s Ratio Perm		c0.25				
v/c Ratio	0.52	0.53		0.35	0.42	
Uniform Delay, d1	25.9	26.0		23.4	25.0	
Progression Factor	1.00	1.00		0.46	0.45	
Incremental Delay, d2	0.1	0.2		0.0	0.8	
Delay (s)	26.0	26.2		10.9	12.0	
Level of Service	C	C		B	B	
Approach Delay (s)	26.1			10.9	12.0	
Approach LOS	C			B	B	

Intersection Summary

HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
 39: Roosevelt Way NE & NE 42nd St (north)

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations						 		
Traffic Volume (veh/h)	100	0	0	0	175	1724		
Future Volume (veh/h)	100	0	0	0	175	1724		
Number	7	14			5	2		
Initial Q (Qb), veh	0	0			0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00			
Parking Bus, Adj	1.00	1.00			1.00	1.00		
Adj Sat Flow, veh/h/ln	1881	0			1900	1863		
Adj Flow Rate, veh/h	109	0			190	1874		
Adj No. of Lanes	1	0			0	2		
Peak Hour Factor	0.92	0.92			0.92	0.92		
Percent Heavy Veh, %	1	0			2	2		
Cap, veh/h	0	0			321	2948		
Arrive On Green	0.00	0.00			0.32	0.32		
Sat Flow, veh/h	0				292	3172		
Grp Volume(v), veh/h	0.0				1109	955		
Grp Sat Flow(s),veh/h/ln					1769	1610		
Q Serve(g_s), s					50.8	50.5		
Cycle Q Clear(g_c), s					54.0	50.5		
Prop In Lane					0.17			
Lane Grp Cap(c), veh/h					1732	1538		
V/C Ratio(X)					0.64	0.62		
Avail Cap(c_a), veh/h					1732	1538		
HCM Platoon Ratio					0.33	0.33		
Upstream Filter(I)					1.00	1.00		
Uniform Delay (d), s/veh					20.0	18.8		
Incr Delay (d2), s/veh					1.8	1.9		
Initial Q Delay(d3),s/veh					0.0	0.0		
%ile BackOfQ(50%),veh/ln					27.4	23.3		
LnGrp Delay(d),s/veh					21.8	20.7		
LnGrp LOS					C	C		
Approach Vol, veh/h						2064		
Approach Delay, s/veh						21.3		
Approach LOS						C		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						
Phs Duration (G+Y+Rc), s		100.0						
Change Period (Y+Rc), s		4.5						
Max Green Setting (Gmax), s		72.5						
Max Q Clear Time (g_c+I1), s		56.0						
Green Ext Time (p_c), s		3.0						
Intersection Summary								
HCM 2010 Ctrl Delay			21.3					
HCM 2010 LOS			C					

HCM Signalized Intersection Capacity Analysis
 40: NE 42nd St (north)/NE 42nd St & 11th Ave NE

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕				
Traffic Volume (vph)	60	120	0	0	70	199	25	1380	105	0	0	0
Future Volume (vph)	60	120	0	0	70	199	25	1380	105	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			0.84			0.99				
Flpb, ped/bikes		0.96			1.00			1.00				
Frt		1.00			0.90			0.99				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1799			1429			3446				
Flt Permitted		0.72			1.00			1.00				
Satd. Flow (perm)		1325			1429			3446				
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)	66	132	0	0	77	219	27	1516	115	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	198	0	0	286	0	0	1648	0	0	0	0
Confl. Peds. (#/hr)	200		131	131		200	28		72	72		28
Confl. Bikes (#/hr)			9			26			95			1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	2%	2%	2%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		13.2			13.2			28.3				
Effective Green, g (s)		13.2			13.2			28.3				
Actuated g/C Ratio		0.26			0.26			0.57				
Clearance Time (s)		4.0			4.0			4.5				
Vehicle Extension (s)		2.0			2.0			0.2				
Lane Grp Cap (vph)		349			377			1950				
v/s Ratio Prot					c0.20							
v/s Ratio Perm		0.15						0.48				
v/c Ratio		0.57			0.76			0.85				
Uniform Delay, d1		15.9			16.9			9.0				
Progression Factor		1.00			1.01			1.00				
Incremental Delay, d2		0.8			7.6			4.7				
Delay (s)		16.7			24.7			13.8				
Level of Service		B			C			B				
Approach Delay (s)		16.7			24.7			13.8			0.0	
Approach LOS		B			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.5					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			50.0					Sum of lost time (s)		8.5		
Intersection Capacity Utilization			91.3%					ICU Level of Service		F		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

UW Master Plan EIS

41: University Way NE & NE 42nd St

Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	35	155	23	10	81	25	30	190	15	15	164	40
Future Volume (vph)	35	155	23	10	81	25	30	190	15	15	164	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.93			0.86			0.96			0.86	
Flpb, ped/bikes		0.92			0.96			0.94			0.97	
Frt		0.99			0.97			0.99			0.98	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1590			1529			1563			1466	
Flt Permitted		0.95			0.97			0.95			0.98	
Satd. Flow (perm)		1515			1494			1489			1434	
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)	37	165	24	11	86	27	32	202	16	16	174	43
RTOR Reduction (vph)	0	1	0	0	5	0	0	3	0	0	6	0
Lane Group Flow (vph)	0	225		0	119		0	247		0	228	
Confl. Peds. (#/hr)	607		666		666		607		921		695	
Confl. Bikes (#/hr)			26				34				81	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	7%	7%	7%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		19.0			19.0			22.5			22.5	
Effective Green, g (s)		19.0			19.0			22.5			22.5	
Actuated g/C Ratio		0.38			0.38			0.45			0.45	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		575			567			670			645	
v/s Ratio Prot												
v/s Ratio Perm		c0.15			0.08			c0.17			0.16	
v/c Ratio		0.39			0.21			0.37			0.35	
Uniform Delay, d1		11.3			10.4			9.1			9.0	
Progression Factor		1.17			0.19			0.59			1.08	
Incremental Delay, d2		1.5			0.8			1.5			1.4	
Delay (s)		14.7			2.8			6.9			11.1	
Level of Service		B			A			A			B	
Approach Delay (s)		14.7			2.8			6.9			11.1	
Approach LOS		B			A			A			B	

Intersection Summary

HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

42: 15th Ave NE & NE 42nd St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	110	85	61	870	644	45
Future Volume (vph)	110	85	61	870	644	45
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.5	4.5	4.5	
Lane Util. Factor	1.00		1.00	0.95	0.95	
Frpb, ped/bikes	0.85		1.00	1.00	0.97	
Flpb, ped/bikes	1.00		0.84	1.00	1.00	
Frt	0.94		1.00	1.00	0.99	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	1479		1402	3343	3166	
Flt Permitted	0.97		0.32	1.00	1.00	
Satd. Flow (perm)	1479		474	3343	3166	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	92	66	946	700	49
RTOR Reduction (vph)	17	0	0	0	10	0
Lane Group Flow (vph)	195	0	66	946	739	0
Confl. Peds. (#/hr)	736	522	298			298
Confl. Bikes (#/hr)		6				17
Heavy Vehicles (%)	0%	0%	8%	8%	9%	9%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	18.0		23.5	23.5	23.5	
Effective Green, g (s)	18.0		23.5	23.5	23.5	
Actuated g/C Ratio	0.36		0.47	0.47	0.47	
Clearance Time (s)	4.0		4.5	4.5	4.5	
Lane Grp Cap (vph)	532		222	1571	1488	
v/s Ratio Prot	c0.13			c0.28	0.23	
v/s Ratio Perm			0.14			
v/c Ratio	0.37		0.30	0.60	0.50	
Uniform Delay, d1	11.8		8.2	9.8	9.2	
Progression Factor	0.82		0.62	0.80	0.64	
Incremental Delay, d2	1.9		3.2	1.6	1.1	
Delay (s)	11.5		8.3	9.5	7.0	
Level of Service	B		A	A	A	
Approach Delay (s)	11.5			9.4	7.0	
Approach LOS	B			A	A	

Intersection Summary

HCM 2000 Control Delay	8.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations									
Traffic Vol, veh/h	0	147	148	0	65	133	0	89	85
Future Vol, veh/h	0	147	148	0	65	133	0	89	85
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	6	6	6	8	8	8	17	17	17
Mvmt Flow	0	167	168	0	74	151	0	101	97
Number of Lanes	0	1	0	0	1	0	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	11.8	9.8	10.8
HCM LOS	B	A	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	50%	51%
Vol Thru, %	33%	0%	49%
Vol Right, %	67%	50%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	198	295	174
LT Vol	0	147	89
Through Vol	65	0	85
RT Vol	133	148	0
Lane Flow Rate	225	335	198
Geometry Grp	1	1	1
Degree of Util (X)	0.296	0.45	0.297
Departure Headway (Hd)	4.741	4.828	5.401
Convergence, Y/N	Yes	Yes	Yes
Cap	749	741	658
Service Time	2.822	2.898	3.487
HCM Lane V/C Ratio	0.3	0.452	0.301
HCM Control Delay	9.8	11.8	10.8
HCM Lane LOS	A	B	B
HCM 95th-tile Q	1.2	2.3	1.2

HCM Signalized Intersection Capacity Analysis

44: I-5 NB Express Lane Off Ramp & 7th Ave NE & NE 42nd St (South)



Movement	WBL2	WBT	WBR	NBL	NBT	NBR	NEL	NER	NER2
Lane Configurations	↶	↷		↶	↷		↶	↷	↷
Traffic Volume (vph)	138	15	85	5	278	143	307	204	202
Future Volume (vph)	138	15	85	5	278	143	307	204	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.93		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.97	1.00		1.00	1.00	
Frt	1.00	0.87		1.00	0.95		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1513		1740	1772		1736	1553	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1513		1740	1772		1736	1553	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	152	16	93	5	305	157	337	224	222
RTOR Reduction (vph)	0	76	0	0	20	0	0	55	0
Lane Group Flow (vph)	152	33	0	5	442	0	337	391	0
Confl. Peds. (#/hr)			54	13					
Confl. Bikes (#/hr)			1			1			
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	4%	4%	4%
Turn Type	Split	NA		Perm	NA		Prot	Perm	
Protected Phases	3	3			2		4		
Permitted Phases				2				4	
Actuated Green, G (s)	14.4	14.4		25.9	25.9		25.5	25.5	
Effective Green, g (s)	14.4	14.4		25.9	25.9		25.5	25.5	
Actuated g/C Ratio	0.18	0.18		0.32	0.32		0.32	0.32	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	315	269		557	568		547	490	
v/s Ratio Prot	c0.09	0.02			c0.25		0.19		
v/s Ratio Perm				0.00				c0.25	
v/c Ratio	0.48	0.12		0.01	0.78		0.62	0.80	
Uniform Delay, d1	29.9	27.9		18.7	24.9		23.5	25.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.2		0.0	7.8		3.0	10.0	
Delay (s)	31.0	28.1		18.7	32.6		26.5	35.3	
Level of Service	C	C		B	C		C	D	
Approach Delay (s)		29.8			32.5		31.5		
Approach LOS		C			C		C		

Intersection Summary

HCM 2000 Control Delay	31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	80.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	68.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

45: Roosevelt Way NE & NE 42nd St (south)

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗			↕↕	↗
Traffic Volume (vph)	0	352	0	0	1699	175
Future Volume (vph)	0	352	0	0	1699	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5	4.5
Lane Util. Factor		1.00			0.95	1.00
Frbp, ped/bikes		1.00			1.00	0.73
Flpb, ped/bikes		1.00			1.00	1.00
Frt		0.86			1.00	0.85
Flt Protected		1.00			1.00	1.00
Satd. Flow (prot)		1580			3539	1163
Flt Permitted		1.00			1.00	1.00
Satd. Flow (perm)		1580			3539	1163
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	367	0	0	1770	182
RTOR Reduction (vph)	0	9	0	0	0	25
Lane Group Flow (vph)	0	358	0	0	1770	157
Confl. Peds. (#/hr)	178		117			117
Confl. Bikes (#/hr)		2				38
Heavy Vehicles (%)	4%	4%	0%	0%	2%	2%
Turn Type		Prot			NA	Perm
Protected Phases		4			2	
Permitted Phases						2
Actuated Green, G (s)		25.9			64.6	64.6
Effective Green, g (s)		25.9			64.6	64.6
Actuated g/C Ratio		0.26			0.65	0.65
Clearance Time (s)		5.0			4.5	4.5
Vehicle Extension (s)		2.0			0.2	0.2
Lane Grp Cap (vph)		409			2286	751
v/s Ratio Prot		c0.23			c0.50	
v/s Ratio Perm						0.13
v/c Ratio		0.88			0.77	0.21
Uniform Delay, d1		35.5			12.5	7.2
Progression Factor		1.00			0.42	0.23
Incremental Delay, d2		18.0			1.7	0.4
Delay (s)		53.5			7.0	2.1
Level of Service		D			A	A
Approach Delay (s)	53.5			0.0	6.5	
Approach LOS	D			A	A	

Intersection Summary

HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	76.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Int Delay, s/veh 1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔					↔↔
Traffic Vol, veh/h	10	0	0	0	213	1843
Future Vol, veh/h	10	0	0	0	213	1843
Conflicting Peds, #/hr	15	31	0	15	31	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	2	2
Mvmt Flow	11	0	0	0	224	1940

Major/Minor

	Minor1	Major2
Conflicting Flow All	1464	31
Stage 1	31	-
Stage 2	1433	-
Critical Hdwy	6.8	4.14
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	5.8	-
Follow-up Hdwy	3.5	2.22
Pot Cap-1 Maneuver	121	1580
Stage 1	-	-
Stage 2	189	-
Platoon blocked, %		-
Mov Cap-1 Maneuver	118	1580
Mov Cap-2 Maneuver	118	-
Stage 1	-	-
Stage 2	189	-

Approach

	WB	SB
HCM Control Delay, s	38.5	0.8
HCM LOS	E	

Minor Lane/Major Mvmt

	WBLn1	SBL	SBT
Capacity (veh/h)	118	1580	-
HCM Lane V/C Ratio	0.089	0.142	-
HCM Control Delay (s)	38.5	7.7	0
HCM Lane LOS	E	A	A
HCM 95th %tile Q(veh)	0.3	0.5	-

Intersection												
Int Delay, s/veh	203											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	40	15	15	80	20	22	25	5	15	80	51
Future Vol, veh/h	10	40	15	15	80	20	22	25	5	15	80	51
Conflicting Peds, #/hr	416	0	450	424	0	390	450	0	424	390	0	416
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	4	4	4	10	10	10	0	0	0	0	0	0
Mvmt Flow	12	48	18	18	95	24	26	30	6	18	95	61

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1172	1123	1026	1153	1151	873	606	0	0	460	0	0
Stage 1	611	611	-	509	509	-	-	-	-	-	-	-
Stage 2	561	512	-	644	642	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.2	6.6	6.3	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.2	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.2	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.59	4.09	3.39	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	168	204	282	168	191	338	982	-	-	1112	-	-
Stage 1	478	481	-	532	525	-	-	-	-	-	-	-
Stage 2	509	533	-	448	457	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	-	77	110	27	~ 72	143	614	-	-	727	-	-
Mov Cap-2 Maneuver	-	77	-	27	~ 72	-	-	-	-	-	-	-
Stage 1	286	293	-	329	325	-	-	-	-	-	-	-
Stage 2	188	330	-	191	278	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		\$ 663.7	4.7	1
HCM LOS	-	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	614	-	-	- 64	727	-	-
HCM Lane V/C Ratio	0.043	-	-	- 2.139	0.025	-	-
HCM Control Delay (s)	11.1	0	-	- \$ 663.7	10.1	0	-
HCM Lane LOS	B	A	-	- F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	- 13	0.1	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	5	50	10	0	20	75	25	0	40	220	10
Future Vol, veh/h	0	5	50	10	0	20	75	25	0	40	220	10
Peak Hour Factor	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	1	1	1	1	5	5	5	5
Mvmt Flow	0	6	56	11	0	22	84	28	0	45	247	11
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.8	9.2	10.8
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	15%	8%	17%	16%
Vol Thru, %	81%	77%	62%	73%
Vol Right, %	4%	15%	21%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	270	65	120	128
LT Vol	40	5	20	20
Through Vol	220	50	75	93
RT Vol	10	10	25	15
Lane Flow Rate	303	73	135	144
Geometry Grp	1	1	1	1
Degree of Util (X)	0.395	0.104	0.187	0.199
Departure Headway (Hd)	4.692	5.132	4.993	4.983
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	764	693	715	716
Service Time	2.745	3.202	3.056	3.044
HCM Lane V/C Ratio	0.397	0.105	0.189	0.201
HCM Control Delay	10.8	8.8	9.2	9.3
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.9	0.3	0.7	0.7

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	20	93	15
Future Vol, veh/h	0	20	93	15
Peak Hour Factor	0.85	0.89	0.89	0.89
Heavy Vehicles, %	14	14	14	14
Mvmt Flow	0	22	104	17
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.3
HCM LOS	A

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	50	10	28	70	30	10	175	17	35	152	30
Future Vol, veh/h	10	50	10	28	70	30	10	175	17	35	152	30
Conflicting Peds, #/hr	1155	0	1256	1313	0	1212	1256	0	1313	1212	0	1155
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	13	13	13	6	6	6
Mvmt Flow	11	56	11	31	79	34	11	197	19	39	171	34

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	3019	3073	2757	3155	3081	2731	1460	0	0	1529	0	0
Stage 1	1522	1522	-	1542	1542	-	-	-	-	-	-	-
Stage 2	1497	1551	-	1613	1539	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.23	-	-	4.16	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.317	-	-	2.254	-	-
Pot Cap-1 Maneuver	~ 8	~ 12	26	~ 7	~ 12	~ 27	431	-	-	424	-	-
Stage 1	149	182	-	146	178	-	-	-	-	-	-	-
Stage 2	155	177	-	132	179	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	-	0	0	-	0	0	~ -41	-	-	~ -4	-	-
Mov Cap-2 Maneuver	-	0	-	-	0	-	-	-	-	-	-	-
Stage 1	~ 7	~ -8	-	~ 14	~ -17	-	-	-	-	-	-	-
Stage 2	872	~ -17	-	1059	~ -8	-	-	-	-	-	-	-

Approach

EB WB NB SB
HCM Control Delay, s
HCM LOS

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	+	-	-	-	+	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-
HCM Control Delay (s)	-	-	-	-	-	-	-
HCM Lane LOS	-	-	-	-	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis

UW Master Plan EIS

50: 15th Ave NE & NE 41st St/UW Campus Parking Access Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↕	↔	↔	↕	↕
Traffic Volume (vph)	36	15	48	65	30	115	36	780	75	90	586	53
Future Volume (vph)	36	15	48	65	30	115	36	780	75	90	586	53
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	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes		0.87			1.00	0.60	1.00	1.00	0.48	1.00	0.95	
Flpb, ped/bikes		0.88			0.87	1.00	0.79	1.00	1.00	0.86	1.00	
Frt		0.93			1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1326			1575	955	1324	3343	721	1453	3168	
Flt Permitted		0.87			0.73	1.00	0.37	1.00	1.00	0.31	1.00	
Satd. Flow (perm)		1171			1195	955	522	3343	721	479	3168	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	16	52	71	33	125	39	848	82	98	637	58
RTOR Reduction (vph)	0	39	0	0	0	58	0	0	22	0	1	0
Lane Group Flow (vph)	0	68	0	0	104	67	39	848	60	98	694	0
Confl. Peds. (#/hr)	551		182	182		551	375		217	217		375
Confl. Bikes (#/hr)			11			3			17			11
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	8%	8%	8%	7%	7%	7%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2				2
Permitted Phases	4			4		4	2		2	2		
Actuated Green, G (s)		18.5			18.5	18.5	73.0	73.0	73.0	73.0	73.0	
Effective Green, g (s)		18.5			18.5	18.5	73.0	73.0	73.0	73.0	73.0	
Actuated g/C Ratio		0.18			0.18	0.18	0.73	0.73	0.73	0.73	0.73	
Clearance Time (s)		4.0			4.0	4.0	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	0.2	0.2	
Lane Grp Cap (vph)		216			221	176	381	2440	526	349	2312	
v/s Ratio Prot								c0.25				0.22
v/s Ratio Perm		0.06			c0.09	0.07	0.07		0.08	0.20		
v/c Ratio		0.31			0.47	0.38	0.10	0.35	0.11	0.28	0.30	
Uniform Delay, d1		35.3			36.4	35.7	3.9	4.9	4.0	4.6	4.7	
Progression Factor		1.13			1.00	1.00	0.49	0.44	0.23	1.14	1.21	
Incremental Delay, d2		0.8			1.6	1.4	0.5	0.4	0.4	1.8	0.3	
Delay (s)		40.6			38.0	37.1	2.4	2.5	1.3	7.0	6.0	
Level of Service		D			D	D	A	A	A	A	A	
Approach Delay (s)		40.6			37.5			2.4			6.1	
Approach LOS		D			D			A			A	

Intersection Summary

HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	60.9
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↔				↔				↔	↔
Traffic Vol, veh/h	0	100	150	15	0	185	301	25	0	5	273	255
Future Vol, veh/h	0	100	150	15	0	185	301	25	0	5	273	255
Peak Hour Factor	0.25	0.98	0.98	0.98	0.25	0.98	0.98	0.98	0.92	0.98	0.98	0.98
Heavy Vehicles, %	3	3	3	3	4	4	4	4	2	1	1	1
Mvmt Flow	0	102	153	15	0	189	307	26	0	5	279	260
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	1	1
HCM Control Delay	28.1	130.9	25.3
HCM LOS	D	F	D

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	0%	38%	36%	8%
Vol Thru, %	98%	0%	57%	59%	56%
Vol Right, %	0%	100%	6%	5%	36%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	278	255	265	511	333
LT Vol	5	0	100	185	25
Through Vol	273	0	150	301	188
RT Vol	0	255	15	25	120
Lane Flow Rate	284	260	270	521	340
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.671	0.564	0.651	1.185	0.776
Departure Headway (Hd)	9.174	8.435	9.333	8.178	8.94
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	397	432	389	448	408
Service Time	6.874	6.135	7.333	6.178	6.94
HCM Lane V/C Ratio	0.715	0.602	0.694	1.163	0.833
HCM Control Delay	28.7	21.5	28.1	130.9	36.8
HCM Lane LOS	D	C	D	F	E
HCM 95th-tile Q	4.7	3.4	4.4	20	6.6

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	25	188	120
Future Vol, veh/h	0	25	188	120
Peak Hour Factor	0.25	0.98	0.98	0.98
Heavy Vehicles, %	1	1	1	1
Mvmt Flow	0	26	192	122
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	36.8
HCM LOS	E

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations			↑		↑		↑			
Traffic Vol, veh/h	0	0	415	0	236	0	0	60	0	0
Future Vol, veh/h	0	0	415	0	236	0	0	60	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	79	87	0	79
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None	-	-
Storage Length	-	-	0	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	-	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	0	0	0	0	0	3	3
Mvmt Flow	0	0	451	0	257	0	0	65	0	0

Major/Minor	Major1			Major2			Minor2	
Conflicting Flow All	-	-	0	-	-	0	336	344
Stage 1	-	-	-	-	-	-	257	-
Stage 2	-	-	-	-	-	-	79	-
Critical Hdwy	-	-	-	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	0	0	-	0	-	0	663	703
Stage 1	0	0	-	0	-	0	791	-
Stage 2	0	0	-	0	-	0	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	663	652
Mov Cap-2 Maneuver	-	-	-	-	-	-	663	-
Stage 1	-	-	-	-	-	-	791	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBR	WBT	SBLn1
Capacity (veh/h)	-	-	652
HCM Lane V/C Ratio	-	-	0.1
HCM Control Delay (s)	-	-	11.1
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.3

HCM Signalized Intersection Capacity Analysis

53: University Bridge/Roosevelt Way NE & NE Campus Pkwy & Eastlake Ave NE - New PL11 Access

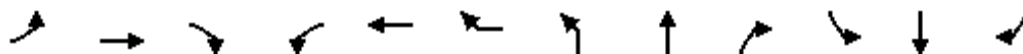


Movement	WBL	WBR	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations			↑↑	↗	↖	↑↑		
Traffic Volume (vph)	0	0	1171	285	117	1692	0	0
Future Volume (vph)	0	0	1171	285	117	1692	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5	4.5	4.5	4.5		
Lane Util. Factor			0.95	1.00	1.00	0.95		
Frbp, ped/bikes			1.00	0.92	1.00	1.00		
Flpb, ped/bikes			1.00	1.00	1.00	1.00		
Frt			1.00	0.85	1.00	1.00		
Flt Protected			1.00	1.00	0.95	1.00		
Satd. Flow (prot)			3539	1463	1752	3505		
Flt Permitted			1.00	1.00	0.95	1.00		
Satd. Flow (perm)			3539	1463	1752	3505		
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	1246	303	124	1800	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	1246	303	124	1800	0	0
Confl. Peds. (#/hr)	17	15		17	15			
Confl. Bikes (#/hr)				156				
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%	3%	3%
Turn Type			NA	Perm	Prot	NA		
Protected Phases			2		4	2		
Permitted Phases				2				
Actuated Green, G (s)			36.7	36.7	14.5	60.2		
Effective Green, g (s)			36.7	36.7	14.5	60.2		
Actuated g/C Ratio			0.61	0.61	0.24	1.00		
Clearance Time (s)			4.5	4.5	4.5			
Vehicle Extension (s)			0.2	0.2	2.0			
Lane Grp Cap (vph)			2157	891	421	3505		
v/s Ratio Prot			c0.35		0.07	c0.51		
v/s Ratio Perm				0.21				
v/c Ratio			0.58	0.34	0.29	0.51		
Uniform Delay, d1			7.1	5.8	18.7	0.0		
Progression Factor			1.00	1.00	1.00	1.00		
Incremental Delay, d2			0.2	0.1	0.1	0.1		
Delay (s)			7.3	5.9	18.8	0.1		
Level of Service			A	A	B	A		
Approach Delay (s)	0.0		7.0			1.3	0.0	
Approach LOS	A		A			A	A	
Intersection Summary								
HCM 2000 Control Delay			3.8			HCM 2000 Level of Service		A
HCM 2000 Volume to Capacity ratio			0.60					
Actuated Cycle Length (s)			60.2			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								

HCM Signalized Intersection Capacity Analysis

54: Brooklyn Ave NE & NE Campus Pkwy

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	5	257	117	5	218	15	118	275	20	5	91	20
Future Volume (vph)	5	257	117	5	218	15	118	275	20	5	91	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.95			0.99			0.99			0.98	
Flt Protected		1.00			1.00			0.99			1.00	
Satd. Flow (prot)		3373			3503			1824			1816	
Flt Permitted		0.95			0.95			0.87			0.99	
Satd. Flow (perm)		3211			3323			1608			1795	
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)	5	282	129	5	240	16	130	302	22	5	100	22
RTOR Reduction (vph)	0	51	0	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	365	0	0	261	0	0	452	0	0	127	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		29.5			29.5			61.5			61.5	
Effective Green, g (s)		29.5			29.5			61.5			61.5	
Actuated g/C Ratio		0.29			0.29			0.62			0.62	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		947			980			988			1103	
v/s Ratio Prot												
v/s Ratio Perm		c0.11			0.08			c0.28			0.07	
v/c Ratio		0.38			0.27			0.46			0.12	
Uniform Delay, d1		28.0			27.0			10.3			8.0	
Progression Factor		1.00			0.46			1.00			1.00	
Incremental Delay, d2		1.2			0.7			1.5			0.2	
Delay (s)		29.2			13.0			11.8			8.2	
Level of Service		C			B			B			A	
Approach Delay (s)		29.2			13.0			11.8			8.2	
Approach LOS		C			B			B			A	

Intersection Summary

HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
55: University Way NE & NE Campus Pkwy

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour - New PL11 Access

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	190	20	5	143	5	44	168	30	15	136	51
Future Volume (veh/h)	77	190	20	5	143	5	44	168	30	15	136	51
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	84	207	22	5	155	5	48	183	33	16	148	55
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	405	1010	111	62	1592	51	146	538	92	67	540	191
Arrive On Green	0.95	0.95	0.95	0.47	0.47	0.47	0.44	0.44	0.44	0.87	0.87	0.87
Sat Flow, veh/h	737	2126	233	50	3351	107	239	1236	211	66	1241	438
Grp Volume(v), veh/h	157	0	156	86	0	79	264	0	0	219	0	0
Grp Sat Flow(s),veh/h/ln	1442	0	1654	1832	0	1676	1686	0	0	1745	0	0
Q Serve(g_s), s	0.2	0.0	0.6	0.0	0.0	2.6	0.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	2.8	0.0	0.6	2.6	0.0	2.6	9.7	0.0	0.0	2.1	0.0	0.0
Prop In Lane	0.54		0.14	0.06		0.06	0.18		0.12	0.07		0.25
Lane Grp Cap(c), veh/h	740	0	786	908	0	796	776	0	0	798	0	0
V/C Ratio(X)	0.21	0.00	0.20	0.10	0.00	0.10	0.34	0.00	0.00	0.27	0.00	0.00
Avail Cap(c_a), veh/h	740	0	786	908	0	796	776	0	0	798	0	0
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	1.3	0.0	1.3	14.5	0.0	14.5	18.7	0.0	0.0	3.8	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.6	0.2	0.0	0.2	1.2	0.0	0.0	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	0.0	0.3	1.4	0.0	1.3	5.0	0.0	0.0	1.2	0.0	0.0
LnGrp Delay(d),s/veh	2.0	0.0	1.9	14.7	0.0	14.7	19.9	0.0	0.0	4.7	0.0	0.0
LnGrp LOS	A		A	B		B	B			A		
Approach Vol, veh/h		313			165			264			219	
Approach Delay, s/veh		1.9			14.7			19.9			4.7	
Approach LOS		A			B			B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		52.0		48.0		52.0		48.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		47.5		43.5		47.5		43.5				
Max Q Clear Time (g_c+I1), s		4.6		11.7		4.8		4.1				
Green Ext Time (p_c), s		0.5		0.5		0.5		0.6				
Intersection Summary												
HCM 2010 Ctrl Delay			9.7									
HCM 2010 LOS			A									

HCM Signalized Intersection Capacity Analysis
56: 15th Ave NE & NE Campus Pkwy

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔↔		↔	↑↑	↑↑	
Traffic Volume (vph)	105	120	78	809	638	75
Future Volume (vph)	105	120	78	809	638	75
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		6.0	6.0	6.0	
Lane Util. Factor	0.97		1.00	0.95	0.95	
Frbp, ped/bikes	0.99		1.00	1.00	0.96	
Flpb, ped/bikes	1.00		0.88	1.00	1.00	
Frt	0.92		1.00	1.00	0.98	
Flt Protected	0.98		0.95	1.00	1.00	
Satd. Flow (prot)	2918		1424	3252	3144	
Flt Permitted	0.98		0.34	1.00	1.00	
Satd. Flow (perm)	2918		516	3252	3144	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	109	125	81	843	665	78
RTOR Reduction (vph)	0	0	0	0	9	0
Lane Group Flow (vph)	234	0	81	843	734	0
Confl. Peds. (#/hr)	6	3	383			383
Confl. Bikes (#/hr)						11
Heavy Vehicles (%)	12%	12%	11%	11%	8%	8%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	26.5		63.0	63.0	63.0	
Effective Green, g (s)	26.5		63.0	63.0	63.0	
Actuated g/C Ratio	0.26		0.63	0.63	0.63	
Clearance Time (s)	4.5		6.0	6.0	6.0	
Lane Grp Cap (vph)	773		325	2048	1980	
v/s Ratio Prot	c0.08			c0.26	0.23	
v/s Ratio Perm			0.16			
v/c Ratio	0.30		0.25	0.41	0.37	
Uniform Delay, d1	29.4		8.1	9.2	8.9	
Progression Factor	0.44		0.21	0.20	0.79	
Incremental Delay, d2	1.0		1.3	0.4	0.5	
Delay (s)	13.8		3.0	2.3	7.6	
Level of Service	B		A	A	A	
Approach Delay (s)	13.8			2.3	7.6	
Approach LOS	B			A	A	

Intersection Summary			
HCM 2000 Control Delay	5.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	108
Intersection LOS	F

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Lane Configurations									
Traffic Vol, veh/h	0	330	257	0	147	265	0	383	208
Future Vol, veh/h	0	330	257	0	147	265	0	383	208
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	1	1	1	0	0	0
Mvmt Flow	0	359	279	0	160	288	0	416	226
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	123	46.9	135.6
HCM LOS	F	E	F

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	65%	0%	36%
Vol Thru, %	0%	56%	64%
Vol Right, %	35%	44%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	591	587	412
LT Vol	383	0	147
Through Vol	0	330	265
RT Vol	208	257	0
Lane Flow Rate	642	638	448
Geometry Grp	1	1	1
Degree of Util (X)	1.21	1.175	0.884
Departure Headway (Hd)	7.127	7.242	7.964
Convergence, Y/N	Yes	Yes	Yes
Cap	514	504	457
Service Time	5.127	5.242	5.964
HCM Lane V/C Ratio	1.249	1.266	0.98
HCM Control Delay	135.6	123	46.9
HCM Lane LOS	F	F	E
HCM 95th-tile Q	23.2	21.2	9.4

Intersection	
Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	97	55	57	0	45	42	45	0	36	256	25
Future Vol, veh/h	0	97	55	57	0	45	42	45	0	36	256	25
Peak Hour Factor	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89
Heavy Vehicles, %	1	1	1	1	2	2	2	2	7	7	7	7
Mvmt Flow	0	109	62	64	0	51	47	51	0	40	288	28
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	12.4	11	15.2
HCM LOS	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	46%	34%	4%
Vol Thru, %	81%	26%	32%	69%
Vol Right, %	8%	27%	34%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	317	209	132	223
LT Vol	36	97	45	10
Through Vol	256	55	42	154
RT Vol	25	57	45	59
Lane Flow Rate	356	235	148	251
Geometry Grp	1	1	1	1
Degree of Util (X)	0.549	0.379	0.245	0.385
Departure Headway (Hd)	5.551	5.81	5.945	5.526
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	648	615	599	646
Service Time	3.614	3.883	4.027	3.597
HCM Lane V/C Ratio	0.549	0.382	0.247	0.389
HCM Control Delay	15.2	12.4	11	12.1
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	3.3	1.8	1	1.8

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	10	154	59
Future Vol, veh/h	0	10	154	59
Peak Hour Factor	0.85	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	11	173	66
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	12.1
HCM LOS	B

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	20	70	10	0	35	107	25	0	5	192	16
Future Vol, veh/h	0	20	70	10	0	35	107	25	0	5	192	16
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	1	1	1	1	2	2	2	2	3	3	3	3
Mvmt Flow	0	23	80	11	0	40	123	29	0	6	221	18
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9.5	10.3	10.6
HCM LOS	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	20%	21%	3%
Vol Thru, %	90%	70%	64%	86%
Vol Right, %	8%	10%	15%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	213	100	167	181
LT Vol	5	20	35	5
Through Vol	192	70	107	156
RT Vol	16	10	25	20
Lane Flow Rate	245	115	192	208
Geometry Grp	1	1	1	1
Degree of Util (X)	0.337	0.172	0.28	0.291
Departure Headway (Hd)	5.077	5.378	5.244	5.042
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	712	669	687	716
Service Time	3.077	3.396	3.256	3.054
HCM Lane V/C Ratio	0.344	0.172	0.279	0.291
HCM Control Delay	10.6	9.5	10.3	10.1
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	1.5	0.6	1.1	1.2

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	5	156	20
Future Vol, veh/h	0	5	156	20
Peak Hour Factor	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	0	0	0
Mvmt Flow	0	6	179	23
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	10.1
HCM LOS	B

HCM Signalized Intersection Capacity Analysis

61: 15th Ave NE & Stevens Way



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕↕		↕	↕↕	
Traffic Volume (vph)	31	32	28	139	94	174	19	682	54	92	632	34
Future Volume (vph)	31	32	28	139	94	174	19	682	54	92	632	34
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	4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frbp, ped/bikes		0.83			1.00	0.56	1.00	0.97		1.00	0.98	
Flpb, ped/bikes		0.91			0.74	1.00	0.91	1.00		0.92	1.00	
Frt		0.96			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1334			1240	828	1511	3193		1525	3233	
Flt Permitted		0.86			0.77	1.00	0.22	1.00		0.18	1.00	
Satd. Flow (perm)		1168			978	828	357	3193		291	3233	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	33	34	29	146	99	183	20	718	57	97	665	36
RTOR Reduction (vph)	0	16	0	0	0	130	0	6	0	0	4	0
Lane Group Flow (vph)	0	80	0	0	245	53	20	769	0	97	697	0
Confl. Peds. (#/hr)	825		1636	1636		825	184		194	194		184
Confl. Bikes (#/hr)			223			90			26			12
Heavy Vehicles (%)	2%	2%	2%	10%	10%	10%	9%	9%	9%	9%	9%	9%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2				2
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)		29.0			29.0	29.0	31.5	31.5		31.5	31.5	
Effective Green, g (s)		29.0			29.0	29.0	31.5	31.5		31.5	31.5	
Actuated g/C Ratio		0.29			0.29	0.29	0.32	0.32		0.32	0.32	
Clearance Time (s)		3.0			3.0	3.0	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		338			283	240	112	1005		91	1018	
v/s Ratio Prot								0.24				0.22
v/s Ratio Perm		0.07			c0.25	0.06	0.06			c0.33		
v/c Ratio		0.24			0.87	0.22	0.18	0.77		1.07	0.68	
Uniform Delay, d1		27.1			33.7	26.9	24.9	30.9		34.2	29.9	
Progression Factor		1.00			1.00	1.00	0.89	0.89		0.52	0.49	
Incremental Delay, d2		1.7			28.0	2.1	2.7	4.3		110.9	3.6	
Delay (s)		28.7			61.7	29.0	24.9	31.7		128.8	18.2	
Level of Service		C			E	C	C	C		F	B	
Approach Delay (s)		28.7			47.7			31.6			31.6	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	34.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Lane Configurations									
Traffic Vol, veh/h	0	5	153	0	15	20	0	257	5
Future Vol, veh/h	0	5	153	0	15	20	0	257	5
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	11	11	11	0	0	0	14	14	14
Mvmt Flow	0	6	178	0	17	23	0	299	6
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.6	8.3	11.2
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	98%	0%	43%
Vol Thru, %	0%	3%	57%
Vol Right, %	2%	97%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	262	158	35
LT Vol	257	0	15
Through Vol	0	5	20
RT Vol	5	153	0
Lane Flow Rate	305	184	41
Geometry Grp	1	1	1
Degree of Util (X)	0.408	0.222	0.056
Departure Headway (Hd)	4.827	4.343	4.982
Convergence, Y/N	Yes	Yes	Yes
Cap	746	829	718
Service Time	2.859	2.364	3.015
HCM Lane V/C Ratio	0.409	0.222	0.057
HCM Control Delay	11.2	8.6	8.3
HCM Lane LOS	B	A	A
HCM 95th-tile Q	2	0.8	0.2

Intersection	
Intersection Delay, s/veh	79.3
Intersection LOS	F

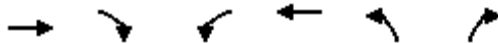
Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↘	↗		↗	↗		↘	↗
Traffic Vol, veh/h	0	454	446	0	130	575	0	349	55
Future Vol, veh/h	0	454	446	0	130	575	0	349	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	1	1	1	4	4	4
Mvmt Flow	0	478	469	0	137	605	0	367	58
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	70.6	110.3	44.6
HCM LOS	F	F	E

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	575	454	446	349	55
LT Vol	0	0	454	0	349	0
Through Vol	130	0	0	0	0	55
RT Vol	0	575	0	446	0	0
Lane Flow Rate	137	605	478	469	367	58
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.298	1.199	1.076	0.901	0.874	0.131
Departure Headway (Hd)	8.053	7.328	8.466	7.229	9.088	8.568
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	449	502	430	507	400	421
Service Time	5.753	5.028	6.166	4.929	6.788	6.268
HCM Lane V/C Ratio	0.305	1.205	1.112	0.925	0.917	0.138
HCM Control Delay	14.1	132	94.5	46.2	49.6	12.6
HCM Lane LOS	B	F	F	E	E	B
HCM 95th-tile Q	1.2	22.2	15.3	10.3	8.7	0.4

HCM Signalized Intersection Capacity Analysis
64: NE Boat St & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour - New PL11 Access























Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↻		↻	↻	↻	
Traffic Volume (vph)	769	85	15	739	115	15
Future Volume (vph)	769	85	15	739	115	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	5.0	5.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frbp, ped/bikes	0.99		1.00	1.00	0.99	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.99		1.00	1.00	0.98	
Flt Protected	1.00		0.95	1.00	0.96	
Satd. Flow (prot)	1819		1787	1881	1744	
Flt Permitted	1.00		0.22	1.00	0.96	
Satd. Flow (perm)	1819		414	1881	1744	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	827	91	16	795	124	16
RTOR Reduction (vph)	3	0	0	0	5	0
Lane Group Flow (vph)	915	0	16	795	135	0
Confl. Peds. (#/hr)		34	34		28	18
Confl. Bikes (#/hr)		5				17
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			2	4	
Permitted Phases			2			
Actuated Green, G (s)	72.6		72.6	72.6	17.4	
Effective Green, g (s)	72.6		72.6	72.6	17.4	
Actuated g/C Ratio	0.73		0.73	0.73	0.17	
Clearance Time (s)	5.0		5.0	5.0	5.0	
Vehicle Extension (s)	0.2		0.2	0.2	2.0	
Lane Grp Cap (vph)	1320		300	1365	303	
v/s Ratio Prot	c0.50			0.42	c0.08	
v/s Ratio Perm			0.04			
v/c Ratio	0.69		0.05	0.58	0.45	
Uniform Delay, d1	7.6		3.9	6.5	37.0	
Progression Factor	1.00		0.24	0.58	1.00	
Incremental Delay, d2	3.0		0.3	1.6	0.4	
Delay (s)	10.6		1.2	5.4	37.4	
Level of Service	B		A	A	D	
Approach Delay (s)	10.6			5.3	37.4	
Approach LOS	B			A	D	

Intersection Summary

HCM 2000 Control Delay	10.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
65: Brooklyn Ave NE & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour - New PL11 Access

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	184	842	53	35	585	53	81	105	30	54	40	188
Future Volume (veh/h)	184	842	53	35	585	53	81	105	30	54	40	188
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.91	1.00		0.87	1.00		0.80	1.00		0.82
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1881	1881	1900	1792	1792	1900	1827	1827	1900
Adj Flow Rate, veh/h	200	915	58	38	636	58	88	114	33	59	43	204
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	1	1	1	6	6	6	4	4	4
Cap, veh/h	460	1446	92	219	964	88	121	194	56	197	47	224
Arrive On Green	0.26	0.44	0.44	0.24	0.59	0.59	0.07	0.15	0.15	0.11	0.20	0.20
Sat Flow, veh/h	1757	3325	211	1792	3267	297	1707	1258	364	1740	234	1111
Grp Volume(v), veh/h	200	482	491	38	347	347	88	0	147	59	0	247
Grp Sat Flow(s),veh/h/ln	1757	1752	1783	1792	1787	1777	1707	0	1622	1740	0	1345
Q Serve(g_s), s	9.5	21.5	21.5	1.7	13.0	13.1	5.1	0.0	8.4	3.1	0.0	18.0
Cycle Q Clear(g_c), s	9.5	21.5	21.5	1.7	13.0	13.1	5.1	0.0	8.4	3.1	0.0	18.0
Prop In Lane	1.00		0.12	1.00		0.17	1.00		0.22	1.00		0.83
Lane Grp Cap(c), veh/h	460	762	776	219	527	524	121	0	250	197	0	272
V/C Ratio(X)	0.43	0.63	0.63	0.17	0.66	0.66	0.73	0.00	0.59	0.30	0.00	0.91
Avail Cap(c_a), veh/h	460	762	776	219	527	524	188	0	397	197	0	303
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.66	0.66	0.66	0.90	0.90	0.90	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.7	22.0	22.0	33.8	17.1	17.1	45.5	0.0	39.3	40.7	0.0	39.0
Incr Delay (d2), s/veh	0.2	2.6	2.6	0.1	5.7	5.8	3.1	0.0	0.8	0.3	0.0	26.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	10.9	11.1	0.8	7.0	7.0	2.5	0.0	3.8	1.5	0.0	8.7
LnGrp Delay(d),s/veh	30.9	24.7	24.6	33.9	22.8	22.9	48.6	0.0	40.1	41.0	0.0	65.5
LnGrp LOS	C	C	C	C	C	C	D		D	D		E
Approach Vol, veh/h		1173			732			235			306	
Approach Delay, s/veh		25.7			23.5			43.3			60.8	
Approach LOS		C			C			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.2	34.0	15.8	19.9	16.2	48.0	11.1	24.7				
Change Period (Y+Rc), s	4.0	4.5	4.5	* 4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	20.0	29.5	9.0	* 25	6.0	43.5	11.0	22.5				
Max Q Clear Time (g_c+I1), s	11.5	15.1	5.1	10.4	3.7	23.5	7.1	20.0				
Green Ext Time (p_c), s	0.2	2.5	0.5	0.4	0.1	4.2	0.0	0.3				
Intersection Summary												
HCM 2010 Ctrl Delay			31.1									
HCM 2010 LOS			C									
Notes												

HCM Signalized Intersection Capacity Analysis

66: Campus Parking Access/University Way NE & NE Pacific St (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗			↖	↗		↕	
Traffic Volume (vph)	65	996	0	5	679	69	40	60	75	160	5	59
Future Volume (vph)	65	996	0	5	679	69	40	60	75	160	5	59
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5			4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.95			1.00	0.89		0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		0.94	
Frt	1.00	1.00		1.00	0.99			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.97	
Satd. Flow (prot)	1787	3574		1752	3286			1838	1445		1620	
Flt Permitted	0.95	1.00		0.95	1.00			0.84	1.00		0.72	
Satd. Flow (perm)	1787	3574		1752	3286			1575	1445		1215	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	66	1016	0	5	693	70	41	61	77	163	5	60
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	56	0	15	0
Lane Group Flow (vph)	66	1016	0	5	756	0	0	102	21	0	213	0
Confl. Peds. (#/hr)	263		207	207		263	54		95	95		54
Confl. Bikes (#/hr)						6						2
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			4	
Permitted Phases							4		4	4		
Actuated Green, G (s)	10.4	58.6		1.1	49.3			27.3	27.3		27.3	
Effective Green, g (s)	10.4	58.6		1.1	49.3			27.3	27.3		27.3	
Actuated g/C Ratio	0.10	0.59		0.01	0.49			0.27	0.27		0.27	
Clearance Time (s)	4.0	4.5		4.0	4.5			4.5	4.5		4.5	
Vehicle Extension (s)	2.0	0.2		2.0	0.2			3.0	3.0		3.0	
Lane Grp Cap (vph)	185	2094		19	1619			429	394		331	
v/s Ratio Prot	0.04	c0.28		0.00	c0.23							
v/s Ratio Perm								0.06	0.01		c0.18	
v/c Ratio	0.36	0.49		0.26	0.47			0.24	0.05		0.64	
Uniform Delay, d1	41.7	12.0		49.0	16.7			28.3	26.8		32.1	
Progression Factor	0.65	0.21		1.42	0.34			1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.7		1.7	0.6			0.3	0.1		4.3	
Delay (s)	27.4	3.2		71.3	6.2			28.5	26.9		36.3	
Level of Service	C	A		E	A			C	C		D	
Approach Delay (s)		4.7			6.7			27.8			36.3	
Approach LOS		A			A			C			D	

Intersection Summary			
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

UW Master Plan EIS

67: 15th Ave NE & NE Pacific St

Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	1053	60	45	515	355	125	242	225	547	149	113
Future Volume (vph)	123	1053	60	45	515	355	125	242	225	547	149	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		0.95		0.95	0.95	
Frpb, ped/bikes	1.00	0.96		1.00	1.00	0.90		0.87		1.00	0.92	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85		0.94		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	0.98	
Satd. Flow (prot)	1787	3421		1703	3406	1371		2913		1573	1433	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99		0.95	0.98	
Satd. Flow (perm)	1787	3421		1703	3406	1371		2913		1573	1433	
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)	131	1120	64	48	548	378	133	257	239	582	159	120
RTOR Reduction (vph)	0	4	0	0	0	37	0	95	0	0	14	0
Lane Group Flow (vph)	131	1180	0	48	548	341	0	534	0	436	411	0
Confl. Peds. (#/hr)	141		435	435		141	199		265	265		199
Confl. Bikes (#/hr)			2			28			37			18
Heavy Vehicles (%)	1%	1%	1%	6%	6%	6%	1%	1%	1%	9%	9%	9%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	
Protected Phases	1	6		5	2	4	3	3		4	4	
Permitted Phases						2						
Actuated Green, G (s)	11.4	30.9		4.0	23.5	49.0		21.6		25.5	25.5	
Effective Green, g (s)	11.4	30.9		4.0	23.5	49.0		21.6		25.5	25.5	
Actuated g/C Ratio	0.11	0.31		0.04	0.24	0.49		0.22		0.26	0.26	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.0	0.2		2.0	0.2	3.0		2.0		3.0	3.0	
Lane Grp Cap (vph)	203	1057		68	800	671		629		401	365	
v/s Ratio Prot	0.07	c0.34		0.03	c0.16	0.13		c0.18		0.28	c0.29	
v/s Ratio Perm						0.12						
v/c Ratio	0.65	1.12		0.71	0.69	0.51		0.85		1.09	1.13	
Uniform Delay, d1	42.4	34.5		47.4	34.9	17.3		37.6		37.2	37.2	
Progression Factor	0.77	0.73		1.00	1.00	1.00		1.00		0.33	0.29	
Incremental Delay, d2	4.8	64.5		23.7	4.7	0.6		10.0		63.9	79.2	
Delay (s)	37.6	89.8		71.1	39.6	17.9		47.6		76.2	90.0	
Level of Service	D	F		E	D	B		D		E	F	
Approach Delay (s)		84.6			32.7			47.6			83.0	
Approach LOS		F			C			D			F	

Intersection Summary

HCM 2000 Control Delay	64.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Int Delay, s/veh 4.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	30	150	110	101	113	15
Future Vol, veh/h	30	150	110	101	113	15
Conflicting Peds, #/hr	77	0	0	54	54	77
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	6	6	4	4
Mvmt Flow	33	165	121	111	124	16

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	309	0	538
Stage 1	-	-	253
Stage 2	-	-	285
Critical Hdwy	4.13	-	6.44
Critical Hdwy Stg 1	-	-	5.44
Critical Hdwy Stg 2	-	-	5.44
Follow-up Hdwy	2.227	-	3.536
Pot Cap-1 Maneuver	1246	-	501
Stage 1	-	-	785
Stage 2	-	-	759
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1166	-	425
Mov Cap-2 Maneuver	-	-	425
Stage 1	-	-	735
Stage 2	-	-	688

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	16.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1166	-	-	-	441
HCM Lane V/C Ratio	0.028	-	-	-	0.319
HCM Control Delay (s)	8.2	0	-	-	16.9
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.4

Intersection	
Intersection Delay, s/veh	30.3
Intersection LOS	D

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations									
Traffic Vol, veh/h	0	145	118	0	171	412	0	119	40
Future Vol, veh/h	0	145	118	0	171	412	0	119	40
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	5	5	5	2	2	2	3	3	3
Mvmt Flow	0	161	131	0	190	458	0	132	44
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	14.5	42.8	10.9
HCM LOS	B	E	B

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	29%	55%	0%
Vol Thru, %	71%	0%	75%
Vol Right, %	0%	45%	25%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	583	263	159
LT Vol	171	145	0
Through Vol	412	0	119
RT Vol	0	118	40
Lane Flow Rate	648	292	177
Geometry Grp	1	1	1
Degree of Util (X)	0.935	0.484	0.278
Departure Headway (Hd)	5.199	5.964	5.667
Convergence, Y/N	Yes	Yes	Yes
Cap	700	602	631
Service Time	3.237	4.016	3.724
HCM Lane V/C Ratio	0.926	0.485	0.281
HCM Control Delay	42.8	14.5	10.9
HCM Lane LOS	E	B	B
HCM 95th-tile Q	13	2.6	1.1

HCM Unsignalized Intersection Capacity Analysis

70: Parking Access/Campus Parking Access & NE Boat St/Columbia Rd At PM Peak Hour - New PL11 Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Stop			Stop			Stop	
Traffic Volume (vph)	10	197	10	5	555	5	0	0	5	0	0	10
Future Volume (vph)	10	197	10	5	555	5	0	0	5	0	0	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	207	11	5	584	5	0	0	5	0	0	11

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	11	218	594	5	11
Volume Left (vph)	11	0	5	0	0
Volume Right (vph)	0	11	5	5	11
Hadj (s)	0.62	0.08	0.08	-0.60	-0.60
Departure Headway (s)	5.6	5.0	4.4	5.1	5.1
Degree Utilization, x	0.02	0.30	0.72	0.01	0.02
Capacity (veh/h)	636	701	813	618	613
Control Delay (s)	7.5	9.0	17.9	8.2	8.2
Approach Delay (s)	8.9		17.9	8.2	8.2
Approach LOS	A		C	A	A

Intersection Summary

Delay	15.3
Level of Service	C
Intersection Capacity Utilization	53.6%
ICU Level of Service	A
Analysis Period (min)	15

Intersection

Int Delay, s/veh 141.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	66	101	2226	65	69	1050
Future Vol, veh/h	66	101	2226	65	69	1050
Conflicting Peds, #/hr	0	3	0	0	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	69	106	2343	68	73	1105

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	3078	1212	0	0	2415	0
Stage 1	2380	-	-	-	-	-
Stage 2	698	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.14	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.22	-
Pot Cap-1 Maneuver	~ 10	177	-	-	194	-
Stage 1	~ 57	-	-	-	-	-
Stage 2	460	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	0	176	-	-	194	-
Mov Cap-2 Maneuver	~ 11	-	-	-	-	-
Stage 1	~ 57	-	-	-	-	-
Stage 2	~ 12	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	\$ 3021.8		0		2.1
HCM LOS	F				

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 25	194	-
HCM Lane V/C Ratio	-	- 7.032	0.374	-
HCM Control Delay (s)	-	\$ 3021.8	34.3	-
HCM Lane LOS	-	- F	D	-
HCM 95th %tile Q(veh)	-	- 21.9	1.6	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑			↑↑
Traffic Vol, veh/h	5	40	2241	5	0	1126
Future Vol, veh/h	5	40	2241	5	0	1126
Conflicting Peds, #/hr	3	3	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	5	42	2359	5	0	1185

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2961	1188	0	0	-	-
Stage 1	2365	-	-	-	-	-
Stage 2	596	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	-	-
Pot Cap-1 Maneuver	11	181	-	-	0	-
Stage 1	57	-	-	-	0	-
Stage 2	513	-	-	-	0	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	11	180	-	-	-	-
Mov Cap-2 Maneuver	54	-	-	-	-	-
Stage 1	57	-	-	-	-	-
Stage 2	512	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	42.2		0		0
HCM LOS	E				

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	- 143	-
HCM Lane V/C Ratio	-	- 0.331	-
HCM Control Delay (s)	-	- 42.2	-
HCM Lane LOS	-	- E	-
HCM 95th %tile Q(veh)	-	- 1.3	-

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑		↑	↑↑
Traffic Vol, veh/h	0	5	2251	25	10	1116
Future Vol, veh/h	0	5	2251	25	10	1116
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	0	5	2345	26	10	1163

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	1195	0 0 2376 0
Stage 1	-	-	- - - -
Stage 2	-	-	- - - -
Critical Hdwy	-	6.9	- - 4.14 -
Critical Hdwy Stg 1	-	-	- - - -
Critical Hdwy Stg 2	-	-	- - - -
Follow-up Hdwy	-	3.3	- - 2.22 -
Pot Cap-1 Maneuver	0	182	- - 201 -
Stage 1	0	-	- - - -
Stage 2	0	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	-	180	- - 200 -
Mov Cap-2 Maneuver	-	-	- - - -
Stage 1	-	-	- - - -
Stage 2	-	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	25.6	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 180	200	-
HCM Lane V/C Ratio	-	- 0.029	0.052	-
HCM Control Delay (s)	-	- 25.6	24	-
HCM Lane LOS	-	- D	C	-
HCM 95th %tile Q(veh)	-	- 0.1	0.2	-

HCM Signalized Intersection Capacity Analysis

74: Montlake Blvd NE & Husky Stadium Parking Access Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	460	22	65	136	0	53	0	1703	5	6	914	181
Future Volume (vph)	460	22	65	136	0	53	0	1703	5	6	914	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5			4.5	
Lane Util. Factor	0.95	0.95	1.00	1.00		1.00		0.95			0.95	
Frbp, ped/bikes	1.00	1.00	0.86	1.00		0.99		1.00			0.98	
Flpb, ped/bikes	1.00	1.00	1.00	0.94		1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00		0.85		1.00			0.98	
Flt Protected	0.95	0.96	1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	1681	1693	1361	1689		1594		3568			3347	
Flt Permitted	0.95	0.96	1.00	0.34		1.00		1.00			0.94	
Satd. Flow (perm)	1681	1693	1361	599		1594		3568			3157	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	479	23	68	142	0	55	0	1774	5	6	952	189
RTOR Reduction (vph)	0	0	53	0	0	11	0	0	0	0	10	0
Lane Group Flow (vph)	249	253	15	142	0	44	0	1779	0	0	1137	0
Confl. Peds. (#/hr)			76	76			37		176	176		37
Confl. Bikes (#/hr)			8			1						1
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	3%	3%	3%
Turn Type	Perm	NA	Perm	D.Pm		Perm		NA		Perm	NA	
Protected Phases		4						2				2
Permitted Phases	4		4	4		4			2			
Actuated Green, G (s)	26.9	26.9	26.9	26.9		26.9		84.1			84.1	
Effective Green, g (s)	26.9	26.9	26.9	26.9		26.9		84.1			84.1	
Actuated g/C Ratio	0.22	0.22	0.22	0.22		0.22		0.70			0.70	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5			4.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0		0.2			0.2	
Lane Grp Cap (vph)	376	379	305	134		357		2500			2212	
v/s Ratio Prot								c0.50				
v/s Ratio Perm	0.15	0.15	0.01	c0.24		0.03					0.36	
v/c Ratio	0.66	0.67	0.05	1.06		0.12		0.71			0.51	
Uniform Delay, d1	42.4	42.5	36.5	46.5		37.1		10.7			8.4	
Progression Factor	0.85	0.85	1.46	1.00		1.00		0.02			1.00	
Incremental Delay, d2	2.3	2.3	0.0	94.6		0.1		0.9			0.9	
Delay (s)	38.2	38.3	53.4	141.1		37.2		1.1			9.2	
Level of Service	D	D	D	F		D		A			A	
Approach Delay (s)		40.1			112.1			1.1			9.2	
Approach LOS		D			F			A			A	

Intersection Summary

HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

UW Master Plan EIS

75: NE Pacific St & NE Pacific Pl

Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	452	1455	60	45	776	35	0	0	0	0	0	221
Future Volume (vph)	452	1455	60	45	776	35	0	0	0	0	0	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0							5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95							1.00
Frpb, ped/bikes	1.00	1.00	0.63	1.00	0.99							1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00							1.00
Frt	1.00	1.00	0.85	1.00	0.99							0.86
Flt Protected	0.95	1.00	1.00	0.95	1.00							1.00
Satd. Flow (prot)	1805	3610	1010	1805	3534							1565
Flt Permitted	0.95	1.00	1.00	0.13	1.00							1.00
Satd. Flow (perm)	1805	3610	1010	241	3534							1565
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)	486	1565	65	48	834	38	0	0	0	0	0	238
RTOR Reduction (vph)	0	0	31	0	5	0	0	0	0	0	0	25
Lane Group Flow (vph)	486	1565	34	48	867	0	0	0	0	0	0	213
Confl. Peds. (#/hr)			215	215		448			748	748		
Confl. Bikes (#/hr)			8			9		9				1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	6%	6%	6%	5%	5%	5%
Turn Type	Prot	NA	Perm	Perm	NA							Over
Protected Phases	2	1			1							2
Permitted Phases			1	1								
Actuated Green, G (s)	18.5	31.5	31.5	31.5	31.5							18.5
Effective Green, g (s)	18.5	31.5	31.5	31.5	31.5							18.5
Actuated g/C Ratio	0.31	0.52	0.52	0.52	0.52							0.31
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0							5.0
Vehicle Extension (s)	2.0	0.2	0.2	0.2	0.2							2.0
Lane Grp Cap (vph)	556	1895	530	126	1855							482
v/s Ratio Prot	c0.27	c0.43			0.25							0.14
v/s Ratio Perm			0.03	0.20								
v/c Ratio	0.87	0.83	0.06	0.38	0.47							0.44
Uniform Delay, d1	19.6	11.9	7.0	8.5	9.0							16.6
Progression Factor	1.43	1.32	1.39	0.71	0.51							1.32
Incremental Delay, d2	11.9	3.6	0.2	8.2	0.8							0.2
Delay (s)	40.0	19.4	9.9	14.2	5.4							22.1
Level of Service	D	B	A	B	A							C
Approach Delay (s)		23.8			5.9			0.0			22.1	
Approach LOS		C			A			A			C	

Intersection Summary

HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

76: Hospital Access & NE Pacific St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	1440	15	40	811	65	65
Future Volume (vph)	1440	15	40	811	65	65
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frbp, ped/bikes	1.00	0.75	1.00	1.00	1.00	0.99
Flpb, ped/bikes	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)	3438	1150	1656	3312	1805	1591
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3438	1150	1656	3312	1805	1591
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1532	16	43	863	69	69
RTOR Reduction (vph)	0	1	0	0	0	64
Lane Group Flow (vph)	1532	15	43	863	69	5
Confl. Peds. (#/hr)		78	78		44	
Confl. Bikes (#/hr)		8				1
Heavy Vehicles (%)	5%	5%	9%	9%	0%	0%
Turn Type	NA	Perm	Prot	NA	pm+pt	Perm
Protected Phases	2		7!	6!	1!	
Permitted Phases		2		3	3!	1
Actuated Green, G (s)	83.3	83.3	14.1	96.9	9.1	9.1
Effective Green, g (s)	83.3	83.3	14.1	96.9	9.1	9.1
Actuated g/C Ratio	0.69	0.69	0.12	0.81	0.08	0.08
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	0.2	0.2	2.0	0.2	2.0	2.0
Lane Grp Cap (vph)	2386	798	194	2674	136	120
v/s Ratio Prot	c0.45		c0.03	0.26	c0.04	
v/s Ratio Perm		0.01				0.00
v/c Ratio	0.64	0.02	0.22	0.32	0.51	0.04
Uniform Delay, d1	10.1	5.7	48.0	3.0	53.3	51.4
Progression Factor	0.66	0.39	1.17	0.17	1.00	1.00
Incremental Delay, d2	0.7	0.0	0.1	0.0	1.1	0.1
Delay (s)	7.4	2.2	56.4	0.5	54.4	51.5
Level of Service	A	A	E	A	D	D
Approach Delay (s)	7.3			3.2	52.9	
Approach LOS	A			A	D	

Intersection Summary

HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		

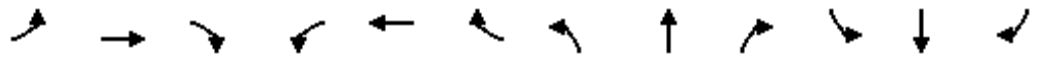
! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

77: Montlake Blvd NE & NE Pacific St/Husky Stadium Parking Access

10/20/2019 11:53 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↑↑		↑	↑	↑↑	↑↑		↑	↑↑	↑
Traffic Volume (vph)	0	0	1505	0	57	20	769	1688	18	5	1075	25
Future Volume (vph)	0	0	1505	0	57	20	769	1688	18	5	1075	25
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.5		5.0	5.0	7.0	5.0		6.0	5.0	5.0
Lane Util. Factor			0.88		1.00	1.00	0.97	0.95		1.00	0.95	1.00
Frbp, ped/bikes			1.00		1.00	1.00	1.00	0.99		1.00	1.00	0.66
Flpb, ped/bikes			1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt			0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected			1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)			2787		1863	1583	3433	3510		1752	3505	1030
Flt Permitted			1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)			2787		1863	1583	3433	3510		1752	3505	1030
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)	0	0	1552	0	59	21	793	1740	19	5	1108	26
RTOR Reduction (vph)	0	0	296	0	0	19	0	1	0	0	0	15
Lane Group Flow (vph)	0	0	1256	0	59	2	793	1758	0	5	1108	11
Confl. Peds. (#/hr)							255		334	334		255
Confl. Bikes (#/hr)												4
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type			Perm		NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases					3!		4 5	1 5		7!	1	
Permitted Phases			9 1 3			3						1
Actuated Green, G (s)			102.1		12.8	12.8	31.0	65.1		1.0	52.2	52.2
Effective Green, g (s)			97.1		12.8	12.8	31.0	58.1		1.0	52.2	52.2
Actuated g/C Ratio			0.81		0.11	0.11	0.26	0.48		0.01	0.44	0.44
Clearance Time (s)					5.0	5.0				6.0	5.0	5.0
Vehicle Extension (s)					2.0	2.0				2.0	0.2	0.2
Lane Grp Cap (vph)			2255		198	168	886	1699		14	1524	448
v/s Ratio Prot					0.03		c0.23	c0.50		0.00	0.32	
v/s Ratio Perm			c0.45			0.00						0.01
v/c Ratio			0.56		0.30	0.01	0.90	1.04		0.36	0.73	0.03
Uniform Delay, d1			4.0		49.5	48.0	42.9	30.9		59.2	28.0	19.4
Progression Factor			1.00		1.00	1.00	0.93	1.01		0.90	0.74	1.00
Incremental Delay, d2			0.1		0.3	0.0	9.6	29.7		4.8	2.7	0.1
Delay (s)			4.1		49.8	48.0	49.4	60.8		58.0	23.5	19.5
Level of Service			A		D	D	D	E		E	C	B
Approach Delay (s)		4.1			49.3			57.2			23.5	
Approach LOS		A			D			E			C	

Intersection Summary

HCM 2000 Control Delay	34.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.
 c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

78: Montlake Blvd NE & 520 EB/WB HOV Ramp & 520 WB Off Ramp

10/11/2019 3:03 PM Peak Hour - New PL11 Access



Movement	WBR	NBL	NBT	NBR2	SBL	SBT	SBR	NWR
Lane Configurations	↗↗	↘↘	↑↑	↗	↘	↑↑↔		↗
Traffic Volume (vph)	798	200	1892	30	30	1863	672	30
Future Volume (vph)	798	200	1892	30	30	1863	672	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5	4.5	4.0	4.5		4.0
Lane Util. Factor	0.88	0.97	0.95	1.00	1.00	0.91		1.00
Frt	0.85	1.00	1.00	0.85	1.00	0.96		0.86
Flt Protected	1.00	0.95	1.00	1.00	0.95	1.00		1.00
Satd. Flow (prot)	2787	3433	3539	1583	1770	4877		1611
Flt Permitted	1.00	0.95	1.00	1.00	0.95	1.00		1.00
Satd. Flow (perm)	2787	3433	3539	1583	1770	4877		1611
Peak-hour factor, PHF	0.96	0.92	0.96	0.92	0.92	0.96	0.92	0.92
Adj. Flow (vph)	831	217	1971	33	33	1941	730	33
RTOR Reduction (vph)	270	0	0	12	0	49	0	0
Lane Group Flow (vph)	561	217	1971	21	33	2622	0	33
Turn Type	custom	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	3 1	5	2		1	6		4
Permitted Phases				2		3		
Actuated Green, G (s)	26.0	13.0	75.9	75.9	4.0	84.9		5.6
Effective Green, g (s)	26.0	13.0	75.9	75.9	4.0	84.9		5.6
Actuated g/C Ratio	0.22	0.11	0.63	0.63	0.03	0.71		0.05
Clearance Time (s)		4.0	4.5	4.5	4.0	4.5		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	603	371	2238	1001	59	3633		75
v/s Ratio Prot	c0.20	0.06	c0.56		0.02	c0.40		c0.02
v/s Ratio Perm				0.01		0.14		
v/c Ratio	0.93	0.58	0.88	0.02	0.56	0.72		0.44
Uniform Delay, d1	46.1	50.9	18.3	8.2	57.1	10.5		55.7
Progression Factor	1.00	1.21	0.68	1.00	0.86	0.61		1.00
Incremental Delay, d2	20.8	1.7	3.9	0.0	9.5	0.6		4.1
Delay (s)	66.9	63.2	16.4	8.2	58.6	7.1		59.8
Level of Service	E	E	B	A	E	A		E
Approach Delay (s)			20.8			7.7		
Approach LOS			C			A		

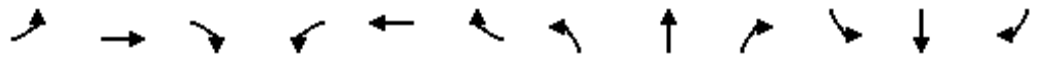
Intersection Summary

HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

79: Montlake Blvd NE & SR-520 EB Ramps/E Lake Washington Blvd at 3 PM Peak Hour - New PL11 Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	578	35	80	135	5	320	90	999	10	170	850	843
Future Volume (vph)	578	35	80	135	5	320	90	999	10	170	850	843
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	0.97	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.91
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1695	1435	1752	1845	1568	3367	3457		1752	3505	1430
Flt Permitted	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1695	1435	1752	1845	1568	3367	3457		1752	3505	1430
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	608	37	84	142	5	337	95	1052	11	179	895	887
RTOR Reduction (vph)	0	0	66	0	0	68	0	1	0	0	0	482
Lane Group Flow (vph)	322	323	18	142	5	269	95	1062	0	179	895	405
Confl. Peds. (#/hr)	3		60	60		3	111		170	170		111
Confl. Bikes (#/hr)						5			8			10
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Turn Type	Split	NA	Perm	Split	NA	custom	Prot	NA		Prot	NA	Perm
Protected Phases	3	3		4	4	4	6	2		1	5	
Permitted Phases			3			4						5
Actuated Green, G (s)	26.0	26.0	26.0	13.3	13.3	34.3	7.9	46.2		16.5	54.8	54.8
Effective Green, g (s)	26.0	26.0	26.0	13.3	13.3	34.3	7.9	46.2		16.5	54.8	54.8
Actuated g/C Ratio	0.22	0.22	0.22	0.11	0.11	0.29	0.07	0.39		0.14	0.46	0.46
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)	2.0	2.0	2.0	3.0	3.0		2.0	0.2		2.0	0.2	0.2
Lane Grp Cap (vph)	364	367	310	194	204	448	221	1330		240	1600	653
v/s Ratio Prot	c0.19	0.19		c0.08	0.00	0.17	0.03	c0.31		c0.10	0.26	
v/s Ratio Perm			0.01									0.28
v/c Ratio	0.88	0.88	0.06	0.73	0.02	0.60	0.43	0.80		0.75	0.56	0.62
Uniform Delay, d1	45.5	45.5	37.3	51.6	47.6	36.9	53.9	32.8		49.7	23.8	24.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.88	0.81	0.75
Incremental Delay, d2	21.1	20.5	0.0	13.3	0.0	2.3	0.5	5.1		8.6	1.2	3.6
Delay (s)	66.7	66.0	37.3	64.9	47.6	39.2	54.4	37.9		52.4	20.3	22.1
Level of Service	E	E	D	E	D	D	D	D		D	C	C
Approach Delay (s)		63.0			46.8			39.2			24.0	
Approach LOS		E			D			D			C	

Intersection Summary		
HCM 2000 Control Delay	37.2	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.80	D
Actuated Cycle Length (s)	120.0	Sum of lost time (s)
Intersection Capacity Utilization	82.2%	18.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		E

HCM Signalized Intersection Capacity Analysis

80: New PL11 Access & NE Pacific St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour - New PL11 Access



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	1796	29	87	915	14	151
Future Volume (vph)	1796	29	87	915	14	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.91		1.00	0.95	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	5073		1770	3539	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	5073		1770	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1952	32	95	995	15	164
RTOR Reduction (vph)	1	0	0	0	0	154
Lane Group Flow (vph)	1983	0	95	995	15	10
Turn Type	NA		Prot	NA	pm+pt	Perm
Protected Phases	2		7!	6!	1!	
Permitted Phases				3	3!	1
Actuated Green, G (s)	83.5		16.0	95.0	7.0	7.0
Effective Green, g (s)	83.5		16.0	95.0	7.0	7.0
Actuated g/C Ratio	0.70		0.13	0.79	0.06	0.06
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	0.2		2.0	0.2	2.0	2.0
Lane Grp Cap (vph)	3529		236	2801	103	92
v/s Ratio Prot	c0.39		c0.05	c0.28	0.01	
v/s Ratio Perm						0.01
v/c Ratio	0.56		0.40	0.36	0.15	0.10
Uniform Delay, d1	9.1		47.6	3.6	53.7	53.5
Progression Factor	1.00		1.14	0.46	1.00	1.00
Incremental Delay, d2	0.7		0.4	0.0	0.2	0.2
Delay (s)	9.8		54.8	1.7	53.9	53.7
Level of Service	A		D	A	D	D
Approach Delay (s)	9.8			6.3	53.7	
Approach LOS	A			A	D	

Intersection Summary



















HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
 1: 5th Ave NE & NE 50th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	660	290	185	1095	0	0	0	0	141	125	180
Future Volume (veh/h)	0	660	290	185	1095	0	0	0	0	141	125	180
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00				1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1900	1863	1863	0				1900	1900	1900
Adj Flow Rate, veh/h	0	673	296	189	1117	0				152	117	184
Adj No. of Lanes	0	2	0	1	2	0				2	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	1	1	2	2	0				0	0	0
Cap, veh/h	0	1064	468	484	2700	0				515	270	226
Arrive On Green	0.00	0.44	0.44	0.55	1.00	0.00				0.14	0.14	0.14
Sat Flow, veh/h	0	2485	1052	1774	3632	0				3619	1900	1586
Grp Volume(v), veh/h	0	503	466	189	1117	0				152	117	184
Grp Sat Flow(s),veh/h/ln	0	1787	1655	1774	1770	0				1810	1900	1586
Q Serve(g_s), s	0.0	21.7	21.7	6.2	0.0	0.0				3.8	5.6	11.3
Cycle Q Clear(g_c), s	0.0	21.7	21.7	6.2	0.0	0.0				3.8	5.6	11.3
Prop In Lane	0.00		0.64	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	795	737	484	2700	0				515	270	226
V/C Ratio(X)	0.00	0.63	0.63	0.39	0.41	0.00				0.30	0.43	0.82
Avail Cap(c_a), veh/h	0	795	737	484	2700	0				724	380	317
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.71	0.71	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	21.4	21.4	17.9	0.0	0.0				38.4	39.2	41.6
Incr Delay (d2), s/veh	0.0	3.8	4.1	0.5	0.3	0.0				0.2	0.8	9.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.5	10.7	3.0	0.1	0.0				1.9	3.0	5.5
LnGrp Delay(d),s/veh	0.0	25.2	25.5	18.4	0.3	0.0				38.6	40.0	51.0
LnGrp LOS		C	C	B	A					D	D	D
Approach Vol, veh/h		969			1306						453	
Approach Delay, s/veh		25.4			3.0						44.0	
Approach LOS		C			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	31.8	49.0		19.2		80.8						
Change Period (Y+Rc), s	4.5	4.5		5.0		4.5						
Max Green Setting (Gmax), s	21.5	44.5		20.0		70.5						
Max Q Clear Time (g_c+I1), s	8.2	23.7		13.3		2.0						
Green Ext Time (p_c), s	8.7	6.8		0.9		19.7						
Intersection Summary												
HCM 2010 Ctrl Delay				17.7								
HCM 2010 LOS				B								
Notes												

HCM Signalized Intersection Capacity Analysis

2: 7th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗			↗	↘	↘	↗	↘			
Traffic Volume (vph)	320	491	0	0	690	367	580	180	300	0	0	0
Future Volume (vph)	320	491	0	0	690	367	580	180	300	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Lane Util. Factor	1.00	0.95			0.95	1.00	0.95	0.95	1.00			
Frbp, ped/bikes	1.00	1.00			1.00	0.87	1.00	1.00	0.98			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (prot)	1787	3574			3539	1381	1698	1741	1563			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (perm)	1787	3574			3539	1381	1698	1741	1563			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	333	511	0	0	719	382	604	188	312	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	105	0	0	218	0	0	0
Lane Group Flow (vph)	333	511	0	0	719	277	393	399	95	0	0	0
Confl. Peds. (#/hr)	24		22	22		24			6	6		
Confl. Bikes (#/hr)			2			1			1			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Prot	NA			NA	Perm	Split	NA	Perm			
Protected Phases	5	2			6		8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	21.9	60.5			34.1	34.1	30.5	30.5	30.5			
Effective Green, g (s)	21.9	60.5			34.1	34.1	30.5	30.5	30.5			
Actuated g/C Ratio	0.22	0.60			0.34	0.34	0.30	0.30	0.30			
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Vehicle Extension (s)	2.5	2.5			2.5	2.5	2.5	2.5	2.5			
Lane Grp Cap (vph)	391	2162			1206	470	517	531	476			
v/s Ratio Prot	c0.19	0.14			c0.20		c0.23	0.23				
v/s Ratio Perm						0.20			0.06			
v/c Ratio	0.85	0.24			0.60	0.59	0.76	0.75	0.20			
Uniform Delay, d1	37.5	9.1			27.3	27.2	31.4	31.3	25.7			
Progression Factor	1.30	0.64			1.01	1.22	1.00	1.00	1.00			
Incremental Delay, d2	14.6	0.2			2.0	4.8	10.1	9.4	0.9			
Delay (s)	63.4	6.0			29.6	38.1	41.5	40.8	26.7			
Level of Service	E	A			C	D	D	D	C			
Approach Delay (s)		28.7			32.5			37.1			0.0	
Approach LOS		C			C			D			A	

Intersection Summary

HCM 2000 Control Delay	33.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

















HCM 2010 Signalized Intersection Summary
3: 9th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	666	30	5	967	5	40	20	30	15	10	15
Future Volume (veh/h)	20	666	30	5	967	5	40	20	30	15	10	15
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	0.97		0.95	0.97		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1900	1900	1863	1900	1900	1792	1900	1900	1900	1900
Adj Flow Rate, veh/h	20	680	31	5	987	5	41	20	31	15	10	15
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	2	2	2	6	6	6	0	0	0
Cap, veh/h	65	1908	86	39	2063	10	246	122	160	221	151	193
Arrive On Green	0.19	0.19	0.19	0.58	0.58	0.58	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	46	3261	147	4	3526	18	587	369	486	519	457	585
Grp Volume(v), veh/h	377	0	354	522	0	475	92	0	0	40	0	0
Grp Sat Flow(s),veh/h/ln	1776	0	1677	1857	0	1691	1442	0	0	1561	0	0
Q Serve(g_s), s	0.0	0.0	18.3	0.0	0.0	16.2	1.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	17.3	0.0	18.3	16.2	0.0	16.2	4.2	0.0	0.0	1.6	0.0	0.0
Prop In Lane	0.05		0.09	0.01		0.01	0.45		0.34	0.37		0.37
Lane Grp Cap(c), veh/h	1077	0	981	1122	0	989	528	0	0	565	0	0
V/C Ratio(X)	0.35	0.00	0.36	0.46	0.00	0.48	0.17	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	1077	0	981	1122	0	989	528	0	0	565	0	0
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.7	0.0	24.1	12.0	0.0	12.0	23.8	0.0	0.0	23.0	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	1.0	1.4	0.0	1.7	0.7	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.3	0.0	8.8	8.7	0.0	8.0	1.9	0.0	0.0	0.8	0.0	0.0
LnGrp Delay(d),s/veh	24.6	0.0	25.2	13.3	0.0	13.6	24.5	0.0	0.0	23.2	0.0	0.0
LnGrp LOS	C		C	B		B	C			C		
Approach Vol, veh/h		731			997			92				40
Approach Delay, s/veh		24.9			13.5			24.5				23.2
Approach LOS		C			B			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		63.0		37.0		63.0		37.0				
Change Period (Y+Rc), s		4.5		4.0		4.5		4.0				
Max Green Setting (Gmax), s		58.5		33.0		58.5		33.0				
Max Q Clear Time (g_c+I1), s		18.2		6.2		20.3		3.6				
Green Ext Time (p_c), s		2.1		0.1		2.1		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				18.7								
HCM 2010 LOS				B								
















HCM 2010 Signalized Intersection Summary
4: Roosevelt Way NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	625	96	110	877	0	0	0	0	121	910	110
Future Volume (veh/h)	0	625	96	110	877	0	0	0	0	121	910	110
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		1.00				1.00		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1900	1900	1900	0				1900	1881	1881
Adj Flow Rate, veh/h	0	644	99	113	904	0				125	938	113
Adj No. of Lanes	0	2	0	0	2	0				0	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	1	1	0	0	0				1	1	1
Cap, veh/h	0	1184	182	0	2004	0				146	1149	511
Arrive On Green	0.00	0.38	0.38	0.25	1.00	0.00				0.35	0.35	0.35
Sat Flow, veh/h	0	3171	472	0	3705	0				410	3238	1438
Grp Volume(v), veh/h	0	374	369	0	904	0				567	496	113
Grp Sat Flow(s),veh/h/ln	0	1787	1761	0	1805	0				1861	1787	1438
Q Serve(g_s), s	0.0	16.3	16.3	0.0	0.0	0.0				28.3	24.8	5.5
Cycle Q Clear(g_c), s	0.0	16.3	16.3	0.0	0.0	0.0				28.3	24.8	5.5
Prop In Lane	0.00		0.27	0.00		0.00				0.22		1.00
Lane Grp Cap(c), veh/h	0	688	678	0	2004	0				661	634	511
V/C Ratio(X)	0.00	0.54	0.54	0.00	0.45	0.00				0.86	0.78	0.22
Avail Cap(c_a), veh/h	0	688	678	0	2004	0				661	634	511
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	23.9	23.9	0.0	0.0	0.0				29.9	28.8	22.6
Incr Delay (d2), s/veh	0.0	3.1	3.1	0.0	0.7	0.0				13.7	9.3	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.6	8.5	0.0	0.2	0.0				17.0	13.7	2.3
LnGrp Delay(d),s/veh	0.0	27.0	27.1	0.0	0.7	0.0				43.6	38.0	23.6
LnGrp LOS		C	C		A					D	D	C
Approach Vol, veh/h		743			904						1176	
Approach Delay, s/veh		27.0			0.7						39.3	
Approach LOS		C			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		60.0			17.0	43.0		40.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		55.5			12.5	38.5		35.5				
Max Q Clear Time (g_c+I1), s		2.0			0.0	18.3		30.3				
Green Ext Time (p_c), s		1.4			0.0	0.8		0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			23.7									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
5: 11th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	661	0	0	685	78	292	924	90	0	0	0
Future Volume (veh/h)	70	661	0	0	685	78	292	924	90	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.90	1.00		0.92			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1881	0	0	1881	1900	1900	1863	1900			
Adj Flow Rate, veh/h	74	703	0	0	729	83	311	983	96			
Adj No. of Lanes	0	2	0	0	2	0	0	2	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	1	1	0	0	1	1	0	2	0			
Cap, veh/h	44	837	0	0	1022	116	375	1250	127			
Arrive On Green	0.85	0.85	0.00	0.00	0.64	0.64	0.16	0.16	0.16			
Sat Flow, veh/h	1	2056	0	0	3286	363	774	2578	261			
Grp Volume(v), veh/h	368	409	0	0	408	404	733	0	657			
Grp Sat Flow(s),veh/h/ln	345	1627	0	0	1787	1768	1824	0	1788			
Q Serve(g_s), s	18.0	7.6	0.0	0.0	15.1	15.2	38.9	0.0	35.1			
Cycle Q Clear(g_c), s	18.0	7.6	0.0	0.0	15.1	15.2	38.9	0.0	35.1			
Prop In Lane	0.20		0.00	0.00		0.21	0.42		0.15			
Lane Grp Cap(c), veh/h	0	691	0	0	572	566	885	0	867			
V/C Ratio(X)	0.00	0.59	0.00	0.00	0.71	0.71	0.83	0.00	0.76			
Avail Cap(c_a), veh/h	0	691	0	0	572	566	885	0	867			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	4.9	0.0	0.0	15.0	15.0	38.0	0.0	36.4			
Incr Delay (d2), s/veh	0.0	3.7	0.0	0.0	7.4	7.5	8.8	0.0	6.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	3.9	0.0	0.0	8.4	8.4	21.9	0.0	18.9			
LnGrp Delay(d),s/veh	0.0	8.6	0.0	0.0	22.4	22.5	46.8	0.0	42.5			
LnGrp LOS		A			C	C	D		D			
Approach Vol, veh/h		777			812			1390				
Approach Delay, s/veh		4.5			22.4			44.8				
Approach LOS		A			C			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		36.5		53.0		47.0						
Change Period (Y+Rc), s		* 4.5		4.5		4.5						
Max Green Setting (Gmax), s		* 32		48.5		42.5						
Max Q Clear Time (g_c+I1), s		17.2		40.9		20.0						
Green Ext Time (p_c), s		0.9		1.5		1.1						
Intersection Summary												
HCM 2010 Ctrl Delay				28.2								
HCM 2010 LOS				C								
Notes												

HCM Signalized Intersection Capacity Analysis
6: Brooklyn Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	90	550	74	35	733	30	10	40	60	10	100	60
Future Volume (vph)	90	550	74	35	733	30	10	40	60	10	100	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.94			0.99			0.93			0.97	
Flpb, ped/bikes		0.99			0.99			1.00			0.99	
Frt		0.98			0.99			0.93			0.95	
Flt Protected		0.99			1.00			1.00			1.00	
Satd. Flow (prot)		3241			3408			1626			1713	
Flt Permitted		0.68			0.89			0.98			0.99	
Satd. Flow (perm)		2203			3047			1597			1696	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	94	573	77	36	764	31	10	42	62	10	104	62
RTOR Reduction (vph)	0	9	0	0	3	0	0	35	0	0	20	0
Lane Group Flow (vph)	0	735	0	0	828	0	0	80	0	0	157	0
Confl. Peds. (#/hr)	120		200	200		120	92		159	159		92
Confl. Bikes (#/hr)			1			3			14			1
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	0%	0%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		47.5			47.5			44.0			44.0	
Effective Green, g (s)		47.5			47.5			44.0			44.0	
Actuated g/C Ratio		0.48			0.48			0.44			0.44	
Clearance Time (s)		4.5			4.5			4.0			4.0	
Lane Grp Cap (vph)		1046			1447			702			746	
v/s Ratio Prot												
v/s Ratio Perm		c0.33			0.27			0.05			c0.09	
v/c Ratio		0.70			0.57			0.11			0.21	
Uniform Delay, d1		20.7			18.9			16.5			17.3	
Progression Factor		0.33			0.31			0.00			1.00	
Incremental Delay, d2		2.7			1.4			0.3			0.6	
Delay (s)		9.6			7.3			0.3			17.9	
Level of Service		A			A			A			B	
Approach Delay (s)		9.6			7.3			0.3			17.9	
Approach LOS		A			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	91.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

















HCM 2010 Signalized Intersection Summary
7: University Way NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	438	52	50	681	20	47	130	45	45	95	80
Future Volume (veh/h)	160	438	52	50	681	20	47	130	45	45	95	80
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.94		0.80	0.91		0.80	0.90		0.82	0.89		0.84
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1845	1900	1900	1792	1900	1900	1743	1900
Adj Flow Rate, veh/h	170	466	55	53	724	21	50	138	48	48	101	85
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	3	3	3	6	6	6	9	9	9
Cap, veh/h	342	904	107	122	1577	45	143	370	120	129	255	194
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.78	0.78	0.39	0.39	0.39
Sat Flow, veh/h	544	1738	207	157	3032	87	254	948	307	220	654	499
Grp Volume(v), veh/h	265	0	426	401	0	397	236	0	0	234	0	0
Grp Sat Flow(s),veh/h/ln	889	0	1599	1637	0	1638	1509	0	0	1373	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	11.7	0.0	0.0
Prop In Lane	0.64		0.13	0.13		0.05	0.21		0.20	0.21		0.36
Lane Grp Cap(c), veh/h	521	0	832	892	0	852	632	0	0	579	0	0
V/C Ratio(X)	0.51	0.00	0.51	0.45	0.00	0.47	0.37	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	521	0	832	892	0	852	632	0	0	579	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	7.2	0.0	0.0	22.0	0.0	0.0
Incr Delay (d2), s/veh	3.5	0.0	2.2	1.6	0.0	1.8	1.7	0.0	0.0	2.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.5	0.4	0.0	0.4	2.3	0.0	0.0	5.0	0.0	0.0
LnGrp Delay(d),s/veh	3.5	0.0	2.2	1.6	0.0	1.8	8.9	0.0	0.0	24.1	0.0	0.0
LnGrp LOS	A		A	A		A	A			C		
Approach Vol, veh/h		691			798			236			234	
Approach Delay, s/veh		2.7			1.7			8.9			24.1	
Approach LOS		A			A			A			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		56.5		43.5		56.5		43.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		52.0		39.0		52.0		39.0				
Max Q Clear Time (g_c+I1), s		2.0		6.4		2.0		13.7				
Green Ext Time (p_c), s		2.5		0.7		2.5		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay				5.6								
HCM 2010 LOS				A								

HCM 2010 Signalized Intersection Summary
8: 15th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	338	85	35	416	35	270	655	45	15	355	25
Future Volume (veh/h)	95	338	85	35	416	35	270	655	45	15	355	25
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.74	0.99		0.84	0.99		0.92	0.98		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1900	1900	1881	1900	1900	1827	1900	1900	1845	1900
Adj Flow Rate, veh/h	100	356	89	37	438	37	284	689	47	16	374	26
Adj No. of Lanes	0	2	0	0	2	0	0	2	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	1	1	1	4	4	4	3	3	3
Cap, veh/h	164	593	160	87	982	85	451	1005	69	53	904	61
Arrive On Green	0.35	0.35	0.35	0.35	0.35	0.35	1.00	1.00	1.00	0.56	0.56	0.56
Sat Flow, veh/h	323	1669	452	129	2765	240	702	1811	125	29	1628	110
Grp Volume(v), veh/h	269	0	276	263	0	249	408	0	612	416	0	0
Grp Sat Flow(s),veh/h/ln	1046	0	1399	1517	0	1617	1010	0	1628	1767	0	0
Q Serve(g_s), s	13.9	0.0	15.8	0.8	0.0	11.8	2.5	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	25.7	0.0	15.8	16.7	0.0	11.8	15.7	0.0	0.0	13.2	0.0	0.0
Prop In Lane	0.37		0.32	0.14		0.15	0.70		0.08	0.04		0.06
Lane Grp Cap(c), veh/h	421	0	496	580	0	574	622	0	904	1018	0	0
V/C Ratio(X)	0.64	0.00	0.55	0.45	0.00	0.43	0.66	0.00	0.68	0.41	0.00	0.00
Avail Cap(c_a), veh/h	421	0	496	580	0	574	622	0	904	1018	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	30.5	0.0	25.9	24.3	0.0	24.6	0.2	0.0	0.0	12.8	0.0	0.0
Incr Delay (d2), s/veh	7.3	0.0	4.4	2.5	0.0	2.4	5.4	0.0	4.1	1.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.5	0.0	6.7	5.8	0.0	5.6	1.7	0.0	1.0	6.9	0.0	0.0
LnGrp Delay(d),s/veh	37.8	0.0	30.3	26.8	0.0	27.0	5.5	0.0	4.1	14.1	0.0	0.0
LnGrp LOS	D		C	C		C	A		A	B		
Approach Vol, veh/h		545			512			1020			416	
Approach Delay, s/veh		34.0			26.9			4.7			14.1	
Approach LOS		C			C			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.0		60.0		40.0		60.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		35.5		55.5		35.5		55.5				
Max Q Clear Time (g_c+I1), s		18.7		17.7		27.7		15.2				
Green Ext Time (p_c), s		6.7		14.2		4.1		14.5				
Intersection Summary												
HCM 2010 Ctrl Delay				17.2								
HCM 2010 LOS				B								

HCM Signalized Intersection Capacity Analysis
 9: 17th Ave NE & NE 50th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕			↕↕	
Traffic Volume (vph)	20	383	115	25	334	10	227	80	20	15	80	30
Future Volume (vph)	20	383	115	25	334	10	227	80	20	15	80	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frbp, ped/bikes		0.96			1.00			0.99			0.96	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.99			0.97	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		3268			1835			1787			1738	
Flt Permitted		0.93			0.94			0.97			0.99	
Satd. Flow (perm)		3042			1732			1787			1738	
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)	22	421	126	27	367	11	249	88	22	16	88	33
RTOR Reduction (vph)	0	24	0	0	1	0	0	2	0	0	10	0
Lane Group Flow (vph)	0	545	0	0	404	0	0	357	0	0	127	0
Confl. Peds. (#/hr)	56		83	83		56	87		66	66		87
Confl. Bikes (#/hr)						2			42			4
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			2		4	4		3	3	
Permitted Phases	2			2								
Actuated Green, G (s)		42.0			42.0			33.5			21.5	
Effective Green, g (s)		42.0			42.0			33.5			21.5	
Actuated g/C Ratio		0.38			0.38			0.30			0.19	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			3.0			3.0	
Lane Grp Cap (vph)		1156			658			541			338	
v/s Ratio Prot								c0.20			c0.07	
v/s Ratio Perm		0.18			c0.23							
v/c Ratio		0.47			0.61			0.66			0.37	
Uniform Delay, d1		25.9			27.7			33.5			38.7	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.4			4.3			6.2			3.2	
Delay (s)		27.3			32.0			39.7			41.8	
Level of Service		C			C			D			D	
Approach Delay (s)		27.3			32.0			39.7			41.8	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	110.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c	Critical Lane Group		

Intersection	
Intersection Delay, s/veh	16.3
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	315	30	53	0	5	30	5	0	89	60	5
Future Vol, veh/h	0	315	30	53	0	5	30	5	0	89	60	5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	3	3	3	3	1	1	1	1
Mvmt Flow	0	354	34	60	0	6	34	6	0	100	67	6
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	20.4	9.9	11.7
HCM LOS	C	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	58%	79%	12%	2%
Vol Thru, %	39%	8%	75%	17%
Vol Right, %	3%	13%	12%	82%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	154	398	40	330
LT Vol	89	315	5	5
Through Vol	60	30	30	55
RT Vol	5	53	5	270
Lane Flow Rate	173	447	45	371
Geometry Grp	1	1	1	1
Degree of Util (X)	0.292	0.694	0.078	0.538
Departure Headway (Hd)	6.074	5.586	6.263	5.226
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	588	644	567	686
Service Time	4.149	3.637	4.353	3.288
HCM Lane V/C Ratio	0.294	0.694	0.079	0.541
HCM Control Delay	11.7	20.4	9.9	14.3
HCM Lane LOS	B	C	A	B
HCM 95th-tile Q	1.2	5.5	0.3	3.2

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	5	55	270
Future Vol, veh/h	0	5	55	270
Peak Hour Factor	0.89	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3
Mvmt Flow	0	6	62	303
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	14.3
HCM LOS	B

HCM Signalized Intersection Capacity Analysis
 11: Roosevelt Way NE & NE 47th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Traffic Volume (vph)	0	90	45	145	70	0	0	0	0	105	1036	35
Future Volume (vph)	0	90	45	145	70	0	0	0	0	105	1036	35
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0						4.5	
Lane Util. Factor		1.00			1.00						0.95	
Frbp, ped/bikes		0.96			1.00						0.99	
Flpb, ped/bikes		1.00			0.94						0.99	
Frt		0.95			1.00						1.00	
Flt Protected		1.00			0.97						1.00	
Satd. Flow (prot)		1742			1713						3452	
Flt Permitted		1.00			0.71						1.00	
Satd. Flow (perm)		1742			1259						3452	
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	96	48	154	74	0	0	0	0	112	1102	37
RTOR Reduction (vph)	0	11	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	133	0	0	228	0	0	0	0	0	1247	0
Confl. Peds. (#/hr)	78		113	113		78	114		59	59		114
Confl. Bikes (#/hr)			6			23						11
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		14.7			14.7						25.8	
Effective Green, g (s)		14.7			14.7						25.8	
Actuated g/C Ratio		0.29			0.29						0.52	
Clearance Time (s)		5.0			5.0						4.5	
Vehicle Extension (s)		4.0			4.0						0.2	
Lane Grp Cap (vph)		512			370						1781	
v/s Ratio Prot		0.08										
v/s Ratio Perm					c0.18						0.36	
v/c Ratio		0.26			0.62						0.70	
Uniform Delay, d1		13.5			15.2						9.2	
Progression Factor		1.00			0.86						0.93	
Incremental Delay, d2		0.4			2.4						1.3	
Delay (s)		13.9			15.4						9.9	
Level of Service		B			B						A	
Approach Delay (s)		13.9			15.4			0.0			9.9	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			11.0		HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			50.0		Sum of lost time (s)			9.5				
Intersection Capacity Utilization			74.9%		ICU Level of Service			D				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 12: 11th Ave NE & NE 47th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↔				
Traffic Volume (vph)	0	135	0	0	160	180	50	1076	185	0	0	0
Future Volume (vph)	0	135	0	0	160	180	50	1076	185	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			0.93			0.98				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.93			0.98				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1900			1613			3405				
Flt Permitted		1.00			1.00			1.00				
Satd. Flow (perm)		1900			1613			3405				
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)	0	145	0	0	172	194	54	1157	199	0	0	0
RTOR Reduction (vph)	0	0	0	0	27	0	0	25	0	0	0	0
Lane Group Flow (vph)	0	145	0	0	339	0	0	1385	0	0	0	0
Confl. Peds. (#/hr)	89		93	93		89	44		48	48		44
Confl. Bikes (#/hr)			14			30			81			
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type		NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		13.2			13.2			26.8				
Effective Green, g (s)		13.2			13.2			26.8				
Actuated g/C Ratio		0.26			0.26			0.54				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.0			2.0			0.2				
Lane Grp Cap (vph)		501			425			1825				
v/s Ratio Prot		0.08			0.21							
v/s Ratio Perm								0.41				
v/c Ratio		0.29			0.80			0.76				
Uniform Delay, d1		14.7			17.2			9.1				
Progression Factor		1.01			1.00			1.22				
Incremental Delay, d2		0.1			9.3			2.0				
Delay (s)		14.9			26.5			13.0				
Level of Service		B			C			B				
Approach Delay (s)		14.9			26.5			13.0			0.0	
Approach LOS		B			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.7					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			50.0					Sum of lost time (s)		10.0		
Intersection Capacity Utilization			71.7%					ICU Level of Service		C		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis
 13: 15th Ave NE & NE 47th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	50	75	70	25	65	65	50	880	30	30	460	15
Future Volume (vph)	50	75	70	25	65	65	50	880	30	30	460	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frbp, ped/bikes		0.94			0.94			0.99			0.99	
Flpb, ped/bikes		0.97			0.98			0.99			1.00	
Frt		0.95			0.94			1.00			1.00	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1624			1607			3424			1755	
Flt Permitted		0.89			0.93			0.91			0.91	
Satd. Flow (perm)		1464			1513			3109			1606	
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)	54	81	75	27	70	70	54	946	32	32	495	16
RTOR Reduction (vph)	0	40	0	0	36	0	0	5	0	0	2	0
Lane Group Flow (vph)	0	170	0	0	131	0	0	1027	0	0	541	0
Confl. Peds. (#/hr)	140		146	146		140	175		131	131		175
Confl. Bikes (#/hr)			6			4			24			4
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	3%	3%	3%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		15.0			15.0			26.5			26.5	
Effective Green, g (s)		15.0			15.0			26.5			26.5	
Actuated g/C Ratio		0.30			0.30			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		439			453			1647			851	
v/s Ratio Prot												
v/s Ratio Perm		c0.12			0.09			0.33			c0.34	
v/c Ratio		0.39			0.29			0.62			0.64	
Uniform Delay, d1		13.9			13.4			8.2			8.3	
Progression Factor		1.05			1.00			0.71			0.65	
Incremental Delay, d2		2.2			1.6			0.7			3.3	
Delay (s)		16.7			15.0			6.6			8.7	
Level of Service		B			B			A			A	
Approach Delay (s)		16.7			15.0			6.6			8.7	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.0									A
HCM 2000 Volume to Capacity ratio			0.55									
Actuated Cycle Length (s)			50.0								8.5	
Intersection Capacity Utilization			77.3%									D
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 14: 5th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour

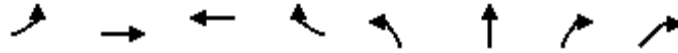


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑					↑	↑↑	
Traffic Volume (vph)	0	670	260	535	904	0	0	0	0	200	225	160
Future Volume (vph)	0	670	260	535	904	0	0	0	0	200	225	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5					5.0	5.0	
Lane Util. Factor		0.95		0.97	0.95					0.91	0.91	
Frbp, ped/bikes		0.96		1.00	1.00					1.00	0.97	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.96		1.00	1.00					1.00	0.94	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3278		3433	3539					1579	3042	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		3278		3433	3539					1579	3042	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	698	271	557	942	0	0	0	0	208	234	167
RTOR Reduction (vph)	0	43	0	0	0	0	0	0	0	0	88	0
Lane Group Flow (vph)	0	926	0	557	942	0	0	0	0	187	334	0
Confl. Peds. (#/hr)	128		138	138		128	35					35
Confl. Bikes (#/hr)			2			8						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type		NA		Prot	NA					Split	NA	
Protected Phases		2		1	6					4	4	
Permitted Phases												
Actuated Green, G (s)		34.2		30.8	69.5					21.0	21.0	
Effective Green, g (s)		34.2		30.8	69.5					21.0	21.0	
Actuated g/C Ratio		0.34		0.31	0.70					0.21	0.21	
Clearance Time (s)		4.5		4.5	4.5					5.0	5.0	
Vehicle Extension (s)		3.0		4.0	4.0					3.0	3.0	
Lane Grp Cap (vph)		1121		1057	2459					331	638	
v/s Ratio Prot		c0.28		c0.16	0.27					c0.12	0.11	
v/s Ratio Perm												
v/c Ratio		0.83		0.53	0.38					0.56	0.52	
Uniform Delay, d1		30.2		28.6	6.3					35.4	35.1	
Progression Factor		1.00		0.58	0.16					0.93	0.88	
Incremental Delay, d2		5.1		1.0	0.2					6.2	2.8	
Delay (s)		35.3		17.6	1.3					39.3	33.8	
Level of Service		D		B	A					D	C	
Approach Delay (s)		35.3			7.3			0.0			35.4	
Approach LOS		D			A			A			D	

Intersection Summary		
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.65	
Actuated Cycle Length (s)	100.0	Sum of lost time (s) 14.0
Intersection Capacity Utilization	77.1%	ICU Level of Service D
Analysis Period (min)	15	
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
 15: 7th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	NER
Lane Configurations								
Traffic Volume (vph)	230	650	905	312	564	440	513	60
Future Volume (vph)	230	650	905	312	564	440	513	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5	4.5	3.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.91		1.00	0.99	0.96	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.96		1.00	0.98	0.85	0.86
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1736	3471	3051		3400	1706	1430	1596
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	1.00
Satd. Flow (perm)	1736	3471	3051		3400	1706	1430	1596
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	242	684	953	328	594	463	540	63
RTOR Reduction (vph)	0	0	34	0	0	6	80	0
Lane Group Flow (vph)	242	684	1247	0	594	533	384	63
Confl. Peds. (#/hr)	294			294	95		24	
Confl. Bikes (#/hr)				24				
Heavy Vehicles (%)	4%	4%	4%	4%	3%	3%	3%	3%
Turn Type	Prot	NA	NA		Split	NA	Perm	custom
Protected Phases	5	2	6		4	4		1
Permitted Phases							4	2
Actuated Green, G (s)	14.9	55.1	41.1		30.5	30.5	30.5	57.5
Effective Green, g (s)	14.9	55.1	41.1		30.5	30.5	30.5	57.5
Actuated g/C Ratio	0.15	0.55	0.41		0.30	0.30	0.30	0.58
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5	4.5	3.0
Vehicle Extension (s)	3.0	4.0	4.0		4.0	4.0	4.0	1.0
Lane Grp Cap (vph)	258	1912	1253		1037	520	436	917
v/s Ratio Prot	c0.14	0.20	c0.41		0.17	c0.31		0.00
v/s Ratio Perm							0.27	0.04
v/c Ratio	0.94	0.36	1.00		0.57	1.02	0.88	0.07
Uniform Delay, d1	42.1	12.6	29.3		29.3	34.8	33.0	9.4
Progression Factor	1.35	1.10	0.46		1.00	1.00	1.00	1.00
Incremental Delay, d2	31.5	0.4	22.6		2.3	45.8	21.7	0.0
Delay (s)	88.4	14.1	36.2		31.6	80.6	54.8	9.4
Level of Service	F	B	D		C	F	D	A
Approach Delay (s)		33.6	36.2			54.8		
Approach LOS		C	D			D		

Intersection Summary			
HCM 2000 Control Delay	42.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Int Delay, s/veh 2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑		↑
Traffic Vol, veh/h	1093	10	10	1207	5	95
Future Vol, veh/h	1093	10	10	1207	5	95
Conflicting Peds, #/hr	0	224	224	0	224	224
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	10	-	-	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	1175	11	11	1298	5	102

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	1410	2299
Stage 1	-	-	1405
Stage 2	-	-	894
Critical Hdwy	-	4.16	6.8
Critical Hdwy Stg 1	-	-	5.8
Critical Hdwy Stg 2	-	-	5.8
Follow-up Hdwy	-	2.23	3.5
Pot Cap-1 Maneuver	-	475	33
Stage 1	-	-	196
Stage 2	-	-	365
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	386	21
Mov Cap-2 Maneuver	-	-	102
Stage 1	-	-	159
Stage 2	-	-	288

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	67.2
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	152	-	-	386	-
HCM Lane V/C Ratio	0.672	-	-	0.028	-
HCM Control Delay (s)	67.2	-	-	14.6	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	3.8	-	-	0.1	-

Intersection

Int Delay, s/veh 1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	95	1098	1192	30	5	25
Future Vol, veh/h	95	1098	1192	30	5	25
Conflicting Peds, #/hr	150	0	0	148	148	150
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	10	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	100	1156	1255	32	5	26

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1436	0	2347
Stage 1	-	-	1421
Stage 2	-	-	926
Critical Hdwy	4.16	-	7.5
Critical Hdwy Stg 1	-	-	6.5
Critical Hdwy Stg 2	-	-	6.5
Follow-up Hdwy	2.23	-	3.5
Pot Cap-1 Maneuver	464	-	20
Stage 1	-	-	146
Stage 2	-	-	293
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	406	-	12
Mov Cap-2 Maneuver	-	-	63
Stage 1	-	-	96
Stage 2	-	-	194

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	35.5
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	406	-	-	-	149
HCM Lane V/C Ratio	0.246	-	-	-	0.212
HCM Control Delay (s)	16.7	-	-	-	35.5
HCM Lane LOS	C	-	-	-	E
HCM 95th %tile Q(veh)	1	-	-	-	0.8

HCM Signalized Intersection Capacity Analysis

18: Roosevelt Way NE & NE 45th St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑						↖↑	↖
Traffic Volume (vph)	0	877	241	307	1082	0	0	0	0	45	1036	135
Future Volume (vph)	0	877	241	307	1082	0	0	0	0	45	1036	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5						4.5	4.5
Lane Util. Factor		0.95		1.00	0.95						0.95	1.00
Frbp, ped/bikes		0.93		1.00	1.00						1.00	0.65
Flpb, ped/bikes		1.00		1.00	1.00						0.99	1.00
Frt		0.97		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						1.00	1.00
Satd. Flow (prot)		3161		1736	3471						3512	1037
Flt Permitted		1.00		0.11	1.00						1.00	1.00
Satd. Flow (perm)		3161		196	3471						3512	1037
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	914	251	320	1127	0	0	0	0	47	1079	141
RTOR Reduction (vph)	0	25	0	0	0	0	0	0	0	0	0	43
Lane Group Flow (vph)	0	1140	0	320	1127	0	0	0	0	0	1126	98
Confl. Peds. (#/hr)	269		232	232		269	298		90	90		298
Confl. Bikes (#/hr)			2			17						35
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	0%	0%	0%	2%	2%	2%
Turn Type		NA		D.P+P	NA					Perm	NA	Perm
Protected Phases		2		3	2 3						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		37.2		53.2	57.7						33.3	33.3
Effective Green, g (s)		37.2		53.2	57.7						33.3	33.3
Actuated g/C Ratio		0.37		0.53	0.58						0.33	0.33
Clearance Time (s)		4.5		4.5							4.5	4.5
Vehicle Extension (s)		0.2		1.0							1.0	1.0
Lane Grp Cap (vph)		1175		350	2002						1169	345
v/s Ratio Prot		c0.36		c0.15	0.32							
v/s Ratio Perm				0.34							0.32	0.09
v/c Ratio		0.97		0.91	0.56						0.96	0.28
Uniform Delay, d1		30.9		27.8	13.3						32.7	24.6
Progression Factor		0.99		1.46	0.60						0.94	0.90
Incremental Delay, d2		18.1		21.9	0.2						14.8	0.1
Delay (s)		48.7		62.5	8.1						45.5	22.2
Level of Service		D		E	A						D	C
Approach Delay (s)		48.7			20.1			0.0			42.9	
Approach LOS		D			C			A			D	

Intersection Summary

HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	95.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 19: 11th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑		↑	↑↑	↑			
Traffic Volume (vph)	10	882	0	0	982	35	392	1211	261	0	0	0
Future Volume (vph)	10	882	0	0	982	35	392	1211	261	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5	4.5			
Lane Util. Factor		0.95			0.95		1.00	0.95	1.00			
Frbp, ped/bikes		1.00			0.99		1.00	1.00	0.77			
Flpb, ped/bikes		1.00			1.00		0.91	1.00	1.00			
Frt		1.00			0.99		1.00	1.00	0.85			
Flt Protected		1.00			1.00		0.95	1.00	1.00			
Satd. Flow (prot)		3503			3413		1623	3574	1237			
Flt Permitted		0.94			1.00		0.95	1.00	1.00			
Satd. Flow (perm)		3290			3413		1623	3574	1237			
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)	11	938	0	0	1045	37	417	1288	278	0	0	0
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	16	0	0	0
Lane Group Flow (vph)	0	949	0	0	1079	0	417	1288	262	0	0	0
Confl. Peds. (#/hr)	243		130	130		243	55		112	112		55
Confl. Bikes (#/hr)						16			93			
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		2			2			4				
Permitted Phases	2						4		4			
Actuated Green, G (s)		45.3			45.3		45.7	45.7	45.7			
Effective Green, g (s)		45.3			45.3		45.7	45.7	45.7			
Actuated g/C Ratio		0.45			0.45		0.46	0.46	0.46			
Clearance Time (s)		4.5			4.5		4.5	4.5	4.5			
Vehicle Extension (s)		0.2			0.2		2.0	2.0	2.0			
Lane Grp Cap (vph)		1490			1546		741	1633	565			
v/s Ratio Prot					c0.32			c0.36				
v/s Ratio Perm		0.29					0.26		0.21			
v/c Ratio		0.64			0.70		0.56	0.79	0.46			
Uniform Delay, d1		21.0			21.9		19.8	23.1	18.7			
Progression Factor		0.11			0.94		0.60	0.57	0.57			
Incremental Delay, d2		0.6			2.3		0.3	0.4	0.2			
Delay (s)		3.0			23.0		12.1	13.6	10.9			
Level of Service		A			C		B	B	B			
Approach Delay (s)		3.0			23.0			12.9			0.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
20: 12th Ave NE & NE 45th St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1032	61	49	952	15	35	60	40	15	52	30
Future Volume (vph)	85	1032	61	49	952	15	35	60	40	15	52	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.0	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frbp, ped/bikes	1.00	0.96		1.00	0.99			0.94			0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98			0.98	
Frt	1.00	0.99		1.00	1.00			0.96			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1736	3315		1703	3367			1610			1596	
Flt Permitted	0.95	1.00		0.95	1.00			0.91			0.95	
Satd. Flow (perm)	1736	3315		1703	3367			1484			1533	
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)	90	1098	65	52	1013	16	37	64	43	16	55	32
RTOR Reduction (vph)	0	3	0	0	1	0	0	17	0	0	18	0
Lane Group Flow (vph)	90	1160	0	52	1028	0	0	127	0	0	85	0
Confl. Peds. (#/hr)	214		302	302		214	72		98	98		72
Confl. Bikes (#/hr)			2			9			30			3
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	3%	3%	3%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4			4		
Actuated Green, G (s)	10.2	65.3		5.1	59.7			16.6			16.6	
Effective Green, g (s)	10.2	65.3		5.1	59.7			16.6			16.6	
Actuated g/C Ratio	0.10	0.65		0.05	0.60			0.17			0.17	
Clearance Time (s)	4.5	4.5		4.0	4.5			4.5			4.5	
Vehicle Extension (s)	0.5	0.2		0.5	0.2			1.0			1.0	
Lane Grp Cap (vph)	177	2164		86	2010			246			254	
v/s Ratio Prot	c0.05	c0.35		0.03	0.31							
v/s Ratio Perm								c0.09			0.06	
v/c Ratio	0.51	0.54		0.60	0.51			0.52			0.34	
Uniform Delay, d1	42.5	9.3		46.5	11.7			38.0			36.8	
Progression Factor	0.81	0.35		0.95	0.39			1.00			1.00	
Incremental Delay, d2	0.7	0.8		6.6	0.8			0.8			0.3	
Delay (s)	35.2	4.0		50.9	5.3			38.8			37.1	
Level of Service	D	A		D	A			D			D	
Approach Delay (s)		6.3			7.5			38.8			37.1	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	9.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 21: Brooklyn Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	957	40	45	876	15	65	5	10	50	19	155
Future Volume (vph)	120	957	40	45	876	15	65	5	10	50	19	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5			4.5			4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95			0.95			1.00	1.00		1.00	1.00
Frbp, ped/bikes	1.00	0.96			0.99			1.00	0.68		1.00	0.74
Flpb, ped/bikes	1.00	1.00			0.99			0.79	1.00		0.80	1.00
Frt	1.00	0.99			1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00			1.00			0.96	1.00		0.96	1.00
Satd. Flow (prot)	1736	3324			3360			1428	1104		1453	1179
Flt Permitted	0.95	1.00			0.84			0.69	1.00		0.75	1.00
Satd. Flow (perm)	1736	3324			2828			1028	1104		1131	1179
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)	128	1018	43	48	932	16	69	5	11	53	20	165
RTOR Reduction (vph)	0	3	0	0	1	0	0	0	9	0	0	139
Lane Group Flow (vph)	128	1058	0	0	995	0	0	74	2	0	73	26
Confl. Peds. (#/hr)	337		693	693		337	152		193	193		152
Confl. Bikes (#/hr)			9			12			9			3
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			4			4	
Permitted Phases				6			4		4	4		4
Actuated Green, G (s)	14.0	75.2			57.2			15.8	15.8		15.8	15.8
Effective Green, g (s)	14.0	75.2			57.2			15.8	15.8		15.8	15.8
Actuated g/C Ratio	0.14	0.75			0.57			0.16	0.16		0.16	0.16
Clearance Time (s)	4.0	4.5			4.5			4.5	4.5		4.5	4.5
Vehicle Extension (s)	0.5	0.2			0.2			1.0	1.0		1.0	1.0
Lane Grp Cap (vph)	243	2499			1617			162	174		178	186
v/s Ratio Prot	c0.07	0.32										
v/s Ratio Perm					c0.35			c0.07	0.00		0.06	0.02
v/c Ratio	0.53	0.42			0.62			0.46	0.01		0.41	0.14
Uniform Delay, d1	39.9	4.5			14.1			38.2	35.5		37.9	36.3
Progression Factor	0.74	0.10			0.70			1.00	1.00		1.04	1.53
Incremental Delay, d2	0.8	0.5			1.6			0.7	0.0		0.5	0.1
Delay (s)	30.2	0.9			11.5			39.0	35.5		39.8	55.4
Level of Service	C	A			B			D	D		D	E
Approach Delay (s)		4.1			11.5			38.5			50.6	
Approach LOS		A			B			D			D	

Intersection Summary		
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.57	B
Actuated Cycle Length (s)	100.0	Sum of lost time (s)
Intersection Capacity Utilization	80.5%	13.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		D

HCM Signalized Intersection Capacity Analysis
 22: University Way NE & NE 45th St





















UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↑↑			↑↑			↑↓			↑↓		
Traffic Volume (vph)	5	852	90	5	818	40	33	137	92	5	162	55	
Future Volume (vph)	5	852	90	5	818	40	33	137	92	5	162	55	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.5			4.5			4.5			4.5		
Lane Util. Factor		0.95			0.95			1.00			1.00		
Frbp, ped/bikes		0.92			0.96			0.84			0.88		
Flpb, ped/bikes		1.00			1.00			0.97			1.00		
Frt		0.99			0.99			0.95			0.97		
Flt Protected		1.00			1.00			0.99			1.00		
Satd. Flow (prot)		3135			3415			1366			1523		
Flt Permitted		0.95			0.95			0.93			0.99		
Satd. Flow (perm)		2983			3248			1282			1515		
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)	5	906	96	5	870	43	35	146	98	5	172	59	
RTOR Reduction (vph)	0	1	0	0	3	0	0	3	0	0	7	0	
Lane Group Flow (vph)	0	1006	0	0	915	0	0	276	0	0	229	0	
Confl. Peds. (#/hr)	493		608	608		493	754		597	597		754	
Confl. Bikes (#/hr)			1			7			71			20	
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	7%	7%	7%	5%	5%	5%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		2			2			4			4		
Permitted Phases	2			2			4			4			
Actuated Green, G (s)		65.0			65.0			26.0			26.0		
Effective Green, g (s)		65.0			65.0			26.0			26.0		
Actuated g/C Ratio		0.65			0.65			0.26			0.26		
Clearance Time (s)		4.5			4.5			4.5			4.5		
Vehicle Extension (s)		0.2			0.2			1.0			1.0		
Lane Grp Cap (vph)		1938			2111			333			393		
v/s Ratio Prot													
v/s Ratio Perm		c0.34			0.28			c0.22			0.15		
v/c Ratio		0.52			0.43			0.83			0.58		
Uniform Delay, d1		9.2			8.5			34.9			32.3		
Progression Factor		0.45			0.33			0.90			1.10		
Incremental Delay, d2		0.9			0.5			14.3			1.3		
Delay (s)		5.1			3.3			45.8			36.8		
Level of Service		A			A			D			D		
Approach Delay (s)		5.1			3.3			45.8			36.8		
Approach LOS		A			A			D			D		
Intersection Summary													
HCM 2000 Control Delay			12.1									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.61										
Actuated Cycle Length (s)			100.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			73.2%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

HCM 2010 Signalized Intersection Summary
 23: 15th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	85	740	134	149	730	90	45	805	192	95	485	40
Future Volume (veh/h)	85	740	134	149	730	90	45	805	192	95	485	40
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.79	1.00		0.81	1.00		0.82	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1810	1810	1900	1776	1776	1900	1810	1810	1900
Adj Flow Rate, veh/h	89	771	140	155	760	94	47	839	200	99	505	42
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	5	5	5	7	7	7	5	5	5
Cap, veh/h	112	929	169	173	1098	136	62	863	206	103	1150	95
Arrive On Green	0.13	0.65	0.65	0.20	0.73	0.73	0.07	0.67	0.67	0.12	0.73	0.73
Sat Flow, veh/h	1774	2857	519	1723	2989	369	1691	2578	614	1723	3165	262
Grp Volume(v), veh/h	89	477	434	155	437	417	47	549	490	99	273	274
Grp Sat Flow(s),veh/h/ln	1774	1770	1606	1723	1719	1640	1691	1687	1505	1723	1719	1708
Q Serve(g_s), s	4.9	20.5	20.5	8.8	13.7	13.8	2.7	30.8	30.8	5.7	6.4	6.5
Cycle Q Clear(g_c), s	4.9	20.5	20.5	8.8	13.7	13.8	2.7	30.8	30.8	5.7	6.4	6.5
Prop In Lane	1.00		0.32	1.00		0.23	1.00		0.41	1.00		0.15
Lane Grp Cap(c), veh/h	112	575	522	173	631	602	62	565	504	103	625	621
V/C Ratio(X)	0.80	0.83	0.83	0.90	0.69	0.69	0.76	0.97	0.97	0.96	0.44	0.44
Avail Cap(c_a), veh/h	124	575	522	173	631	602	118	582	519	103	625	621
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	0.84	0.84	0.84	0.84	0.84	0.84	0.73	0.73	0.73	0.73	0.73	0.73
Uniform Delay (d), s/veh	43.1	15.4	15.4	39.5	10.2	10.2	45.9	16.1	16.1	43.9	9.6	9.6
Incr Delay (d2), s/veh	20.8	11.2	12.3	35.3	5.2	5.4	5.2	24.5	26.4	62.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.0	11.3	10.5	5.8	7.0	6.9	1.4	17.6	15.9	4.5	2.9	2.9
LnGrp Delay(d),s/veh	63.9	26.6	27.7	74.8	15.4	15.7	51.2	40.6	42.5	106.0	9.7	9.7
LnGrp LOS	E	C	C	E	B	B	D	D	D	F	A	A
Approach Vol, veh/h		1000			1009			1086			646	
Approach Delay, s/veh		30.4			24.6			41.9			24.5	
Approach LOS		C			C			D			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	10.3	41.2	10.5	38.0	14.5	37.0	7.6	40.8				
Change Period (Y+Rc), s	4.0	4.5	4.5	* 4.5	4.5	* 4.5	4.0	4.5				
Max Green Setting (Gmax), s	7.0	35.5	6.0	* 35	10.0	* 33	7.0	33.5				
Max Q Clear Time (g_c+I1), s	6.9	15.8	7.7	32.8	10.8	22.5	4.7	8.5				
Green Ext Time (p_c), s	0.0	1.9	0.0	0.6	0.0	1.9	0.0	1.1				
Intersection Summary												
HCM 2010 Ctrl Delay				31.2								
HCM 2010 LOS				C								
Notes												

HCM Signalized Intersection Capacity Analysis
 24: Memorial Way NE/17th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	752	275	55	771	50	178	177	46	45	95	25
Future Volume (vph)	20	752	275	55	771	50	178	177	46	45	95	25
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frbp, ped/bikes	1.00	0.93		1.00	0.97		1.00	1.00	0.55		0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85		0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1752	3119		1770	3394		1770	1863	863		1716	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (perm)	1752	3119		1770	3394		1770	1863	863		1716	
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)	22	809	296	59	829	54	191	190	49	48	102	27
RTOR Reduction (vph)	0	33	0	0	4	0	0	0	42	0	7	0
Lane Group Flow (vph)	22	1072	0	59	879	0	191	190	7	0	170	0
Confl. Peds. (#/hr)	218		185	185		218	329		437	437		329
Confl. Bikes (#/hr)			2			3			75			10
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases									4			
Actuated Green, G (s)	2.1	48.6		5.4	51.9		14.2	14.2	14.2		15.3	
Effective Green, g (s)	2.1	48.6		5.4	51.9		14.2	14.2	14.2		15.3	
Actuated g/C Ratio	0.02	0.49		0.05	0.52		0.14	0.14	0.14		0.15	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.0	4.0		4.0	
Vehicle Extension (s)	1.0	0.2		1.0	0.2		0.5	0.5	0.5		2.0	
Lane Grp Cap (vph)	36	1515		95	1761		251	264	122		262	
v/s Ratio Prot	0.01	c0.34		c0.03	c0.26		c0.11	0.10			c0.10	
v/s Ratio Perm									0.01			
v/c Ratio	0.61	0.71		0.62	0.50		0.76	0.72	0.06		0.65	
Uniform Delay, d1	48.5	20.1		46.3	15.6		41.3	41.0	37.1		39.8	
Progression Factor	1.24	0.23		1.44	0.16		1.00	1.00	1.00		1.00	
Incremental Delay, d2	10.9	1.5		8.3	1.0		11.5	7.6	0.1		4.1	
Delay (s)	71.2	6.1		75.1	3.5		52.8	48.6	37.2		44.0	
Level of Service	E	A		E	A		D	D	D		D	
Approach Delay (s)		7.4			8.0			49.2			44.0	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 25: NE 45th St & 18th Ave NE

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Volume (vph)	0	893	876	0	15	25
Future Volume (vph)	0	893	876	0	15	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.0	
Lane Util. Factor		0.95	0.95		1.00	
Frbp, ped/bikes		1.00	1.00		0.86	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	1.00		0.92	
Flt Protected		1.00	1.00		0.98	
Satd. Flow (prot)		3574	3539		1470	
Flt Permitted		1.00	1.00		0.98	
Satd. Flow (perm)		3574	3539		1470	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	971	952	0	16	27
RTOR Reduction (vph)	0	0	0	0	22	0
Lane Group Flow (vph)	0	971	952	0	21	0
Confl. Peds. (#/hr)	209			209	123	121
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	1%	1%	2%	2%	0%	0%
Turn Type		NA	NA		Prot	
Protected Phases		2	2		4	
Permitted Phases						
Actuated Green, G (s)		74.5	74.5		17.0	
Effective Green, g (s)		74.5	74.5		17.0	
Actuated g/C Ratio		0.74	0.74		0.17	
Clearance Time (s)		4.5	4.5		4.0	
Vehicle Extension (s)		0.2	0.2		1.0	
Lane Grp Cap (vph)		2662	2636		249	
v/s Ratio Prot		c0.27	0.27		c0.01	
v/s Ratio Perm						
v/c Ratio		0.36	0.36		0.08	
Uniform Delay, d1		4.5	4.4		34.9	
Progression Factor		0.34	0.28		1.00	
Incremental Delay, d2		0.3	0.3		0.1	
Delay (s)		1.8	1.5		35.0	
Level of Service		A	A		C	
Approach Delay (s)		1.8	1.5		35.0	
Approach LOS		A	A		C	
Intersection Summary						
HCM 2000 Control Delay			2.4		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.31			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	8.5
Intersection Capacity Utilization			49.3%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
 26: NE 45th St & 19th Ave NE

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	25	873	881	35	0	0
Future Volume (vph)	25	873	881	35	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.5			
Lane Util. Factor	1.00	1.00	0.95			
Frbp, ped/bikes	1.00	1.00	0.98			
Flpb, ped/bikes	1.00	1.00	1.00			
Frt	1.00	1.00	0.99			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1787	1881	3446			
Flt Permitted	0.19	1.00	1.00			
Satd. Flow (perm)	361	1881	3446			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	949	958	38	0	0
RTOR Reduction (vph)	0	0	3	0	0	0
Lane Group Flow (vph)	27	949	993	0	0	0
Confl. Peds. (#/hr)	144			144	305	125
Confl. Bikes (#/hr)				8		1
Heavy Vehicles (%)	1%	1%	2%	2%	0%	0%
Turn Type	pm+pt	NA	NA			
Protected Phases	1	1 2	2			
Permitted Phases	1 2					
Actuated Green, G (s)	71.5	76.0	49.2			
Effective Green, g (s)	71.5	71.5	49.2			
Actuated g/C Ratio	0.72	0.72	0.49			
Clearance Time (s)	3.0		4.5			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	576	1344	1695			
v/s Ratio Prot	0.01	c0.50	0.29			
v/s Ratio Perm	0.02					
v/c Ratio	0.05	0.71	0.59			
Uniform Delay, d1	10.6	8.2	18.1			
Progression Factor	0.36	1.29	0.33			
Incremental Delay, d2	0.0	1.6	1.3			
Delay (s)	3.8	12.2	7.3			
Level of Service	A	B	A			
Approach Delay (s)		12.0	7.3		0.0	
Approach LOS		B	A		A	
Intersection Summary						
HCM 2000 Control Delay			9.6		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.56			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	10.5
Intersection Capacity Utilization			49.3%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

27: NE 45th St & 20th Ave NE

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	35	828	891	84	33	30
Future Volume (vph)	35	828	891	84	33	30
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.5		4.0	
Lane Util. Factor	1.00	1.00	0.95		1.00	
Frbp, ped/bikes	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.94	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1787	1881	3487		1702	
Flt Permitted	0.21	1.00	1.00		0.97	
Satd. Flow (perm)	386	1881	3487		1702	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	38	890	958	90	35	32
RTOR Reduction (vph)	0	0	0	0	27	0
Lane Group Flow (vph)	38	890	1048	0	40	0
Confl. Bikes (#/hr)				2		3
Heavy Vehicles (%)	1%	1%	2%	2%	1%	1%
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	1	1 2	2		4	
Permitted Phases	1 2					
Actuated Green, G (s)	71.5	76.0	57.4		17.0	
Effective Green, g (s)	71.5	71.5	57.4		17.0	
Actuated g/C Ratio	0.72	0.72	0.57		0.17	
Clearance Time (s)	3.0		4.5		4.0	
Vehicle Extension (s)	1.0		0.2		1.0	
Lane Grp Cap (vph)	473	1344	2001		289	
v/s Ratio Prot	0.01	c0.47	0.30		c0.02	
v/s Ratio Perm	0.05					
v/c Ratio	0.08	0.66	0.52		0.14	
Uniform Delay, d1	9.9	7.7	13.0		35.3	
Progression Factor	0.79	0.51	1.00		1.00	
Incremental Delay, d2	0.0	0.8	1.0		0.1	
Delay (s)	7.9	4.7	14.0		35.4	
Level of Service	A	A	B		D	
Approach Delay (s)		4.8	14.0		35.4	
Approach LOS		A	B		D	

Intersection Summary

HCM 2000 Control Delay	10.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Montlake Blvd NE & NE 45th St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



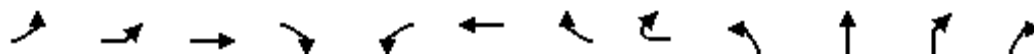
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↖↗	↑	↖	↗↗
Traffic Volume (vph)	548	23	589	736	139	1527
Future Volume (vph)	548	23	589	736	139	1527
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	0.88
Frpb, ped/bikes	1.00	0.89	1.00	1.00	1.00	1.00
Flpb, ped/bikes	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)	3574	1419	3400	1845	1770	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3574	1419	3400	1845	1770	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	583	24	627	783	148	1624
RTOR Reduction (vph)	0	4	0	0	0	7
Lane Group Flow (vph)	583	20	627	783	148	1617
Confl. Peds. (#/hr)		46	46			
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	1%	1%	3%	3%	2%	2%
Turn Type	NA	Perm	Split	NA	Prot	pt+ov
Protected Phases	3		1	1	2	1 2
Permitted Phases		3				
Actuated Green, G (s)	28.0	28.0	76.5	76.5	22.0	103.0
Effective Green, g (s)	28.0	28.0	76.5	76.5	22.0	103.0
Actuated g/C Ratio	0.20	0.20	0.55	0.55	0.16	0.74
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.5	3.5	0.2	0.2	3.0	
Lane Grp Cap (vph)	714	283	1857	1008	278	2050
v/s Ratio Prot	c0.16		0.18	0.42	0.08	c0.58
v/s Ratio Perm		0.01				
v/c Ratio	0.82	0.07	0.34	0.78	0.53	0.79
Uniform Delay, d1	53.5	45.4	17.7	25.0	54.3	11.6
Progression Factor	1.00	1.00	0.31	0.52	1.13	0.74
Incremental Delay, d2	7.4	0.1	0.4	4.5	1.7	1.8
Delay (s)	60.9	45.6	5.8	17.6	62.8	10.5
Level of Service	E	D	A	B	E	B
Approach Delay (s)	60.3			12.4	14.9	
Approach LOS	E			B	B	

Intersection Summary

HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 29: Union Bay PI NE & NE 45th St & NE 45th PI

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations	↖	↖	↕	↗	↖	↕	↕	↖	↖	↖	↖	↖
Traffic Volume (vph)	35	290	1200	240	30	870	120	25	190	105	35	36
Future Volume (vph)	35	290	1200	240	30	870	120	25	190	105	35	36
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.86		0.86	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	0.92	1.00	0.99		0.95	1.00	1.00	0.92	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	1.00	0.98		0.85	1.00	1.00	0.85	
Flt Protected	0.95	0.95	1.00	1.00	0.95	1.00		1.00	0.95	0.99	1.00	
Satd. Flow (prot)	1752	1752	3505	1446	1736	4571		1263	1698	1760	1474	
Flt Permitted	0.95	0.11	1.00	1.00	0.12	1.00		1.00	0.95	0.99	1.00	
Satd. Flow (perm)	1752	196	3505	1446	227	4571		1263	1698	1760	1474	
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)	36	299	1237	247	31	897	124	26	196	108	36	37
RTOR Reduction (vph)	0	0	0	85	0	0	0	18	0	0	61	0
Lane Group Flow (vph)	36	299	1237	162	31	1024	0	5	149	155	12	0
Confl. Peds. (#/hr)	19	19		16	16		19	19	35		19	18
Confl. Bikes (#/hr)				3				1				4
Heavy Vehicles (%)	3%	3%	3%	3%	4%	4%	4%	4%	1%	1%	1%	1%
Turn Type	Prot	pm+pt	NA	Perm	Perm	NA		Perm	Split	NA	Perm	
Protected Phases	1	1 9	6			2			4	4		
Permitted Phases		6		6	2			2				4
Actuated Green, G (s)	14.7	61.7	52.4	52.4	32.2	32.2		32.2	22.1	22.1	22.1	
Effective Green, g (s)	14.7	61.7	52.4	52.4	32.2	32.2		32.2	22.1	22.1	22.1	
Actuated g/C Ratio	0.10	0.44	0.37	0.37	0.23	0.23		0.23	0.16	0.16	0.16	
Clearance Time (s)	5.5		5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	
Vehicle Extension (s)	2.5		2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	183	353	1311	541	52	1051		290	268	277	232	
v/s Ratio Prot	0.02	c0.15	c0.35			0.22			0.09	c0.09		
v/s Ratio Perm		0.23		0.11	0.14			0.00			0.01	
v/c Ratio	0.20	0.85	0.94	0.30	0.60	0.97		0.02	0.56	0.56	0.05	
Uniform Delay, d1	57.3	39.3	42.4	30.9	48.1	53.5		41.7	54.4	54.5	50.0	
Progression Factor	0.94	0.90	0.88	0.80	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	10.8	9.9	0.9	41.6	22.2		0.1	1.4	1.4	0.0	
Delay (s)	54.2	46.2	47.4	25.5	89.7	75.7		41.8	55.8	55.8	50.1	
Level of Service	D	D	D	C	F	E		D	E	E	D	
Approach Delay (s)			44.4			75.4				54.7		
Approach LOS			D			E				D		
Intersection Summary												
HCM 2000 Control Delay			56.5			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.81									
Actuated Cycle Length (s)			140.0			Sum of lost time (s)			31.5			
Intersection Capacity Utilization			85.7%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 29: Union Bay PI NE & NE 45th St & NE 45th PI

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour

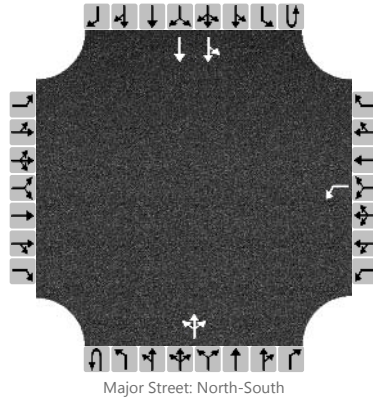


Movement	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Traffic Volume (vph)	30	165	85	35	25	40	180	15
Future Volume (vph)	30	165	85	35	25	40	180	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5			5.5	5.5	
Lane Util. Factor		0.95	0.95			1.00	0.88	
Frbp, ped/bikes		1.00	0.99			1.00	1.00	
Flpb, ped/bikes		1.00	1.00			1.00	1.00	
Frt		1.00	0.97			1.00	0.85	
Flt Protected		0.95	0.99			0.95	1.00	
Satd. Flow (prot)		1698	1682			1787	2814	
Flt Permitted		0.95	0.99			0.95	1.00	
Satd. Flow (perm)		1698	1682			1787	2814	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	31	170	88	36	26	41	186	15
RTOR Reduction (vph)	0	0	7	0	0	0	126	0
Lane Group Flow (vph)	0	162	156	0	0	67	75	0
Confl. Peds. (#/hr)	18	19		35	18	16	35	19
Confl. Bikes (#/hr)				1			1	1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split	Split	NA		Prot	Prot	Prot	
Protected Phases	3	3	3		7	7	8	
Permitted Phases								
Actuated Green, G (s)		23.8	23.8			6.0	21.2	
Effective Green, g (s)		23.8	23.8			6.0	21.2	
Actuated g/C Ratio		0.17	0.17			0.04	0.15	
Clearance Time (s)		5.5	5.5			5.5	5.5	
Vehicle Extension (s)		2.0	2.0			2.5	2.5	
Lane Grp Cap (vph)		288	285			76	426	
v/s Ratio Prot		c0.10	0.09			c0.04	0.03	
v/s Ratio Perm								
v/c Ratio		0.56	0.55			0.88	0.18	
Uniform Delay, d1		53.3	53.2			66.6	51.8	
Progression Factor		1.00	1.00			1.00	1.00	
Incremental Delay, d2		1.5	1.1			64.3	0.1	
Delay (s)		54.8	54.3			130.9	51.9	
Level of Service		D	D			F	D	
Approach Delay (s)			54.6			71.7		
Approach LOS			D			E		
Intersection Summary								

HCS7 Two-Way Stop-Control Report

General Information				Site Information			
Analyst	Transpo			Intersection	Roosevelt Way & 43rd St		
Agency/Co.				Jurisdiction	Seattle		
Date Performed	3/17/2017			East/West Street	NE 43rd St (east)		
Analysis Year	2015			North/South Street	Roosevelt Way NE		
Time Analyzed	PM Peak Hour			Peak Hour Factor	0.91		
Intersection Orientation	North-South			Analysis Time Period (hrs)	1.00		
Project Description	UW Master Plan EIS, Alternative 3 (2028) PM Peak						

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	0		0	1	0		0	2	0
Configuration						L					LTR			LT	T	
Volume, V (veh/h)						205				0	0	0		67	1617	
Percent Heavy Vehicles (%)						6				3				1		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.5				4.1				4.1		
Critical Headway (sec)						6.92				4.16				4.12		
Base Follow-Up Headway (sec)						3.5				2.2				2.2		
Follow-Up Headway (sec)						3.56				2.23				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						225				0				74		
Capacity, c (veh/h)						150				342				1241		
v/c Ratio						1.50				0.00				0.06		
95% Queue Length, Q ₉₅ (veh)						45.0				0.0				0.2		
Control Delay (s/veh)						994.5				15.5				8.1		
Level of Service, LOS						F				C				A		
Approach Delay (s/veh)					994.5								17.0			
Approach LOS					F											

Intersection

Int Delay, s/veh 3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔					↕↕
Traffic Vol, veh/h	205	0	0	0	67	1617
Future Vol, veh/h	205	0	0	0	67	1617
Conflicting Peds, #/hr	75	153	0	75	153	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	6	6	0	0	1	1
Mvmt Flow	225	0	0	0	74	1777

Major/Minor

	Minor1	Major2
Conflicting Flow All	1264	153
Stage 1	153	-
Stage 2	1111	-
Critical Hdwy	6.92	4.12
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	5.92	-
Follow-up Hdwy	3.56	2.21
Pot Cap-1 Maneuver	~ 156	1433
Stage 1	-	0
Stage 2	268	0
Platoon blocked, %		-
Mov Cap-1 Maneuver	0	1433
Mov Cap-2 Maneuver	0	-
Stage 1	-	-
Stage 2	0	-

Approach

WB SB
HCM Control Delay, s 3.7
HCM LOS -

Minor Lane/Major Mvmt

	WBLn1	SBL	SBT
Capacity (veh/h)	-	1433	-
HCM Lane V/C Ratio	-	0.051	-
HCM Control Delay (s)	-	7.6	3.5
HCM Lane LOS	-	A	A
HCM 95th %tile Q(veh)	-	0.2	-

Notes

-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 4.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	69	0	0	1777	40
Future Vol, veh/h	0	69	0	0	1777	40
Conflicting Peds, #/hr	277	151	151	0	0	277
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	0	0	2	2
Mvmt Flow	0	75	0	0	1932	43

Major/Minor

	Minor2	Major2
Conflicting Flow All	-	1416
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	6.94
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	3.32
Pot Cap-1 Maneuver	0	127
Stage 1	0	-
Stage 2	0	-
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	98
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach

















	EB	SB
HCM Control Delay, s	113.2	0
HCM LOS	F	

Minor Lane/Major Mvmt

	EBLn1	SBT	SBR
Capacity (veh/h)	98	-	-
HCM Lane V/C Ratio	0.765	-	-
HCM Control Delay (s)	113.2	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	4.1	-	-

HCM 2010 Signalized Intersection Summary
 32: 11th Ave NE & NE 43rd St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	57	0	0	170	25	20	1644	25	0	0	0
Future Volume (veh/h)	45	57	0	0	170	25	20	1644	25	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	0.95		1.00	1.00		0.90	1.00		0.84			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1776	1900	1900	1863	1900			
Adj Flow Rate, veh/h	49	62	0	0	185	27	22	1787	27			
Adj No. of Lanes	0	1	0	0	1	0	0	2	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	0	0	0	7	7	0	2	0			
Cap, veh/h	303	348	0	0	626	91	17	1477	23			
Arrive On Green	0.42	0.42	0.00	0.00	0.14	0.14	0.14	0.14	0.14			
Sat Flow, veh/h	474	828	0	0	1492	218	43	3601	57			
Grp Volume(v), veh/h	111	0	0	0	0	212	962	0	874			
Grp Sat Flow(s),veh/h/ln	1303	0	0	0	0	1709	1861	0	1840			
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	5.6	20.5	0.0	20.5			
Cycle Q Clear(g_c), s	5.8	0.0	0.0	0.0	0.0	5.6	20.5	0.0	20.5			
Prop In Lane	0.44		0.00	0.00		0.13	0.02		0.03			
Lane Grp Cap(c), veh/h	651	0	0	0	0	718	763	0	754			
V/C Ratio(X)	0.17	0.00	0.00	0.00	0.00	0.30	1.26	0.00	1.16			
Avail Cap(c_a), veh/h	651	0	0	0	0	718	763	0	754			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	0.33	0.33	0.33			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	9.0	0.0	0.0	0.0	0.0	14.9	21.6	0.0	21.6			
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.0	0.0	1.0	128.1	0.0	85.6			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.0	0.0	2.8	37.7	0.0	28.4			
LnGrp Delay(d),s/veh	9.6	0.0	0.0	0.0	0.0	15.9	149.8	0.0	107.3			
LnGrp LOS	A					B	F		F			
Approach Vol, veh/h		111			212			1836				
Approach Delay, s/veh		9.6			15.9			129.5				
Approach LOS		A			B			F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		25.0		25.0				25.0				
Change Period (Y+Rc), s		4.5		4.0				4.0				
Max Green Setting (Gmax), s		20.5		21.0				21.0				
Max Q Clear Time (g_c+I1), s		22.5		7.8				7.6				
Green Ext Time (p_c), s		0.0		1.1				1.1				
Intersection Summary												
HCM 2010 Ctrl Delay				112.2								
HCM 2010 LOS				F								

HCM Signalized Intersection Capacity Analysis

33: University Way NE & NE 43rd St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	20	25	7	40	20	50	5	202	55	45	202	5
Future Volume (vph)	20	25	7	40	20	50	5	202	55	45	202	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.93			0.85			0.87			0.99	
Flpb, ped/bikes		0.90			0.83			0.99			0.93	
Frt		0.98			0.94			0.97			1.00	
Flt Protected		0.98			0.98			1.00			0.99	
Satd. Flow (prot)		1493			1234			1469			1633	
Flt Permitted		0.90			0.90			1.00			0.91	
Satd. Flow (perm)		1367			1131			1463			1503	
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)	22	27	8	43	22	54	5	217	59	48	217	5
RTOR Reduction (vph)	0	5	0	0	15	0	0	19	0	0	2	0
Lane Group Flow (vph)	0	52	0	0	104	0	0	262	0	0	268	0
Confl. Peds. (#/hr)	179		298	298		179	690		591	591		690
Confl. Bikes (#/hr)			2			3			63			25
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	8%	8%	8%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		17.0			17.0			24.5			24.5	
Effective Green, g (s)		17.0			17.0			24.5			24.5	
Actuated g/C Ratio		0.34			0.34			0.49			0.49	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		464			384			716			736	
v/s Ratio Prot												
v/s Ratio Perm		0.04			0.09			0.18			0.18	
v/c Ratio		0.11			0.27			0.37			0.36	
Uniform Delay, d1		11.3			12.0			7.9			7.9	
Progression Factor		0.63			0.93			1.23			0.59	
Incremental Delay, d2		0.4			1.7			1.4			1.3	
Delay (s)		7.6			12.9			11.1			5.9	
Level of Service		A			B			B			A	
Approach Delay (s)		7.6			12.9			11.1			5.9	
Approach LOS		A			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			9.2									A
HCM 2000 Volume to Capacity ratio			0.33									
Actuated Cycle Length (s)			50.0								8.5	
Intersection Capacity Utilization			52.6%									A
ICU Level of Service												A
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 34: 15th Ave NE & NE 43rd St

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	45	30	967	648	130
Future Volume (vph)	60	45	30	967	648	130
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	4.5
Lane Util. Factor	1.00			0.95	0.95	1.00
Frbp, ped/bikes	0.87			1.00	1.00	0.64
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.94			1.00	1.00	0.85
Flt Protected	0.97			1.00	1.00	1.00
Satd. Flow (prot)	1478			3356	3343	950
Flt Permitted	0.97			0.92	1.00	1.00
Satd. Flow (perm)	1478			3102	3343	950
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	47	32	1018	682	137
RTOR Reduction (vph)	32	0	0	0	0	69
Lane Group Flow (vph)	78	0	0	1050	682	69
Confl. Peds. (#/hr)	262	361	182			182
Confl. Bikes (#/hr)						3
Heavy Vehicles (%)	2%	2%	7%	7%	8%	8%
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	2	
Permitted Phases			2			2
Actuated Green, G (s)	16.0			25.0	25.0	25.0
Effective Green, g (s)	16.0			25.0	25.0	25.0
Actuated g/C Ratio	0.32			0.50	0.50	0.50
Clearance Time (s)	4.5			4.5	4.5	4.5
Lane Grp Cap (vph)				1551	1671	475
v/s Ratio Prot	c0.05				0.20	
v/s Ratio Perm				c0.34		0.07
v/c Ratio	0.17			0.68	0.41	0.14
Uniform Delay, d1	12.2			9.4	7.9	6.7
Progression Factor	0.39			0.99	1.11	2.84
Incremental Delay, d2	0.7			2.0	0.6	0.5
Delay (s)	5.5			11.3	9.3	19.6
Level of Service	A			B	A	B
Approach Delay (s)	5.5			11.3	11.0	
Approach LOS	A			B	B	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

UW Master Plan EIS

35: Memorial Way NE & Burke Museum Access/East Stevens Way NE Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Yield	
Traffic Volume (vph)	109	12	5	10	21	242	0	55	15	252	65	103
Future Volume (vph)	109	12	5	10	21	242	0	55	15	252	65	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	118	13	5	11	23	263	0	60	16	274	71	112




















Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	136	297	30	46	310	148
Volume Left (vph)	118	11	0	0	274	0
Volume Right (vph)	5	263	0	16	0	112
Hadj (s)	0.15	-0.52	0.44	0.20	0.53	-0.45
Departure Headway (s)	5.9	5.0	6.9	6.6	6.4	5.4
Degree Utilization, x	0.22	0.41	0.06	0.08	0.55	0.22
Capacity (veh/h)	558	673	465	490	545	642
Control Delay (s)	10.6	11.5	9.1	9.0	15.6	8.7
Approach Delay (s)	10.6	11.5	9.0		13.4	
Approach LOS	B	B	A		B	

Intersection Summary

Delay	12.1
Level of Service	B
Intersection Capacity Utilization	68.4%
ICU Level of Service	C
Analysis Period (min)	15

HCM 2010 Signalized Intersection Summary
 36: Montlake Blvd NE & Stevens Way

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	187	107	107	5	65	208	90	791	5	63	464	142
Future Volume (veh/h)	187	107	107	5	65	208	90	791	5	63	464	142
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.90	0.97		0.84	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1900	1900	1827	1900	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	197	113	113	5	68	219	95	833	5	66	488	149
Adj No. of Lanes	1	2	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	4	4	4	0	0	0	1	1	1
Cap, veh/h	235	530	426	39	314	216	380	2005	12	84	1027	311
Arrive On Green	0.11	0.31	0.31	0.18	0.18	0.18	0.21	0.55	0.55	0.05	0.38	0.38
Sat Flow, veh/h	1707	1703	1370	61	1725	1187	1810	3678	22	1792	2688	815
Grp Volume(v), veh/h	197	113	113	73	0	219	95	409	429	66	323	314
Grp Sat Flow(s),veh/h/ln	1707	1703	1370	1786	0	1187	1810	1805	1895	1792	1787	1716
Q Serve(g_s), s	12.7	6.9	8.7	0.0	0.0	25.5	6.1	18.6	18.6	5.1	19.1	19.4
Cycle Q Clear(g_c), s	12.7	6.9	8.7	4.7	0.0	25.5	6.1	18.6	18.6	5.1	19.1	19.4
Prop In Lane	1.00		1.00	0.07		1.00	1.00		0.01	1.00		0.47
Lane Grp Cap(c), veh/h	235	530	426	583	0	216	380	984	1033	84	683	656
V/C Ratio(X)	0.84	0.21	0.27	0.13	0.00	1.01	0.25	0.42	0.42	0.78	0.47	0.48
Avail Cap(c_a), veh/h	356	651	523	583	0	216	380	984	1033	198	683	656
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.00	0.99	0.84	0.84	0.84	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.0	35.6	36.2	48.7	0.0	57.3	46.1	18.7	18.7	66.0	32.6	32.7
Incr Delay (d2), s/veh	10.3	0.2	0.3	0.0	0.0	64.1	0.1	1.1	1.0	5.8	2.3	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	3.3	3.3	2.0	0.0	12.2	3.1	9.6	10.1	2.7	9.9	9.6
LnGrp Delay(d),s/veh	51.3	35.8	36.5	48.8	0.0	121.4	46.2	19.8	19.8	71.8	35.0	35.2
LnGrp LOS	D	D	D	D		F	D	B	B	E	C	D
Approach Vol, veh/h		423			292			933			703	
Approach Delay, s/veh		43.2			103.2			22.5			38.5	
Approach LOS		D			F			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	11.1	80.8	18.1	30.0	33.9	58.0		48.1				
Change Period (Y+Rc), s	4.5	4.5	3.0	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	15.5	57.5	25.0	25.5	19.5	53.5		53.5				
Max Q Clear Time (g_c+I1), s	7.1	20.6	14.7	27.5	8.1	21.4		10.7				
Green Ext Time (p_c), s	0.0	5.4	0.4	0.0	2.9	0.6		3.2				
Intersection Summary												
HCM 2010 Ctrl Delay			41.0									
HCM 2010 LOS			D									

HCM Signalized Intersection Capacity Analysis

37: Montlake Blvd NE & Stevens Way

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	13	0	23	23	57	0	1452	48	8	531	272
Future Volume (vph)	148	13	0	23	23	57	0	1452	48	8	531	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lane Util. Factor	0.95	0.95			0.95	1.00		0.95			0.95	1.00
Frbp, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	0.97
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00			1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	0.96			0.98	1.00		1.00			1.00	1.00
Satd. Flow (prot)	1618	1634			3292	1509		3554			3536	1537
Flt Permitted	0.72	0.73			0.79	1.00		1.00			0.92	1.00
Satd. Flow (perm)	1233	1236			2663	1509		3554			3255	1537
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)	157	14	0	24	24	61	0	1545	51	9	565	289
RTOR Reduction (vph)	0	0	0	0	0	55	0	1	0	0	0	48
Lane Group Flow (vph)	85	86	0	0	48	6	0	1595	0	0	574	241
Confl. Peds. (#/hr)							7		2	2		7
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	1%	1%	1%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm		NA		Perm	NA	Perm
Protected Phases		2			2			1			1	
Permitted Phases	2			2		2				1		1
Actuated Green, G (s)	14.1	14.1			14.1	14.1		116.9			116.9	116.9
Effective Green, g (s)	14.1	14.1			14.1	14.1		116.9			116.9	116.9
Actuated g/C Ratio	0.10	0.10			0.10	0.10		0.84			0.84	0.84
Clearance Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Vehicle Extension (s)	2.0	2.0			2.0	2.0		0.2			0.2	0.2
Lane Grp Cap (vph)	124	124			268	151		2967			2717	1283
v/s Ratio Prot								c0.45				
v/s Ratio Perm	0.07	c0.07			0.02	0.00					0.18	0.16
v/c Ratio	0.69	0.69			0.18	0.04		0.54			0.21	0.19
Uniform Delay, d1	60.8	60.9			57.6	56.8		3.5			2.3	2.3
Progression Factor	0.71	0.71			1.00	1.00		1.20			0.23	0.00
Incremental Delay, d2	11.6	12.5			0.1	0.0		0.6			0.2	0.3
Delay (s)	54.6	55.5			57.8	56.9		4.7			0.7	0.3
Level of Service	D	E			E	E		A			A	A
Approach Delay (s)		55.1			57.3			4.7			0.6	
Approach LOS		E			E			A			A	

Intersection Summary

HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis










38: Montlake Blvd NE

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour

	↑	↗	↘	↓	↙	↖
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↑↑	↗↗		↑↑	↘↘	
Traffic Volume (vph)	856	1440	0	577	644	0
Future Volume (vph)	856	1440	0	577	644	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	
Lane Util. Factor	0.95	0.88		0.95	0.97	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	1.00	1.00		1.00	0.95	
Satd. Flow (prot)	3574	2814		3610	3433	
Flt Permitted	1.00	1.00		1.00	0.95	
Satd. Flow (perm)	3574	2814		3610	3433	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	882	1485	0	595	664	0
RTOR Reduction (vph)	0	784	0	0	0	0
Lane Group Flow (vph)	882	701	0	595	664	0
Heavy Vehicles (%)	1%	1%	0%	0%	2%	2%
Turn Type	NA	Perm		NA	Prot	
Protected Phases	2			2	1	
Permitted Phases		2				
Actuated Green, G (s)	66.1	66.1		66.1	64.9	
Effective Green, g (s)	66.1	66.1		66.1	64.9	
Actuated g/C Ratio	0.47	0.47		0.47	0.46	
Clearance Time (s)	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	0.2	
Lane Grp Cap (vph)	1687	1328		1704	1591	
v/s Ratio Prot	0.25			0.16	c0.19	
v/s Ratio Perm		c0.25				
v/c Ratio	0.52	0.53		0.35	0.42	
Uniform Delay, d1	25.9	26.0		23.4	25.0	
Progression Factor	1.00	1.00		0.47	0.52	
Incremental Delay, d2	0.1	0.2		0.0	0.8	
Delay (s)	26.0	26.2		11.0	13.7	
Level of Service	C	C		B	B	
Approach Delay (s)	26.1			11.0	13.7	
Approach LOS	C			B	B	
Intersection Summary						
HCM 2000 Control Delay			21.4		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.47			
Actuated Cycle Length (s)			140.0		Sum of lost time (s)	9.0
Intersection Capacity Utilization			54.1%		ICU Level of Service	A
Analysis Period (min)			15			
c	Critical Lane Group					

HCM 2010 Signalized Intersection Summary
 39: Roosevelt Way NE & NE 42nd St (north)

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations						 		
Traffic Volume (veh/h)	100	0	0	0	175	1724		
Future Volume (veh/h)	100	0	0	0	175	1724		
Number	7	14			5	2		
Initial Q (Qb), veh	0	0			0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00			
Parking Bus, Adj	1.00	1.00			1.00	1.00		
Adj Sat Flow, veh/h/ln	1881	0			1900	1863		
Adj Flow Rate, veh/h	109	0			190	1874		
Adj No. of Lanes	1	0			0	2		
Peak Hour Factor	0.92	0.92			0.92	0.92		
Percent Heavy Veh, %	1	0			2	2		
Cap, veh/h	0	0			321	2948		
Arrive On Green	0.00	0.00			0.32	0.32		
Sat Flow, veh/h	0				292	3172		
Grp Volume(v), veh/h	0.0				1109	955		
Grp Sat Flow(s),veh/h/ln					1769	1610		
Q Serve(g_s), s					50.8	50.5		
Cycle Q Clear(g_c), s					54.0	50.5		
Prop In Lane					0.17			
Lane Grp Cap(c), veh/h					1732	1538		
V/C Ratio(X)					0.64	0.62		
Avail Cap(c_a), veh/h					1732	1538		
HCM Platoon Ratio					0.33	0.33		
Upstream Filter(I)					1.00	1.00		
Uniform Delay (d), s/veh					20.0	18.8		
Incr Delay (d2), s/veh					1.8	1.9		
Initial Q Delay(d3),s/veh					0.0	0.0		
%ile BackOfQ(50%),veh/ln					27.4	23.3		
LnGrp Delay(d),s/veh					21.8	20.7		
LnGrp LOS					C	C		
Approach Vol, veh/h						2064		
Approach Delay, s/veh						21.3		
Approach LOS						C		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						
Phs Duration (G+Y+Rc), s		100.0						
Change Period (Y+Rc), s		4.5						
Max Green Setting (Gmax), s		72.5						
Max Q Clear Time (g_c+I1), s		56.0						
Green Ext Time (p_c), s		3.0						
Intersection Summary								
HCM 2010 Ctrl Delay			21.3					
HCM 2010 LOS			C					

HCM Signalized Intersection Capacity Analysis

40: NE 42nd St (north)/NE 42nd St & 11th Ave NE

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↔				
Traffic Volume (vph)	60	120	0	0	70	199	25	1380	105	0	0	0
Future Volume (vph)	60	120	0	0	70	199	25	1380	105	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			0.84			0.99				
Flpb, ped/bikes		0.96			1.00			1.00				
Frt		1.00			0.90			0.99				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1799			1429			3446				
Flt Permitted		0.72			1.00			1.00				
Satd. Flow (perm)		1325			1429			3446				
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)	66	132	0	0	77	219	27	1516	115	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	198	0	0	286	0	0	1648	0	0	0	0
Confl. Peds. (#/hr)	200		131	131		200	28		72	72		28
Confl. Bikes (#/hr)			9			26			95			1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	2%	2%	2%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		13.2			13.2			28.3				
Effective Green, g (s)		13.2			13.2			28.3				
Actuated g/C Ratio		0.26			0.26			0.57				
Clearance Time (s)		4.0			4.0			4.5				
Vehicle Extension (s)		2.0			2.0			0.2				
Lane Grp Cap (vph)		349			377			1950				
v/s Ratio Prot					c0.20							
v/s Ratio Perm		0.15						0.48				
v/c Ratio		0.57			0.76			0.85				
Uniform Delay, d1		15.9			16.9			9.0				
Progression Factor		0.92			0.83			1.00				
Incremental Delay, d2		0.8			7.6			4.7				
Delay (s)		15.5			21.7			13.8				
Level of Service		B			C			B				
Approach Delay (s)		15.5			21.7			13.8			0.0	
Approach LOS		B			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.0					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			50.0					Sum of lost time (s)		8.5		
Intersection Capacity Utilization			91.3%					ICU Level of Service		F		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

41: University Way NE & NE 42nd St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	35	155	23	10	81	25	30	190	15	15	164	40
Future Volume (vph)	35	155	23	10	81	25	30	190	15	15	164	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.93			0.86			0.96			0.86	
Flpb, ped/bikes		0.92			0.96			0.94			0.97	
Frt		0.99			0.97			0.99			0.98	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1590			1529			1563			1466	
Flt Permitted		0.95			0.97			0.95			0.98	
Satd. Flow (perm)		1515			1494			1489			1434	
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)	37	165	24	11	86	27	32	202	16	16	174	43
RTOR Reduction (vph)	0	1	0	0	5	0	0	3	0	0	6	0
Lane Group Flow (vph)	0	225		0	119		0	247		0	228	
Confl. Peds. (#/hr)	607		666		666		607		921		695	
Confl. Bikes (#/hr)	26		34		81		29		29		29	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	7%	7%	7%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		19.0			19.0			22.5			22.5	
Effective Green, g (s)		19.0			19.0			22.5			22.5	
Actuated g/C Ratio		0.38			0.38			0.45			0.45	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		575			567			670			645	
v/s Ratio Prot		c0.15			0.08			c0.17			0.16	
v/c Ratio		0.39			0.21			0.37			0.35	
Uniform Delay, d1		11.3			10.4			9.1			9.0	
Progression Factor		1.05			0.53			0.53			0.66	
Incremental Delay, d2		1.5			0.8			1.5			1.4	
Delay (s)		13.3			6.3			6.4			7.4	
Level of Service		B			A			A			A	
Approach Delay (s)		13.3			6.3			6.4			7.4	
Approach LOS		B			A			A			A	
Intersection Summary												
HCM 2000 Control Delay	8.5		HCM 2000 Level of Service				A					
HCM 2000 Volume to Capacity ratio	0.38											
Actuated Cycle Length (s)	50.0		Sum of lost time (s)				8.5					
Intersection Capacity Utilization	47.1%		ICU Level of Service				A					
Analysis Period (min)	15											
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

42: 15th Ave NE & NE 42nd St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	110	85	61	870	644	45
Future Volume (vph)	110	85	61	870	644	45
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.5	4.5	4.5	
Lane Util. Factor	1.00		1.00	0.95	0.95	
Frpb, ped/bikes	0.85		1.00	1.00	0.97	
Flpb, ped/bikes	1.00		0.84	1.00	1.00	
Frt	0.94		1.00	1.00	0.99	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	1479		1402	3343	3166	
Flt Permitted	0.97		0.32	1.00	1.00	
Satd. Flow (perm)	1479		474	3343	3166	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	92	66	946	700	49
RTOR Reduction (vph)	17	0	0	0	10	0
Lane Group Flow (vph)	195	0	66	946	739	0
Confl. Peds. (#/hr)	736	522	298			298
Confl. Bikes (#/hr)		6				17
Heavy Vehicles (%)	0%	0%	8%	8%	9%	9%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	18.0		23.5	23.5	23.5	
Effective Green, g (s)	18.0		23.5	23.5	23.5	
Actuated g/C Ratio	0.36		0.47	0.47	0.47	
Clearance Time (s)	4.0		4.5	4.5	4.5	
Lane Grp Cap (vph)	532		222	1571	1488	
v/s Ratio Prot	c0.13			c0.28	0.23	
v/s Ratio Perm			0.14			
v/c Ratio	0.37		0.30	0.60	0.50	
Uniform Delay, d1	11.8		8.2	9.8	9.2	
Progression Factor	0.46		0.49	0.44	0.62	
Incremental Delay, d2	1.9		3.2	1.6	1.1	
Delay (s)	7.3		7.2	6.0	6.8	
Level of Service	A		A	A	A	
Approach Delay (s)	7.3			6.0	6.8	
Approach LOS	A			A	A	

Intersection Summary

HCM 2000 Control Delay	6.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations									
Traffic Vol, veh/h	0	147	148	0	65	133	0	89	85
Future Vol, veh/h	0	147	148	0	65	133	0	89	85
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	6	6	6	8	8	8	17	17	17
Mvmt Flow	0	167	168	0	74	151	0	101	97
Number of Lanes	0	1	0	0	1	0	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	11.8	9.8	10.8
HCM LOS	B	A	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	50%	51%
Vol Thru, %	33%	0%	49%
Vol Right, %	67%	50%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	198	295	174
LT Vol	0	147	89
Through Vol	65	0	85
RT Vol	133	148	0
Lane Flow Rate	225	335	198
Geometry Grp	1	1	1
Degree of Util (X)	0.296	0.45	0.297
Departure Headway (Hd)	4.741	4.828	5.401
Convergence, Y/N	Yes	Yes	Yes
Cap	749	741	658
Service Time	2.822	2.898	3.487
HCM Lane V/C Ratio	0.3	0.452	0.301
HCM Control Delay	9.8	11.8	10.8
HCM Lane LOS	A	B	B
HCM 95th-tile Q	1.2	2.3	1.2

HCM Signalized Intersection Capacity Analysis

44: I-5 NB Express Lane Off Ramp & 7th Ave NE & NE 42nd St/NE 42nd St (south) 3 PM Peak Hour



Movement	WBL2	WBT	WBR	NBL	NBT	NBR	NEL	NER	NER2
Lane Configurations									
Traffic Volume (vph)	138	15	85	5	278	143	307	204	202
Future Volume (vph)	138	15	85	5	278	143	307	204	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.93		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.97	1.00		1.00	1.00	
Frt	1.00	0.87		1.00	0.95		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1513		1740	1772		1736	1553	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1513		1740	1772		1736	1553	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	152	16	93	5	305	157	337	224	222
RTOR Reduction (vph)	0	76	0	0	20	0	0	55	0
Lane Group Flow (vph)	152	33	0	5	442	0	337	391	0
Confl. Peds. (#/hr)			54	13					
Confl. Bikes (#/hr)			1			1			
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	4%	4%	4%
Turn Type	Split	NA		Perm	NA		Prot	Perm	
Protected Phases	3	3			2		4		
Permitted Phases				2				4	
Actuated Green, G (s)	14.4	14.4		25.9	25.9		25.5	25.5	
Effective Green, g (s)	14.4	14.4		25.9	25.9		25.5	25.5	
Actuated g/C Ratio	0.18	0.18		0.32	0.32		0.32	0.32	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	315	269		557	568		547	490	
v/s Ratio Prot	c0.09	0.02			c0.25		0.19		
v/s Ratio Perm				0.00				c0.25	
v/c Ratio	0.48	0.12		0.01	0.78		0.62	0.80	
Uniform Delay, d1	29.9	27.9		18.7	24.9		23.5	25.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.2		0.0	7.8		3.0	10.0	
Delay (s)	31.0	28.1		18.7	32.6		26.5	35.3	
Level of Service	C	C		B	C		C	D	
Approach Delay (s)		29.8			32.5		31.5		
Approach LOS		C			C		C		

Intersection Summary				
HCM 2000 Control Delay		31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio		0.72		
Actuated Cycle Length (s)		80.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization		68.6%	ICU Level of Service	C
Analysis Period (min)		15		
c	Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
45: Roosevelt Way NE & NE 42nd St (south)

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗			↕↕	↗
Traffic Volume (vph)	0	352	0	0	1699	175
Future Volume (vph)	0	352	0	0	1699	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5	4.5
Lane Util. Factor		1.00			0.95	1.00
Frbp, ped/bikes		1.00			1.00	0.73
Flpb, ped/bikes		1.00			1.00	1.00
Frt		0.86			1.00	0.85
Flt Protected		1.00			1.00	1.00
Satd. Flow (prot)		1580			3539	1163
Flt Permitted		1.00			1.00	1.00
Satd. Flow (perm)		1580			3539	1163
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	367	0	0	1770	182
RTOR Reduction (vph)	0	9	0	0	0	25
Lane Group Flow (vph)	0	358	0	0	1770	157
Confl. Peds. (#/hr)	178		117			117
Confl. Bikes (#/hr)		2				38
Heavy Vehicles (%)	4%	4%	0%	0%	2%	2%
Turn Type		Prot			NA	Perm
Protected Phases		4			2	
Permitted Phases						2
Actuated Green, G (s)		25.9			64.6	64.6
Effective Green, g (s)		25.9			64.6	64.6
Actuated g/C Ratio		0.26			0.65	0.65
Clearance Time (s)		5.0			4.5	4.5
Vehicle Extension (s)		2.0			0.2	0.2
Lane Grp Cap (vph)		409			2286	751
v/s Ratio Prot		c0.23			c0.50	
v/s Ratio Perm						0.13
v/c Ratio		0.88			0.77	0.21
Uniform Delay, d1		35.5			12.5	7.2
Progression Factor		1.00			0.42	0.20
Incremental Delay, d2		18.0			1.7	0.4
Delay (s)		53.5			7.0	1.9
Level of Service		D			A	A
Approach Delay (s)	53.5			0.0	6.5	
Approach LOS	D			A	A	
Intersection Summary						
HCM 2000 Control Delay			13.9		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.80			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	9.5
Intersection Capacity Utilization			76.7%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Intersection

Int Delay, s/veh 1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘					↗↗
Traffic Vol, veh/h	10	0	0	0	213	1843
Future Vol, veh/h	10	0	0	0	213	1843
Conflicting Peds, #/hr	15	31	0	15	31	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	2	2
Mvmt Flow	11	0	0	0	224	1940

Major/Minor

	Minor1	Major2
Conflicting Flow All	1464	31
Stage 1	31	-
Stage 2	1433	-
Critical Hdwy	6.8	4.14
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	5.8	-
Follow-up Hdwy	3.5	2.22
Pot Cap-1 Maneuver	121	1580
Stage 1	-	-
Stage 2	189	-
Platoon blocked, %		
Mov Cap-1 Maneuver	118	1580
Mov Cap-2 Maneuver	118	-
Stage 1	-	-
Stage 2	189	-

Approach

	WB	SB
HCM Control Delay, s	38.5	0.8
HCM LOS	E	

Minor Lane/Major Mvmt

	WBLn1	SBL	SBT
Capacity (veh/h)	118	1580	-
HCM Lane V/C Ratio	0.089	0.142	-
HCM Control Delay (s)	38.5	7.7	0
HCM Lane LOS	E	A	A
HCM 95th %tile Q(veh)	0.3	0.5	-

Intersection

Int Delay, s/veh 203

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	40	15	15	80	20	22	25	5	15	80	51
Future Vol, veh/h	10	40	15	15	80	20	22	25	5	15	80	51
Conflicting Peds, #/hr	416	0	450	424	0	390	450	0	424	390	0	416
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	4	4	4	10	10	10	0	0	0	0	0	0
Mvmt Flow	12	48	18	18	95	24	26	30	6	18	95	61

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1172	1123	1026	1153	1151	873	606	0	0	460	0	0
Stage 1	611	611	-	509	509	-	-	-	-	-	-	-
Stage 2	561	512	-	644	642	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.2	6.6	6.3	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.2	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.2	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.59	4.09	3.39	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	168	204	282	168	191	338	982	-	-	1112	-	-
Stage 1	478	481	-	532	525	-	-	-	-	-	-	-
Stage 2	509	533	-	448	457	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	-	77	110	27	~ 72	143	614	-	-	727	-	-
Mov Cap-2 Maneuver	-	77	-	27	~ 72	-	-	-	-	-	-	-
Stage 1	286	293	-	329	325	-	-	-	-	-	-	-
Stage 2	188	330	-	191	278	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		\$ 663.7	4.7	1
HCM LOS	-	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	614	-	-	- 64	727	-	-
HCM Lane V/C Ratio	0.043	-	-	- 2.139	0.025	-	-
HCM Control Delay (s)	11.1	0	-	- \$ 663.7	10.1	0	-
HCM Lane LOS	B	A	-	- F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	- 13	0.1	-	-

Notes

-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	5	50	10	0	20	75	25	0	40	220	10
Future Vol, veh/h	0	5	50	10	0	20	75	25	0	40	220	10
Peak Hour Factor	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	1	1	1	1	5	5	5	5
Mvmt Flow	0	6	56	11	0	22	84	28	0	45	247	11
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.8	9.2	10.8
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	15%	8%	17%	16%
Vol Thru, %	81%	77%	62%	73%
Vol Right, %	4%	15%	21%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	270	65	120	128
LT Vol	40	5	20	20
Through Vol	220	50	75	93
RT Vol	10	10	25	15
Lane Flow Rate	303	73	135	144
Geometry Grp	1	1	1	1
Degree of Util (X)	0.395	0.104	0.187	0.199
Departure Headway (Hd)	4.692	5.132	4.993	4.983
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	764	693	715	716
Service Time	2.745	3.202	3.056	3.044
HCM Lane V/C Ratio	0.397	0.105	0.189	0.201
HCM Control Delay	10.8	8.8	9.2	9.3
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.9	0.3	0.7	0.7

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	20	93	15
Future Vol, veh/h	0	20	93	15
Peak Hour Factor	0.85	0.89	0.89	0.89
Heavy Vehicles, %	14	14	14	14
Mvmt Flow	0	22	104	17
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.3
HCM LOS	A

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	50	10	28	70	30	10	175	17	35	152	30
Future Vol, veh/h	10	50	10	28	70	30	10	175	17	35	152	30
Conflicting Peds, #/hr	1155	0	1256	1313	0	1212	1256	0	1313	1212	0	1155
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	13	13	13	6	6	6
Mvmt Flow	11	56	11	31	79	34	11	197	19	39	171	34

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	3019	3073	2757	3155	3081	2731	1460	0	0	1529	0	0
Stage 1	1522	1522	-	1542	1542	-	-	-	-	-	-	-
Stage 2	1497	1551	-	1613	1539	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.23	-	-	4.16	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.317	-	-	2.254	-	-
Pot Cap-1 Maneuver	~ 8	~ 12	26	~ 7	~ 12	~ 27	431	-	-	424	-	-
Stage 1	149	182	-	146	178	-	-	-	-	-	-	-
Stage 2	155	177	-	132	179	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	-	0	0	-	0	0	~ -41	-	-	~ -4	-	-
Mov Cap-2 Maneuver	-	0	-	-	0	-	-	-	-	-	-	-
Stage 1	~ 7	~ -8	-	~ 14	~ -17	-	-	-	-	-	-	-
Stage 2	872	~ -17	-	1059	~ -8	-	-	-	-	-	-	-

Approach

HCM Control Delay, s
HCM LOS

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	+	-	-	-	+	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-
HCM Control Delay (s)	-	-	-	-	-	-	-
HCM Lane LOS	-	-	-	-	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis
 50: 15th Ave NE & NE 41st St/UW Campus Parking Access

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕↕	↕	↕	↕↕	
Traffic Volume (vph)	36	15	48	65	30	115	36	780	75	90	586	53
Future Volume (vph)	36	15	48	65	30	115	36	780	75	90	586	53
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	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes		0.87			1.00	0.60	1.00	1.00	0.48	1.00	0.95	
Flpb, ped/bikes		0.88			0.87	1.00	0.79	1.00	1.00	0.86	1.00	
Frt		0.93			1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1326			1575	955	1324	3343	721	1453	3168	
Flt Permitted		0.87			0.73	1.00	0.37	1.00	1.00	0.31	1.00	
Satd. Flow (perm)		1171			1195	955	522	3343	721	479	3168	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	16	52	71	33	125	39	848	82	98	637	58
RTOR Reduction (vph)	0	39	0	0	0	58	0	0	22	0	1	0
Lane Group Flow (vph)	0	68	0	0	104	67	39	848	60	98	694	0
Confl. Peds. (#/hr)	551		182	182		551	375		217	217		375
Confl. Bikes (#/hr)			11			3			17			11
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	8%	8%	8%	7%	7%	7%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2				2
Permitted Phases	4			4		4	2		2	2		
Actuated Green, G (s)		18.5			18.5	18.5	73.0	73.0	73.0	73.0	73.0	
Effective Green, g (s)		18.5			18.5	18.5	73.0	73.0	73.0	73.0	73.0	
Actuated g/C Ratio		0.18			0.18	0.18	0.73	0.73	0.73	0.73	0.73	
Clearance Time (s)		4.0			4.0	4.0	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	0.2	0.2	
Lane Grp Cap (vph)		216			221	176	381	2440	526	349	2312	
v/s Ratio Prot								c0.25				0.22
v/s Ratio Perm		0.06			c0.09	0.07	0.07		0.08	0.20		
v/c Ratio		0.31			0.47	0.38	0.10	0.35	0.11	0.28	0.30	
Uniform Delay, d1		35.3			36.4	35.7	3.9	4.9	4.0	4.6	4.7	
Progression Factor		1.02			1.00	1.00	0.50	0.40	0.22	1.20	1.15	
Incremental Delay, d2		0.8			1.6	1.4	0.5	0.4	0.4	1.8	0.3	
Delay (s)		36.9			38.0	37.1	2.5	2.3	1.3	7.3	5.6	
Level of Service		D			D	D	A	A	A	A	A	
Approach Delay (s)		36.9			37.5			2.2			5.9	
Approach LOS		D			D			A			A	

Intersection Summary		
HCM 2000 Control Delay	9.2	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.37	A
Actuated Cycle Length (s)	100.0	Sum of lost time (s)
Intersection Capacity Utilization	67.0%	8.5
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		C

Intersection	
Intersection Delay, s/veh	60.9
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	↕
Traffic Vol, veh/h	0	100	150	15	0	185	301	25	0	5	273	255
Future Vol, veh/h	0	100	150	15	0	185	301	25	0	5	273	255
Peak Hour Factor	0.25	0.98	0.98	0.98	0.25	0.98	0.98	0.98	0.92	0.98	0.98	0.98
Heavy Vehicles, %	3	3	3	3	4	4	4	4	2	1	1	1
Mvmt Flow	0	102	153	15	0	189	307	26	0	5	279	260
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	1	1
HCM Control Delay	28.1	130.9	25.3
HCM LOS	D	F	D

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	0%	38%	36%	8%
Vol Thru, %	98%	0%	57%	59%	56%
Vol Right, %	0%	100%	6%	5%	36%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	278	255	265	511	333
LT Vol	5	0	100	185	25
Through Vol	273	0	150	301	188
RT Vol	0	255	15	25	120
Lane Flow Rate	284	260	270	521	340
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.671	0.564	0.651	1.185	0.776
Departure Headway (Hd)	9.174	8.435	9.333	8.178	8.94
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	397	432	389	448	408
Service Time	6.874	6.135	7.333	6.178	6.94
HCM Lane V/C Ratio	0.715	0.602	0.694	1.163	0.833
HCM Control Delay	28.7	21.5	28.1	130.9	36.8
HCM Lane LOS	D	C	D	F	E
HCM 95th-tile Q	4.7	3.4	4.4	20	6.6

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	25	188	120
Future Vol, veh/h	0	25	188	120
Peak Hour Factor	0.25	0.98	0.98	0.98
Heavy Vehicles, %	1	1	1	1
Mvmt Flow	0	26	192	122
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	36.8
HCM LOS	E

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations			↑		↑		↑			
Traffic Vol, veh/h	0	0	415	0	236	0	0	60	0	0
Future Vol, veh/h	0	0	415	0	236	0	0	60	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	79	87	0	79
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None	-	-
Storage Length	-	-	0	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	-	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	0	0	0	0	0	3	3
Mvmt Flow	0	0	451	0	257	0	0	65	0	0

Major/Minor	Major1			Major2			Minor2	
Conflicting Flow All	-	-	0	-	-	0	336	344
Stage 1	-	-	-	-	-	-	257	-
Stage 2	-	-	-	-	-	-	79	-
Critical Hdwy	-	-	-	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	0	0	-	0	-	0	663	703
Stage 1	0	0	-	0	-	0	791	-
Stage 2	0	0	-	0	-	0	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	663	652
Mov Cap-2 Maneuver	-	-	-	-	-	-	663	-
Stage 1	-	-	-	-	-	-	791	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBR	WBT	SBLn1
Capacity (veh/h)	-	-	652
HCM Lane V/C Ratio	-	-	0.1
HCM Control Delay (s)	-	-	11.1
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.3

HCM Signalized Intersection Capacity Analysis

53: University Bridge/Roosevelt Way NE & NE Campus Pkwy & Eastlake Ave NE

Full 3 PM Peak Hour



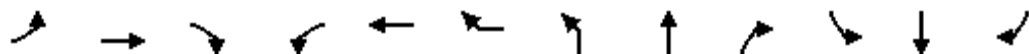
Movement	WBL	WBR	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations			↑↑	↑	↑	↑↑		
Traffic Volume (vph)	0	0	1171	285	117	1692	0	0
Future Volume (vph)	0	0	1171	285	117	1692	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5	4.5	4.5	4.5		
Lane Util. Factor			0.95	1.00	1.00	0.95		
Frbp, ped/bikes			1.00	0.92	1.00	1.00		
Flpb, ped/bikes			1.00	1.00	1.00	1.00		
Frt			1.00	0.85	1.00	1.00		
Flt Protected			1.00	1.00	0.95	1.00		
Satd. Flow (prot)			3539	1463	1752	3505		
Flt Permitted			1.00	1.00	0.95	1.00		
Satd. Flow (perm)			3539	1463	1752	3505		
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	1246	303	124	1800	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	1246	303	124	1800	0	0
Confl. Peds. (#/hr)	17	15		17	15			
Confl. Bikes (#/hr)				156				
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%	3%	3%
Turn Type			NA	Perm	Prot	NA		
Protected Phases			2		4	2		
Permitted Phases				2				
Actuated Green, G (s)			36.7	36.7	14.5	60.2		
Effective Green, g (s)			36.7	36.7	14.5	60.2		
Actuated g/C Ratio			0.61	0.61	0.24	1.00		
Clearance Time (s)			4.5	4.5	4.5			
Vehicle Extension (s)			0.2	0.2	2.0			
Lane Grp Cap (vph)			2157	891	421	3505		
v/s Ratio Prot			c0.35		0.07	c0.51		
v/s Ratio Perm				0.21				
v/c Ratio			0.58	0.34	0.29	0.51		
Uniform Delay, d1			7.1	5.8	18.7	0.0		
Progression Factor			1.00	1.00	1.00	1.00		
Incremental Delay, d2			0.2	0.1	0.1	0.1		
Delay (s)			7.3	5.9	18.8	0.1		
Level of Service			A	A	B	A		
Approach Delay (s)	0.0		7.0			1.3	0.0	
Approach LOS	A		A			A	A	

Intersection Summary			
HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	60.2	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			

HCM Signalized Intersection Capacity Analysis

54: Brooklyn Ave NE & NE Campus Pkwy

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔			↔↔			↔			↔	
Traffic Volume (vph)	5	257	117	5	218	15	118	275	20	5	91	20
Future Volume (vph)	5	257	117	5	218	15	118	275	20	5	91	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.95			0.99			0.99			0.98	
Flt Protected		1.00			1.00			0.99			1.00	
Satd. Flow (prot)		3373			3503			1824			1816	
Flt Permitted		0.95			0.95			0.87			0.99	
Satd. Flow (perm)		3211			3323			1608			1795	
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)	5	282	129	5	240	16	130	302	22	5	100	22
RTOR Reduction (vph)	0	51	0	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	365		0	261		0	452		0	127	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		29.5			29.5			61.5			61.5	
Effective Green, g (s)		29.5			29.5			61.5			61.5	
Actuated g/C Ratio		0.29			0.29			0.62			0.62	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		947			980			988			1103	
v/s Ratio Prot												
v/s Ratio Perm		c0.11			0.08			c0.28			0.07	
v/c Ratio		0.38			0.27			0.46			0.12	
Uniform Delay, d1		28.0			27.0			10.3			8.0	
Progression Factor		1.00			0.57			1.00			1.00	
Incremental Delay, d2		1.2			0.7			1.5			0.2	
Delay (s)		29.2			16.0			11.8			8.2	
Level of Service		C			B			B			A	
Approach Delay (s)		29.2			16.0			11.8			8.2	
Approach LOS		C			B			B			A	

Intersection Summary

HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
55: University Way NE & NE Campus Pkwy

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	190	20	5	143	5	44	168	30	15	136	51
Future Volume (veh/h)	77	190	20	5	143	5	44	168	30	15	136	51
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	84	207	22	5	155	5	48	183	33	16	148	55
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	405	1010	111	62	1592	51	146	538	92	67	540	191
Arrive On Green	0.47	0.47	0.47	0.47	0.47	0.47	0.44	0.44	0.44	0.87	0.87	0.87
Sat Flow, veh/h	737	2126	233	50	3351	107	239	1236	211	66	1241	438
Grp Volume(v), veh/h	157	0	156	86	0	79	264	0	0	219	0	0
Grp Sat Flow(s),veh/h/ln	1442	0	1654	1832	0	1676	1686	0	0	1745	0	0
Q Serve(g_s), s	4.2	0.0	5.5	0.0	0.0	2.6	0.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	6.8	0.0	5.5	2.6	0.0	2.6	9.7	0.0	0.0	2.1	0.0	0.0
Prop In Lane	0.54		0.14	0.06		0.06	0.18		0.12	0.07		0.25
Lane Grp Cap(c), veh/h	740	0	786	908	0	796	776	0	0	798	0	0
V/C Ratio(X)	0.21	0.00	0.20	0.10	0.00	0.10	0.34	0.00	0.00	0.27	0.00	0.00
Avail Cap(c_a), veh/h	740	0	786	908	0	796	776	0	0	798	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	15.5	0.0	15.2	14.5	0.0	14.5	18.7	0.0	0.0	3.8	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.6	0.2	0.0	0.2	1.2	0.0	0.0	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.7	0.0	2.6	1.4	0.0	1.3	5.0	0.0	0.0	1.2	0.0	0.0
LnGrp Delay(d),s/veh	16.2	0.0	15.8	14.7	0.0	14.7	19.9	0.0	0.0	4.7	0.0	0.0
LnGrp LOS	B		B	B		B	B			A		
Approach Vol, veh/h		313			165			264			219	
Approach Delay, s/veh		16.0			14.7			19.9			4.7	
Approach LOS		B			B			B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		52.0		48.0		52.0		48.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		47.5		43.5		47.5		43.5				
Max Q Clear Time (g_c+I1), s		4.6		11.7		8.8		4.1				
Green Ext Time (p_c), s		0.5		0.5		0.5		0.6				
Intersection Summary												
HCM 2010 Ctrl Delay				14.2								
HCM 2010 LOS				B								

HCM Signalized Intersection Capacity Analysis
56: 15th Ave NE & NE Campus Pkwy

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	←←		←	↑↑	↓↓	→
Traffic Volume (vph)	105	120	78	809	638	75
Future Volume (vph)	105	120	78	809	638	75
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		6.0	6.0	6.0	
Lane Util. Factor	0.97		1.00	0.95	0.95	
Frpb, ped/bikes	0.99		1.00	1.00	0.96	
Flpb, ped/bikes	1.00		0.88	1.00	1.00	
Frt	0.92		1.00	1.00	0.98	
Flt Protected	0.98		0.95	1.00	1.00	
Satd. Flow (prot)	2918		1424	3252	3144	
Flt Permitted	0.98		0.34	1.00	1.00	
Satd. Flow (perm)	2918		516	3252	3144	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	109	125	81	843	665	78
RTOR Reduction (vph)	0	0	0	0	9	0
Lane Group Flow (vph)	234	0	81	843	734	0
Confl. Peds. (#/hr)	6	3	383			383
Confl. Bikes (#/hr)						11
Heavy Vehicles (%)	12%	12%	11%	11%	8%	8%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	26.5		63.0	63.0	63.0	
Effective Green, g (s)	26.5		63.0	63.0	63.0	
Actuated g/C Ratio	0.26		0.63	0.63	0.63	
Clearance Time (s)	4.5		6.0	6.0	6.0	
Lane Grp Cap (vph)			325	2048	1980	
v/s Ratio Prot	c0.08			c0.26	0.23	
v/s Ratio Perm			0.16			
v/c Ratio	0.30		0.25	0.41	0.37	
Uniform Delay, d1	29.4		8.1	9.2	8.9	
Progression Factor	0.42		0.17	0.16	0.71	
Incremental Delay, d2	1.0		1.3	0.4	0.5	
Delay (s)	13.3		2.6	1.9	6.9	
Level of Service	B		A	A	A	
Approach Delay (s)	13.3			2.0	6.9	
Approach LOS	B			A	A	

Intersection Summary

HCM 2000 Control Delay	5.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	108
Intersection LOS	F

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Lane Configurations									
Traffic Vol, veh/h	0	330	257	0	147	265	0	383	208
Future Vol, veh/h	0	330	257	0	147	265	0	383	208
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	1	1	1	0	0	0
Mvmt Flow	0	359	279	0	160	288	0	416	226
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	123	46.9	135.6
HCM LOS	F	E	F

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	65%	0%	36%
Vol Thru, %	0%	56%	64%
Vol Right, %	35%	44%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	591	587	412
LT Vol	383	0	147
Through Vol	0	330	265
RT Vol	208	257	0
Lane Flow Rate	642	638	448
Geometry Grp	1	1	1
Degree of Util (X)	1.21	1.175	0.884
Departure Headway (Hd)	7.127	7.242	7.964
Convergence, Y/N	Yes	Yes	Yes
Cap	514	504	457
Service Time	5.127	5.242	5.964
HCM Lane V/C Ratio	1.249	1.266	0.98
HCM Control Delay	135.6	123	46.9
HCM Lane LOS	F	F	E
HCM 95th-tile Q	23.2	21.2	9.4

Intersection	
Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	97	55	57	0	45	42	45	0	36	256	25
Future Vol, veh/h	0	97	55	57	0	45	42	45	0	36	256	25
Peak Hour Factor	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89
Heavy Vehicles, %	1	1	1	1	2	2	2	2	7	7	7	7
Mvmt Flow	0	109	62	64	0	51	47	51	0	40	288	28
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	12.4	11	15.2
HCM LOS	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	46%	34%	4%
Vol Thru, %	81%	26%	32%	69%
Vol Right, %	8%	27%	34%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	317	209	132	223
LT Vol	36	97	45	10
Through Vol	256	55	42	154
RT Vol	25	57	45	59
Lane Flow Rate	356	235	148	251
Geometry Grp	1	1	1	1
Degree of Util (X)	0.549	0.379	0.245	0.385
Departure Headway (Hd)	5.551	5.81	5.945	5.526
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	648	615	599	646
Service Time	3.614	3.883	4.027	3.597
HCM Lane V/C Ratio	0.549	0.382	0.247	0.389
HCM Control Delay	15.2	12.4	11	12.1
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	3.3	1.8	1	1.8

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	10	154	59
Future Vol, veh/h	0	10	154	59
Peak Hour Factor	0.85	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	11	173	66
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	12.1
HCM LOS	B

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	20	70	10	0	35	107	25	0	5	192	16
Future Vol, veh/h	0	20	70	10	0	35	107	25	0	5	192	16
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	1	1	1	1	2	2	2	2	3	3	3	3
Mvmt Flow	0	23	80	11	0	40	123	29	0	6	221	18
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9.5	10.3	10.6
HCM LOS	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	20%	21%	3%
Vol Thru, %	90%	70%	64%	86%
Vol Right, %	8%	10%	15%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	213	100	167	181
LT Vol	5	20	35	5
Through Vol	192	70	107	156
RT Vol	16	10	25	20
Lane Flow Rate	245	115	192	208
Geometry Grp	1	1	1	1
Degree of Util (X)	0.337	0.172	0.28	0.291
Departure Headway (Hd)	5.077	5.378	5.244	5.042
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	712	669	687	716
Service Time	3.077	3.396	3.256	3.054
HCM Lane V/C Ratio	0.344	0.172	0.279	0.291
HCM Control Delay	10.6	9.5	10.3	10.1
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	1.5	0.6	1.1	1.2

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	5	156	20
Future Vol, veh/h	0	5	156	20
Peak Hour Factor	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	0	0	0
Mvmt Flow	0	6	179	23
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	10.1
HCM LOS	B

HCM Signalized Intersection Capacity Analysis

61: 15th Ave NE & Stevens Way

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕↔		↕	↕↔	
Traffic Volume (vph)	31	32	28	139	94	174	19	682	54	92	632	34
Future Volume (vph)	31	32	28	139	94	174	19	682	54	92	632	34
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	4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frbp, ped/bikes		0.83			1.00	0.56	1.00	0.97		1.00	0.98	
Flpb, ped/bikes		0.91			0.74	1.00	0.91	1.00		0.92	1.00	
Frt		0.96			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1334			1240	828	1511	3193		1525	3233	
Flt Permitted		0.86			0.77	1.00	0.22	1.00		0.18	1.00	
Satd. Flow (perm)		1168			978	828	357	3193		291	3233	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	33	34	29	146	99	183	20	718	57	97	665	36
RTOR Reduction (vph)	0	16	0	0	0	130	0	6	0	0	4	0
Lane Group Flow (vph)	0	80	0	0	245	53	20	769	0	97	697	0
Confl. Peds. (#/hr)	825		1636	1636		825	184		194	194		184
Confl. Bikes (#/hr)			223			90			26			12
Heavy Vehicles (%)	2%	2%	2%	10%	10%	10%	9%	9%	9%	9%	9%	9%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)		29.0			29.0	29.0	31.5	31.5		31.5	31.5	
Effective Green, g (s)		29.0			29.0	29.0	31.5	31.5		31.5	31.5	
Actuated g/C Ratio		0.29			0.29	0.29	0.32	0.32		0.32	0.32	
Clearance Time (s)		3.0			3.0	3.0	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		338			283	240	112	1005		91	1018	
v/s Ratio Prot								0.24				0.22
v/s Ratio Perm		0.07			0.25	0.06	0.06			0.33		
v/c Ratio		0.24			0.87	0.22	0.18	0.77		1.07	0.68	
Uniform Delay, d1		27.1			33.7	26.9	24.9	30.9		34.2	29.9	
Progression Factor		1.00			1.00	1.00	0.90	0.89		0.73	0.69	
Incremental Delay, d2		1.7			28.0	2.1	2.4	3.9		110.9	3.6	
Delay (s)		28.7			61.7	29.0	24.7	31.5		136.1	24.3	
Level of Service		C			E	C	C	C		F	C	
Approach Delay (s)		28.7			47.7			31.3			37.9	
Approach LOS		C			D			C			D	

Intersection Summary

HCM 2000 Control Delay	37.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Lane Configurations									
Traffic Vol, veh/h	0	5	153	0	15	20	0	257	5
Future Vol, veh/h	0	5	153	0	15	20	0	257	5
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	11	11	11	0	0	0	14	14	14
Mvmt Flow	0	6	178	0	17	23	0	299	6
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.6	8.3	11.2
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	98%	0%	43%
Vol Thru, %	0%	3%	57%
Vol Right, %	2%	97%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	262	158	35
LT Vol	257	0	15
Through Vol	0	5	20
RT Vol	5	153	0
Lane Flow Rate	305	184	41
Geometry Grp	1	1	1
Degree of Util (X)	0.408	0.222	0.056
Departure Headway (Hd)	4.827	4.343	4.982
Convergence, Y/N	Yes	Yes	Yes
Cap	746	829	718
Service Time	2.859	2.364	3.015
HCM Lane V/C Ratio	0.409	0.222	0.057
HCM Control Delay	11.2	8.6	8.3
HCM Lane LOS	B	A	A
HCM 95th-tile Q	2	0.8	0.2

Intersection	
Intersection Delay, s/veh	79.3
Intersection LOS	F

Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↘	↗		↗	↗		↘	↗
Traffic Vol, veh/h	0	454	446	0	130	575	0	349	55
Future Vol, veh/h	0	454	446	0	130	575	0	349	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	1	1	1	4	4	4
Mvmt Flow	0	478	469	0	137	605	0	367	58
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	70.6	110.3	44.6
HCM LOS	F	F	E

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	575	454	446	349	55
LT Vol	0	0	454	0	349	0
Through Vol	130	0	0	0	0	55
RT Vol	0	575	0	446	0	0
Lane Flow Rate	137	605	478	469	367	58
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.298	1.199	1.076	0.901	0.874	0.131
Departure Headway (Hd)	8.053	7.328	8.466	7.229	9.088	8.568
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	449	502	430	507	400	421
Service Time	5.753	5.028	6.166	4.929	6.788	6.268
HCM Lane V/C Ratio	0.305	1.205	1.112	0.925	0.917	0.138
HCM Control Delay	14.1	132	94.5	46.2	49.6	12.6
HCM Lane LOS	B	F	F	E	E	B
HCM 95th-tile Q	1.2	22.2	15.3	10.3	8.7	0.4

HCM Signalized Intersection Capacity Analysis
64: NE Boat St & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour























Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩		↩	↩	↩	
Traffic Volume (vph)	769	85	15	739	115	15
Future Volume (vph)	769	85	15	739	115	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	5.0	5.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	0.99	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.99		1.00	1.00	0.98	
Flt Protected	1.00		0.95	1.00	0.96	
Satd. Flow (prot)	1819		1787	1881	1744	
Flt Permitted	1.00		0.22	1.00	0.96	
Satd. Flow (perm)	1819		414	1881	1744	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	827	91	16	795	124	16
RTOR Reduction (vph)	3	0	0	0	5	0
Lane Group Flow (vph)	915	0	16	795	135	0
Confl. Peds. (#/hr)		34	34		28	18
Confl. Bikes (#/hr)		5				17
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			2	4	
Permitted Phases			2			
Actuated Green, G (s)	72.6		72.6	72.6	17.4	
Effective Green, g (s)	72.6		72.6	72.6	17.4	
Actuated g/C Ratio	0.73		0.73	0.73	0.17	
Clearance Time (s)	5.0		5.0	5.0	5.0	
Vehicle Extension (s)	0.2		0.2	0.2	2.0	
Lane Grp Cap (vph)	1320		300	1365	303	
v/s Ratio Prot	c0.50			0.42	c0.08	
v/s Ratio Perm			0.04			
v/c Ratio	0.69		0.05	0.58	0.45	
Uniform Delay, d1	7.6		3.9	6.5	37.0	
Progression Factor	1.00		0.31	0.63	1.00	
Incremental Delay, d2	3.0		0.3	1.6	0.4	
Delay (s)	10.6		1.5	5.7	37.4	
Level of Service	B		A	A	D	
Approach Delay (s)	10.6			5.6	37.4	
Approach LOS	B			A	D	

Intersection Summary

HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
65: Brooklyn Ave NE & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	184	842	53	35	585	53	81	105	30	54	40	188
Future Volume (veh/h)	184	842	53	35	585	53	81	105	30	54	40	188
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.91	1.00		0.87	1.00		0.80	1.00		0.82
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1881	1881	1900	1792	1792	1900	1827	1827	1900
Adj Flow Rate, veh/h	200	915	58	38	636	58	88	114	33	59	43	204
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	1	1	1	6	6	6	4	4	4
Cap, veh/h	460	1446	92	219	964	88	121	194	56	197	47	224
Arrive On Green	0.26	0.44	0.44	0.24	0.59	0.59	0.07	0.15	0.15	0.11	0.20	0.20
Sat Flow, veh/h	1757	3325	211	1792	3267	297	1707	1258	364	1740	234	1111
Grp Volume(v), veh/h	200	482	491	38	347	347	88	0	147	59	0	247
Grp Sat Flow(s),veh/h/ln	1757	1752	1783	1792	1787	1777	1707	0	1622	1740	0	1345
Q Serve(g_s), s	9.5	21.5	21.5	1.7	13.0	13.1	5.1	0.0	8.4	3.1	0.0	18.0
Cycle Q Clear(g_c), s	9.5	21.5	21.5	1.7	13.0	13.1	5.1	0.0	8.4	3.1	0.0	18.0
Prop In Lane	1.00		0.12	1.00		0.17	1.00		0.22	1.00		0.83
Lane Grp Cap(c), veh/h	460	762	776	219	527	524	121	0	250	197	0	272
V/C Ratio(X)	0.43	0.63	0.63	0.17	0.66	0.66	0.73	0.00	0.59	0.30	0.00	0.91
Avail Cap(c_a), veh/h	460	762	776	219	527	524	188	0	397	197	0	303
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.66	0.66	0.66	0.90	0.90	0.90	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.7	22.0	22.0	33.8	17.1	17.1	45.5	0.0	39.3	40.7	0.0	39.0
Incr Delay (d2), s/veh	0.2	2.6	2.6	0.1	5.7	5.8	3.1	0.0	0.8	0.3	0.0	26.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	10.9	11.1	0.8	7.0	7.0	2.5	0.0	3.8	1.5	0.0	8.7
LnGrp Delay(d),s/veh	30.9	24.7	24.6	33.9	22.8	22.9	48.6	0.0	40.1	41.0	0.0	65.5
LnGrp LOS	C	C	C	C	C	C	D		D	D		E
Approach Vol, veh/h		1173			732			235			306	
Approach Delay, s/veh		25.7			23.5			43.3			60.8	
Approach LOS		C			C			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.2	34.0	15.8	19.9	16.2	48.0	11.1	24.7				
Change Period (Y+Rc), s	4.0	4.5	4.5	* 4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	20.0	29.5	9.0	* 25	6.0	43.5	11.0	22.5				
Max Q Clear Time (g_c+I1), s	11.5	15.1	5.1	10.4	3.7	23.5	7.1	20.0				
Green Ext Time (p_c), s	0.2	2.5	0.5	0.4	0.1	4.2	0.0	0.3				
Intersection Summary												
HCM 2010 Ctrl Delay			31.1									
HCM 2010 LOS			C									
Notes												

HCM Signalized Intersection Capacity Analysis
66: Campus Parking Access/University Way NE & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	996	0	5	679	69	40	60	75	160	5	59
Future Volume (vph)	65	996	0	5	679	69	40	60	75	160	5	59
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5			4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.95			1.00	0.89		0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		0.94	
Frt	1.00	1.00		1.00	0.99			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.97	
Satd. Flow (prot)	1787	3574		1752	3286			1838	1445		1620	
Flt Permitted	0.95	1.00		0.95	1.00			0.84	1.00		0.72	
Satd. Flow (perm)	1787	3574		1752	3286			1575	1445		1215	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	66	1016	0	5	693	70	41	61	77	163	5	60
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	56	0	15	0
Lane Group Flow (vph)	66	1016	0	5	756	0	0	102	21	0	213	0
Confl. Peds. (#/hr)	263		207	207		263	54		95	95		54
Confl. Bikes (#/hr)						6						2
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			4	
Permitted Phases							4		4	4		
Actuated Green, G (s)	10.4	58.6		1.1	49.3			27.3	27.3		27.3	
Effective Green, g (s)	10.4	58.6		1.1	49.3			27.3	27.3		27.3	
Actuated g/C Ratio	0.10	0.59		0.01	0.49			0.27	0.27		0.27	
Clearance Time (s)	4.0	4.5		4.0	4.5			4.5	4.5		4.5	
Vehicle Extension (s)	2.0	0.2		2.0	0.2			3.0	3.0		3.0	
Lane Grp Cap (vph)	185	2094		19	1619			429	394		331	
v/s Ratio Prot	0.04	c0.28		0.00	c0.23							
v/s Ratio Perm								0.06	0.01		c0.18	
v/c Ratio	0.36	0.49		0.26	0.47			0.24	0.05		0.64	
Uniform Delay, d1	41.7	12.0		49.0	16.7			28.3	26.8		32.1	
Progression Factor	0.65	0.20		1.44	0.35			1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.7		1.5	0.5			0.3	0.1		4.3	
Delay (s)	27.5	3.2		72.0	6.3			28.5	26.9		36.3	
Level of Service	C	A		E	A			C	C		D	
Approach Delay (s)		4.7			6.8			27.8			36.3	
Approach LOS		A			A			C			D	

Intersection Summary

HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
67: 15th Ave NE & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	1053	60	132	515	355	125	242	376	518	178	113
Future Volume (vph)	123	1053	60	132	515	355	125	242	376	518	178	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		0.95		0.95	0.95	
Frbp, ped/bikes	1.00	0.96		1.00	1.00	0.90		0.83		1.00	0.92	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85		0.92		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	0.99	
Satd. Flow (prot)	1787	3421		1703	3406	1366		2724		1573	1438	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99		0.95	0.99	
Satd. Flow (perm)	1787	3421		1703	3406	1366		2724		1573	1438	
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)	131	1120	64	140	548	378	133	257	400	551	189	120
RTOR Reduction (vph)	0	4	0	0	0	38	0	119	0	0	14	0
Lane Group Flow (vph)	131	1180	0	140	548	340	0	671	0	435	411	0
Confl. Peds. (#/hr)	141		435	435		141	199		265	265		199
Confl. Bikes (#/hr)			2			28			37			18
Heavy Vehicles (%)	1%	1%	1%	6%	6%	6%	1%	1%	1%	9%	9%	9%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	
Protected Phases	1	6		5	2	4	3	3		4	4	
Permitted Phases						2						
Actuated Green, G (s)	10.5	28.0		6.5	24.0	48.5		23.0		24.5	24.5	
Effective Green, g (s)	10.5	28.0		6.5	24.0	48.5		23.0		24.5	24.5	
Actuated g/C Ratio	0.10	0.28		0.06	0.24	0.48		0.23		0.24	0.24	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.0	0.2		2.0	0.2	3.0		2.0		3.0	3.0	
Lane Grp Cap (vph)	187	957		110	817	662		626		385	352	
v/s Ratio Prot	0.07	c0.34		c0.08	0.16	0.13		c0.25		0.28	c0.29	
v/s Ratio Perm						0.12						
v/c Ratio	0.70	1.23		1.27	0.67	0.51		1.07		1.13	1.17	
Uniform Delay, d1	43.2	36.0		46.8	34.4	17.7		38.5		37.8	37.8	
Progression Factor	0.78	0.76		1.00	1.00	1.00		1.00		0.30	0.26	
Incremental Delay, d2	8.6	113.2		176.0	4.4	0.7		57.0		79.8	95.2	
Delay (s)	42.1	140.5		222.7	38.8	18.3		95.5		91.3	105.2	
Level of Service	D	F		F	D	B		F		F	F	
Approach Delay (s)		130.7			55.7			95.5			98.1	
Approach LOS		F			E			F			F	

Intersection Summary

HCM 2000 Control Delay	97.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	104.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Int Delay, s/veh 4.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	30	150	110	101	113	15
Future Vol, veh/h	30	150	110	101	113	15
Conflicting Peds, #/hr	77	0	0	54	54	77
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	6	6	4	4
Mvmt Flow	33	165	121	111	124	16

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	309	0	538
Stage 1	-	-	253
Stage 2	-	-	285
Critical Hdwy	4.13	-	6.44
Critical Hdwy Stg 1	-	-	5.44
Critical Hdwy Stg 2	-	-	5.44
Follow-up Hdwy	2.227	-	3.536
Pot Cap-1 Maneuver	1246	-	501
Stage 1	-	-	785
Stage 2	-	-	759
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1166	-	425
Mov Cap-2 Maneuver	-	-	425
Stage 1	-	-	735
Stage 2	-	-	688

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	16.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1166	-	-	-	441
HCM Lane V/C Ratio	0.028	-	-	-	0.319
HCM Control Delay (s)	8.2	0	-	-	16.9
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.4

Intersection	
Intersection Delay, s/veh	88.6
Intersection LOS	F

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations									
Traffic Vol, veh/h	0	145	118	0	171	564	0	235	40
Future Vol, veh/h	0	145	118	0	171	564	0	235	40
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	5	5	5	2	2	2	3	3	3
Mvmt Flow	0	161	131	0	190	627	0	261	44
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	16.6	141.9	15.1
HCM LOS	C	F	C

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	23%	55%	0%
Vol Thru, %	77%	0%	85%
Vol Right, %	0%	45%	15%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	735	263	275
LT Vol	171	145	0
Through Vol	564	0	235
RT Vol	0	118	40
Lane Flow Rate	817	292	306
Geometry Grp	1	1	1
Degree of Util (X)	1.245	0.506	0.495
Departure Headway (Hd)	5.488	6.801	6.166
Convergence, Y/N	Yes	Yes	Yes
Cap	670	535	590
Service Time	3.499	4.801	4.166
HCM Lane V/C Ratio	1.219	0.546	0.519
HCM Control Delay	141.9	16.6	15.1
HCM Lane LOS	F	C	C
HCM 95th-tile Q	30.2	2.8	2.7

HCM Unsignalized Intersection Capacity Analysis

UW Master Plan EIS

70: Parking Access/Campus Parking Access & NE Boat St/Columbia Rd Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Stop			Stop			Stop	
Traffic Volume (vph)	10	313	10	5	720	5	0	0	5	0	0	10
Future Volume (vph)	10	313	10	5	720	5	0	0	5	0	0	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	329	11	5	758	5	0	0	5	0	0	11

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	11	340	768	5	11
Volume Left (vph)	11	0	5	0	0
Volume Right (vph)	0	11	5	5	11
Hadj (s)	0.62	0.10	0.08	-0.60	-0.60
Departure Headway (s)	5.7	5.2	4.5	5.8	5.8
Degree Utilization, x	0.02	0.49	0.97	0.01	0.02
Capacity (veh/h)	630	693	791	585	582
Control Delay (s)	7.6	11.8	45.0	8.8	8.9
Approach Delay (s)	11.7		45.0	8.8	8.9
Approach LOS	B		E	A	A

Intersection Summary				
Delay			34.2	
Level of Service			D	
Intersection Capacity Utilization		62.2%	ICU Level of Service	B
Analysis Period (min)		15		

Intersection

Int Delay, s/veh 141.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	66	101	2226	65	69	1050
Future Vol, veh/h	66	101	2226	65	69	1050
Conflicting Peds, #/hr	0	3	0	0	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	69	106	2343	68	73	1105

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	3078	1212	0	0	2415	0
Stage 1	2380	-	-	-	-	-
Stage 2	698	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.14	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.22	-
Pot Cap-1 Maneuver	~ 10	177	-	-	194	-
Stage 1	~ 57	-	-	-	-	-
Stage 2	460	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	0	176	-	-	194	-
Mov Cap-2 Maneuver	~ 11	-	-	-	-	-
Stage 1	~ 57	-	-	-	-	-
Stage 2	~ 12	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	\$ 3021.8		0		2.1
HCM LOS	F				

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 25	194	-
HCM Lane V/C Ratio	-	- 7.032	0.374	-
HCM Control Delay (s)	-	\$ 3021.8	34.3	-
HCM Lane LOS	-	- F	D	-
HCM 95th %tile Q(veh)	-	- 21.9	1.6	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑			↑↑
Traffic Vol, veh/h	5	40	2241	5	0	1126
Future Vol, veh/h	5	40	2241	5	0	1126
Conflicting Peds, #/hr	3	3	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	5	42	2359	5	0	1185

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2961	1188	0	0	-	-
Stage 1	2365	-	-	-	-	-
Stage 2	596	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	-	-
Pot Cap-1 Maneuver	11	181	-	-	0	-
Stage 1	57	-	-	-	0	-
Stage 2	513	-	-	-	0	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	11	180	-	-	-	-
Mov Cap-2 Maneuver	54	-	-	-	-	-
Stage 1	57	-	-	-	-	-
Stage 2	512	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	42.2		0		0
HCM LOS	E				

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	- 143	-
HCM Lane V/C Ratio	-	- 0.331	-
HCM Control Delay (s)	-	- 42.2	-
HCM Lane LOS	-	- E	-
HCM 95th %tile Q(veh)	-	- 1.3	-

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑		↑	↑↑
Traffic Vol, veh/h	0	5	2251	25	10	1116
Future Vol, veh/h	0	5	2251	25	10	1116
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	0	5	2345	26	10	1163

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	1195	0 0 2376 0
Stage 1	-	-	- - - -
Stage 2	-	-	- - - -
Critical Hdwy	-	6.9	- - 4.14 -
Critical Hdwy Stg 1	-	-	- - - -
Critical Hdwy Stg 2	-	-	- - - -
Follow-up Hdwy	-	3.3	- - 2.22 -
Pot Cap-1 Maneuver	0	182	- - 201 -
Stage 1	0	-	- - - -
Stage 2	0	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	-	180	- - 200 -
Mov Cap-2 Maneuver	-	-	- - - -
Stage 1	-	-	- - - -
Stage 2	-	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	25.6	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 180	200	-
HCM Lane V/C Ratio	-	- 0.029	0.052	-
HCM Control Delay (s)	-	- 25.6	24	-
HCM Lane LOS	-	- D	C	-
HCM 95th %tile Q(veh)	-	- 0.1	0.2	-

HCM Signalized Intersection Capacity Analysis
 74: Montlake Blvd NE & Husky Stadium Parking Access

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	460	22	65	136	0	53	0	1703	5	6	914	181
Future Volume (vph)	460	22	65	136	0	53	0	1703	5	6	914	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5			4.5	
Lane Util. Factor	0.95	0.95	1.00	1.00		1.00		0.95			0.95	
Frbp, ped/bikes	1.00	1.00	0.86	1.00		0.99		1.00			0.98	
Flpb, ped/bikes	1.00	1.00	1.00	0.94		1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00		0.85		1.00			0.98	
Flt Protected	0.95	0.96	1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	1681	1693	1361	1689		1594		3568			3347	
Flt Permitted	0.95	0.96	1.00	0.34		1.00		1.00			0.94	
Satd. Flow (perm)	1681	1693	1361	599		1594		3568			3157	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	479	23	68	142	0	55	0	1774	5	6	952	189
RTOR Reduction (vph)	0	0	53	0	0	11	0	0	0	0	10	0
Lane Group Flow (vph)	249	253	15	142	0	44	0	1779	0	0	1137	0
Confl. Peds. (#/hr)			76	76			37		176	176		37
Confl. Bikes (#/hr)			8			1						1
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	3%	3%	3%
Turn Type	Perm	NA	Perm	D.Pm		Perm		NA		Perm	NA	
Protected Phases		4						2				2
Permitted Phases	4		4	4		4			2			
Actuated Green, G (s)	26.9	26.9	26.9	26.9		26.9		84.1			84.1	
Effective Green, g (s)	26.9	26.9	26.9	26.9		26.9		84.1			84.1	
Actuated g/C Ratio	0.22	0.22	0.22	0.22		0.22		0.70			0.70	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5			4.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0		0.2			0.2	
Lane Grp Cap (vph)	376	379	305	134		357		2500			2212	
v/s Ratio Prot								c0.50				
v/s Ratio Perm	0.15	0.15	0.01	c0.24		0.03					0.36	
v/c Ratio	0.66	0.67	0.05	1.06		0.12		0.71			0.51	
Uniform Delay, d1	42.4	42.5	36.5	46.5		37.1		10.7			8.4	
Progression Factor	0.90	0.90	1.30	1.00		1.00		0.01			1.00	
Incremental Delay, d2	2.3	2.3	0.0	94.6		0.1		0.9			0.9	
Delay (s)	40.5	40.6	47.5	141.1		37.2		1.0			9.2	
Level of Service	D	D	D	F		D		A			A	
Approach Delay (s)		41.3			112.1			1.0			9.2	
Approach LOS		D			F			A			A	

Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

75: NE Pacific St & NE Pacific Pl

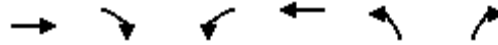
UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	452	1455	60	45	776	35	0	0	0	0	0	221
Future Volume (vph)	452	1455	60	45	776	35	0	0	0	0	0	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0							5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95							1.00
Frbp, ped/bikes	1.00	1.00	0.63	1.00	0.99							1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00							1.00
Frt	1.00	1.00	0.85	1.00	0.99							0.86
Flt Protected	0.95	1.00	1.00	0.95	1.00							1.00
Satd. Flow (prot)	1805	3610	1010	1805	3534							1565
Flt Permitted	0.95	1.00	1.00	0.13	1.00							1.00
Satd. Flow (perm)	1805	3610	1010	241	3534							1565
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)	486	1565	65	48	834	38	0	0	0	0	0	238
RTOR Reduction (vph)	0	0	31	0	5	0	0	0	0	0	0	25
Lane Group Flow (vph)	486	1565	34	48	867	0	0	0	0	0	0	213
Confl. Peds. (#/hr)			215	215		448			748	748		
Confl. Bikes (#/hr)			8			9		9				1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	6%	6%	6%	5%	5%	5%
Turn Type	Prot	NA	Perm	Perm	NA							Over
Protected Phases	2	1			1							2
Permitted Phases			1	1								
Actuated Green, G (s)	18.5	31.5	31.5	31.5	31.5							18.5
Effective Green, g (s)	18.5	31.5	31.5	31.5	31.5							18.5
Actuated g/C Ratio	0.31	0.52	0.52	0.52	0.52							0.31
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0							5.0
Vehicle Extension (s)	2.0	0.2	0.2	0.2	0.2							2.0
Lane Grp Cap (vph)	556	1895	530	126	1855							482
v/s Ratio Prot	c0.27	c0.43			0.25							0.14
v/s Ratio Perm			0.03	0.20								
v/c Ratio	0.87	0.83	0.06	0.38	0.47							0.44
Uniform Delay, d1	19.6	11.9	7.0	8.5	9.0							16.6
Progression Factor	1.00	1.00	1.00	1.71	1.37							0.94
Incremental Delay, d2	13.8	4.3	0.2	8.2	0.8							0.2
Delay (s)	33.5	16.2	7.2	22.7	13.1							15.9
Level of Service	C	B	A	C	B							B
Approach Delay (s)		19.9			13.6			0.0				15.9
Approach LOS		B			B			A				B
Intersection Summary												
HCM 2000 Control Delay			17.8			HCM 2000 Level of Service						B
HCM 2000 Volume to Capacity ratio			0.84									
Actuated Cycle Length (s)			60.0			Sum of lost time (s)			10.0			
Intersection Capacity Utilization			63.6%			ICU Level of Service						B
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
76: Hospital Access & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 3 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	1440	15	40	811	65	65
Future Volume (vph)	1440	15	40	811	65	65
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frbp, ped/bikes	1.00	0.75	1.00	1.00	1.00	0.99
Flpb, ped/bikes	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)	3438	1150	1656	3312	1805	1591
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3438	1150	1656	3312	1805	1591
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1532	16	43	863	69	69
RTOR Reduction (vph)	0	1	0	0	0	64
Lane Group Flow (vph)	1532	15	43	863	69	5
Confl. Peds. (#/hr)		78	78		44	
Confl. Bikes (#/hr)		8				1
Heavy Vehicles (%)	5%	5%	9%	9%	0%	0%
Turn Type	NA	Perm	Prot	NA	pm+pt	Perm
Protected Phases	2		7!	6!	1!	
Permitted Phases		2		3	3!	1
Actuated Green, G (s)	83.3	83.3	14.1	96.9	9.1	9.1
Effective Green, g (s)	83.3	83.3	14.1	96.9	9.1	9.1
Actuated g/C Ratio	0.69	0.69	0.12	0.81	0.08	0.08
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	0.2	0.2	2.0	0.2	2.0	2.0
Lane Grp Cap (vph)	2386	798	194	2674	136	120
v/s Ratio Prot	c0.45		c0.03	0.26	c0.04	
v/s Ratio Perm		0.01				0.00
v/c Ratio	0.64	0.02	0.22	0.32	0.51	0.04
Uniform Delay, d1	10.1	5.7	48.0	3.0	53.3	51.4
Progression Factor	0.80	0.68	0.67	1.34	1.00	1.00
Incremental Delay, d2	0.7	0.0	0.1	0.0	1.1	0.1
Delay (s)	8.8	3.9	32.5	4.0	54.4	51.5
Level of Service	A	A	C	A	D	D
Approach Delay (s)	8.7			5.4	52.9	
Approach LOS	A			A	D	

Intersection Summary

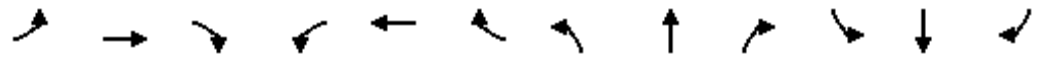
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

77: Montlake Blvd NE & NE Pacific St/Husky Stadium Parking Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗↘		↑	↗	↗↘	↗↘		↗	↗↘	↗
Traffic Volume (vph)	0	0	1505	0	57	20	769	1688	18	5	1075	25
Future Volume (vph)	0	0	1505	0	57	20	769	1688	18	5	1075	25
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.5		5.0	5.0	7.0	5.0		6.0	5.0	5.0
Lane Util. Factor			0.88		1.00	1.00	0.97	0.95		1.00	0.95	1.00
Frbp, ped/bikes			1.00		1.00	1.00	1.00	0.99		1.00	1.00	0.66
Flpb, ped/bikes			1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt			0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected			1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)			2787		1863	1583	3433	3510		1752	3505	1030
Flt Permitted			1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)			2787		1863	1583	3433	3510		1752	3505	1030
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)	0	0	1552	0	59	21	793	1740	19	5	1108	26
RTOR Reduction (vph)	0	0	296	0	0	19	0	1	0	0	0	15
Lane Group Flow (vph)	0	0	1256	0	59	2	793	1758	0	5	1108	11
Confl. Peds. (#/hr)							255		334	334		255
Confl. Bikes (#/hr)												4
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type			Perm		NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases					3!		4 5	1 5		7!	1	
Permitted Phases			9 1 3			3						1
Actuated Green, G (s)			102.1		12.8	12.8	31.0	65.1		1.0	52.2	52.2
Effective Green, g (s)			97.1		12.8	12.8	31.0	58.1		1.0	52.2	52.2
Actuated g/C Ratio			0.81		0.11	0.11	0.26	0.48		0.01	0.44	0.44
Clearance Time (s)					5.0	5.0				6.0	5.0	5.0
Vehicle Extension (s)					2.0	2.0				2.0	0.2	0.2
Lane Grp Cap (vph)			2255		198	168	886	1699		14	1524	448
v/s Ratio Prot					0.03		c0.23	c0.50		0.00	0.32	
v/s Ratio Perm			c0.45			0.00						0.01
v/c Ratio			0.56		0.30	0.01	0.90	1.04		0.36	0.73	0.03
Uniform Delay, d1			4.0		49.5	48.0	42.9	30.9		59.2	28.0	19.4
Progression Factor			1.00		1.00	1.00	0.86	1.08		0.88	0.74	1.00
Incremental Delay, d2			0.1		0.3	0.0	9.6	29.7		4.8	2.7	0.1
Delay (s)			4.1		49.8	48.0	46.5	63.2		57.0	23.3	19.5
Level of Service			A		D	D	D	E		E	C	B
Approach Delay (s)		4.1			49.3			58.0			23.4	
Approach LOS		A			D			E			C	

Intersection Summary

HCM 2000 Control Delay	34.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 78: Montlake Blvd NE & 520 EB/WB HOV Ramp & 520 WB Off Ramp

UW Master Plan EIS
 Future (2028) Alt 3 PM Peak Hour



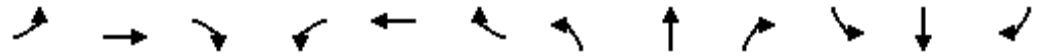
Movement	WBR	NBL	NBT	NBR2	SBL	SBT	SBR	NWR
Lane Configurations	↗↗	↘↘	↑↑	↗	↘	↑↑↔		↗
Traffic Volume (vph)	798	200	1892	30	30	1863	672	30
Future Volume (vph)	798	200	1892	30	30	1863	672	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5	4.5	4.0	4.5		4.0
Lane Util. Factor	0.88	0.97	0.95	1.00	1.00	0.91		1.00
Frt	0.85	1.00	1.00	0.85	1.00	0.96		0.86
Flt Protected	1.00	0.95	1.00	1.00	0.95	1.00		1.00
Satd. Flow (prot)	2787	3433	3539	1583	1770	4877		1611
Flt Permitted	1.00	0.95	1.00	1.00	0.95	1.00		1.00
Satd. Flow (perm)	2787	3433	3539	1583	1770	4877		1611
Peak-hour factor, PHF	0.96	0.92	0.96	0.92	0.92	0.96	0.92	0.92
Adj. Flow (vph)	831	217	1971	33	33	1941	730	33
RTOR Reduction (vph)	270	0	0	12	0	49	0	0
Lane Group Flow (vph)	561	217	1971	21	33	2622	0	33
Turn Type	custom	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	3 1	5	2		1	6		4
Permitted Phases				2		3		
Actuated Green, G (s)	26.0	13.0	75.9	75.9	4.0	84.9		5.6
Effective Green, g (s)	26.0	13.0	75.9	75.9	4.0	84.9		5.6
Actuated g/C Ratio	0.22	0.11	0.63	0.63	0.03	0.71		0.05
Clearance Time (s)		4.0	4.5	4.5	4.0	4.5		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	603	371	2238	1001	59	3633		75
v/s Ratio Prot	c0.20	0.06	c0.56		0.02	c0.40		c0.02
v/s Ratio Perm				0.01		0.14		
v/c Ratio	0.93	0.58	0.88	0.02	0.56	0.72		0.44
Uniform Delay, d1	46.1	50.9	18.3	8.2	57.1	10.5		55.7
Progression Factor	1.00	1.17	0.46	1.00	0.94	0.66		1.00
Incremental Delay, d2	20.8	1.7	3.9	0.0	9.5	0.6		4.1
Delay (s)	66.9	61.5	12.4	8.2	63.5	7.6		59.8
Level of Service	E	E	B	A	E	A		E
Approach Delay (s)			17.1			8.2		
Approach LOS			B			A		

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

79: Montlake Blvd NE & SR-520 EB Ramps/E Lake Washington Blvd





















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	578	35	80	135	5	320	90	999	10	170	850	843
Future Volume (vph)	578	35	80	135	5	320	90	999	10	170	850	843
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	0.97	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.91
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1695	1435	1752	1845	1568	3367	3457		1752	3505	1431
Flt Permitted	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1695	1435	1752	1845	1568	3367	3457		1752	3505	1431
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	608	37	84	142	5	337	95	1052	11	179	895	887
RTOR Reduction (vph)	0	0	66	0	0	68	0	1	0	0	0	479
Lane Group Flow (vph)	322	323	18	142	5	269	95	1062	0	179	895	408
Confl. Peds. (#/hr)	3		60	60		3	111		170	170		111
Confl. Bikes (#/hr)						5			8			10
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Turn Type	Split	NA	Perm	Split	NA	custom	Prot	NA		Prot	NA	Perm
Protected Phases	3	3		4	4	4	6	2		1	5	
Permitted Phases			3			4						5
Actuated Green, G (s)	26.0	26.0	26.0	12.9	12.9	33.9	7.9	46.6		16.5	55.2	55.2
Effective Green, g (s)	26.0	26.0	26.0	12.9	12.9	33.9	7.9	46.6		16.5	55.2	55.2
Actuated g/C Ratio	0.22	0.22	0.22	0.11	0.11	0.28	0.07	0.39		0.14	0.46	0.46
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)	2.0	2.0	2.0	3.0	3.0		2.0	0.2		2.0	0.2	0.2
Lane Grp Cap (vph)	364	367	310	188	198	442	221	1342		240	1612	658
v/s Ratio Prot	c0.19	0.19		c0.08	0.00	0.17	0.03	c0.31		c0.10	0.26	
v/s Ratio Perm			0.01									0.29
v/c Ratio	0.88	0.88	0.06	0.76	0.03	0.61	0.43	0.79		0.75	0.56	0.62
Uniform Delay, d1	45.5	45.5	37.3	52.0	47.9	37.3	53.9	32.4		49.7	23.5	24.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.91	0.91	1.93
Incremental Delay, d2	21.1	20.5	0.0	15.8	0.1	2.4	0.5	4.8		8.1	1.1	3.3
Delay (s)	66.7	66.0	37.3	67.8	48.0	39.7	54.4	37.3		53.6	22.4	50.5
Level of Service	E	E	D	E	D	D	D	D		D	C	D
Approach Delay (s)		63.0			48.0			38.7			38.0	
Approach LOS		E			D			D			D	

Intersection Summary

HCM 2000 Control Delay	43.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
 1: 5th Ave NE & NE 50th St

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	660	290	185	1095	0	0	0	0	135	125	180
Future Volume (veh/h)	0	660	290	185	1095	0	0	0	0	135	125	180
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		1.00				1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1900	1863	1863	0				1900	1900	1900
Adj Flow Rate, veh/h	0	673	296	189	1117	0				148	113	184
Adj No. of Lanes	0	2	0	1	2	0				2	1	1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98				0.98	0.98	0.98
Percent Heavy Veh, %	0	1	1	2	2	0				0	0	0
Cap, veh/h	0	1064	468	484	2700	0				514	270	225
Arrive On Green	0.00	0.44	0.44	0.55	1.00	0.00				0.14	0.14	0.14
Sat Flow, veh/h	0	2485	1052	1774	3632	0				3619	1900	1586
Grp Volume(v), veh/h	0	503	466	189	1117	0				148	113	184
Grp Sat Flow(s),veh/h/ln	0	1787	1655	1774	1770	0				1810	1900	1586
Q Serve(g_s), s	0.0	21.7	21.7	6.1	0.0	0.0				3.7	5.4	11.3
Cycle Q Clear(g_c), s	0.0	21.7	21.7	6.1	0.0	0.0				3.7	5.4	11.3
Prop In Lane	0.00		0.64	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	795	737	484	2700	0				514	270	225
V/C Ratio(X)	0.00	0.63	0.63	0.39	0.41	0.00				0.29	0.42	0.82
Avail Cap(c_a), veh/h	0	795	737	484	2700	0				724	380	317
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.70	0.70	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	21.4	21.4	17.9	0.0	0.0				38.4	39.1	41.6
Incr Delay (d2), s/veh	0.0	3.8	4.1	0.5	0.3	0.0				0.2	0.8	9.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	11.5	10.7	3.0	0.1	0.0				1.8	2.9	5.5
LnGrp Delay(d),s/veh	0.0	25.2	25.5	18.4	0.3	0.0				38.6	39.9	51.0
LnGrp LOS		C	C	B	A					D	D	D
Approach Vol, veh/h		969			1306						445	
Approach Delay, s/veh		25.4			2.9						44.1	
Approach LOS		C			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	31.8	49.0		19.2		80.8						
Change Period (Y+Rc), s	4.5	4.5		5.0		4.5						
Max Green Setting (Gmax), s	21.5	44.5		20.0		70.5						
Max Q Clear Time (g_c+I1), s	8.1	23.7		13.3		2.0						
Green Ext Time (p_c), s	8.7	6.8		0.8		19.7						
Intersection Summary												
HCM 2010 Ctrl Delay				17.7								
HCM 2010 LOS				B								
Notes												

HCM Signalized Intersection Capacity Analysis

2: 7th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑			↑↑	↗	↘	↗	↗			
Traffic Volume (vph)	320	485	0	0	690	336	580	180	300	0	0	0
Future Volume (vph)	320	485	0	0	690	336	580	180	300	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Lane Util. Factor	1.00	0.95			0.95	1.00	0.95	0.95	1.00			
Frbp, ped/bikes	1.00	1.00			1.00	0.87	1.00	1.00	0.98			
Flpb, ped/bikes	1.00	1.00			1.00	1.00	1.00	1.00	1.00			
Frt	1.00	1.00			1.00	0.85	1.00	1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (prot)	1787	3574			3539	1381	1698	1741	1563			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	0.97	1.00			
Satd. Flow (perm)	1787	3574			3539	1381	1698	1741	1563			
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	333	505	0	0	719	350	604	188	312	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	96	0	0	214	0	0	0
Lane Group Flow (vph)	333	505	0	0	719	254	393	399	99	0	0	0
Confl. Peds. (#/hr)	24		22	22		24			6	6		
Confl. Bikes (#/hr)			2			1			1			
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type	Prot	NA			NA	Perm	Split	NA	Perm			
Protected Phases	5	2			6		8	8				
Permitted Phases						6			8			
Actuated Green, G (s)	21.9	59.5			33.1	33.1	31.5	31.5	31.5			
Effective Green, g (s)	21.9	59.5			33.1	33.1	31.5	31.5	31.5			
Actuated g/C Ratio	0.22	0.60			0.33	0.33	0.32	0.32	0.32			
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5			
Vehicle Extension (s)	2.5	2.5			2.5	2.5	2.5	2.5	2.5			
Lane Grp Cap (vph)	391	2126			1171	457	534	548	492			
v/s Ratio Prot	c0.19	0.14			c0.20		c0.23	0.23				
v/s Ratio Perm						0.18			0.06			
v/c Ratio	0.85	0.24			0.61	0.56	0.74	0.73	0.20			
Uniform Delay, d1	37.5	9.6			28.1	27.4	30.5	30.4	25.0			
Progression Factor	1.31	0.67			1.00	1.18	1.00	1.00	1.00			
Incremental Delay, d2	14.6	0.2			2.2	4.4	8.8	8.2	0.9			
Delay (s)	63.8	6.6			30.2	36.9	39.3	38.7	26.0			
Level of Service	E	A			C	D	D	D	C			
Approach Delay (s)		29.4			32.3			35.3			0.0	
Approach LOS		C			C			D			A	

Intersection Summary

HCM 2000 Control Delay	32.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

















HCM 2010 Signalized Intersection Summary
3: 9th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	20	660	30	5	936	5	40	20	30	15	10	15
Future Volume (veh/h)	20	660	30	5	936	5	40	20	30	15	10	15
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.95	1.00		0.95	0.97		0.95	0.97		0.96
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1881	1900	1900	1863	1900	1900	1792	1900	1900	1900	1900
Adj Flow Rate, veh/h	20	673	31	5	955	5	41	20	31	15	10	15
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Percent Heavy Veh, %	1	1	1	2	2	2	6	6	6	0	0	0
Cap, veh/h	65	1908	87	39	2062	11	246	122	160	221	151	193
Arrive On Green	0.19	0.19	0.19	0.58	0.58	0.58	0.33	0.33	0.33	0.33	0.33	0.33
Sat Flow, veh/h	47	3261	148	4	3525	18	587	369	486	519	457	585
Grp Volume(v), veh/h	373	0	351	505	0	460	92	0	0	40	0	0
Grp Sat Flow(s),veh/h/ln	1779	0	1677	1856	0	1691	1442	0	0	1561	0	0
Q Serve(g_s), s	0.0	0.0	18.1	0.0	0.0	15.5	1.7	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	17.1	0.0	18.1	15.4	0.0	15.5	4.2	0.0	0.0	1.6	0.0	0.0
Prop In Lane	0.05		0.09	0.01		0.01	0.45		0.34	0.37		0.37
Lane Grp Cap(c), veh/h	1079	0	981	1122	0	989	528	0	0	565	0	0
V/C Ratio(X)	0.35	0.00	0.36	0.45	0.00	0.46	0.17	0.00	0.00	0.07	0.00	0.00
Avail Cap(c_a), veh/h	1079	0	981	1122	0	989	528	0	0	565	0	0
HCM Platoon Ratio	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	23.7	0.0	24.1	11.8	0.0	11.8	23.8	0.0	0.0	23.0	0.0	0.0
Incr Delay (d2), s/veh	0.9	0.0	1.0	1.3	0.0	1.6	0.7	0.0	0.0	0.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	0.0	8.7	8.3	0.0	7.6	1.9	0.0	0.0	0.8	0.0	0.0
LnGrp Delay(d),s/veh	24.5	0.0	25.1	13.1	0.0	13.4	24.5	0.0	0.0	23.2	0.0	0.0
LnGrp LOS	C		C	B		B	C			C		
Approach Vol, veh/h		724			965			92				40
Approach Delay, s/veh		24.8			13.3			24.5				23.2
Approach LOS		C			B			C				C
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		63.0		37.0		63.0		37.0				
Change Period (Y+Rc), s		4.5		4.0		4.5		4.0				
Max Green Setting (Gmax), s		58.5		33.0		58.5		33.0				
Max Q Clear Time (g_c+I1), s		17.5		6.2		20.1		3.6				
Green Ext Time (p_c), s		2.0		0.1		2.0		0.2				
Intersection Summary												
HCM 2010 Ctrl Delay				18.6								
HCM 2010 LOS				B								
















HCM 2010 Signalized Intersection Summary
4: Roosevelt Way NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	620	95	110	846	0	0	0	0	131	900	110
Future Volume (veh/h)	0	620	95	110	846	0	0	0	0	131	900	110
Number	1	6	16	5	2	12				3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.94	1.00		1.00				1.00		0.90
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1881	1900	1900	1900	0				1900	1881	1881
Adj Flow Rate, veh/h	0	639	98	113	872	0				135	928	113
Adj No. of Lanes	0	2	0	0	2	0				0	2	1
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97				0.97	0.97	0.97
Percent Heavy Veh, %	0	1	1	0	0	0				1	1	1
Cap, veh/h	0	1201	184	0	2004	0				157	1137	511
Arrive On Green	0.00	0.39	0.39	0.24	1.00	0.00				0.35	0.35	0.35
Sat Flow, veh/h	0	3172	471	0	3705	0				443	3204	1438
Grp Volume(v), veh/h	0	370	367	0	872	0				567	496	113
Grp Sat Flow(s),veh/h/ln	0	1787	1762	0	1805	0				1859	1787	1438
Q Serve(g_s), s	0.0	15.9	16.0	0.0	0.0	0.0				28.3	24.8	5.5
Cycle Q Clear(g_c), s	0.0	15.9	16.0	0.0	0.0	0.0				28.3	24.8	5.5
Prop In Lane	0.00		0.27	0.00		0.00				0.24		1.00
Lane Grp Cap(c), veh/h	0	697	687	0	2004	0				660	634	511
V/C Ratio(X)	0.00	0.53	0.53	0.00	0.44	0.00				0.86	0.78	0.22
Avail Cap(c_a), veh/h	0	697	687	0	2004	0				660	634	511
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	1.00	1.00	0.00	1.00	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	23.5	23.5	0.0	0.0	0.0				29.9	28.8	22.6
Incr Delay (d2), s/veh	0.0	2.9	3.0	0.0	0.7	0.0				13.7	9.3	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	8.4	8.3	0.0	0.2	0.0				17.0	13.8	2.3
LnGrp Delay(d),s/veh	0.0	26.4	26.4	0.0	0.7	0.0				43.6	38.1	23.6
LnGrp LOS		C	C		A					D	D	C
Approach Vol, veh/h		737			872						1176	
Approach Delay, s/veh		26.4			0.7						39.4	
Approach LOS		C			A						D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2			5	6		8				
Phs Duration (G+Y+Rc), s		60.0			16.5	43.5		40.0				
Change Period (Y+Rc), s		4.5			4.5	4.5		4.5				
Max Green Setting (Gmax), s		55.5			12.0	39.0		35.5				
Max Q Clear Time (g_c+I1), s		2.0			0.0	18.0		30.3				
Green Ext Time (p_c), s		1.3			0.0	0.8		0.9				
Intersection Summary												
HCM 2010 Ctrl Delay			23.8									
HCM 2010 LOS			C									

HCM 2010 Signalized Intersection Summary
5: 11th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	70	666	0	0	654	93	292	911	90	0	0	0
Future Volume (veh/h)	70	666	0	0	654	93	292	911	90	0	0	0
Number	1	6	16	5	2	12	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		0.90	1.00		0.92			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1881	0	0	1881	1900	1900	1863	1900			
Adj Flow Rate, veh/h	74	709	0	0	696	99	311	969	96			
Adj No. of Lanes	0	2	0	0	2	0	0	2	0			
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94			
Percent Heavy Veh, %	1	1	0	0	1	1	0	2	0			
Cap, veh/h	44	837	0	0	990	141	379	1245	128			
Arrive On Green	0.85	0.85	0.00	0.00	0.64	0.64	0.16	0.16	0.16			
Sat Flow, veh/h	1	2056	0	0	3187	439	781	2566	264			
Grp Volume(v), veh/h	372	411	0	0	402	393	726	0	650			
Grp Sat Flow(s),veh/h/ln	345	1627	0	0	1787	1745	1824	0	1788			
Q Serve(g_s), s	18.0	7.7	0.0	0.0	14.7	14.8	38.5	0.0	34.7			
Cycle Q Clear(g_c), s	18.0	7.7	0.0	0.0	14.7	14.8	38.5	0.0	34.7			
Prop In Lane	0.20		0.00	0.00		0.25	0.43		0.15			
Lane Grp Cap(c), veh/h	0	691	0	0	572	558	884	0	867			
V/C Ratio(X)	0.00	0.59	0.00	0.00	0.70	0.70	0.82	0.00	0.75			
Avail Cap(c_a), veh/h	0	691	0	0	572	558	884	0	867			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	0.33	0.33	0.33			
Upstream Filter(I)	1.00	1.00	0.00	0.00	1.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	0.0	4.9	0.0	0.0	14.9	14.9	37.8	0.0	36.2			
Incr Delay (d2), s/veh	0.0	3.7	0.0	0.0	7.1	7.3	8.4	0.0	5.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	0.0	3.9	0.0	0.0	8.0	7.9	21.5	0.0	18.6			
LnGrp Delay(d),s/veh	0.0	8.6	0.0	0.0	22.0	22.2	46.2	0.0	42.1			
LnGrp LOS		A			C	C	D		D			
Approach Vol, veh/h		783			795			1376				
Approach Delay, s/veh		4.5			22.1			44.3				
Approach LOS		A			C			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6						
Phs Duration (G+Y+Rc), s		36.5		53.0		47.0						
Change Period (Y+Rc), s		* 4.5		4.5		4.5						
Max Green Setting (Gmax), s		* 32		48.5		42.5						
Max Q Clear Time (g_c+I1), s		16.8		40.5		20.0						
Green Ext Time (p_c), s		0.9		1.5		1.1						
Intersection Summary												
HCM 2010 Ctrl Delay				27.8								
HCM 2010 LOS				C								
Notes												

HCM Signalized Intersection Capacity Analysis

6: Brooklyn Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕			↕	
Traffic Volume (vph)	90	556	73	35	717	30	10	40	60	10	100	60
Future Volume (vph)	90	556	73	35	717	30	10	40	60	10	100	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.0			4.0	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.95			0.99			0.93			0.97	
Flpb, ped/bikes		0.99			0.99			1.00			0.99	
Frt		0.98			0.99			0.93			0.95	
Flt Protected		0.99			1.00			1.00			1.00	
Satd. Flow (prot)		3244			3407			1626			1713	
Flt Permitted		0.68			0.89			0.98			0.99	
Satd. Flow (perm)		2227			3040			1597			1696	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	94	579	76	36	747	31	10	42	62	10	104	62
RTOR Reduction (vph)	0	8	0	0	3	0	0	35	0	0	20	0
Lane Group Flow (vph)	0	741	0	0	811	0	0	80	0	0	157	0
Confl. Peds. (#/hr)	120		200	200		120	92		159	159		92
Confl. Bikes (#/hr)			1			3			14			1
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	0%	0%	0%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		47.5			47.5			44.0			44.0	
Effective Green, g (s)		47.5			47.5			44.0			44.0	
Actuated g/C Ratio		0.48			0.48			0.44			0.44	
Clearance Time (s)		4.5			4.5			4.0			4.0	
Lane Grp Cap (vph)		1057			1444			702			746	
v/s Ratio Prot												
v/s Ratio Perm		c0.33			0.27			0.05			c0.09	
v/c Ratio		0.70			0.56			0.11			0.21	
Uniform Delay, d1		20.7			18.8			16.5			17.3	
Progression Factor		0.27			0.31			0.00			1.00	
Incremental Delay, d2		2.7			1.4			0.3			0.6	
Delay (s)		8.2			7.1			0.3			17.9	
Level of Service		A			A			A			B	
Approach Delay (s)		8.2			7.1			0.3			17.9	
Approach LOS		A			A			A			B	

















Intersection Summary

HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	90.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

















HCM 2010 Signalized Intersection Summary
7: University Way NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	160	443	53	50	665	20	47	130	45	45	95	80
Future Volume (veh/h)	160	443	53	50	665	20	47	130	45	45	95	80
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.93		0.80	0.91		0.80	0.90		0.82	0.89		0.84
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1845	1900	1900	1792	1900	1900	1743	1900
Adj Flow Rate, veh/h	170	471	56	53	707	21	50	138	48	48	101	85
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	2	2	2	3	3	3	6	6	6	9	9	9
Cap, veh/h	342	911	109	124	1570	46	143	370	120	129	255	194
Arrive On Green	1.00	1.00	1.00	1.00	1.00	1.00	0.78	0.78	0.78	0.39	0.39	0.39
Sat Flow, veh/h	545	1752	210	161	3018	88	254	948	307	220	654	499
Grp Volume(v), veh/h	270	0	427	392	0	389	236	0	0	234	0	0
Grp Sat Flow(s),veh/h/ln	909	0	1598	1630	0	1637	1509	0	0	1373	0	0
Q Serve(g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	0.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	4.4	0.0	0.0	11.7	0.0	0.0
Prop In Lane	0.63		0.13	0.14		0.05	0.21		0.20	0.21		0.36
Lane Grp Cap(c), veh/h	531	0	831	888	0	851	632	0	0	579	0	0
V/C Ratio(X)	0.51	0.00	0.51	0.44	0.00	0.46	0.37	0.00	0.00	0.40	0.00	0.00
Avail Cap(c_a), veh/h	531	0	831	888	0	851	632	0	0	579	0	0
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	7.2	0.0	0.0	22.0	0.0	0.0
Incr Delay (d2), s/veh	3.5	0.0	2.3	1.6	0.0	1.8	1.7	0.0	0.0	2.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.5	0.0	0.5	0.4	0.0	0.4	2.3	0.0	0.0	5.0	0.0	0.0
LnGrp Delay(d),s/veh	3.5	0.0	2.3	1.6	0.0	1.8	8.9	0.0	0.0	24.1	0.0	0.0
LnGrp LOS	A		A	A		A	A			C		
Approach Vol, veh/h		697			781			236			234	
Approach Delay, s/veh		2.7			1.7			8.9			24.1	
Approach LOS		A			A			A			C	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		56.5		43.5		56.5		43.5				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		52.0		39.0		52.0		39.0				
Max Q Clear Time (g_c+I1), s		2.0		6.4		2.0		13.7				
Green Ext Time (p_c), s		2.5		0.7		2.5		0.7				
Intersection Summary												
HCM 2010 Ctrl Delay			5.6									
HCM 2010 LOS			A									

HCM 2010 Signalized Intersection Summary
 8: 15th Ave NE & NE 50th St

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	95	361	67	35	448	35	222	655	45	15	355	25
Future Volume (veh/h)	95	361	67	35	448	35	222	655	45	15	355	25
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	0.98		0.75	0.99		0.85	0.99		0.92	0.98		0.93
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1827	1900	1900	1881	1900	1900	1827	1900	1900	1845	1900
Adj Flow Rate, veh/h	100	380	71	37	472	37	234	689	47	16	374	26
Adj No. of Lanes	0	2	0	0	2	0	0	2	0	0	1	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	4	4	4	1	1	1	4	4	4	3	3	3
Cap, veh/h	165	650	132	86	1039	83	402	1058	73	53	889	60
Arrive On Green	0.36	0.36	0.36	0.36	0.36	0.36	1.00	1.00	1.00	0.55	0.55	0.55
Sat Flow, veh/h	318	1785	362	125	2854	227	631	1938	134	29	1628	110
Grp Volume(v), veh/h	265	0	286	281	0	265	399	0	571	416	0	0
Grp Sat Flow(s),veh/h/ln	1010	0	1456	1583	0	1623	1077	0	1626	1767	0	0
Q Serve(g_s), s	13.9	0.0	15.5	0.7	0.0	12.4	0.1	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	26.3	0.0	15.5	16.2	0.0	12.4	13.6	0.0	0.0	13.5	0.0	0.0
Prop In Lane	0.38		0.25	0.13		0.14	0.59		0.08	0.04		0.06
Lane Grp Cap(c), veh/h	417	0	530	617	0	591	645	0	888	1002	0	0
V/C Ratio(X)	0.64	0.00	0.54	0.46	0.00	0.45	0.62	0.00	0.64	0.42	0.00	0.00
Avail Cap(c_a), veh/h	417	0	530	617	0	591	645	0	888	1002	0	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	30.1	0.0	25.2	23.9	0.0	24.2	0.0	0.0	0.0	13.4	0.0	0.0
Incr Delay (d2), s/veh	7.2	0.0	3.9	2.4	0.0	2.4	4.4	0.0	3.6	1.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.4	0.0	6.8	6.2	0.0	5.9	0.8	0.0	0.9	7.1	0.0	0.0
LnGrp Delay(d),s/veh	37.4	0.0	29.1	26.3	0.0	26.6	4.4	0.0	3.6	14.6	0.0	0.0
LnGrp LOS	D		C	C		C	A		A	B		
Approach Vol, veh/h		551			546			970			416	
Approach Delay, s/veh		33.1			26.4			3.9			14.6	
Approach LOS		C			C			A			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		40.9		59.1		40.9		59.1				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		36.4		54.6		36.4		54.6				
Max Q Clear Time (g_c+I1), s		18.2		15.6		28.3		15.5				
Green Ext Time (p_c), s		7.2		13.4		4.3		13.4				
Intersection Summary												
HCM 2010 Ctrl Delay				17.1								
HCM 2010 LOS				B								

HCM Signalized Intersection Capacity Analysis

9: 17th Ave NE & NE 50th St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕			↕↕	
Traffic Volume (vph)	20	403	118	25	360	10	233	80	20	15	80	30
Future Volume (vph)	20	403	118	25	360	10	233	80	20	15	80	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			1.00			1.00			1.00	
Frbp, ped/bikes		0.96			1.00			0.99			0.96	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		0.97			1.00			0.99			0.97	
Flt Protected		1.00			1.00			0.97			0.99	
Satd. Flow (prot)		3272			1837			1787			1738	
Flt Permitted		0.93			0.94			0.97			0.99	
Satd. Flow (perm)		3045			1736			1787			1738	
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)	22	443	130	27	396	11	256	88	22	16	88	33
RTOR Reduction (vph)	0	23	0	0	1	0	0	2	0	0	11	0
Lane Group Flow (vph)	0	572	0	0	433	0	0	364	0	0	126	0
Confl. Peds. (#/hr)	56		83	83		56	87		66	66		87
Confl. Bikes (#/hr)						2			42			4
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	1%	1%	1%	1%	1%	1%
Turn Type	Perm	NA		Perm	NA		Split	NA		Split	NA	
Protected Phases		2			2		4	4		3	3	
Permitted Phases	2			2								
Actuated Green, G (s)		42.4			42.4			33.5			21.1	
Effective Green, g (s)		42.4			42.4			33.5			21.1	
Actuated g/C Ratio		0.38			0.38			0.30			0.19	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			3.0			3.0	
Lane Grp Cap (vph)		1168			666			541			331	
v/s Ratio Prot								c0.20			c0.07	
v/s Ratio Perm		0.19			c0.25							
v/c Ratio		0.49			0.65			0.67			0.38	
Uniform Delay, d1		25.8			28.0			33.7			39.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.5			4.9			6.5			3.3	
Delay (s)		27.3			32.9			40.2			42.3	
Level of Service		C			C			D			D	
Approach Delay (s)		27.3			32.9			40.2			42.3	
Approach LOS		C			C			D			D	

Intersection Summary

HCM 2000 Control Delay	33.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.5	Sum of lost time (s)	13.5
Intersection Capacity Utilization	73.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	17.9
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	315	30	73	0	5	30	5	0	115	60	5
Future Vol, veh/h	0	315	30	73	0	5	30	5	0	115	60	5
Peak Hour Factor	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2	3	3	3	3	1	1	1	1
Mvmt Flow	0	354	34	82	0	6	34	6	0	129	67	6
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	23.2	10.2	12.6
HCM LOS	C	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	64%	75%	12%	2%
Vol Thru, %	33%	7%	75%	17%
Vol Right, %	3%	17%	12%	82%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	180	418	40	330
LT Vol	115	315	5	5
Through Vol	60	30	30	55
RT Vol	5	73	5	270
Lane Flow Rate	202	470	45	371
Geometry Grp	1	1	1	1
Degree of Util (X)	0.348	0.739	0.082	0.554
Departure Headway (Hd)	6.198	5.667	6.579	5.378
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	574	634	548	664
Service Time	4.29	3.732	4.579	3.457
HCM Lane V/C Ratio	0.352	0.741	0.082	0.559
HCM Control Delay	12.6	23.2	10.2	15
HCM Lane LOS	B	C	B	B
HCM 95th-tile Q	1.5	6.5	0.3	3.4

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	5	55	270
Future Vol, veh/h	0	5	55	270
Peak Hour Factor	0.89	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3
Mvmt Flow	0	6	62	303
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	15
HCM LOS	B

HCM Signalized Intersection Capacity Analysis
 11: Roosevelt Way NE & NE 47th St

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔						↔↔	
Traffic Volume (vph)	0	90	45	145	70	0	0	0	0	105	1025	35
Future Volume (vph)	0	90	45	145	70	0	0	0	0	105	1025	35
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0						4.5	
Lane Util. Factor		1.00			1.00						0.95	
Frbp, ped/bikes		0.96			1.00						0.99	
Flpb, ped/bikes		1.00			0.94						0.99	
Frt		0.95			1.00						1.00	
Flt Protected		1.00			0.97						1.00	
Satd. Flow (prot)		1742			1713						3451	
Flt Permitted		1.00			0.71						1.00	
Satd. Flow (perm)		1742			1259						3451	
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	96	48	154	74	0	0	0	0	112	1090	37
RTOR Reduction (vph)	0	12	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	132	0	0	228	0	0	0	0	0	1235	0
Confl. Peds. (#/hr)	78		113	113		78	114		59	59		114
Confl. Bikes (#/hr)			6			23						11
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	0%	0%	0%	2%	2%	2%
Turn Type		NA		Perm	NA					Perm	NA	
Protected Phases		4			4						2	
Permitted Phases				4						2		
Actuated Green, G (s)		14.7			14.7						25.8	
Effective Green, g (s)		14.7			14.7						25.8	
Actuated g/C Ratio		0.29			0.29						0.52	
Clearance Time (s)		5.0			5.0						4.5	
Vehicle Extension (s)		4.0			4.0						0.2	
Lane Grp Cap (vph)		512			370						1780	
v/s Ratio Prot		0.08										
v/s Ratio Perm					0.18						0.36	
v/c Ratio		0.26			0.62						0.69	
Uniform Delay, d1		13.5			15.2						9.1	
Progression Factor		1.00			0.86						0.92	
Incremental Delay, d2		0.4			2.4						1.3	
Delay (s)		13.8			15.4						9.7	
Level of Service		B			B						A	
Approach Delay (s)		13.8			15.4			0.0			9.7	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			10.9		HCM 2000 Level of Service				B			
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			50.0		Sum of lost time (s)			9.5				
Intersection Capacity Utilization			74.5%		ICU Level of Service				D			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 12: 11th Ave NE & NE 47th St

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↕				
Traffic Volume (vph)	0	135	0	0	160	180	50	1063	185	0	0	0
Future Volume (vph)	0	135	0	0	160	180	50	1063	185	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			5.0			5.0				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			0.93			0.98				
Flpb, ped/bikes		1.00			1.00			1.00				
Frt		1.00			0.93			0.98				
Flt Protected		1.00			1.00			1.00				
Satd. Flow (prot)		1900			1613			3403				
Flt Permitted		1.00			1.00			1.00				
Satd. Flow (perm)		1900			1613			3403				
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)	0	145	0	0	172	194	54	1143	199	0	0	0
RTOR Reduction (vph)	0	0	0	0	29	0	0	25	0	0	0	0
Lane Group Flow (vph)	0	145	0	0	337	0	0	1371	0	0	0	0
Confl. Peds. (#/hr)	89		93	93		89	44		48	48		44
Confl. Bikes (#/hr)			14			30			81			
Heavy Vehicles (%)	0%	0%	0%	2%	2%	2%	1%	1%	1%	0%	0%	0%
Turn Type		NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		13.2			13.2			26.8				
Effective Green, g (s)		13.2			13.2			26.8				
Actuated g/C Ratio		0.26			0.26			0.54				
Clearance Time (s)		5.0			5.0			5.0				
Vehicle Extension (s)		2.0			2.0			0.2				
Lane Grp Cap (vph)		501			425			1824				
v/s Ratio Prot		0.08			0.21							
v/s Ratio Perm								0.40				
v/c Ratio		0.29			0.79			0.75				
Uniform Delay, d1		14.7			17.1			9.0				
Progression Factor		1.01			1.00			1.20				
Incremental Delay, d2		0.1			9.1			1.9				
Delay (s)		14.9			26.2			12.8				
Level of Service		B			C			B				
Approach Delay (s)		14.9			26.2			12.8			0.0	
Approach LOS		B			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.5					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			50.0					Sum of lost time (s)		10.0		
Intersection Capacity Utilization			71.4%					ICU Level of Service			C	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 13: 15th Ave NE & NE 47th St

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	50	75	70	25	65	65	50	832	30	30	442	15
Future Volume (vph)	50	75	70	25	65	65	50	832	30	30	442	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			1.00	
Frbp, ped/bikes		0.94			0.94			0.99			0.99	
Flpb, ped/bikes		0.97			0.98			0.99			1.00	
Frt		0.95			0.94			1.00			1.00	
Flt Protected		0.99			0.99			1.00			1.00	
Satd. Flow (prot)		1624			1607			3418			1753	
Flt Permitted		0.89			0.93			0.91			0.91	
Satd. Flow (perm)		1464			1513			3103			1609	
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)	54	81	75	27	70	70	54	895	32	32	475	16
RTOR Reduction (vph)	0	40	0	0	41	0	0	5	0	0	2	0
Lane Group Flow (vph)	0	170	0	0	126	0	0	976	0	0	521	0
Confl. Peds. (#/hr)	140		146	146		140	175		131	131		175
Confl. Bikes (#/hr)			6			4			24			4
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	3%	3%	3%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		15.0			15.0			26.5			26.5	
Effective Green, g (s)		15.0			15.0			26.5			26.5	
Actuated g/C Ratio		0.30			0.30			0.53			0.53	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		439			453			1644			852	
v/s Ratio Prot												
v/s Ratio Perm		c0.12			0.08			0.31			c0.32	
v/c Ratio		0.39			0.28			0.59			0.61	
Uniform Delay, d1		13.9			13.4			8.1			8.2	
Progression Factor		1.10			1.00			0.84			0.63	
Incremental Delay, d2		2.2			1.5			0.7			3.0	
Delay (s)		17.4			14.9			7.5			8.1	
Level of Service		B			B			A			A	
Approach Delay (s)		17.4			14.9			7.5			8.1	
Approach LOS		B			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.4									A
HCM 2000 Volume to Capacity ratio			0.53									
Actuated Cycle Length (s)			50.0								8.5	
Intersection Capacity Utilization			76.4%									D
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 14: 5th Ave NE & NE 45th St

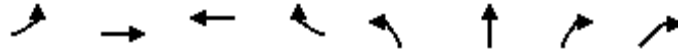
UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↑↑	↑↑					↑	↑↑	
Traffic Volume (vph)	0	671	260	533	905	0	0	0	0	201	225	160
Future Volume (vph)	0	671	260	533	905	0	0	0	0	201	225	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5					5.0	5.0	
Lane Util. Factor		0.95		0.97	0.95					0.91	0.91	
Frbp, ped/bikes		0.96		1.00	1.00					1.00	0.97	
Flpb, ped/bikes		1.00		1.00	1.00					1.00	1.00	
Frt		0.96		1.00	1.00					1.00	0.94	
Flt Protected		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (prot)		3278		3433	3539					1579	3042	
Flt Permitted		1.00		0.95	1.00					0.95	1.00	
Satd. Flow (perm)		3278		3433	3539					1579	3042	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	699	271	555	943	0	0	0	0	209	234	167
RTOR Reduction (vph)	0	43	0	0	0	0	0	0	0	0	88	0
Lane Group Flow (vph)	0	927	0	555	943	0	0	0	0	188	334	0
Confl. Peds. (#/hr)	128		138	138		128	35					35
Confl. Bikes (#/hr)			2			8						
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	4%	4%	4%
Turn Type		NA		Prot	NA					Split	NA	
Protected Phases		2		1	6					4	4	
Permitted Phases												
Actuated Green, G (s)		34.2		30.8	69.5					21.0	21.0	
Effective Green, g (s)		34.2		30.8	69.5					21.0	21.0	
Actuated g/C Ratio		0.34		0.31	0.70					0.21	0.21	
Clearance Time (s)		4.5		4.5	4.5					5.0	5.0	
Vehicle Extension (s)		3.0		4.0	4.0					3.0	3.0	
Lane Grp Cap (vph)		1121		1057	2459					331	638	
v/s Ratio Prot		c0.28		c0.16	0.27					c0.12	0.11	
v/s Ratio Perm												
v/c Ratio		0.83		0.53	0.38					0.57	0.52	
Uniform Delay, d1		30.2		28.6	6.3					35.4	35.1	
Progression Factor		1.00		0.66	0.22					0.99	1.00	
Incremental Delay, d2		5.1		1.0	0.2					6.2	2.8	
Delay (s)		35.3		19.7	1.6					41.3	37.7	
Level of Service		D		B	A					D	D	
Approach Delay (s)		35.3			8.3			0.0			38.8	
Approach LOS		D			A			A			D	
Intersection Summary												
HCM 2000 Control Delay			22.9			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)				14.0		
Intersection Capacity Utilization			77.1%			ICU Level of Service				D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 15: 7th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	NBL	NBT	NBR	NER
Lane Configurations								
Traffic Volume (vph)	230	652	905	320	563	440	517	60
Future Volume (vph)	230	652	905	320	563	440	517	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5		4.5	4.5	4.5	3.0
Lane Util. Factor	1.00	0.95	0.95		0.97	0.95	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.91		1.00	0.99	0.96	1.00
Flpb, ped/bikes	1.00	1.00	1.00		1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.96		1.00	0.98	0.85	0.86
Flt Protected	0.95	1.00	1.00		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1736	3471	3043		3400	1706	1430	1596
Flt Permitted	0.95	1.00	1.00		0.95	1.00	1.00	1.00
Satd. Flow (perm)	1736	3471	3043		3400	1706	1430	1596
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	242	686	953	337	593	463	544	63
RTOR Reduction (vph)	0	0	36	0	0	6	80	0
Lane Group Flow (vph)	242	686	1254	0	593	533	388	63
Confl. Peds. (#/hr)	294			294	95		24	
Confl. Bikes (#/hr)				24				
Heavy Vehicles (%)	4%	4%	4%	4%	3%	3%	3%	3%
Turn Type	Prot	NA	NA		Split	NA	Perm	custom
Protected Phases	5	2	6		4	4		1
Permitted Phases							4	2
Actuated Green, G (s)	15.5	55.1	40.5		30.5	30.5	30.5	57.5
Effective Green, g (s)	15.5	55.1	40.5		30.5	30.5	30.5	57.5
Actuated g/C Ratio	0.16	0.55	0.40		0.30	0.30	0.30	0.58
Clearance Time (s)	4.5	4.5	4.5		4.5	4.5	4.5	3.0
Vehicle Extension (s)	3.0	4.0	4.0		4.0	4.0	4.0	1.0
Lane Grp Cap (vph)	269	1912	1232		1037	520	436	917
v/s Ratio Prot	c0.14	0.20	c0.41		0.17	c0.31		0.00
v/s Ratio Perm							0.27	0.04
v/c Ratio	0.90	0.36	1.02		0.57	1.02	0.89	0.07
Uniform Delay, d1	41.5	12.6	29.8		29.3	34.8	33.2	9.4
Progression Factor	1.21	0.77	0.76		1.00	1.00	1.00	1.00
Incremental Delay, d2	23.3	0.4	28.6		2.3	45.8	22.9	0.0
Delay (s)	73.4	10.1	51.2		31.5	80.6	56.0	9.4
Level of Service	E	B	D		C	F	E	A
Approach Delay (s)		26.6	51.2			55.2		
Approach LOS		C	D			E		

Intersection Summary			
HCM 2000 Control Delay	46.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	95.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Int Delay, s/veh 2.8

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑		↑
Traffic Vol, veh/h	1100	10	10	1215	5	95
Future Vol, veh/h	1100	10	10	1215	5	95
Conflicting Peds, #/hr	0	224	224	0	224	224
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	10	-	-	0
Veh in Median Storage, #	0	-	-	0	1	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	1183	11	11	1306	5	102

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	1418	2311
Stage 1	-	-	1412
Stage 2	-	-	899
Critical Hdwy	-	4.16	6.8
Critical Hdwy Stg 1	-	-	5.8
Critical Hdwy Stg 2	-	-	5.8
Follow-up Hdwy	-	2.23	3.5
Pot Cap-1 Maneuver	-	471	33
Stage 1	-	-	194
Stage 2	-	-	362
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	383	21
Mov Cap-2 Maneuver	-	-	102
Stage 1	-	-	158
Stage 2	-	-	286

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	68.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	151	-	-	383	-
HCM Lane V/C Ratio	0.676	-	-	0.028	-
HCM Control Delay (s)	68.1	-	-	14.7	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	3.8	-	-	0.1	-

Intersection

Int Delay, s/veh 1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	95	1105	1200	30	5	25
Future Vol, veh/h	95	1105	1200	30	5	25
Conflicting Peds, #/hr	150	0	0	148	148	150
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	10	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	1	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	3	3	3	3	0	0
Mvmt Flow	100	1163	1263	32	5	26

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1445	0	947
Stage 1	-	-	1429
Stage 2	-	-	930
Critical Hdwy	4.16	-	6.9
Critical Hdwy Stg 1	-	-	5.8
Critical Hdwy Stg 2	-	-	5.8
Follow-up Hdwy	2.23	-	3.3
Pot Cap-1 Maneuver	460	-	266
Stage 1	-	-	190
Stage 2	-	-	349
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	403	-	204
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	166
Stage 2	-	-	230

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	30.6
HCM LOS			D

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	403	-	-	-	172
HCM Lane V/C Ratio	0.248	-	-	-	0.184
HCM Control Delay (s)	16.9	-	-	-	30.6
HCM Lane LOS	C	-	-	-	D
HCM 95th %tile Q(veh)	1	-	-	-	0.7

HCM Signalized Intersection Capacity Analysis
 18: Roosevelt Way NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑		↖	↑↑						↖↑	↖
Traffic Volume (vph)	0	892	233	307	1090	0	0	0	0	45	1025	135
Future Volume (vph)	0	892	233	307	1090	0	0	0	0	45	1025	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5						4.5	4.5
Lane Util. Factor		0.95		1.00	0.95						0.95	1.00
Frbp, ped/bikes		0.93		1.00	1.00						1.00	0.65
Flpb, ped/bikes		1.00		1.00	1.00						0.99	1.00
Frt		0.97		1.00	1.00						1.00	0.85
Flt Protected		1.00		0.95	1.00						1.00	1.00
Satd. Flow (prot)		3173		1736	3471						3512	1036
Flt Permitted		1.00		0.11	1.00						1.00	1.00
Satd. Flow (perm)		3173		194	3471						3512	1036
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	929	243	320	1135	0	0	0	0	47	1068	141
RTOR Reduction (vph)	0	23	0	0	0	0	0	0	0	0	0	44
Lane Group Flow (vph)	0	1149	0	320	1135	0	0	0	0	0	1115	97
Confl. Peds. (#/hr)	269		232	232		269	298		90	90		298
Confl. Bikes (#/hr)			2			17						35
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	0%	0%	0%	2%	2%	2%
Turn Type		NA		D.P+P	NA					Perm	NA	Perm
Protected Phases		2		3	2 3						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		37.6		53.6	58.1						32.9	32.9
Effective Green, g (s)		37.6		53.6	58.1						32.9	32.9
Actuated g/C Ratio		0.38		0.54	0.58						0.33	0.33
Clearance Time (s)		4.5		4.5							4.5	4.5
Vehicle Extension (s)		0.2		1.0							1.0	1.0
Lane Grp Cap (vph)		1193		350	2016						1155	340
v/s Ratio Prot		c0.36		c0.15	0.33							
v/s Ratio Perm				0.34							0.32	0.09
v/c Ratio		0.96		0.91	0.56						0.97	0.29
Uniform Delay, d1		30.5		27.8	13.0						33.0	24.9
Progression Factor		0.42		1.47	0.60						0.94	0.90
Incremental Delay, d2		16.7		21.7	0.2						15.3	0.1
Delay (s)		29.7		62.6	8.0						46.4	22.5
Level of Service		C		E	A						D	C
Approach Delay (s)		29.7			20.0			0.0			43.7	
Approach LOS		C			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	30.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	95.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 19: 11th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑		↗	↑↑	↗			
Traffic Volume (vph)	10	897	0	0	1005	35	377	1198	262	0	0	0
Future Volume (vph)	10	897	0	0	1005	35	377	1198	262	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5		4.5	4.5	4.5			
Lane Util. Factor		0.95			0.95		1.00	0.95	1.00			
Frbp, ped/bikes		1.00			0.99		1.00	1.00	0.77			
Flpb, ped/bikes		1.00			1.00		0.91	1.00	1.00			
Frt		1.00			0.99		1.00	1.00	0.85			
Flt Protected		1.00			1.00		0.95	1.00	1.00			
Satd. Flow (prot)		3503			3414		1623	3574	1237			
Flt Permitted		0.94			1.00		0.95	1.00	1.00			
Satd. Flow (perm)		3289			3414		1623	3574	1237			
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)	11	954	0	0	1069	37	401	1274	279	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	16	0	0	0
Lane Group Flow (vph)	0	965	0	0	1104	0	401	1274	263	0	0	0
Confl. Peds. (#/hr)	243		130	130		243	55		112	112		55
Confl. Bikes (#/hr)						16			93			
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	1%	1%	1%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA	Perm			
Protected Phases		2			2			4				
Permitted Phases	2						4		4			
Actuated Green, G (s)		45.5			45.5		45.5	45.5	45.5			
Effective Green, g (s)		45.5			45.5		45.5	45.5	45.5			
Actuated g/C Ratio		0.46			0.46		0.46	0.46	0.46			
Clearance Time (s)		4.5			4.5		4.5	4.5	4.5			
Vehicle Extension (s)		0.2			0.2		2.0	2.0	2.0			
Lane Grp Cap (vph)		1496			1553		738	1626	562			
v/s Ratio Prot					c0.32			c0.36				
v/s Ratio Perm		0.29					0.25		0.21			
v/c Ratio		0.65			0.71		0.54	0.78	0.47			
Uniform Delay, d1		21.0			21.9		19.7	23.1	18.9			
Progression Factor		0.11			0.80		0.60	0.58	0.57			
Incremental Delay, d2		0.7			2.4		0.3	0.4	0.3			
Delay (s)		2.9			20.1		12.1	13.7	11.0			
Level of Service		A			C		B	B	B			
Approach Delay (s)		2.9			20.1			13.0			0.0	
Approach LOS		A			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			12.5				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)		9.0			
Intersection Capacity Utilization			72.4%				ICU Level of Service		C			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

20: 12th Ave NE & NE 45th St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	85	1049	60	48	975	15	35	60	40	15	52	30
Future Volume (vph)	85	1049	60	48	975	15	35	60	40	15	52	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.0	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00			1.00	
Frbp, ped/bikes	1.00	0.96		1.00	0.99			0.94			0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98			0.98	
Frt	1.00	0.99		1.00	1.00			0.96			0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1736	3320		1703	3367			1610			1596	
Flt Permitted	0.95	1.00		0.95	1.00			0.91			0.95	
Satd. Flow (perm)	1736	3320		1703	3367			1484			1533	
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)	90	1116	64	51	1037	16	37	64	43	16	55	32
RTOR Reduction (vph)	0	3	0	0	1	0	0	17	0	0	18	0
Lane Group Flow (vph)	90	1177	0	51	1052	0	0	127	0	0	85	0
Confl. Peds. (#/hr)	214		302	302		214	72		98	98		72
Confl. Bikes (#/hr)			2			9			30			3
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	3%	3%	3%	7%	7%	7%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	
Protected Phases	5	2		1	6			4			4	
Permitted Phases							4			4		
Actuated Green, G (s)	10.2	65.3		5.1	59.7			16.6			16.6	
Effective Green, g (s)	10.2	65.3		5.1	59.7			16.6			16.6	
Actuated g/C Ratio	0.10	0.65		0.05	0.60			0.17			0.17	
Clearance Time (s)	4.5	4.5		4.0	4.5			4.5			4.5	
Vehicle Extension (s)	0.5	0.2		0.5	0.2			1.0			1.0	
Lane Grp Cap (vph)	177	2167		86	2010			246			254	
v/s Ratio Prot	c0.05	c0.35		0.03	0.31							
v/s Ratio Perm								c0.09			0.06	
v/c Ratio	0.51	0.54		0.59	0.52			0.52			0.34	
Uniform Delay, d1	42.5	9.3		46.4	11.8			38.0			36.8	
Progression Factor	0.84	0.31		0.99	0.26			1.00			1.00	
Incremental Delay, d2	0.7	0.8		5.8	0.8			0.8			0.3	
Delay (s)	36.3	3.7		51.6	3.9			38.8			37.1	
Level of Service	D	A		D	A			D			D	
Approach Delay (s)		6.0			6.1			38.8			37.1	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

21: Brooklyn Ave NE & NE 45th St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	977	37	45	900	15	63	5	10	50	18	155
Future Volume (vph)	120	977	37	45	900	15	63	5	10	50	18	155
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5			4.5			4.5	4.5		4.5	4.5
Lane Util. Factor	1.00	0.95			0.95			1.00	1.00		1.00	1.00
Frbp, ped/bikes	1.00	0.97			0.99			1.00	0.68		1.00	0.74
Flpb, ped/bikes	1.00	1.00			0.99			0.79	1.00		0.80	1.00
Frt	1.00	0.99			1.00			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00			1.00			0.96	1.00		0.96	1.00
Satd. Flow (prot)	1736	3340			3363			1428	1104		1447	1179
Flt Permitted	0.95	1.00			0.84			0.69	1.00		0.75	1.00
Satd. Flow (perm)	1736	3340			2830			1030	1104		1125	1179
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)	128	1039	39	48	957	16	67	5	11	53	19	165
RTOR Reduction (vph)	0	2	0	0	1	0	0	0	9	0	0	139
Lane Group Flow (vph)	128	1076	0	0	1020	0	0	72	2	0	72	26
Confl. Peds. (#/hr)	337		693	693		337	152		193	193		152
Confl. Bikes (#/hr)			9			12			9			3
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2			6			4			4	
Permitted Phases				6			4		4	4		4
Actuated Green, G (s)	14.0	75.2			57.2			15.8	15.8		15.8	15.8
Effective Green, g (s)	14.0	75.2			57.2			15.8	15.8		15.8	15.8
Actuated g/C Ratio	0.14	0.75			0.57			0.16	0.16		0.16	0.16
Clearance Time (s)	4.0	4.5			4.5			4.5	4.5		4.5	4.5
Vehicle Extension (s)	0.5	0.2			0.2			1.0	1.0		1.0	1.0
Lane Grp Cap (vph)	243	2511			1618			162	174		177	186
v/s Ratio Prot	c0.07	0.32										
v/s Ratio Perm					c0.36			c0.07	0.00		0.06	0.02
v/c Ratio	0.53	0.43			0.63			0.44	0.01		0.41	0.14
Uniform Delay, d1	39.9	4.5			14.3			38.1	35.5		37.9	36.3
Progression Factor	0.71	0.14			0.51			1.00	1.00		1.04	1.49
Incremental Delay, d2	0.8	0.5			1.7			0.7	0.0		0.5	0.1
Delay (s)	29.2	1.1			9.0			38.8	35.5		39.9	54.1
Level of Service	C	A			A			D	D		D	D
Approach Delay (s)		4.1			9.0			38.4			49.8	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

22: University Way NE & NE 45th St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑↑			↑↓			↑↓	
Traffic Volume (vph)	5	873	89	5	844	40	31	137	92	5	163	55
Future Volume (vph)	5	873	89	5	844	40	31	137	92	5	163	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frbp, ped/bikes		0.92			0.96			0.84			0.88	
Flpb, ped/bikes		1.00			1.00			0.97			1.00	
Frt		0.99			0.99			0.95			0.97	
Flt Protected		1.00			1.00			0.99			1.00	
Satd. Flow (prot)		3145			3420			1366			1525	
Flt Permitted		0.95			0.95			0.94			0.99	
Satd. Flow (perm)		2993			3252			1288			1516	
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)	5	929	95	5	898	43	33	146	98	5	173	59
RTOR Reduction (vph)	0	1	0	0	2	0	0	4	0	0	7	0
Lane Group Flow (vph)	0	1028	0	0	944	0	0	273	0	0	230	0
Confl. Peds. (#/hr)	493		608	608		493	754		597	597		754
Confl. Bikes (#/hr)			1			7			71			20
Heavy Vehicles (%)	4%	4%	4%	1%	1%	1%	7%	7%	7%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		65.3			65.3			25.7			25.7	
Effective Green, g (s)		65.3			65.3			25.7			25.7	
Actuated g/C Ratio		0.65			0.65			0.26			0.26	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		0.2			0.2			1.0			1.0	
Lane Grp Cap (vph)		1954			2123			331			389	
v/s Ratio Prot												
v/s Ratio Perm		c0.34			0.29			c0.21			0.15	
v/c Ratio		0.53			0.44			0.83			0.59	
Uniform Delay, d1		9.2			8.5			35.0			32.6	
Progression Factor		0.48			0.20			0.92			1.07	
Incremental Delay, d2		0.9			0.5			14.1			1.5	
Delay (s)		5.3			2.2			46.5			36.4	
Level of Service		A			A			D			D	
Approach Delay (s)		5.3			2.2			46.5			36.4	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	72.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
 23: 15th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (veh/h)	85	777	118	150	781	90	45	757	193	95	467	40
Future Volume (veh/h)	85	777	118	150	781	90	45	757	193	95	467	40
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.79	1.00		0.80	1.00		0.81	1.00		0.85
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1810	1810	1900	1776	1776	1900	1810	1810	1900
Adj Flow Rate, veh/h	89	809	123	156	814	94	47	789	201	99	486	42
Adj No. of Lanes	1	2	0	1	2	0	1	2	0	1	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Percent Heavy Veh, %	2	2	2	5	5	5	7	7	7	5	5	5
Cap, veh/h	138	962	146	185	1071	124	62	815	208	121	1138	98
Arrive On Green	0.16	0.65	0.65	0.22	0.71	0.71	0.07	0.64	0.64	0.14	0.72	0.72
Sat Flow, veh/h	1774	2960	450	1723	3016	348	1691	2527	644	1723	3152	271
Grp Volume(v), veh/h	89	484	448	156	464	444	47	527	463	99	264	264
Grp Sat Flow(s),veh/h/ln	1774	1770	1640	1723	1719	1646	1691	1687	1484	1723	1719	1704
Q Serve(g_s), s	4.7	21.1	21.1	8.7	17.0	17.0	2.7	29.5	29.5	5.6	6.1	6.3
Cycle Q Clear(g_c), s	4.7	21.1	21.1	8.7	17.0	17.0	2.7	29.5	29.5	5.6	6.1	6.3
Prop In Lane	1.00		0.27	1.00		0.21	1.00		0.43	1.00		0.16
Lane Grp Cap(c), veh/h	138	575	533	185	610	584	62	544	479	121	621	615
V/C Ratio(X)	0.65	0.84	0.84	0.84	0.76	0.76	0.76	0.97	0.97	0.82	0.42	0.43
Avail Cap(c_a), veh/h	138	575	533	185	610	584	118	565	497	121	621	615
HCM Platoon Ratio	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Upstream Filter(I)	0.84	0.84	0.84	0.81	0.81	0.81	0.77	0.77	0.77	0.76	0.76	0.76
Uniform Delay (d), s/veh	41.0	15.5	15.5	38.4	11.8	11.8	45.9	17.3	17.3	42.4	9.7	9.8
Incr Delay (d2), s/veh	6.7	11.9	12.7	22.5	7.1	7.4	5.5	24.7	26.8	26.1	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.5	11.8	11.1	5.2	8.9	8.6	1.4	16.9	15.1	3.5	2.8	2.8
LnGrp Delay(d),s/veh	47.7	27.4	28.2	61.0	18.9	19.3	51.4	42.0	44.0	68.5	9.9	9.9
LnGrp LOS	D	C	C	E	B	B	D	D	D	E	A	A
Approach Vol, veh/h		1021			1064			1037			627	
Approach Delay, s/veh		29.5			25.2			43.3			19.1	
Approach LOS		C			C			D			B	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	11.8	40.0	11.5	36.7	14.8	37.0	7.6	40.6				
Change Period (Y+Rc), s	4.0	4.5	4.5	* 4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	7.0	35.5	7.0	* 34	10.0	32.5	7.0	33.5				
Max Q Clear Time (g_c+I1), s	6.7	19.0	7.6	31.5	10.7	23.1	4.7	8.3				
Green Ext Time (p_c), s	0.0	2.1	0.0	0.7	0.0	1.9	0.0	1.1				
Intersection Summary												
HCM 2010 Ctrl Delay			30.4									
HCM 2010 LOS			C									
Notes												

HCM Signalized Intersection Capacity Analysis
 24: Memorial Way NE/17th Ave NE & NE 45th St

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	782	283	55	815	50	186	183	47	45	98	25
Future Volume (vph)	20	782	283	55	815	50	186	183	47	45	98	25
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5		4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00	1.00		1.00	
Frbp, ped/bikes	1.00	0.93		1.00	0.97		1.00	1.00	0.55		0.94	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00	1.00		1.00	
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85		0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (prot)	1752	3123		1770	3401		1770	1863	863		1719	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	1.00		0.99	
Satd. Flow (perm)	1752	3123		1770	3401		1770	1863	863		1719	
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)	22	841	304	59	876	54	200	197	51	48	105	27
RTOR Reduction (vph)	0	34	0	0	4	0	0	0	44	0	7	0
Lane Group Flow (vph)	22	1111	0	59	926	0	200	197	7	0	173	0
Confl. Peds. (#/hr)	218		185	185		218	329		437	437		329
Confl. Bikes (#/hr)			2			3			75			10
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Split	NA	Perm	Split	NA	
Protected Phases	1	6		5	2		4	4		3	3	
Permitted Phases									4			
Actuated Green, G (s)	2.0	49.2		4.9	52.1		14.1	14.1	14.1		15.3	
Effective Green, g (s)	2.0	49.2		4.9	52.1		14.1	14.1	14.1		15.3	
Actuated g/C Ratio	0.02	0.49		0.05	0.52		0.14	0.14	0.14		0.15	
Clearance Time (s)	4.0	4.5		4.0	4.5		4.0	4.0	4.0		4.0	
Vehicle Extension (s)	1.0	0.2		1.0	0.2		0.5	0.5	0.5		2.0	
Lane Grp Cap (vph)	35	1536		86	1771		249	262	121		263	
v/s Ratio Prot	0.01	c0.36		c0.03	c0.27		c0.11	0.11			c0.10	
v/s Ratio Perm									0.01			
v/c Ratio	0.63	0.72		0.69	0.52		0.80	0.75	0.06		0.66	
Uniform Delay, d1	48.6	20.0		46.8	15.8		41.6	41.3	37.2		39.9	
Progression Factor	1.24	0.21		1.12	0.56		1.00	1.00	1.00		1.00	
Incremental Delay, d2	13.4	1.7		15.7	1.0		16.0	10.3	0.1		4.5	
Delay (s)	73.9	5.9		68.2	9.9		57.6	51.6	37.3		44.4	
Level of Service	E	A		E	A		E	D	D		D	
Approach Delay (s)		7.2			13.4			52.6			44.4	
Approach LOS		A			B			D			D	

Intersection Summary

HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

25: NE 45th St & 18th Ave NE

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↑↑	
Traffic Volume (vph)	0	924	920	0	15	25
Future Volume (vph)	0	924	920	0	15	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.0	
Lane Util. Factor		0.95	0.95		1.00	
Frbp, ped/bikes		1.00	1.00		0.86	
Flpb, ped/bikes		1.00	1.00		1.00	
Frt		1.00	1.00		0.92	
Flt Protected		1.00	1.00		0.98	
Satd. Flow (prot)		3574	3539		1470	
Flt Permitted		1.00	1.00		0.98	
Satd. Flow (perm)		3574	3539		1470	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1004	1000	0	16	27
RTOR Reduction (vph)	0	0	0	0	22	0
Lane Group Flow (vph)	0	1004	1000	0	21	0
Confl. Peds. (#/hr)	209			209	123	121
Confl. Bikes (#/hr)				3		
Heavy Vehicles (%)	1%	1%	2%	2%	0%	0%
Turn Type		NA	NA		Prot	
Protected Phases		2	2		4	
Permitted Phases						
Actuated Green, G (s)		74.5	74.5		17.0	
Effective Green, g (s)		74.5	74.5		17.0	
Actuated g/C Ratio		0.74	0.74		0.17	
Clearance Time (s)		4.5	4.5		4.0	
Vehicle Extension (s)		0.2	0.2		1.0	
Lane Grp Cap (vph)		2662	2636		249	
v/s Ratio Prot		0.28	c0.28		c0.01	
v/s Ratio Perm						
v/c Ratio		0.38	0.38		0.08	
Uniform Delay, d1		4.5	4.5		34.9	
Progression Factor		1.67	0.00		1.00	
Incremental Delay, d2		0.3	0.3		0.1	
Delay (s)		7.9	0.3		35.0	
Level of Service		A	A		C	
Approach Delay (s)		7.9	0.3		35.0	
Approach LOS		A	A		C	
Intersection Summary						
HCM 2000 Control Delay			4.7		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.32			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	8.5
Intersection Capacity Utilization			50.9%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
 26: NE 45th St & 19th Ave NE

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	25	904	925	35	0	0
Future Volume (vph)	25	904	925	35	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.5			
Lane Util. Factor	1.00	1.00	0.95			
Frbp, ped/bikes	1.00	1.00	0.98			
Flpb, ped/bikes	1.00	1.00	1.00			
Frt	1.00	1.00	0.99			
Flt Protected	0.95	1.00	1.00			
Satd. Flow (prot)	1787	1881	3450			
Flt Permitted	0.13	1.00	1.00			
Satd. Flow (perm)	246	1881	3450			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	983	1005	38	0	0
RTOR Reduction (vph)	0	0	2	0	0	0
Lane Group Flow (vph)	27	983	1041	0	0	0
Confl. Peds. (#/hr)	144			144	305	125
Confl. Bikes (#/hr)				8		1
Heavy Vehicles (%)	1%	1%	2%	2%	0%	0%
Turn Type	pm+pt	NA	NA			
Protected Phases	1	1 2	2			
Permitted Phases	1 2					
Actuated Green, G (s)	71.5	74.5	40.9			
Effective Green, g (s)	71.5	74.5	40.9			
Actuated g/C Ratio	0.72	0.74	0.41			
Clearance Time (s)	3.0		4.5			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	647	1401	1411			
v/s Ratio Prot	0.01	c0.52	0.30			
v/s Ratio Perm	0.02					
v/c Ratio	0.04	0.70	0.74			
Uniform Delay, d1	6.5	6.8	25.0			
Progression Factor	1.56	2.09	0.19			
Incremental Delay, d2	0.0	1.5	2.5			
Delay (s)	10.2	15.8	7.3			
Level of Service	B	B	A			
Approach Delay (s)		15.6	7.3		0.0	
Approach LOS		B	A		A	

Intersection Summary

HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 27: NE 45th St & 20th Ave NE

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	35	859	935	110	53	30
Future Volume (vph)	35	859	935	110	53	30
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	4.5		4.0	
Lane Util. Factor	1.00	1.00	0.95		1.00	
Frbp, ped/bikes	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	1.00	1.00	1.00		1.00	
Frt	1.00	1.00	0.98		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1787	1881	3476		1724	
Flt Permitted	0.13	1.00	1.00		0.97	
Satd. Flow (perm)	252	1881	3476		1724	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	38	924	1005	118	57	32
RTOR Reduction (vph)	0	0	0	0	21	0
Lane Group Flow (vph)	38	924	1123	0	68	0
Confl. Bikes (#/hr)				2		3
Heavy Vehicles (%)	1%	1%	2%	2%	1%	1%
Turn Type	pm+pt	NA	NA		Prot	
Protected Phases	1	1 2	2		4	
Permitted Phases	1 2					
Actuated Green, G (s)	71.5	74.5	46.2		17.0	
Effective Green, g (s)	71.5	74.5	46.2		17.0	
Actuated g/C Ratio	0.72	0.74	0.46		0.17	
Clearance Time (s)	3.0		4.5		4.0	
Vehicle Extension (s)	1.0		0.2		1.0	
Lane Grp Cap (vph)	568	1401	1605		293	
v/s Ratio Prot	0.02	c0.49	c0.32		c0.04	
v/s Ratio Perm	0.03					
v/c Ratio	0.07	0.66	0.70		0.23	
Uniform Delay, d1	6.7	6.4	21.4		35.9	
Progression Factor	0.09	0.03	1.00		1.00	
Incremental Delay, d2	0.0	0.6	2.6		0.1	
Delay (s)	0.6	0.8	23.9		36.0	
Level of Service	A	A	C		D	
Approach Delay (s)		0.8	23.9		36.0	
Approach LOS		A	C		D	

Intersection Summary

HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	11.5
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: Montlake Blvd NE & NE 45th St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



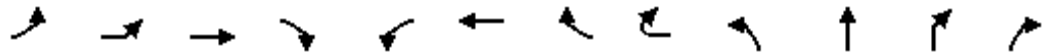
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑↓	↑	↑	↑↓
Traffic Volume (vph)	548	74	589	734	211	1523
Future Volume (vph)	548	74	589	734	211	1523
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	0.97	1.00	1.00	0.88
Frpb, ped/bikes	1.00	0.89	1.00	1.00	1.00	1.00
Flpb, ped/bikes	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)	3574	1419	3400	1845	1770	2787
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3574	1419	3400	1845	1770	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	583	79	627	781	224	1620
RTOR Reduction (vph)	0	14	0	0	0	5
Lane Group Flow (vph)	583	65	627	781	224	1615
Confl. Peds. (#/hr)		46	46			
Confl. Bikes (#/hr)		1				
Heavy Vehicles (%)	1%	1%	3%	3%	2%	2%
Turn Type	NA	Perm	Split	NA	Prot	pt+ov
Protected Phases	3		1	1	2	1 2
Permitted Phases		3				
Actuated Green, G (s)	27.1	27.1	73.5	73.5	25.9	103.9
Effective Green, g (s)	27.1	27.1	73.5	73.5	25.9	103.9
Actuated g/C Ratio	0.19	0.19	0.52	0.52	0.18	0.74
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.5	3.5	0.2	0.2	3.0	
Lane Grp Cap (vph)	691	274	1785	968	327	2068
v/s Ratio Prot	c0.16		0.18	0.42	0.13	c0.58
v/s Ratio Perm		0.05				
v/c Ratio	0.84	0.24	0.35	0.81	0.69	0.78
Uniform Delay, d1	54.4	47.7	19.4	27.4	53.2	11.1
Progression Factor	1.00	1.00	0.33	0.53	0.98	0.97
Incremental Delay, d2	9.5	0.5	0.4	4.7	5.2	1.8
Delay (s)	63.9	48.3	6.7	19.3	57.4	12.5
Level of Service	E	D	A	B	E	B
Approach Delay (s)	62.0			13.7	18.0	
Approach LOS	E			B	B	

Intersection Summary

HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 29: Union Bay PI NE & NE 45th St & NE 45th PI

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour



Movement	EBL2	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL	NBT	NBR	NBR2
Lane Configurations	↘	↘	↕	↘	↘	↕		↘	↘	↕	↘	
Traffic Volume (vph)	35	290	1196	240	33	868	120	25	190	105	35	39
Future Volume (vph)	35	290	1196	240	33	868	120	25	190	105	35	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	5.5	5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.86		0.86	0.95	0.95	1.00	
Frpb, ped/bikes	1.00	1.00	1.00	0.92	1.00	0.99		0.95	1.00	1.00	0.92	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Frt	1.00	1.00	1.00	0.85	1.00	0.98		0.85	1.00	1.00	0.85	
Flt Protected	0.95	0.95	1.00	1.00	0.95	1.00		1.00	0.95	0.99	1.00	
Satd. Flow (prot)	1752	1752	3505	1446	1736	4571		1263	1698	1760	1474	
Flt Permitted	0.95	0.11	1.00	1.00	0.12	1.00		1.00	0.95	0.99	1.00	
Satd. Flow (perm)	1752	196	3505	1446	227	4571		1263	1698	1760	1474	
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)	36	299	1233	247	34	895	124	26	196	108	36	40
RTOR Reduction (vph)	0	0	0	85	0	0	0	18	0	0	64	0
Lane Group Flow (vph)	36	299	1233	162	34	1022	0	5	149	155	12	0
Confl. Peds. (#/hr)	19	19		16	16		19	19	35		19	18
Confl. Bikes (#/hr)				3				1				4
Heavy Vehicles (%)	3%	3%	3%	3%	4%	4%	4%	4%	1%	1%	1%	1%
Turn Type	Prot	pm+pt	NA	Perm	Perm	NA		Perm	Split	NA	Perm	
Protected Phases	1	1 9	6			2			4	4		
Permitted Phases		6		6	2			2				4
Actuated Green, G (s)	14.7	61.7	52.4	52.4	32.2	32.2		32.2	22.1	22.1	22.1	
Effective Green, g (s)	14.7	61.7	52.4	52.4	32.2	32.2		32.2	22.1	22.1	22.1	
Actuated g/C Ratio	0.10	0.44	0.37	0.37	0.23	0.23		0.23	0.16	0.16	0.16	
Clearance Time (s)	5.5		5.5	5.5	5.5	5.5		5.5	5.5	5.5	5.5	
Vehicle Extension (s)	2.5		2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	
Lane Grp Cap (vph)	183	353	1311	541	52	1051		290	268	277	232	
v/s Ratio Prot	0.02	c0.15	c0.35			0.22			0.09	c0.09		
v/s Ratio Perm		0.23		0.11	0.15			0.00			0.01	
v/c Ratio	0.20	0.85	0.94	0.30	0.65	0.97		0.02	0.56	0.56	0.05	
Uniform Delay, d1	57.3	39.3	42.3	30.9	48.8	53.5		41.7	54.4	54.5	50.1	
Progression Factor	0.92	0.89	0.87	0.75	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.2	10.6	9.5	0.8	49.6	21.9		0.1	1.4	1.4	0.0	
Delay (s)	53.2	45.4	46.2	23.9	98.4	75.3		41.8	55.8	55.8	50.1	
Level of Service	D	D	D	C	F	E		D	E	E	D	
Approach Delay (s)			43.1			75.3				54.7		
Approach LOS			D			E				D		

Intersection Summary		
HCM 2000 Control Delay	56.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.81	E
Actuated Cycle Length (s)	140.0	Sum of lost time (s)
Intersection Capacity Utilization	85.8%	31.5
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		E

HCM Signalized Intersection Capacity Analysis
 29: Union Bay PI NE & NE 45th St & NE 45th PI

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour



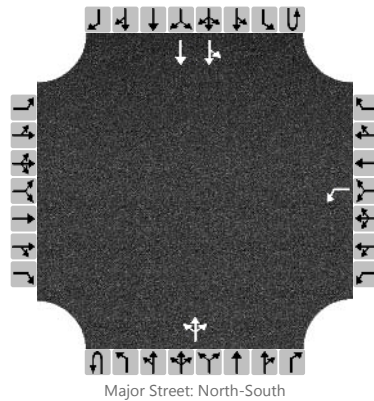
Movement	SBL2	SBL	SBT	SBR	SWL2	SWL	SWR	SWR2
Lane Configurations								
Traffic Volume (vph)	30	165	85	35	25	40	180	15
Future Volume (vph)	30	165	85	35	25	40	180	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	5.5			5.5	5.5	
Lane Util. Factor		0.95	0.95			1.00	0.88	
Frbp, ped/bikes		1.00	0.99			1.00	1.00	
Flpb, ped/bikes		1.00	1.00			1.00	1.00	
Frt		1.00	0.97			1.00	0.85	
Flt Protected		0.95	0.99			0.95	1.00	
Satd. Flow (prot)		1698	1682			1787	2814	
Flt Permitted		0.95	0.99			0.95	1.00	
Satd. Flow (perm)		1698	1682			1787	2814	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	31	170	88	36	26	41	186	15
RTOR Reduction (vph)	0	0	7	0	0	0	127	0
Lane Group Flow (vph)	0	162	156	0	0	67	74	0
Confl. Peds. (#/hr)	18	19		35	18	16	35	19
Confl. Bikes (#/hr)				1			1	1
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	1%	1%
Turn Type	Split	Split	NA		Prot	Prot	Prot	
Protected Phases	3	3	3		7	7	8	
Permitted Phases								
Actuated Green, G (s)		23.8	23.8			6.4	19.7	
Effective Green, g (s)		23.8	23.8			6.4	19.7	
Actuated g/C Ratio		0.17	0.17			0.05	0.14	
Clearance Time (s)		5.5	5.5			5.5	5.5	
Vehicle Extension (s)		2.0	2.0			2.5	2.5	
Lane Grp Cap (vph)		288	285			81	395	
v/s Ratio Prot		c0.10	0.09			c0.04	0.03	
v/s Ratio Perm								
v/c Ratio		0.56	0.55			0.83	0.19	
Uniform Delay, d1		53.3	53.2			66.3	53.1	
Progression Factor		1.00	1.00			1.00	1.00	
Incremental Delay, d2		1.5	1.1			46.4	0.2	
Delay (s)		54.8	54.3			112.6	53.2	
Level of Service		D	D			F	D	
Approach Delay (s)			54.6			68.1		
Approach LOS			D			E		

Intersection Summary

HCS7 Two-Way Stop-Control Report

General Information		Site Information	
Analyst	Transpo	Intersection	Roosevelt Way & 43rd St
Agency/Co.		Jurisdiction	Seattle
Date Performed	3/17/2017	East/West Street	NE 43rd St (east)
Analysis Year	2015	North/South Street	Roosevelt Way NE
Time Analyzed	PM Peak Hour	Peak Hour Factor	0.91
Intersection Orientation	North-South	Analysis Time Period (hrs)	1.00
Project Description	UW Master Plan EIS, Alternative 4 (2028) PM Peak		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Movement																
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	0	0		1	0	0		0	1	0		0	2	0
Configuration						L					LTR			LT	T	
Volume, V (veh/h)						205				0	0	0		67	1598	
Percent Heavy Vehicles (%)						6				3				1		
Proportion Time Blocked																
Percent Grade (%)					0											
Right Turn Channelized	No				No				No				No			
Median Type/Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)						7.5				4.1				4.1		
Critical Headway (sec)						6.92				4.16				4.12		
Base Follow-Up Headway (sec)						3.5				2.2				2.2		
Follow-Up Headway (sec)						3.56				2.23				2.21		

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)						225				0				74		
Capacity, c (veh/h)						153				348				1241		
v/c Ratio						1.47				0.00				0.06		
95% Queue Length, Q ₉₅ (veh)						43.9				0.0				0.2		
Control Delay (s/veh)						950.3				15.3				8.1		
Level of Service, LOS						F				C				A		
Approach Delay (s/veh)					950.3								9.1			
Approach LOS					F											

Intersection

Int Delay, s/veh 3.3

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔					↕↕
Traffic Vol, veh/h	205	0	0	0	67	1598
Future Vol, veh/h	205	0	0	0	67	1598
Conflicting Peds, #/hr	75	153	0	75	153	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	6	6	0	0	1	1
Mvmt Flow	225	0	0	0	74	1756

Major/Minor

	Minor1	Major2
Conflicting Flow All	1253	153
Stage 1	153	-
Stage 2	1100	-
Critical Hdwy	6.92	4.12
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	5.92	-
Follow-up Hdwy	3.56	2.21
Pot Cap-1 Maneuver	~ 159	1433
Stage 1	-	0
Stage 2	272	0
Platoon blocked, %		-
Mov Cap-1 Maneuver	0	1433
Mov Cap-2 Maneuver	0	-
Stage 1	-	-
Stage 2	0	-

Approach

WB SB
 HCM Control Delay, s 3.7
 HCM LOS -

Minor Lane/Major Mvmt

	WBLn1	SBL	SBT
Capacity (veh/h)	-	1433	-
HCM Lane V/C Ratio	-	0.051	-
HCM Control Delay (s)	-	7.6	3.5
HCM Lane LOS	-	A	A
HCM 95th %tile Q(veh)	-	0.2	-

Notes

-: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 4.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	69	0	0	1758	40
Future Vol, veh/h	0	69	0	0	1758	40
Conflicting Peds, #/hr	277	151	151	0	0	277
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	-	-
Veh in Median Storage, #	0	-	-	-	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	0	0	2	2
Mvmt Flow	0	75	0	0	1911	43

Major/Minor

	Minor2	Major2
Conflicting Flow All	-	1405
Stage 1	-	-
Stage 2	-	-
Critical Hdwy	-	6.94
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	-	-
Follow-up Hdwy	-	3.32
Pot Cap-1 Maneuver	0	129
Stage 1	0	-
Stage 2	0	-
Platoon blocked, %	-	-
Mov Cap-1 Maneuver	-	99
Mov Cap-2 Maneuver	-	-
Stage 1	-	-
Stage 2	-	-

Approach

















	EB	SB
HCM Control Delay, s	110.8	0
HCM LOS	F	

Minor Lane/Major Mvmt

	EBLn1	SBT	SBR
Capacity (veh/h)	99	-	-
HCM Lane V/C Ratio	0.758	-	-
HCM Control Delay (s)	110.8	-	-
HCM Lane LOS	F	-	-
HCM 95th %tile Q(veh)	4	-	-

HCM 2010 Signalized Intersection Summary
 32: 11th Ave NE & NE 43rd St

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	45	57	0	0	170	25	20	1617	25	0	0	0
Future Volume (veh/h)	45	57	0	0	170	25	20	1617	25	0	0	0
Number	7	4	14	3	8	18	5	2	12			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	0.95		1.00	1.00		0.90	1.00		0.84			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1900	1900	0	0	1776	1900	1900	1863	1900			
Adj Flow Rate, veh/h	49	62	0	0	185	27	22	1758	27			
Adj No. of Lanes	0	1	0	0	1	0	0	2	0			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	0	0	0	0	7	7	0	2	0			
Cap, veh/h	303	348	0	0	626	91	18	1476	24			
Arrive On Green	0.42	0.42	0.00	0.00	0.14	0.14	0.14	0.14	0.14			
Sat Flow, veh/h	474	828	0	0	1492	218	43	3599	58			
Grp Volume(v), veh/h	111	0	0	0	0	212	947	0	860			
Grp Sat Flow(s),veh/h/ln	1303	0	0	0	0	1709	1861	0	1840			
Q Serve(g_s), s	0.3	0.0	0.0	0.0	0.0	5.6	20.5	0.0	20.5			
Cycle Q Clear(g_c), s	5.8	0.0	0.0	0.0	0.0	5.6	20.5	0.0	20.5			
Prop In Lane	0.44		0.00	0.00		0.13	0.02		0.03			
Lane Grp Cap(c), veh/h	651	0	0	0	0	718	763	0	754			
V/C Ratio(X)	0.17	0.00	0.00	0.00	0.00	0.30	1.24	0.00	1.14			
Avail Cap(c_a), veh/h	651	0	0	0	0	718	763	0	754			
HCM Platoon Ratio	1.00	1.00	1.00	1.00	0.33	0.33	0.33	0.33	0.33			
Upstream Filter(I)	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00	1.00			
Uniform Delay (d), s/veh	9.0	0.0	0.0	0.0	0.0	14.9	21.6	0.0	21.6			
Incr Delay (d2), s/veh	0.6	0.0	0.0	0.0	0.0	1.0	119.9	0.0	78.4			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	1.0	0.0	0.0	0.0	0.0	2.8	35.9	0.0	26.8			
LnGrp Delay(d),s/veh	9.6	0.0	0.0	0.0	0.0	15.9	141.5	0.0	100.0			
LnGrp LOS	A					B	F		F			
Approach Vol, veh/h		111			212			1807				
Approach Delay, s/veh		9.6			15.9			121.8				
Approach LOS		A			B			F				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4				8				
Phs Duration (G+Y+Rc), s		25.0		25.0				25.0				
Change Period (Y+Rc), s		4.5		4.0				4.0				
Max Green Setting (Gmax), s		20.5		21.0				21.0				
Max Q Clear Time (g_c+I1), s		22.5		7.8				7.6				
Green Ext Time (p_c), s		0.0		1.1				1.1				
Intersection Summary												
HCM 2010 Ctrl Delay				105.4								
HCM 2010 LOS				F								

HCM Signalized Intersection Capacity Analysis

33: University Way NE & NE 43rd St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	20	25	7	40	20	50	5	200	55	45	202	5
Future Volume (vph)	20	25	7	40	20	50	5	200	55	45	202	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.93			0.85			0.87			0.99	
Flpb, ped/bikes		0.90			0.83			0.99			0.93	
Frt		0.98			0.94			0.97			1.00	
Flt Protected		0.98			0.98			1.00			0.99	
Satd. Flow (prot)		1493			1234			1466			1632	
Flt Permitted		0.90			0.90			1.00			0.91	
Satd. Flow (perm)		1367			1131			1461			1503	
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)	22	27	8	43	22	54	5	215	59	48	217	5
RTOR Reduction (vph)	0	5	0	0	15	0	0	19	0	0	2	0
Lane Group Flow (vph)	0	52	0	0	104	0	0	260	0	0	268	0
Confl. Peds. (#/hr)	179		298	298		179	690		591	591		690
Confl. Bikes (#/hr)			2			3			63			25
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	8%	8%	8%	6%	6%	6%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		17.0			17.0			24.5			24.5	
Effective Green, g (s)		17.0			17.0			24.5			24.5	
Actuated g/C Ratio		0.34			0.34			0.49			0.49	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		464			384			715			736	
v/s Ratio Prot												
v/s Ratio Perm		0.04			0.09			0.18			0.18	
v/c Ratio		0.11			0.27			0.36			0.36	
Uniform Delay, d1		11.3			12.0			7.9			7.9	
Progression Factor		0.63			1.04			1.16			0.59	
Incremental Delay, d2		0.4			1.7			1.4			1.3	
Delay (s)		7.6			14.2			10.6			6.0	
Level of Service		A			B			B			A	
Approach Delay (s)		7.6			14.2			10.6			6.0	
Approach LOS		A			B			B			A	

Intersection Summary

HCM 2000 Control Delay	9.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	52.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

34: 15th Ave NE & NE 43rd St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	60	45	30	920	615	130
Future Volume (vph)	60	45	30	920	615	130
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5			4.5	4.5	4.5
Lane Util. Factor	1.00			0.95	0.95	1.00
Frbp, ped/bikes	0.87			1.00	1.00	0.64
Flpb, ped/bikes	1.00			1.00	1.00	1.00
Frt	0.94			1.00	1.00	0.85
Flt Protected	0.97			1.00	1.00	1.00
Satd. Flow (prot)	1478			3354	3343	950
Flt Permitted	0.97			0.92	1.00	1.00
Satd. Flow (perm)	1478			3102	3343	950
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	47	32	968	647	137
RTOR Reduction (vph)	32	0	0	0	0	69
Lane Group Flow (vph)	78	0	0	1000	647	69
Confl. Peds. (#/hr)	262	361	182			182
Confl. Bikes (#/hr)						3
Heavy Vehicles (%)	2%	2%	7%	7%	8%	8%
Turn Type	Prot		Perm	NA	NA	Perm
Protected Phases	4			2	2	
Permitted Phases			2			2
Actuated Green, G (s)	16.0			25.0	25.0	25.0
Effective Green, g (s)	16.0			25.0	25.0	25.0
Actuated g/C Ratio	0.32			0.50	0.50	0.50
Clearance Time (s)	4.5			4.5	4.5	4.5
Lane Grp Cap (vph)	472			1551	1671	475
v/s Ratio Prot	c0.05				0.19	
v/s Ratio Perm				c0.32		0.07
v/c Ratio	0.17			0.64	0.39	0.14
Uniform Delay, d1	12.2			9.2	7.8	6.7
Progression Factor	0.40			0.96	1.04	2.32
Incremental Delay, d2	0.7			1.7	0.6	0.5
Delay (s)	5.6			10.6	8.6	16.2
Level of Service	A			B	A	B
Approach Delay (s)	5.6			10.6	9.9	
Approach LOS	A			B	A	

Intersection Summary

HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

35: Memorial Way NE & Burke Museum Access/East Stevens Way NE Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Yield	
Traffic Volume (vph)	117	12	5	10	22	249	0	55	15	258	65	108
Future Volume (vph)	117	12	5	10	22	249	0	55	15	258	65	108
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	127	13	5	11	24	271	0	60	16	280	71	117

Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	145	306	30	46	316	153
Volume Left (vph)	127	11	0	0	280	0
Volume Right (vph)	5	271	0	16	0	117
Hadj (s)	0.15	-0.52	0.44	0.20	0.53	-0.45
Departure Headway (s)	6.0	5.1	7.0	6.7	6.4	5.4
Degree Utilization, x	0.24	0.43	0.06	0.09	0.56	0.23
Capacity (veh/h)	553	666	457	481	540	635
Control Delay (s)	10.9	11.9	9.2	9.1	16.2	8.9
Approach Delay (s)	10.9	11.9	9.2		13.8	
Approach LOS	B	B	A		B	

Intersection Summary						
Delay			12.4			
Level of Service			B			
Intersection Capacity Utilization			69.2%	ICU Level of Service		C
Analysis Period (min)			15			

HCM 2010 Signalized Intersection Summary
 36: Montlake Blvd NE & Stevens Way

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	188	110	114	5	67	215	90	791	5	67	454	144
Future Volume (veh/h)	188	110	114	5	67	215	90	791	5	67	454	144
Number	3	8	18	7	4	14	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.90	0.97		0.85	1.00		0.97	1.00		0.98
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1792	1792	1900	1900	1827	1900	1900	1900	1900	1881	1881	1900
Adj Flow Rate, veh/h	198	116	120	5	71	226	95	833	5	71	478	152
Adj No. of Lanes	1	2	0	0	2	0	1	2	0	1	2	0
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Percent Heavy Veh, %	6	6	6	4	4	4	0	0	0	1	1	1
Cap, veh/h	235	541	436	38	327	226	368	1969	12	90	1016	321
Arrive On Green	0.11	0.32	0.32	0.19	0.19	0.19	0.20	0.54	0.54	0.05	0.38	0.38
Sat Flow, veh/h	1707	1703	1373	58	1730	1195	1810	3678	22	1792	2659	839
Grp Volume(v), veh/h	198	116	120	76	0	226	95	409	429	71	320	310
Grp Sat Flow(s),veh/h/ln	1707	1703	1373	1787	0	1195	1810	1805	1895	1792	1787	1711
Q Serve(g_s), s	12.7	7.0	9.1	0.0	0.0	26.5	6.2	19.0	19.0	5.5	18.9	19.1
Cycle Q Clear(g_c), s	12.7	7.0	9.1	4.8	0.0	26.5	6.2	19.0	19.0	5.5	18.9	19.1
Prop In Lane	1.00		1.00	0.07		1.00	1.00		0.01	1.00		0.49
Lane Grp Cap(c), veh/h	235	541	436	596	0	226	368	966	1014	90	683	654
V/C Ratio(X)	0.84	0.21	0.27	0.13	0.00	1.00	0.26	0.42	0.42	0.79	0.47	0.47
Avail Cap(c_a), veh/h	344	651	525	596	0	226	368	966	1014	211	683	654
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.99	0.00	0.99	0.84	0.84	0.84	1.00	1.00	1.00
Uniform Delay (d), s/veh	40.5	34.9	35.7	48.0	0.0	56.7	46.9	19.5	19.5	65.7	32.6	32.6
Incr Delay (d2), s/veh	11.8	0.2	0.3	0.0	0.0	59.1	0.1	1.1	1.1	5.6	2.3	2.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.7	3.3	3.5	2.1	0.0	12.4	3.1	9.7	10.2	2.9	9.8	9.5
LnGrp Delay(d),s/veh	52.3	35.1	36.0	48.0	0.0	115.8	47.0	20.7	20.6	71.3	34.9	35.1
LnGrp LOS	D	D	D	D		F	D	C	C	E	C	D
Approach Vol, veh/h		434			302			933			701	
Approach Delay, s/veh		43.2			98.8			23.3			38.7	
Approach LOS		D			F			C			D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6		8				
Phs Duration (G+Y+Rc), s	11.6	79.4	18.0	31.0	33.0	58.0		49.0				
Change Period (Y+Rc), s	4.5	4.5	3.0	4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	16.5	56.5	24.0	26.5	19.5	53.5		53.5				
Max Q Clear Time (g_c+I1), s	7.5	21.0	14.7	28.5	8.2	21.1		11.1				
Green Ext Time (p_c), s	0.0	5.4	0.4	0.0	2.3	0.6		3.3				
Intersection Summary												
HCM 2010 Ctrl Delay			41.1									
HCM 2010 LOS			D									

HCM Signalized Intersection Capacity Analysis

37: Montlake Blvd NE & Stevens Way

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	148	13	0	23	23	57	0	1452	48	8	531	272
Future Volume (vph)	148	13	0	23	23	57	0	1452	48	8	531	272
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Lane Util. Factor	0.95	0.95			0.95	1.00		0.95			0.95	1.00
Frbp, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	0.97
Flpb, ped/bikes	1.00	1.00			1.00	1.00		1.00			1.00	1.00
Frt	1.00	1.00			1.00	0.85		1.00			1.00	0.85
Flt Protected	0.95	0.96			0.98	1.00		1.00			1.00	1.00
Satd. Flow (prot)	1618	1634			3292	1509		3554			3536	1537
Flt Permitted	0.72	0.73			0.79	1.00		1.00			0.92	1.00
Satd. Flow (perm)	1233	1236			2663	1509		3554			3255	1537
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)	157	14	0	24	24	61	0	1545	51	9	565	289
RTOR Reduction (vph)	0	0	0	0	0	55	0	1	0	0	0	48
Lane Group Flow (vph)	85	86	0	0	48	6	0	1595	0	0	574	241
Confl. Peds. (#/hr)							7		2	2		7
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	1%	1%	1%	2%	2%	2%
Turn Type	Perm	NA		Perm	NA	Perm		NA		Perm	NA	Perm
Protected Phases		2			2			1			1	
Permitted Phases	2			2		2				1		1
Actuated Green, G (s)	14.1	14.1			14.1	14.1		116.9			116.9	116.9
Effective Green, g (s)	14.1	14.1			14.1	14.1		116.9			116.9	116.9
Actuated g/C Ratio	0.10	0.10			0.10	0.10		0.84			0.84	0.84
Clearance Time (s)	4.5	4.5			4.5	4.5		4.5			4.5	4.5
Vehicle Extension (s)	2.0	2.0			2.0	2.0		0.2			0.2	0.2
Lane Grp Cap (vph)	124	124			268	151		2967			2717	1283
v/s Ratio Prot								c0.45				
v/s Ratio Perm	0.07	c0.07			0.02	0.00					0.18	0.16
v/c Ratio	0.69	0.69			0.18	0.04		0.54			0.21	0.19
Uniform Delay, d1	60.8	60.9			57.6	56.8		3.5			2.3	2.3
Progression Factor	0.53	0.53			1.00	1.00		1.06			0.54	0.55
Incremental Delay, d2	11.6	12.5			0.1	0.0		0.6			0.2	0.3
Delay (s)	43.6	44.6			57.8	56.9		4.2			1.4	1.6
Level of Service	D	D			E	E		A			A	A
Approach Delay (s)		44.1			57.3			4.2			1.5	
Approach LOS		D			E			A			A	

Intersection Summary

HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

38: Montlake Blvd NE

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour










	↑	↗	↘	↓	↙	↖
Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations	↑↑	↗↘		↑↑	↙↘	
Traffic Volume (vph)	856	1440	0	577	644	0
Future Volume (vph)	856	1440	0	577	644	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	
Lane Util. Factor	0.95	0.88		0.95	0.97	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	1.00	1.00		1.00	0.95	
Satd. Flow (prot)	3574	2814		3610	3433	
Flt Permitted	1.00	1.00		1.00	0.95	
Satd. Flow (perm)	3574	2814		3610	3433	
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	882	1485	0	595	664	0
RTOR Reduction (vph)	0	784	0	0	0	0
Lane Group Flow (vph)	882	701	0	595	664	0
Heavy Vehicles (%)	1%	1%	0%	0%	2%	2%
Turn Type	NA	Perm		NA	Prot	
Protected Phases	2			2	1	
Permitted Phases		2				
Actuated Green, G (s)	66.1	66.1		66.1	64.9	
Effective Green, g (s)	66.1	66.1		66.1	64.9	
Actuated g/C Ratio	0.47	0.47		0.47	0.46	
Clearance Time (s)	4.5	4.5		4.5	4.5	
Vehicle Extension (s)	2.0	2.0		2.0	0.2	
Lane Grp Cap (vph)	1687	1328		1704	1591	
v/s Ratio Prot	0.25			0.16	c0.19	
v/s Ratio Perm		c0.25				
v/c Ratio	0.52	0.53		0.35	0.42	
Uniform Delay, d1	25.9	26.0		23.4	25.0	
Progression Factor	1.00	1.00		0.48	0.52	
Incremental Delay, d2	0.1	0.2		0.0	0.8	
Delay (s)	26.0	26.2		11.3	13.9	
Level of Service	C	C		B	B	
Approach Delay (s)	26.1			11.3	13.9	
Approach LOS	C			B	B	

Intersection Summary

HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	54.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
 39: Roosevelt Way NE & NE 42nd St (north)

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour

								
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations						 		
Traffic Volume (veh/h)	100	0	0	0	175	1724		
Future Volume (veh/h)	100	0	0	0	175	1724		
Number	7	14			5	2		
Initial Q (Qb), veh	0	0			0	0		
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00			
Parking Bus, Adj	1.00	1.00			1.00	1.00		
Adj Sat Flow, veh/h/ln	1881	0			1900	1863		
Adj Flow Rate, veh/h	109	0			190	1874		
Adj No. of Lanes	1	0			0	2		
Peak Hour Factor	0.92	0.92			0.92	0.92		
Percent Heavy Veh, %	1	0			2	2		
Cap, veh/h	0	0			321	2948		
Arrive On Green	0.00	0.00			0.32	0.32		
Sat Flow, veh/h	0				292	3172		
Grp Volume(v), veh/h	0.0				1109	955		
Grp Sat Flow(s),veh/h/ln					1769	1610		
Q Serve(g_s), s					50.8	50.5		
Cycle Q Clear(g_c), s					54.0	50.5		
Prop In Lane					0.17			
Lane Grp Cap(c), veh/h					1732	1538		
V/C Ratio(X)					0.64	0.62		
Avail Cap(c_a), veh/h					1732	1538		
HCM Platoon Ratio					0.33	0.33		
Upstream Filter(I)					1.00	1.00		
Uniform Delay (d), s/veh					20.0	18.8		
Incr Delay (d2), s/veh					1.8	1.9		
Initial Q Delay(d3),s/veh					0.0	0.0		
%ile BackOfQ(50%),veh/ln					27.4	23.3		
LnGrp Delay(d),s/veh					21.8	20.7		
LnGrp LOS					C	C		
Approach Vol, veh/h						2064		
Approach Delay, s/veh						21.3		
Approach LOS						C		
Timer	1	2	3	4	5	6	7	8
Assigned Phs		2						
Phs Duration (G+Y+Rc), s		100.0						
Change Period (Y+Rc), s		4.5						
Max Green Setting (Gmax), s		72.5						
Max Q Clear Time (g_c+I1), s		56.0						
Green Ext Time (p_c), s		3.0						
Intersection Summary								
HCM 2010 Ctrl Delay				21.3				
HCM 2010 LOS				C				

HCM Signalized Intersection Capacity Analysis
40: NE 42nd St (north)/NE 42nd St & 11th Ave NE

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕↔				
Traffic Volume (vph)	60	120	0	0	70	199	25	1380	105	0	0	0
Future Volume (vph)	60	120	0	0	70	199	25	1380	105	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5				
Lane Util. Factor		1.00			1.00			0.95				
Frbp, ped/bikes		1.00			0.84			0.99				
Flpb, ped/bikes		0.96			1.00			1.00				
Frt		1.00			0.90			0.99				
Flt Protected		0.98			1.00			1.00				
Satd. Flow (prot)		1799			1429			3446				
Flt Permitted		0.72			1.00			1.00				
Satd. Flow (perm)		1325			1429			3446				
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)	66	132	0	0	77	219	27	1516	115	0	0	0
RTOR Reduction (vph)	0	0	0	0	10	0	0	10	0	0	0	0
Lane Group Flow (vph)	0	198	0	0	286	0	0	1648	0	0	0	0
Confl. Peds. (#/hr)	200		131	131		200	28		72	72		28
Confl. Bikes (#/hr)			9			26			95			1
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	2%	2%	2%	0%	0%	0%
Turn Type	Perm	NA			NA		Perm	NA				
Protected Phases		4			4			2				
Permitted Phases	4						2					
Actuated Green, G (s)		13.2			13.2			28.3				
Effective Green, g (s)		13.2			13.2			28.3				
Actuated g/C Ratio		0.26			0.26			0.57				
Clearance Time (s)		4.0			4.0			4.5				
Vehicle Extension (s)		2.0			2.0			0.2				
Lane Grp Cap (vph)		349			377			1950				
v/s Ratio Prot					c0.20							
v/s Ratio Perm		0.15						0.48				
v/c Ratio		0.57			0.76			0.85				
Uniform Delay, d1		15.9			16.9			9.0				
Progression Factor		1.05			0.82			1.00				
Incremental Delay, d2		0.8			7.6			4.7				
Delay (s)		17.6			21.5			13.8				
Level of Service		B			C			B				
Approach Delay (s)		17.6			21.5			13.8			0.0	
Approach LOS		B			C			B			A	

Intersection Summary

HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
41: University Way NE & NE 42nd St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	35	155	23	10	81	25	30	190	15	15	164	40
Future Volume (vph)	35	155	23	10	81	25	30	190	15	15	164	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0			4.5			4.5	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frbp, ped/bikes		0.93			0.86			0.96			0.86	
Flpb, ped/bikes		0.92			0.96			0.94			0.97	
Frt		0.99			0.97			0.99			0.98	
Flt Protected		0.99			1.00			0.99			1.00	
Satd. Flow (prot)		1590			1529			1563			1466	
Flt Permitted		0.95			0.97			0.95			0.98	
Satd. Flow (perm)		1515			1494			1489			1434	
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)	37	165	24	11	86	27	32	202	16	16	174	43
RTOR Reduction (vph)	0	1	0	0	5	0	0	3	0	0	6	0
Lane Group Flow (vph)	0	225		0	0	119	0	0	247	0	0	228
Confl. Peds. (#/hr)	607		666	666		607	921		695	695		921
Confl. Bikes (#/hr)			26			34			81			29
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	7%	7%	7%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4			2			2		
Actuated Green, G (s)		19.0			19.0			22.5			22.5	
Effective Green, g (s)		19.0			19.0			22.5			22.5	
Actuated g/C Ratio		0.38			0.38			0.45			0.45	
Clearance Time (s)		4.0			4.0			4.5			4.5	
Lane Grp Cap (vph)		575			567			670			645	
v/s Ratio Prot												
v/s Ratio Perm		c0.15			0.08			c0.17			0.16	
v/c Ratio		0.39			0.21			0.37			0.35	
Uniform Delay, d1		11.3			10.4			9.1			9.0	
Progression Factor		1.05			0.65			0.56			0.72	
Incremental Delay, d2		1.5			0.8			1.5			1.4	
Delay (s)		13.4			7.6			6.6			7.9	
Level of Service		B			A			A			A	
Approach Delay (s)		13.4			7.6			6.6			7.9	
Approach LOS		B			A			A			A	
Intersection Summary												
HCM 2000 Control Delay		9.0			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.38										
Actuated Cycle Length (s)		50.0			Sum of lost time (s)			8.5				
Intersection Capacity Utilization		47.1%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

42: 15th Ave NE & NE 42nd St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	110	85	61	870	644	45
Future Volume (vph)	110	85	61	870	644	45
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.5	4.5	4.5	
Lane Util. Factor	1.00		1.00	0.95	0.95	
Frbp, ped/bikes	0.85		1.00	1.00	0.97	
Flpb, ped/bikes	1.00		0.84	1.00	1.00	
Frt	0.94		1.00	1.00	0.99	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	1479		1402	3343	3166	
Flt Permitted	0.97		0.32	1.00	1.00	
Satd. Flow (perm)	1479		474	3343	3166	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	92	66	946	700	49
RTOR Reduction (vph)	17	0	0	0	10	0
Lane Group Flow (vph)	195	0	66	946	739	0
Confl. Peds. (#/hr)	736	522	298			298
Confl. Bikes (#/hr)		6				17
Heavy Vehicles (%)	0%	0%	8%	8%	9%	9%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	18.0		23.5	23.5	23.5	
Effective Green, g (s)	18.0		23.5	23.5	23.5	
Actuated g/C Ratio	0.36		0.47	0.47	0.47	
Clearance Time (s)	4.0		4.5	4.5	4.5	
Lane Grp Cap (vph)	532		222	1571	1488	
v/s Ratio Prot	c0.13			c0.28	0.23	
v/s Ratio Perm			0.14			
v/c Ratio	0.37		0.30	0.60	0.50	
Uniform Delay, d1	11.8		8.2	9.8	9.2	
Progression Factor	0.39		0.48	0.50	0.89	
Incremental Delay, d2	1.9		3.2	1.6	1.1	
Delay (s)	6.5		7.2	6.5	9.2	
Level of Service	A		A	A	A	
Approach Delay (s)	6.5			6.6	9.2	
Approach LOS	A			A	A	

Intersection Summary

HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations									
Traffic Vol, veh/h	0	147	148	0	65	133	0	89	85
Future Vol, veh/h	0	147	148	0	65	133	0	89	85
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles, %	6	6	6	8	8	8	17	17	17
Mvmt Flow	0	167	168	0	74	151	0	101	97
Number of Lanes	0	1	0	0	1	0	0	0	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	1	1	0
HCM Control Delay	11.8	9.8	10.8
HCM LOS	B	A	B

Lane	NBLn1	WBLn1	SBLn1
Vol Left, %	0%	50%	51%
Vol Thru, %	33%	0%	49%
Vol Right, %	67%	50%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	198	295	174
LT Vol	0	147	89
Through Vol	65	0	85
RT Vol	133	148	0
Lane Flow Rate	225	335	198
Geometry Grp	1	1	1
Degree of Util (X)	0.296	0.45	0.297
Departure Headway (Hd)	4.741	4.828	5.401
Convergence, Y/N	Yes	Yes	Yes
Cap	749	741	658
Service Time	2.822	2.898	3.487
HCM Lane V/C Ratio	0.3	0.452	0.301
HCM Control Delay	9.8	11.8	10.8
HCM Lane LOS	A	B	B
HCM 95th-tile Q	1.2	2.3	1.2

HCM Signalized Intersection Capacity Analysis

44: I-5 NB Express Lane Off Ramp & 7th Ave NE & NE 42nd St/NE 42nd St (south) 4 PM Peak Hour



Movement	WBL2	WBT	WBR	NBL	NBT	NBR	NEL	NER	NER2
Lane Configurations									
Traffic Volume (vph)	138	15	85	5	278	143	307	204	202
Future Volume (vph)	138	15	85	5	278	143	307	204	202
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00	
Frbp, ped/bikes	1.00	0.93		1.00	0.99		1.00	1.00	
Flpb, ped/bikes	1.00	1.00		0.97	1.00		1.00	1.00	
Frt	1.00	0.87		1.00	0.95		1.00	0.85	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1513		1740	1772		1736	1553	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1513		1740	1772		1736	1553	
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	152	16	93	5	305	157	337	224	222
RTOR Reduction (vph)	0	76	0	0	20	0	0	55	0
Lane Group Flow (vph)	152	33	0	5	442	0	337	391	0
Confl. Peds. (#/hr)			54	13					
Confl. Bikes (#/hr)			1			1			
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	4%	4%	4%
Turn Type	Split	NA		Perm	NA		Prot	Perm	
Protected Phases	3	3			2		4		
Permitted Phases				2				4	
Actuated Green, G (s)	14.4	14.4		25.9	25.9		25.5	25.5	
Effective Green, g (s)	14.4	14.4		25.9	25.9		25.5	25.5	
Actuated g/C Ratio	0.18	0.18		0.32	0.32		0.32	0.32	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	
Vehicle Extension (s)	3.0	3.0		5.0	5.0		5.0	5.0	
Lane Grp Cap (vph)	315	269		557	568		547	490	
v/s Ratio Prot	c0.09	0.02			c0.25		0.19		
v/s Ratio Perm				0.00				c0.25	
v/c Ratio	0.48	0.12		0.01	0.78		0.62	0.80	
Uniform Delay, d1	29.9	27.9		18.7	24.9		23.5	25.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	0.2		0.0	7.8		3.0	10.0	
Delay (s)	31.0	28.1		18.7	32.6		26.5	35.3	
Level of Service	C	C		B	C		C	D	
Approach Delay (s)		29.8			32.5		31.5		
Approach LOS		C			C		C		

Intersection Summary				
HCM 2000 Control Delay		31.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio		0.72		
Actuated Cycle Length (s)		80.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization		68.6%	ICU Level of Service	C
Analysis Period (min)		15		
c	Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
45: Roosevelt Way NE & NE 42nd St (south)

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations		↗			↕	↗
Traffic Volume (vph)	0	352	0	0	1699	175
Future Volume (vph)	0	352	0	0	1699	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0			4.5	4.5
Lane Util. Factor		1.00			0.95	1.00
Frbp, ped/bikes		1.00			1.00	0.73
Flpb, ped/bikes		1.00			1.00	1.00
Frt		0.86			1.00	0.85
Flt Protected		1.00			1.00	1.00
Satd. Flow (prot)		1580			3539	1163
Flt Permitted		1.00			1.00	1.00
Satd. Flow (perm)		1580			3539	1163
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	367	0	0	1770	182
RTOR Reduction (vph)	0	9	0	0	0	25
Lane Group Flow (vph)	0	358	0	0	1770	157
Confl. Peds. (#/hr)	178		117			117
Confl. Bikes (#/hr)		2				38
Heavy Vehicles (%)	4%	4%	0%	0%	2%	2%
Turn Type		Prot			NA	Perm
Protected Phases		4			2	
Permitted Phases						2
Actuated Green, G (s)		25.9			64.6	64.6
Effective Green, g (s)		25.9			64.6	64.6
Actuated g/C Ratio		0.26			0.65	0.65
Clearance Time (s)		5.0			4.5	4.5
Vehicle Extension (s)		2.0			0.2	0.2
Lane Grp Cap (vph)		409			2286	751
v/s Ratio Prot		c0.23			c0.50	
v/s Ratio Perm						0.13
v/c Ratio		0.88			0.77	0.21
Uniform Delay, d1		35.5			12.5	7.2
Progression Factor		1.00			0.45	0.13
Incremental Delay, d2		18.0			1.7	0.4
Delay (s)		53.5			7.3	1.4
Level of Service		D			A	A
Approach Delay (s)	53.5			0.0	6.8	
Approach LOS	D			A	A	
Intersection Summary						
HCM 2000 Control Delay			14.2		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.80			
Actuated Cycle Length (s)			100.0		Sum of lost time (s)	9.5
Intersection Capacity Utilization			76.7%		ICU Level of Service	D
Analysis Period (min)			15			
c Critical Lane Group						

Intersection

Int Delay, s/veh 1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔					↕↕
Traffic Vol, veh/h	10	0	0	0	213	1843
Future Vol, veh/h	10	0	0	0	213	1843
Conflicting Peds, #/hr	15	31	0	15	31	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	0	0	2	2
Mvmt Flow	11	0	0	0	224	1940

Major/Minor

	Minor1	Major2
Conflicting Flow All	1464	31
Stage 1	31	-
Stage 2	1433	-
Critical Hdwy	6.8	4.14
Critical Hdwy Stg 1	-	-
Critical Hdwy Stg 2	5.8	-
Follow-up Hdwy	3.5	2.22
Pot Cap-1 Maneuver	121	1580
Stage 1	-	-
Stage 2	189	-
Platoon blocked, %		-
Mov Cap-1 Maneuver	118	1580
Mov Cap-2 Maneuver	118	-
Stage 1	-	-
Stage 2	189	-

Approach

	WB	SB
HCM Control Delay, s	38.5	0.8
HCM LOS	E	

Minor Lane/Major Mvmt

	WBLn1	SBL	SBT
Capacity (veh/h)	118	1580	-
HCM Lane V/C Ratio	0.089	0.142	-
HCM Control Delay (s)	38.5	7.7	0
HCM Lane LOS	E	A	A
HCM 95th %tile Q(veh)	0.3	0.5	-

Intersection												
Int Delay, s/veh	203											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	40	15	15	80	20	22	25	5	15	80	51
Future Vol, veh/h	10	40	15	15	80	20	22	25	5	15	80	51
Conflicting Peds, #/hr	416	0	450	424	0	390	450	0	424	390	0	416
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	84	84	84	84	84	84	84	84	84	84	84	84
Heavy Vehicles, %	4	4	4	10	10	10	0	0	0	0	0	0
Mvmt Flow	12	48	18	18	95	24	26	30	6	18	95	61

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1172	1123	1026	1153	1151	873	606	0	0	460	0	0
Stage 1	611	611	-	509	509	-	-	-	-	-	-	-
Stage 2	561	512	-	644	642	-	-	-	-	-	-	-
Critical Hdwy	7.14	6.54	6.24	7.2	6.6	6.3	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.14	5.54	-	6.2	5.6	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.14	5.54	-	6.2	5.6	-	-	-	-	-	-	-
Follow-up Hdwy	3.536	4.036	3.336	3.59	4.09	3.39	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	168	204	282	168	191	338	982	-	-	1112	-	-
Stage 1	478	481	-	532	525	-	-	-	-	-	-	-
Stage 2	509	533	-	448	457	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	-	77	110	27	~ 72	143	614	-	-	727	-	-
Mov Cap-2 Maneuver	-	77	-	27	~ 72	-	-	-	-	-	-	-
Stage 1	286	293	-	329	325	-	-	-	-	-	-	-
Stage 2	188	330	-	191	278	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s		\$ 663.7	4.7	1
HCM LOS	-	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	614	-	-	- 64	727	-	-
HCM Lane V/C Ratio	0.043	-	-	- 2.139	0.025	-	-
HCM Control Delay (s)	11.1	0	-	- \$ 663.7	10.1	0	-
HCM Lane LOS	B	A	-	- F	B	A	-
HCM 95th %tile Q(veh)	0.1	-	-	- 13	0.1	-	-

Notes
 -: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection	
Intersection Delay, s/veh	9.9
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	5	50	10	0	20	75	25	0	40	220	10
Future Vol, veh/h	0	5	50	10	0	20	75	25	0	40	220	10
Peak Hour Factor	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89
Heavy Vehicles, %	3	3	3	3	1	1	1	1	5	5	5	5
Mvmt Flow	0	6	56	11	0	22	84	28	0	45	247	11
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.8	9.2	10.8
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	15%	8%	17%	16%
Vol Thru, %	81%	77%	62%	73%
Vol Right, %	4%	15%	21%	12%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	270	65	120	128
LT Vol	40	5	20	20
Through Vol	220	50	75	93
RT Vol	10	10	25	15
Lane Flow Rate	303	73	135	144
Geometry Grp	1	1	1	1
Degree of Util (X)	0.395	0.104	0.187	0.199
Departure Headway (Hd)	4.692	5.132	4.993	4.983
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	764	693	715	716
Service Time	2.745	3.202	3.056	3.044
HCM Lane V/C Ratio	0.397	0.105	0.189	0.201
HCM Control Delay	10.8	8.8	9.2	9.3
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	1.9	0.3	0.7	0.7

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	20	93	15
Future Vol, veh/h	0	20	93	15
Peak Hour Factor	0.85	0.89	0.89	0.89
Heavy Vehicles, %	14	14	14	14
Mvmt Flow	0	22	104	17
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.3
HCM LOS	A

Intersection

Int Delay, s/veh 0

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	10	50	10	28	70	30	10	175	17	35	152	30
Future Vol, veh/h	10	50	10	28	70	30	10	175	17	35	152	30
Conflicting Peds, #/hr	1155	0	1256	1313	0	1212	1256	0	1313	1212	0	1155
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	0	0	0	0	0	0	13	13	13	6	6	6
Mvmt Flow	11	56	11	31	79	34	11	197	19	39	171	34

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	3019	3073	2757	3155	3081	2731	1460	0	0	1529	0	0
Stage 1	1522	1522	-	1542	1542	-	-	-	-	-	-	-
Stage 2	1497	1551	-	1613	1539	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.23	-	-	4.16	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.317	-	-	2.254	-	-
Pot Cap-1 Maneuver	~ 8	~ 12	26	~ 7	~ 12	~ 27	431	-	-	424	-	-
Stage 1	149	182	-	146	178	-	-	-	-	-	-	-
Stage 2	155	177	-	132	179	-	-	-	-	-	-	-
Platoon blocked, %												
Mov Cap-1 Maneuver	-	0	0	-	0	0	~ -41	-	-	~ -4	-	-
Mov Cap-2 Maneuver	-	0	-	-	0	-	-	-	-	-	-	-
Stage 1	~ 7	~ -8	-	~ 14	~ -17	-	-	-	-	-	-	-
Stage 2	872	~ -17	-	1059	~ -8	-	-	-	-	-	-	-

Approach

HCM Control Delay, s
HCM LOS

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1WBLn1	SBL	SBT	SBR
Capacity (veh/h)	+	-	-	-	+	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-	-
HCM Control Delay (s)	-	-	-	-	-	-	-
HCM Lane LOS	-	-	-	-	-	-	-
HCM 95th %tile Q(veh)	-	-	-	-	-	-	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM Signalized Intersection Capacity Analysis
 50: 15th Ave NE & NE 41st St/UW Campus Parking Access

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔	↔	↔	↑↑	↔	↔	↔	↔
Traffic Volume (vph)	36	15	48	65	30	115	36	780	75	90	586	53
Future Volume (vph)	36	15	48	65	30	115	36	780	75	90	586	53
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	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95	1.00	1.00	0.95	
Frbp, ped/bikes		0.87			1.00	0.60	1.00	1.00	0.48	1.00	0.95	
Flpb, ped/bikes		0.88			0.87	1.00	0.79	1.00	1.00	0.86	1.00	
Frt		0.93			1.00	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1326			1575	955	1324	3343	721	1453	3168	
Flt Permitted		0.87			0.73	1.00	0.37	1.00	1.00	0.31	1.00	
Satd. Flow (perm)		1171			1195	955	522	3343	721	479	3168	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	16	52	71	33	125	39	848	82	98	637	58
RTOR Reduction (vph)	0	39	0	0	0	58	0	0	22	0	1	0
Lane Group Flow (vph)	0	68	0	0	104	67	39	848	60	98	694	0
Confl. Peds. (#/hr)	551		182	182		551	375		217	217		375
Confl. Bikes (#/hr)			11			3			17			11
Heavy Vehicles (%)	0%	0%	0%	1%	1%	1%	8%	8%	8%	7%	7%	7%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4			4			2				2
Permitted Phases	4			4		4	2		2	2		
Actuated Green, G (s)		18.5			18.5	18.5	73.0	73.0	73.0	73.0	73.0	
Effective Green, g (s)		18.5			18.5	18.5	73.0	73.0	73.0	73.0	73.0	
Actuated g/C Ratio		0.18			0.18	0.18	0.73	0.73	0.73	0.73	0.73	
Clearance Time (s)		4.0			4.0	4.0	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0			3.0	3.0	0.2	0.2	0.2	0.2	0.2	
Lane Grp Cap (vph)		216			221	176	381	2440	526	349	2312	
v/s Ratio Prot								c0.25				0.22
v/s Ratio Perm		0.06			c0.09	0.07	0.07		0.08	0.20		
v/c Ratio		0.31			0.47	0.38	0.10	0.35	0.11	0.28	0.30	
Uniform Delay, d1		35.3			36.4	35.7	3.9	4.9	4.0	4.6	4.7	
Progression Factor		1.01			1.00	1.00	0.27	0.25	0.04	0.81	0.79	
Incremental Delay, d2		0.8			1.6	1.4	0.5	0.4	0.4	1.8	0.3	
Delay (s)		36.3			38.0	37.1	1.6	1.6	0.6	5.5	4.0	
Level of Service		D			D	D	A	A	A	A	A	
Approach Delay (s)		36.3			37.5			1.5			4.2	
Approach LOS		D			D			A			A	

Intersection Summary

HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.5
Intersection Capacity Utilization	67.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	60.9
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↔				↔				↔	↔
Traffic Vol, veh/h	0	100	150	15	0	185	301	25	0	5	273	255
Future Vol, veh/h	0	100	150	15	0	185	301	25	0	5	273	255
Peak Hour Factor	0.25	0.98	0.98	0.98	0.25	0.98	0.98	0.98	0.92	0.98	0.98	0.98
Heavy Vehicles, %	3	3	3	3	4	4	4	4	2	1	1	1
Mvmt Flow	0	102	153	15	0	189	307	26	0	5	279	260
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	1	1
HCM Control Delay	28.1	130.9	25.3
HCM LOS	D	F	D

Lane	NBLn1	NBLn2	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	0%	38%	36%	8%
Vol Thru, %	98%	0%	57%	59%	56%
Vol Right, %	0%	100%	6%	5%	36%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	278	255	265	511	333
LT Vol	5	0	100	185	25
Through Vol	273	0	150	301	188
RT Vol	0	255	15	25	120
Lane Flow Rate	284	260	270	521	340
Geometry Grp	7	7	2	2	5
Degree of Util (X)	0.671	0.564	0.651	1.185	0.776
Departure Headway (Hd)	9.174	8.435	9.333	8.178	8.94
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	397	432	389	448	408
Service Time	6.874	6.135	7.333	6.178	6.94
HCM Lane V/C Ratio	0.715	0.602	0.694	1.163	0.833
HCM Control Delay	28.7	21.5	28.1	130.9	36.8
HCM Lane LOS	D	C	D	F	E
HCM 95th-tile Q	4.7	3.4	4.4	20	6.6

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	25	188	120
Future Vol, veh/h	0	25	188	120
Peak Hour Factor	0.25	0.98	0.98	0.98
Heavy Vehicles, %	1	1	1	1
Mvmt Flow	0	26	192	122
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	36.8
HCM LOS	E

Intersection

Int Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations			↑		↑		↑			
Traffic Vol, veh/h	0	0	415	0	236	0	0	60	0	0
Future Vol, veh/h	0	0	415	0	236	0	0	60	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	79	87	0	79
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	None	-	-
Storage Length	-	-	0	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	0	-	-	-
Grade, %	-	0	-	-	0	-	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	1	1	1	0	0	0	0	0	3	3
Mvmt Flow	0	0	451	0	257	0	0	65	0	0

Major/Minor	Major1			Major2			Minor2	
Conflicting Flow All	-	-	0	-	-	0	336	344
Stage 1	-	-	-	-	-	-	257	-
Stage 2	-	-	-	-	-	-	79	-
Critical Hdwy	-	-	-	-	-	-	6.4	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	5.4	-
Critical Hdwy Stg 2	-	-	-	-	-	-	-	-
Follow-up Hdwy	-	-	-	-	-	-	3.5	3.3
Pot Cap-1 Maneuver	0	0	-	0	-	0	663	703
Stage 1	0	0	-	0	-	0	791	-
Stage 2	0	0	-	0	-	0	-	-
Platoon blocked, %	-	-	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	-	-	-	-	663	652
Mov Cap-2 Maneuver	-	-	-	-	-	-	663	-
Stage 1	-	-	-	-	-	-	791	-
Stage 2	-	-	-	-	-	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBR	WBT	SBLn1
Capacity (veh/h)	-	-	652
HCM Lane V/C Ratio	-	-	0.1
HCM Control Delay (s)	-	-	11.1
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.3

HCM Signalized Intersection Capacity Analysis

53: University Bridge/Roosevelt Way NE & NE Campus Pkwy & Eastlake Ave NE



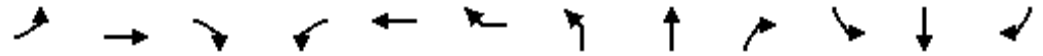
Movement	WBL	WBR	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations			↑↑	↗	↘	↑↑		
Traffic Volume (vph)	0	0	1171	285	117	1692	0	0
Future Volume (vph)	0	0	1171	285	117	1692	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			4.5	4.5	4.5	4.5		
Lane Util. Factor			0.95	1.00	1.00	0.95		
Frbp, ped/bikes			1.00	0.92	1.00	1.00		
Flpb, ped/bikes			1.00	1.00	1.00	1.00		
Frt			1.00	0.85	1.00	1.00		
Flt Protected			1.00	1.00	0.95	1.00		
Satd. Flow (prot)			3539	1463	1752	3505		
Flt Permitted			1.00	1.00	0.95	1.00		
Satd. Flow (perm)			3539	1463	1752	3505		
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	1246	303	124	1800	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	1246	303	124	1800	0	0
Confl. Peds. (#/hr)	17	15		17	15			
Confl. Bikes (#/hr)				156				
Heavy Vehicles (%)	0%	0%	2%	2%	3%	3%	3%	3%
Turn Type			NA	Perm	Prot	NA		
Protected Phases			2		4	2		
Permitted Phases				2				
Actuated Green, G (s)			36.7	36.7	14.5	60.2		
Effective Green, g (s)			36.7	36.7	14.5	60.2		
Actuated g/C Ratio			0.61	0.61	0.24	1.00		
Clearance Time (s)			4.5	4.5	4.5			
Vehicle Extension (s)			0.2	0.2	2.0			
Lane Grp Cap (vph)			2157	891	421	3505		
v/s Ratio Prot			c0.35		0.07	c0.51		
v/s Ratio Perm				0.21				
v/c Ratio			0.58	0.34	0.29	0.51		
Uniform Delay, d1			7.1	5.8	18.7	0.0		
Progression Factor			1.00	1.00	1.00	1.00		
Incremental Delay, d2			0.2	0.1	0.1	0.1		
Delay (s)			7.3	5.9	18.8	0.1		
Level of Service			A	A	B	A		
Approach Delay (s)	0.0		7.0			1.3	0.0	
Approach LOS	A		A			A	A	

Intersection Summary

HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	60.2	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			

HCM Signalized Intersection Capacity Analysis
54: Brooklyn Ave NE & NE Campus Pkwy

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	5	257	117	5	218	15	118	275	20	5	91	20
Future Volume (vph)	5	257	117	5	218	15	118	275	20	5	91	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			1.00			1.00	
Frt		0.95			0.99			0.99			0.98	
Flt Protected		1.00			1.00			0.99			1.00	
Satd. Flow (prot)		3373			3503			1824			1816	
Flt Permitted		0.95			0.95			0.87			0.99	
Satd. Flow (perm)		3211			3323			1608			1795	
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)	5	282	129	5	240	16	130	302	22	5	100	22
RTOR Reduction (vph)	0	51	0	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	365	0	0	261	0	0	452	0	0	127	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)		29.5			29.5			61.5			61.5	
Effective Green, g (s)		29.5			29.5			61.5			61.5	
Actuated g/C Ratio		0.29			0.29			0.62			0.62	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		947			980			988			1103	
v/s Ratio Prot												
v/s Ratio Perm		c0.11			0.08			c0.28			0.07	
v/c Ratio		0.38			0.27			0.46			0.12	
Uniform Delay, d1		28.0			27.0			10.3			8.0	
Progression Factor		1.00			0.61			1.00			1.00	
Incremental Delay, d2		1.2			0.7			1.5			0.2	
Delay (s)		29.2			17.1			11.8			8.2	
Level of Service		C			B			B			A	
Approach Delay (s)		29.2			17.1			11.8			8.2	
Approach LOS		C			B			B			A	

Intersection Summary

HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	50.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
55: University Way NE & NE Campus Pkwy

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	77	190	20	5	143	5	44	168	30	15	136	51
Future Volume (veh/h)	77	190	20	5	143	5	44	168	30	15	136	51
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1863	1900	1900	1863	1900	1900	1863	1900	1900	1863	1900
Adj Flow Rate, veh/h	84	207	22	5	155	5	48	183	33	16	148	55
Adj No. of Lanes	0	2	0	0	2	0	0	1	0	0	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	405	1010	111	62	1592	51	146	538	92	67	540	191
Arrive On Green	0.63	0.63	0.63	0.47	0.47	0.47	0.44	0.44	0.44	0.87	0.87	0.87
Sat Flow, veh/h	737	2126	233	50	3351	107	239	1236	211	66	1241	438
Grp Volume(v), veh/h	157	0	156	86	0	79	264	0	0	219	0	0
Grp Sat Flow(s),veh/h/ln	1442	0	1654	1832	0	1676	1686	0	0	1745	0	0
Q Serve(g_s), s	2.5	0.0	4.0	0.0	0.0	2.6	0.8	0.0	0.0	0.0	0.0	0.0
Cycle Q Clear(g_c), s	5.1	0.0	4.0	2.6	0.0	2.6	9.7	0.0	0.0	2.1	0.0	0.0
Prop In Lane	0.54		0.14	0.06		0.06	0.18		0.12	0.07		0.25
Lane Grp Cap(c), veh/h	740	0	786	908	0	796	776	0	0	798	0	0
V/C Ratio(X)	0.21	0.00	0.20	0.10	0.00	0.10	0.34	0.00	0.00	0.27	0.00	0.00
Avail Cap(c_a), veh/h	740	0	786	908	0	796	776	0	0	798	0	0
HCM Platoon Ratio	1.33	1.33	1.33	1.00	1.00	1.00	1.00	1.00	1.00	2.00	2.00	2.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	0.00	1.00	0.00	0.00
Uniform Delay (d), s/veh	10.6	0.0	10.4	14.5	0.0	14.5	18.7	0.0	0.0	3.8	0.0	0.0
Incr Delay (d2), s/veh	0.7	0.0	0.6	0.2	0.0	0.2	1.2	0.0	0.0	0.9	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.0	0.0	1.9	1.4	0.0	1.3	5.0	0.0	0.0	1.2	0.0	0.0
LnGrp Delay(d),s/veh	11.2	0.0	11.0	14.7	0.0	14.7	19.9	0.0	0.0	4.7	0.0	0.0
LnGrp LOS	B		B	B		B	B			A		
Approach Vol, veh/h		313			165			264			219	
Approach Delay, s/veh		11.1			14.7			19.9			4.7	
Approach LOS		B			B			B			A	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4		6		8				
Phs Duration (G+Y+Rc), s		52.0		48.0		52.0		48.0				
Change Period (Y+Rc), s		4.5		4.5		4.5		4.5				
Max Green Setting (Gmax), s		47.5		43.5		47.5		43.5				
Max Q Clear Time (g_c+I1), s		4.6		11.7		7.1		4.1				
Green Ext Time (p_c), s		0.5		0.5		0.5		0.6				
Intersection Summary												
HCM 2010 Ctrl Delay				12.6								
HCM 2010 LOS				B								

HCM Signalized Intersection Capacity Analysis
56: 15th Ave NE & NE Campus Pkwy

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔↔		↔	↑↑	↑↑	↔
Traffic Volume (vph)	105	120	78	809	638	75
Future Volume (vph)	105	120	78	809	638	75
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		6.0	6.0	6.0	
Lane Util. Factor	0.97		1.00	0.95	0.95	
Frbp, ped/bikes	0.99		1.00	1.00	0.96	
Flpb, ped/bikes	1.00		0.88	1.00	1.00	
Frt	0.92		1.00	1.00	0.98	
Flt Protected	0.98		0.95	1.00	1.00	
Satd. Flow (prot)	2918		1424	3252	3144	
Flt Permitted	0.98		0.34	1.00	1.00	
Satd. Flow (perm)	2918		516	3252	3144	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	109	125	81	843	665	78
RTOR Reduction (vph)	0	0	0	0	9	0
Lane Group Flow (vph)	234	0	81	843	734	0
Confl. Peds. (#/hr)	6	3	383			383
Confl. Bikes (#/hr)						11
Heavy Vehicles (%)	12%	12%	11%	11%	8%	8%
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	2	
Permitted Phases			2			
Actuated Green, G (s)	26.5		63.0	63.0	63.0	
Effective Green, g (s)	26.5		63.0	63.0	63.0	
Actuated g/C Ratio	0.26		0.63	0.63	0.63	
Clearance Time (s)	4.5		6.0	6.0	6.0	
Lane Grp Cap (vph)	773		325	2048	1980	
v/s Ratio Prot	c0.08			c0.26	0.23	
v/s Ratio Perm			0.16			
v/c Ratio	0.30		0.25	0.41	0.37	
Uniform Delay, d1	29.4		8.1	9.2	8.9	
Progression Factor	0.44		0.35	0.30	0.67	
Incremental Delay, d2	1.0		1.3	0.4	0.5	
Delay (s)	13.9		4.1	3.2	6.5	
Level of Service	B		A	A	A	
Approach Delay (s)	13.9			3.3	6.5	
Approach LOS	B			A	A	

Intersection Summary

HCM 2000 Control Delay	5.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	108
Intersection LOS	F

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Lane Configurations									
Traffic Vol, veh/h	0	330	257	0	147	265	0	383	208
Future Vol, veh/h	0	330	257	0	147	265	0	383	208
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	1	1	1	0	0	0
Mvmt Flow	0	359	279	0	160	288	0	416	226
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	123	46.9	135.6
HCM LOS	F	E	F

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	65%	0%	36%
Vol Thru, %	0%	56%	64%
Vol Right, %	35%	44%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	591	587	412
LT Vol	383	0	147
Through Vol	0	330	265
RT Vol	208	257	0
Lane Flow Rate	642	638	448
Geometry Grp	1	1	1
Degree of Util (X)	1.21	1.175	0.884
Departure Headway (Hd)	7.127	7.242	7.964
Convergence, Y/N	Yes	Yes	Yes
Cap	514	504	457
Service Time	5.127	5.242	5.964
HCM Lane V/C Ratio	1.249	1.266	0.98
HCM Control Delay	135.6	123	46.9
HCM Lane LOS	F	F	E
HCM 95th-tile Q	23.2	21.2	9.4

Intersection	
Intersection Delay, s/veh	13.1
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	97	55	57	0	45	42	45	0	36	256	25
Future Vol, veh/h	0	97	55	57	0	45	42	45	0	36	256	25
Peak Hour Factor	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89	0.85	0.89	0.89	0.89
Heavy Vehicles, %	1	1	1	1	2	2	2	2	7	7	7	7
Mvmt Flow	0	109	62	64	0	51	47	51	0	40	288	28
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	12.4	11	15.2
HCM LOS	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	46%	34%	4%
Vol Thru, %	81%	26%	32%	69%
Vol Right, %	8%	27%	34%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	317	209	132	223
LT Vol	36	97	45	10
Through Vol	256	55	42	154
RT Vol	25	57	45	59
Lane Flow Rate	356	235	148	251
Geometry Grp	1	1	1	1
Degree of Util (X)	0.549	0.379	0.245	0.385
Departure Headway (Hd)	5.551	5.81	5.945	5.526
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	648	615	599	646
Service Time	3.614	3.883	4.027	3.597
HCM Lane V/C Ratio	0.549	0.382	0.247	0.389
HCM Control Delay	15.2	12.4	11	12.1
HCM Lane LOS	C	B	B	B
HCM 95th-tile Q	3.3	1.8	1	1.8

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	10	154	59
Future Vol, veh/h	0	10	154	59
Peak Hour Factor	0.85	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	11	173	66
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	12.1
HCM LOS	B

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Lane Configurations			↕				↕				↕	
Traffic Vol, veh/h	0	20	70	10	0	35	107	25	0	5	192	16
Future Vol, veh/h	0	20	70	10	0	35	107	25	0	5	192	16
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
Heavy Vehicles, %	1	1	1	1	2	2	2	2	3	3	3	3
Mvmt Flow	0	23	80	11	0	40	123	29	0	6	221	18
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9.5	10.3	10.6
HCM LOS	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	20%	21%	3%
Vol Thru, %	90%	70%	64%	86%
Vol Right, %	8%	10%	15%	11%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	213	100	167	181
LT Vol	5	20	35	5
Through Vol	192	70	107	156
RT Vol	16	10	25	20
Lane Flow Rate	245	115	192	208
Geometry Grp	1	1	1	1
Degree of Util (X)	0.337	0.172	0.28	0.291
Departure Headway (Hd)	5.077	5.378	5.244	5.042
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	712	669	687	716
Service Time	3.077	3.396	3.256	3.054
HCM Lane V/C Ratio	0.344	0.172	0.279	0.291
HCM Control Delay	10.6	9.5	10.3	10.1
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	1.5	0.6	1.1	1.2

Intersection

Intersection Delay, s/veh
 Intersection LOS

Movement	SBU	SBL	SBT	SBR
Lane Configurations			↕	
Traffic Vol, veh/h	0	5	156	20
Future Vol, veh/h	0	5	156	20
Peak Hour Factor	0.87	0.87	0.87	0.87
Heavy Vehicles, %	0	0	0	0
Mvmt Flow	0	6	179	23
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	10.1
HCM LOS	B

HCM Signalized Intersection Capacity Analysis

61: 15th Ave NE & Stevens Way

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕	↕	↕↔		↕	↕↔	
Traffic Volume (vph)	31	32	28	139	94	174	19	682	54	92	632	34
Future Volume (vph)	31	32	28	139	94	174	19	682	54	92	632	34
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	4.5	4.5		4.5	4.5	
Lane Util. Factor		1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frbp, ped/bikes		0.83			1.00	0.56	1.00	0.97		1.00	0.98	
Flpb, ped/bikes		0.91			0.74	1.00	0.91	1.00		0.92	1.00	
Frt		0.96			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.97	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1334			1240	828	1511	3193		1525	3233	
Flt Permitted		0.86			0.77	1.00	0.22	1.00		0.18	1.00	
Satd. Flow (perm)		1168			978	828	357	3193		291	3233	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	33	34	29	146	99	183	20	718	57	97	665	36
RTOR Reduction (vph)	0	16	0	0	0	130	0	6	0	0	4	0
Lane Group Flow (vph)	0	80	0	0	245	53	20	769	0	97	697	0
Confl. Peds. (#/hr)	825		1636	1636		825	184		194	194		184
Confl. Bikes (#/hr)			223			90			26			12
Heavy Vehicles (%)	2%	2%	2%	10%	10%	10%	9%	9%	9%	9%	9%	9%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		1			1			2			2	
Permitted Phases	1			1		1	2			2		
Actuated Green, G (s)		29.0			29.0	29.0	31.5	31.5		31.5	31.5	
Effective Green, g (s)		29.0			29.0	29.0	31.5	31.5		31.5	31.5	
Actuated g/C Ratio		0.29			0.29	0.29	0.32	0.32		0.32	0.32	
Clearance Time (s)		3.0			3.0	3.0	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)		338			283	240	112	1005		91	1018	
v/s Ratio Prot								0.24			0.22	
v/s Ratio Perm		0.07			0.25	0.06	0.06			0.33		
v/c Ratio		0.24			0.87	0.22	0.18	0.77		1.07	0.68	
Uniform Delay, d1		27.1			33.7	26.9	24.9	30.9		34.2	29.9	
Progression Factor		1.00			1.00	1.00	0.91	0.88		0.70	0.66	
Incremental Delay, d2		1.7			28.0	2.1	2.4	3.9		110.9	3.6	
Delay (s)		28.7			61.7	29.0	25.1	31.2		135.0	23.3	
Level of Service		C			E	C	C	C		F	C	
Approach Delay (s)		28.7			47.7			31.0			36.9	
Approach LOS		C			D			C			D	

Intersection Summary

HCM 2000 Control Delay	36.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.5
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Intersection	
Intersection Delay, s/veh	10.1
Intersection LOS	B

Movement	EBU	EBT	EBR	WBU	WBL	WBT	NBU	NBL	NBR
Lane Configurations									
Traffic Vol, veh/h	0	5	153	0	15	20	0	257	5
Future Vol, veh/h	0	5	153	0	15	20	0	257	5
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles, %	11	11	11	0	0	0	14	14	14
Mvmt Flow	0	6	178	0	17	23	0	299	6
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	8.6	8.3	11.2
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	98%	0%	43%
Vol Thru, %	0%	3%	57%
Vol Right, %	2%	97%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	262	158	35
LT Vol	257	0	15
Through Vol	0	5	20
RT Vol	5	153	0
Lane Flow Rate	305	184	41
Geometry Grp	1	1	1
Degree of Util (X)	0.408	0.222	0.056
Departure Headway (Hd)	4.827	4.343	4.982
Convergence, Y/N	Yes	Yes	Yes
Cap	746	829	718
Service Time	2.859	2.364	3.015
HCM Lane V/C Ratio	0.409	0.222	0.057
HCM Control Delay	11.2	8.6	8.3
HCM Lane LOS	B	A	A
HCM 95th-tile Q	2	0.8	0.2

Intersection	
Intersection Delay, s/veh	79.3
Intersection LOS	F

Movement	WBU	WBL	WBR	NBU	NBT	NBR	SBU	SBL	SBT
Lane Configurations		↘	↗		↗	↗		↘	↗
Traffic Vol, veh/h	0	454	446	0	130	575	0	349	55
Future Vol, veh/h	0	454	446	0	130	575	0	349	55
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles, %	1	1	1	1	1	1	4	4	4
Mvmt Flow	0	478	469	0	137	605	0	367	58
Number of Lanes	0	1	1	0	1	1	0	1	1

Approach	WB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	2
Conflicting Approach Left	NB		WB
Conflicting Lanes Left	2	0	2
Conflicting Approach Right	SB	WB	
Conflicting Lanes Right	2	2	0
HCM Control Delay	70.6	110.3	44.6
HCM LOS	F	F	E

Lane	NBLn1	NBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%
Vol Thru, %	100%	0%	0%	0%	0%	100%
Vol Right, %	0%	100%	0%	100%	0%	0%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	130	575	454	446	349	55
LT Vol	0	0	454	0	349	0
Through Vol	130	0	0	0	0	55
RT Vol	0	575	0	446	0	0
Lane Flow Rate	137	605	478	469	367	58
Geometry Grp	7	7	7	7	7	7
Degree of Util (X)	0.298	1.199	1.076	0.901	0.874	0.131
Departure Headway (Hd)	8.053	7.328	8.466	7.229	9.088	8.568
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	449	502	430	507	400	421
Service Time	5.753	5.028	6.166	4.929	6.788	6.268
HCM Lane V/C Ratio	0.305	1.205	1.112	0.925	0.917	0.138
HCM Control Delay	14.1	132	94.5	46.2	49.6	12.6
HCM Lane LOS	B	F	F	E	E	B
HCM 95th-tile Q	1.2	22.2	15.3	10.3	8.7	0.4

HCM Signalized Intersection Capacity Analysis
64: NE Boat St & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour























Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↩		↩	↩	↩	↩
Traffic Volume (vph)	769	85	15	739	115	15
Future Volume (vph)	769	85	15	739	115	15
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0		5.0	5.0	5.0	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frpb, ped/bikes	0.99		1.00	1.00	0.99	
Flpb, ped/bikes	1.00		1.00	1.00	1.00	
Frt	0.99		1.00	1.00	0.98	
Flt Protected	1.00		0.95	1.00	0.96	
Satd. Flow (prot)	1819		1787	1881	1744	
Flt Permitted	1.00		0.22	1.00	0.96	
Satd. Flow (perm)	1819		414	1881	1744	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	827	91	16	795	124	16
RTOR Reduction (vph)	3	0	0	0	5	0
Lane Group Flow (vph)	915	0	16	795	135	0
Confl. Peds. (#/hr)		34	34		28	18
Confl. Bikes (#/hr)		5				17
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%
Turn Type	NA		Perm	NA	Prot	
Protected Phases	2			2	4	
Permitted Phases			2			
Actuated Green, G (s)	72.6		72.6	72.6	17.4	
Effective Green, g (s)	72.6		72.6	72.6	17.4	
Actuated g/C Ratio	0.73		0.73	0.73	0.17	
Clearance Time (s)	5.0		5.0	5.0	5.0	
Vehicle Extension (s)	0.2		0.2	0.2	2.0	
Lane Grp Cap (vph)	1320		300	1365	303	
v/s Ratio Prot	c0.50			0.42	c0.08	
v/s Ratio Perm			0.04			
v/c Ratio	0.69		0.05	0.58	0.45	
Uniform Delay, d1	7.6		3.9	6.5	37.0	
Progression Factor	1.00		0.31	0.63	1.00	
Incremental Delay, d2	3.0		0.3	1.6	0.4	
Delay (s)	10.6		1.5	5.7	37.4	
Level of Service	B		A	A	D	
Approach Delay (s)	10.6			5.6	37.4	
Approach LOS	B			A	D	

Intersection Summary

HCM 2000 Control Delay	10.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	65.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM 2010 Signalized Intersection Summary
65: Brooklyn Ave NE & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	184	842	53	35	585	53	81	105	30	54	40	188
Future Volume (veh/h)	184	842	53	35	585	53	81	105	30	54	40	188
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.91	1.00		0.87	1.00		0.80	1.00		0.82
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1845	1900	1881	1881	1900	1792	1792	1900	1827	1827	1900
Adj Flow Rate, veh/h	200	915	58	38	636	58	88	114	33	59	43	204
Adj No. of Lanes	1	2	0	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	3	3	3	1	1	1	6	6	6	4	4	4
Cap, veh/h	460	1446	92	219	964	88	121	194	56	197	47	224
Arrive On Green	0.26	0.44	0.44	0.24	0.59	0.59	0.07	0.15	0.15	0.11	0.20	0.20
Sat Flow, veh/h	1757	3325	211	1792	3267	297	1707	1258	364	1740	234	1111
Grp Volume(v), veh/h	200	482	491	38	347	347	88	0	147	59	0	247
Grp Sat Flow(s),veh/h/ln	1757	1752	1783	1792	1787	1777	1707	0	1622	1740	0	1345
Q Serve(g_s), s	9.5	21.5	21.5	1.7	13.0	13.1	5.1	0.0	8.4	3.1	0.0	18.0
Cycle Q Clear(g_c), s	9.5	21.5	21.5	1.7	13.0	13.1	5.1	0.0	8.4	3.1	0.0	18.0
Prop In Lane	1.00		0.12	1.00		0.17	1.00		0.22	1.00		0.83
Lane Grp Cap(c), veh/h	460	762	776	219	527	524	121	0	250	197	0	272
V/C Ratio(X)	0.43	0.63	0.63	0.17	0.66	0.66	0.73	0.00	0.59	0.30	0.00	0.91
Avail Cap(c_a), veh/h	460	762	776	219	527	524	188	0	397	197	0	303
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.66	0.66	0.66	0.90	0.90	0.90	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	30.7	22.0	22.0	33.8	17.1	17.1	45.5	0.0	39.3	40.7	0.0	39.0
Incr Delay (d2), s/veh	0.2	2.6	2.6	0.1	5.7	5.8	3.1	0.0	0.8	0.3	0.0	26.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.6	10.9	11.1	0.8	7.0	7.0	2.5	0.0	3.8	1.5	0.0	8.7
LnGrp Delay(d),s/veh	30.9	24.7	24.6	33.9	22.8	22.9	48.6	0.0	40.1	41.0	0.0	65.5
LnGrp LOS	C	C	C	C	C	C	D		D	D		E
Approach Vol, veh/h		1173			732			235			306	
Approach Delay, s/veh		25.7			23.5			43.3			60.8	
Approach LOS		C			C			D			E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2	3	4	5	6	7	8				
Phs Duration (G+Y+Rc), s	30.2	34.0	15.8	19.9	16.2	48.0	11.1	24.7				
Change Period (Y+Rc), s	4.0	4.5	4.5	* 4.5	4.0	4.5	4.0	4.5				
Max Green Setting (Gmax), s	20.0	29.5	9.0	* 25	6.0	43.5	11.0	22.5				
Max Q Clear Time (g_c+I1), s	11.5	15.1	5.1	10.4	3.7	23.5	7.1	20.0				
Green Ext Time (p_c), s	0.2	2.5	0.5	0.4	0.1	4.2	0.0	0.3				
Intersection Summary												
HCM 2010 Ctrl Delay			31.1									
HCM 2010 LOS			C									
Notes												

HCM Signalized Intersection Capacity Analysis
 66: Campus Parking Access/University Way NE & NE Pacific St

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	996	0	5	679	69	40	60	75	160	5	59
Future Volume (vph)	65	996	0	5	679	69	40	60	75	160	5	59
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.5		4.0	4.5			4.5	4.5		4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frbp, ped/bikes	1.00	1.00		1.00	0.95			1.00	0.89		0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.99	1.00		0.94	
Frt	1.00	1.00		1.00	0.99			1.00	0.85		0.96	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00		0.97	
Satd. Flow (prot)	1787	3574		1752	3286			1838	1445		1620	
Flt Permitted	0.95	1.00		0.95	1.00			0.84	1.00		0.72	
Satd. Flow (perm)	1787	3574		1752	3286			1575	1445		1215	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	66	1016	0	5	693	70	41	61	77	163	5	60
RTOR Reduction (vph)	0	0	0	0	7	0	0	0	56	0	15	0
Lane Group Flow (vph)	66	1016	0	5	756	0	0	102	21	0	213	0
Confl. Peds. (#/hr)	263		207	207		263	54		95	95		54
Confl. Bikes (#/hr)						6						2
Heavy Vehicles (%)	1%	1%	1%	3%	3%	3%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	1	6		5	2			4			4	
Permitted Phases							4		4	4		
Actuated Green, G (s)	10.4	58.6		1.1	49.3			27.3	27.3		27.3	
Effective Green, g (s)	10.4	58.6		1.1	49.3			27.3	27.3		27.3	
Actuated g/C Ratio	0.10	0.59		0.01	0.49			0.27	0.27		0.27	
Clearance Time (s)	4.0	4.5		4.0	4.5			4.5	4.5		4.5	
Vehicle Extension (s)	2.0	0.2		2.0	0.2			3.0	3.0		3.0	
Lane Grp Cap (vph)	185	2094		19	1619			429	394		331	
v/s Ratio Prot	0.04	c0.28		0.00	c0.23							
v/s Ratio Perm								0.06	0.01		c0.18	
v/c Ratio	0.36	0.49		0.26	0.47			0.24	0.05		0.64	
Uniform Delay, d1	41.7	12.0		49.0	16.7			28.3	26.8		32.1	
Progression Factor	0.65	0.20		1.44	0.35			1.00	1.00		1.00	
Incremental Delay, d2	0.4	0.7		1.5	0.5			0.3	0.1		4.3	
Delay (s)	27.5	3.2		72.0	6.3			28.5	26.9		36.3	
Level of Service	C	A		E	A			C	C		D	
Approach Delay (s)		4.7			6.8			27.8			36.3	
Approach LOS		A			A			C			D	

Intersection Summary		
HCM 2000 Control Delay	10.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.54	B
Actuated Cycle Length (s)	100.0	Sum of lost time (s)
Intersection Capacity Utilization	86.3%	13.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		E

HCM Signalized Intersection Capacity Analysis
67: 15th Ave NE & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	123	1053	60	132	515	355	125	242	376	518	178	113
Future Volume (vph)	123	1053	60	132	515	355	125	242	376	518	178	113
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00		0.95		0.95	0.95	
Frbp, ped/bikes	1.00	0.96		1.00	1.00	0.90		0.83		1.00	0.92	
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00		1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85		0.92		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00		0.99		0.95	0.99	
Satd. Flow (prot)	1787	3421		1703	3406	1366		2724		1573	1438	
Flt Permitted	0.95	1.00		0.95	1.00	1.00		0.99		0.95	0.99	
Satd. Flow (perm)	1787	3421		1703	3406	1366		2724		1573	1438	
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)	131	1120	64	140	548	378	133	257	400	551	189	120
RTOR Reduction (vph)	0	4	0	0	0	38	0	119	0	0	14	0
Lane Group Flow (vph)	131	1180	0	140	548	340	0	671	0	435	411	0
Confl. Peds. (#/hr)	141		435	435		141	199		265	265		199
Confl. Bikes (#/hr)			2			28			37			18
Heavy Vehicles (%)	1%	1%	1%	6%	6%	6%	1%	1%	1%	9%	9%	9%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA		Split	NA	
Protected Phases	1	6		5	2	4	3	3		4	4	
Permitted Phases						2						
Actuated Green, G (s)	10.5	28.0		6.5	24.0	48.5		23.0		24.5	24.5	
Effective Green, g (s)	10.5	28.0		6.5	24.0	48.5		23.0		24.5	24.5	
Actuated g/C Ratio	0.10	0.28		0.06	0.24	0.48		0.23		0.24	0.24	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5		4.5		4.5	4.5	
Vehicle Extension (s)	2.0	0.2		2.0	0.2	3.0		2.0		3.0	3.0	
Lane Grp Cap (vph)	187	957		110	817	662		626		385	352	
v/s Ratio Prot	0.07	c0.34		c0.08	0.16	0.13		c0.25		0.28	c0.29	
v/s Ratio Perm						0.12						
v/c Ratio	0.70	1.23		1.27	0.67	0.51		1.07		1.13	1.17	
Uniform Delay, d1	43.2	36.0		46.8	34.4	17.7		38.5		37.8	37.8	
Progression Factor	0.78	0.76		1.00	1.00	1.00		1.00		0.48	0.45	
Incremental Delay, d2	8.6	113.2		176.0	4.4	0.7		57.0		79.8	95.2	
Delay (s)	42.1	140.5		222.7	38.8	18.3		95.5		97.8	112.1	
Level of Service	D	F		F	D	B		F		F	F	
Approach Delay (s)		130.7			55.7			95.5			104.9	
Approach LOS		F			E			F			F	

Intersection Summary

HCM 2000 Control Delay	98.5	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	104.0%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Intersection

Int Delay, s/veh 4.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	
Traffic Vol, veh/h	30	150	110	101	113	15
Future Vol, veh/h	30	150	110	101	113	15
Conflicting Peds, #/hr	77	0	0	54	54	77
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	3	3	6	6	4	4
Mvmt Flow	33	165	121	111	124	16

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	309	0	538
Stage 1	-	-	253
Stage 2	-	-	285
Critical Hdwy	4.13	-	6.44
Critical Hdwy Stg 1	-	-	5.44
Critical Hdwy Stg 2	-	-	5.44
Follow-up Hdwy	2.227	-	3.536
Pot Cap-1 Maneuver	1246	-	501
Stage 1	-	-	785
Stage 2	-	-	759
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	1166	-	425
Mov Cap-2 Maneuver	-	-	425
Stage 1	-	-	735
Stage 2	-	-	688

Approach	EB	WB	SB
HCM Control Delay, s	1.4	0	16.9
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1166	-	-	-	441
HCM Lane V/C Ratio	0.028	-	-	-	0.319
HCM Control Delay (s)	8.2	0	-	-	16.9
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	1.4

Intersection	
Intersection Delay, s/veh	88.6
Intersection LOS	F

Movement	EBU	EBL	EBR	NBU	NBL	NBT	SBU	SBT	SBR
Lane Configurations									
Traffic Vol, veh/h	0	145	118	0	171	564	0	235	40
Future Vol, veh/h	0	145	118	0	171	564	0	235	40
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles, %	5	5	5	2	2	2	3	3	3
Mvmt Flow	0	161	131	0	190	627	0	261	44
Number of Lanes	0	1	0	0	0	1	0	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	1	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	1
HCM Control Delay	16.6	141.9	15.1
HCM LOS	C	F	C

Lane	NBLn1	EBLn1	SBLn1
Vol Left, %	23%	55%	0%
Vol Thru, %	77%	0%	85%
Vol Right, %	0%	45%	15%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	735	263	275
LT Vol	171	145	0
Through Vol	564	0	235
RT Vol	0	118	40
Lane Flow Rate	817	292	306
Geometry Grp	1	1	1
Degree of Util (X)	1.245	0.506	0.495
Departure Headway (Hd)	5.488	6.801	6.166
Convergence, Y/N	Yes	Yes	Yes
Cap	670	535	590
Service Time	3.499	4.801	4.166
HCM Lane V/C Ratio	1.219	0.546	0.519
HCM Control Delay	141.9	16.6	15.1
HCM Lane LOS	F	C	C
HCM 95th-tile Q	30.2	2.8	2.7

HCM Unsignalized Intersection Capacity Analysis

UW Master Plan EIS

70: Parking Access/Campus Parking Access & NE Boat St/Columbia Rd Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Yield			Stop			Stop			Stop	
Traffic Volume (vph)	10	313	10	5	720	5	0	0	5	0	0	10
Future Volume (vph)	10	313	10	5	720	5	0	0	5	0	0	10
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	11	329	11	5	758	5	0	0	5	0	0	11

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	11	340	768	5	11
Volume Left (vph)	11	0	5	0	0
Volume Right (vph)	0	11	5	5	11
Hadj (s)	0.62	0.10	0.08	-0.60	-0.60
Departure Headway (s)	5.7	5.2	4.5	5.8	5.8
Degree Utilization, x	0.02	0.49	0.97	0.01	0.02
Capacity (veh/h)	630	693	791	585	582
Control Delay (s)	7.6	11.8	45.0	8.8	8.9
Approach Delay (s)	11.7		45.0	8.8	8.9
Approach LOS	B		E	A	A

Intersection Summary				
Delay			34.2	
Level of Service			D	
Intersection Capacity Utilization		62.2%	ICU Level of Service	B
Analysis Period (min)		15		

Intersection

Int Delay, s/veh 141.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	66	101	2226	65	69	1050
Future Vol, veh/h	66	101	2226	65	69	1050
Conflicting Peds, #/hr	0	3	0	0	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	69	106	2343	68	73	1105

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	3078	1212	0	0	2415	0
Stage 1	2380	-	-	-	-	-
Stage 2	698	-	-	-	-	-
Critical Hdwy	6.8	6.9	-	-	4.14	-
Critical Hdwy Stg 1	5.8	-	-	-	-	-
Critical Hdwy Stg 2	5.8	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	-	-	2.22	-
Pot Cap-1 Maneuver	~ 10	177	-	-	194	-
Stage 1	~ 57	-	-	-	-	-
Stage 2	460	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	0	176	-	-	194	-
Mov Cap-2 Maneuver	~ 11	-	-	-	-	-
Stage 1	~ 57	-	-	-	-	-
Stage 2	~ 12	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	\$ 3021.8		0		2.1
HCM LOS	F				

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 25	194	-
HCM Lane V/C Ratio	-	- 7.032	0.374	-
HCM Control Delay (s)	-	\$ 3021.8	34.3	-
HCM Lane LOS	-	- F	D	-
HCM 95th %tile Q(veh)	-	- 21.9	1.6	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

Intersection

Int Delay, s/veh 0.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		↑↑			↑↑
Traffic Vol, veh/h	5	40	2241	5	0	1126
Future Vol, veh/h	5	40	2241	5	0	1126
Conflicting Peds, #/hr	3	3	0	3	3	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	2	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	2	2	1	1	1	1
Mvmt Flow	5	42	2359	5	0	1185

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	2961	1188	0	0	-	-
Stage 1	2365	-	-	-	-	-
Stage 2	596	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	-	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	-	-
Pot Cap-1 Maneuver	11	181	-	-	0	-
Stage 1	57	-	-	-	0	-
Stage 2	513	-	-	-	0	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	11	180	-	-	-	-
Mov Cap-2 Maneuver	54	-	-	-	-	-
Stage 1	57	-	-	-	-	-
Stage 2	512	-	-	-	-	-

Approach	WB		NB		SB
HCM Control Delay, s	42.2		0		0
HCM LOS	E				

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBT
Capacity (veh/h)	-	- 143	-
HCM Lane V/C Ratio	-	- 0.331	-
HCM Control Delay (s)	-	- 42.2	-
HCM Lane LOS	-	- E	-
HCM 95th %tile Q(veh)	-	- 1.3	-

Intersection

Int Delay, s/veh 0.1

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↑	↑↑		↑	↑↑
Traffic Vol, veh/h	0	5	2251	25	10	1116
Future Vol, veh/h	0	5	2251	25	10	1116
Conflicting Peds, #/hr	5	5	0	5	5	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	-	0	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	96	96	96	96	96	96
Heavy Vehicles, %	0	0	1	1	2	2
Mvmt Flow	0	5	2345	26	10	1163

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	-	1195	0 0 2376 0
Stage 1	-	-	- - - -
Stage 2	-	-	- - - -
Critical Hdwy	-	6.9	- - 4.14 -
Critical Hdwy Stg 1	-	-	- - - -
Critical Hdwy Stg 2	-	-	- - - -
Follow-up Hdwy	-	3.3	- - 2.22 -
Pot Cap-1 Maneuver	0	182	- - 201 -
Stage 1	0	-	- - - -
Stage 2	0	-	- - - -
Platoon blocked, %			- - - -
Mov Cap-1 Maneuver	-	180	- - 200 -
Mov Cap-2 Maneuver	-	-	- - - -
Stage 1	-	-	- - - -
Stage 2	-	-	- - - -

Approach	WB	NB	SB
HCM Control Delay, s	25.6	0	0.2
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	- 180	200	-
HCM Lane V/C Ratio	-	- 0.029	0.052	-
HCM Control Delay (s)	-	- 25.6	24	-
HCM Lane LOS	-	- D	C	-
HCM 95th %tile Q(veh)	-	- 0.1	0.2	-

HCM Signalized Intersection Capacity Analysis
 74: Montlake Blvd NE & Husky Stadium Parking Access

UW Master Plan EIS
 Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	460	22	65	136	0	53	0	1703	5	6	914	181
Future Volume (vph)	460	22	65	136	0	53	0	1703	5	6	914	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5			4.5	
Lane Util. Factor	0.95	0.95	1.00	1.00		1.00		0.95			0.95	
Frbp, ped/bikes	1.00	1.00	0.86	1.00		0.99		1.00			0.98	
Flpb, ped/bikes	1.00	1.00	1.00	0.94		1.00		1.00			1.00	
Frt	1.00	1.00	0.85	1.00		0.85		1.00			0.98	
Flt Protected	0.95	0.96	1.00	0.95		1.00		1.00			1.00	
Satd. Flow (prot)	1681	1693	1361	1689		1594		3568			3347	
Flt Permitted	0.95	0.96	1.00	0.34		1.00		1.00			0.94	
Satd. Flow (perm)	1681	1693	1361	599		1594		3568			3157	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	479	23	68	142	0	55	0	1774	5	6	952	189
RTOR Reduction (vph)	0	0	53	0	0	11	0	0	0	0	10	0
Lane Group Flow (vph)	249	253	15	142	0	44	0	1779	0	0	1137	0
Confl. Peds. (#/hr)			76	76			37		176	176		37
Confl. Bikes (#/hr)			8			1						1
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	3%	3%	3%
Turn Type	Perm	NA	Perm	D.Pm		Perm		NA		Perm	NA	
Protected Phases		4						2				2
Permitted Phases	4		4	4		4			2			
Actuated Green, G (s)	26.9	26.9	26.9	26.9		26.9		84.1			84.1	
Effective Green, g (s)	26.9	26.9	26.9	26.9		26.9		84.1			84.1	
Actuated g/C Ratio	0.22	0.22	0.22	0.22		0.22		0.70			0.70	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5			4.5	
Vehicle Extension (s)	2.0	2.0	2.0	2.0		2.0		0.2			0.2	
Lane Grp Cap (vph)	376	379	305	134		357		2500			2212	
v/s Ratio Prot								c0.50				
v/s Ratio Perm	0.15	0.15	0.01	c0.24		0.03					0.36	
v/c Ratio	0.66	0.67	0.05	1.06		0.12		0.71			0.51	
Uniform Delay, d1	42.4	42.5	36.5	46.5		37.1		10.7			8.4	
Progression Factor	0.90	0.90	1.30	1.00		1.00		0.01			1.00	
Incremental Delay, d2	2.3	2.3	0.0	94.6		0.1		0.9			0.9	
Delay (s)	40.5	40.6	47.5	141.1		37.2		1.0			9.2	
Level of Service	D	D	D	F		D		A			A	
Approach Delay (s)		41.3			112.1			1.0			9.2	
Approach LOS		D			F			A			A	

Intersection Summary			
HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	81.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

75: NE Pacific St & NE Pacific Pl

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	452	1455	60	45	776	35	0	0	0	0	0	221
Future Volume (vph)	452	1455	60	45	776	35	0	0	0	0	0	221
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0	5.0	5.0	5.0							5.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95							1.00
Frpb, ped/bikes	1.00	1.00	0.63	1.00	0.99							1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00							1.00
Frt	1.00	1.00	0.85	1.00	0.99							0.86
Flt Protected	0.95	1.00	1.00	0.95	1.00							1.00
Satd. Flow (prot)	1805	3610	1010	1805	3534							1565
Flt Permitted	0.95	1.00	1.00	0.13	1.00							1.00
Satd. Flow (perm)	1805	3610	1010	241	3534							1565
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)	486	1565	65	48	834	38	0	0	0	0	0	238
RTOR Reduction (vph)	0	0	31	0	5	0	0	0	0	0	0	25
Lane Group Flow (vph)	486	1565	34	48	867	0	0	0	0	0	0	213
Confl. Peds. (#/hr)			215	215		448			748	748		
Confl. Bikes (#/hr)			8			9		9				1
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	6%	6%	6%	5%	5%	5%
Turn Type	Prot	NA	Perm	Perm	NA							Over
Protected Phases	2	1			1							2
Permitted Phases			1	1								
Actuated Green, G (s)	18.5	31.5	31.5	31.5	31.5							18.5
Effective Green, g (s)	18.5	31.5	31.5	31.5	31.5							18.5
Actuated g/C Ratio	0.31	0.52	0.52	0.52	0.52							0.31
Clearance Time (s)	5.0	5.0	5.0	5.0	5.0							5.0
Vehicle Extension (s)	2.0	0.2	0.2	0.2	0.2							2.0
Lane Grp Cap (vph)	556	1895	530	126	1855							482
v/s Ratio Prot	c0.27	c0.43			0.25							0.14
v/s Ratio Perm			0.03	0.20								
v/c Ratio	0.87	0.83	0.06	0.38	0.47							0.44
Uniform Delay, d1	19.6	11.9	7.0	8.5	9.0							16.6
Progression Factor	1.00	1.00	1.00	1.71	1.37							0.94
Incremental Delay, d2	13.8	4.3	0.2	8.2	0.8							0.2
Delay (s)	33.5	16.2	7.2	22.7	13.1							15.9
Level of Service	C	B	A	C	B							B
Approach Delay (s)		19.9			13.6			0.0				15.9
Approach LOS		B			B			A				B

Intersection Summary

HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
76: Hospital Access & NE Pacific St

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵	↑
Traffic Volume (vph)	1440	15	40	811	65	65
Future Volume (vph)	1440	15	40	811	65	65
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frpb, ped/bikes	1.00	0.75	1.00	1.00	1.00	0.99
Flpb, ped/bikes	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)	3438	1150	1656	3312	1805	1591
Flt Permitted	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (perm)	3438	1150	1656	3312	1805	1591
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1532	16	43	863	69	69
RTOR Reduction (vph)	0	1	0	0	0	64
Lane Group Flow (vph)	1532	15	43	863	69	5
Confl. Peds. (#/hr)		78	78		44	
Confl. Bikes (#/hr)		8				1
Heavy Vehicles (%)	5%	5%	9%	9%	0%	0%
Turn Type	NA	Perm	Prot	NA	pm+pt	Perm
Protected Phases	2		7!	6!	1!	
Permitted Phases		2		3	3!	1
Actuated Green, G (s)	83.3	83.3	14.1	96.9	9.1	9.1
Effective Green, g (s)	83.3	83.3	14.1	96.9	9.1	9.1
Actuated g/C Ratio	0.69	0.69	0.12	0.81	0.08	0.08
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	0.2	0.2	2.0	0.2	2.0	2.0
Lane Grp Cap (vph)	2386	798	194	2674	136	120
v/s Ratio Prot	c0.45		c0.03	0.26	c0.04	
v/s Ratio Perm		0.01				0.00
v/c Ratio	0.64	0.02	0.22	0.32	0.51	0.04
Uniform Delay, d1	10.1	5.7	48.0	3.0	53.3	51.4
Progression Factor	0.80	0.68	0.67	1.34	1.00	1.00
Incremental Delay, d2	0.7	0.0	0.1	0.0	1.1	0.1
Delay (s)	8.8	3.9	32.5	4.0	54.4	51.5
Level of Service	A	A	C	A	D	D
Approach Delay (s)	8.7			5.4	52.9	
Approach LOS	A			A	D	

Intersection Summary

HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	17.0
Intersection Capacity Utilization	51.5%	ICU Level of Service	A
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

77: Montlake Blvd NE & NE Pacific St/Husky Stadium Parking Access



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations			↗↘		↑	↗	↗↘	↗↘		↘	↗↘	↗
Traffic Volume (vph)	0	0	1505	0	57	20	769	1688	18	5	1075	25
Future Volume (vph)	0	0	1505	0	57	20	769	1688	18	5	1075	25
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			7.5		5.0	5.0	7.0	5.0		6.0	5.0	5.0
Lane Util. Factor			0.88		1.00	1.00	0.97	0.95		1.00	0.95	1.00
Frbp, ped/bikes			1.00		1.00	1.00	1.00	0.99		1.00	1.00	0.66
Flpb, ped/bikes			1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt			0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected			1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)			2787		1863	1583	3433	3510		1752	3505	1030
Flt Permitted			1.00		1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)			2787		1863	1583	3433	3510		1752	3505	1030
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)	0	0	1552	0	59	21	793	1740	19	5	1108	26
RTOR Reduction (vph)	0	0	296	0	0	19	0	1	0	0	0	15
Lane Group Flow (vph)	0	0	1256	0	59	2	793	1758	0	5	1108	11
Confl. Peds. (#/hr)							255		334	334		255
Confl. Bikes (#/hr)												4
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	3%	3%
Turn Type			Perm		NA	Perm	Prot	NA		Prot	NA	Perm
Protected Phases					3!		4 5	1 5		7!		1
Permitted Phases			9 1 3			3						1
Actuated Green, G (s)			102.1		12.8	12.8	31.0	65.1		1.0	52.2	52.2
Effective Green, g (s)			97.1		12.8	12.8	31.0	58.1		1.0	52.2	52.2
Actuated g/C Ratio			0.81		0.11	0.11	0.26	0.48		0.01	0.44	0.44
Clearance Time (s)					5.0	5.0				6.0	5.0	5.0
Vehicle Extension (s)					2.0	2.0				2.0	0.2	0.2
Lane Grp Cap (vph)			2255		198	168	886	1699		14	1524	448
v/s Ratio Prot					0.03		c0.23	c0.50		0.00	0.32	
v/s Ratio Perm			c0.45			0.00						0.01
v/c Ratio			0.56		0.30	0.01	0.90	1.04		0.36	0.73	0.03
Uniform Delay, d1			4.0		49.5	48.0	42.9	30.9		59.2	28.0	19.4
Progression Factor			1.00		1.00	1.00	0.86	1.08		0.88	0.74	1.00
Incremental Delay, d2			0.1		0.3	0.0	9.6	29.6		4.8	2.7	0.1
Delay (s)			4.1		49.8	48.0	46.5	63.1		57.0	23.3	19.5
Level of Service			A		D	D	D	E		E	C	B
Approach Delay (s)		4.1			49.3			58.0			23.4	
Approach LOS		A			D			E			C	

Intersection Summary

HCM 2000 Control Delay	34.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	92.8%	ICU Level of Service	F
Analysis Period (min)	15		

! Phase conflict between lane groups.
c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

78: Montlake Blvd NE & 520 EB/WB HOV Ramp & 520 WB Off Ramp

UW Master Plan EIS
Future (2028) Alt 4 PM Peak Hour



Movement	WBR	NBL	NBT	NBR2	SBL	SBT	SBR	NWR
Lane Configurations	↗↗	↘↘	↑↑	↗	↘	↑↑↔		↗
Traffic Volume (vph)	798	200	1892	30	30	1863	672	30
Future Volume (vph)	798	200	1892	30	30	1863	672	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.5	4.5	4.0	4.5		4.0
Lane Util. Factor	0.88	0.97	0.95	1.00	1.00	0.91		1.00
Frt	0.85	1.00	1.00	0.85	1.00	0.96		0.86
Flt Protected	1.00	0.95	1.00	1.00	0.95	1.00		1.00
Satd. Flow (prot)	2787	3433	3539	1583	1770	4877		1611
Flt Permitted	1.00	0.95	1.00	1.00	0.95	1.00		1.00
Satd. Flow (perm)	2787	3433	3539	1583	1770	4877		1611
Peak-hour factor, PHF	0.96	0.92	0.96	0.92	0.92	0.96	0.92	0.92
Adj. Flow (vph)	831	217	1971	33	33	1941	730	33
RTOR Reduction (vph)	270	0	0	12	0	49	0	0
Lane Group Flow (vph)	561	217	1971	21	33	2622	0	33
Turn Type	custom	Prot	NA	Perm	Prot	NA		Prot
Protected Phases	3 1	5	2		1	6		4
Permitted Phases				2		3		
Actuated Green, G (s)	26.0	13.0	75.9	75.9	4.0	84.9		5.6
Effective Green, g (s)	26.0	13.0	75.9	75.9	4.0	84.9		5.6
Actuated g/C Ratio	0.22	0.11	0.63	0.63	0.03	0.71		0.05
Clearance Time (s)		4.0	4.5	4.5	4.0	4.5		4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0		3.0
Lane Grp Cap (vph)	603	371	2238	1001	59	3633		75
v/s Ratio Prot	c0.20	0.06	c0.56		0.02	c0.40		c0.02
v/s Ratio Perm				0.01		0.14		
v/c Ratio	0.93	0.58	0.88	0.02	0.56	0.72		0.44
Uniform Delay, d1	46.1	50.9	18.3	8.2	57.1	10.5		55.7
Progression Factor	1.00	1.17	0.46	1.00	0.95	0.66		1.00
Incremental Delay, d2	20.8	1.7	3.9	0.0	9.5	0.6		4.1
Delay (s)	66.9	61.5	12.4	8.2	63.5	7.6		59.8
Level of Service	E	E	B	A	E	A		E
Approach Delay (s)			17.1			8.2		
Approach LOS			B			A		

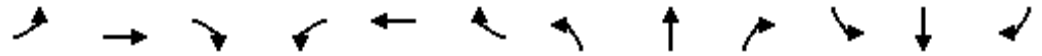
Intersection Summary

HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

79: Montlake Blvd NE & SR-520 EB Ramps/E Lake Washington Blvd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	578	35	80	135	5	320	90	999	10	170	850	843
Future Volume (vph)	578	35	80	135	5	320	90	999	10	170	850	843
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	0.97	0.95		1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00		1.00	1.00	0.91
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1681	1695	1435	1752	1845	1568	3367	3457		1752	3505	1431
Flt Permitted	0.95	0.96	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1681	1695	1435	1752	1845	1568	3367	3457		1752	3505	1431
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	608	37	84	142	5	337	95	1052	11	179	895	887
RTOR Reduction (vph)	0	0	66	0	0	68	0	1	0	0	0	479
Lane Group Flow (vph)	322	323	18	142	5	269	95	1062	0	179	895	408
Confl. Peds. (#/hr)	3		60	60		3	111		170	170		111
Confl. Bikes (#/hr)						5			8			10
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	4%	4%	4%	3%	3%	3%
Turn Type	Split	NA	Perm	Split	NA	custom	Prot	NA		Prot	NA	Perm
Protected Phases	3	3		4	4	4	6	2		1	5	
Permitted Phases			3			4						5
Actuated Green, G (s)	26.0	26.0	26.0	12.9	12.9	33.9	7.9	46.6		16.5	55.2	55.2
Effective Green, g (s)	26.0	26.0	26.0	12.9	12.9	33.9	7.9	46.6		16.5	55.2	55.2
Actuated g/C Ratio	0.22	0.22	0.22	0.11	0.11	0.28	0.07	0.39		0.14	0.46	0.46
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)	2.0	2.0	2.0	3.0	3.0		2.0	0.2		2.0	0.2	0.2
Lane Grp Cap (vph)	364	367	310	188	198	442	221	1342		240	1612	658
v/s Ratio Prot	c0.19	0.19		c0.08	0.00	0.17	0.03	c0.31		c0.10	0.26	
v/s Ratio Perm			0.01									0.29
v/c Ratio	0.88	0.88	0.06	0.76	0.03	0.61	0.43	0.79		0.75	0.56	0.62
Uniform Delay, d1	45.5	45.5	37.3	52.0	47.9	37.3	53.9	32.4		49.7	23.5	24.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		0.92	0.91	1.93
Incremental Delay, d2	21.1	20.5	0.0	15.8	0.1	2.4	0.5	4.8		8.1	1.1	3.3
Delay (s)	66.7	66.0	37.3	67.8	48.0	39.7	54.4	37.3		53.6	22.4	50.6
Level of Service	E	E	D	E	D	D	D	D		D	C	D
Approach Delay (s)		63.0			48.0			38.7			38.0	
Approach LOS		E			D			D			D	

Intersection Summary

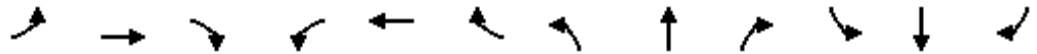
HCM 2000 Control Delay	43.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

1: Meridian Ave N & N 45th St

UW Master Plan EIS

Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	555	10	25	630	40	25	70	30	30	80	70
Future Volume (vph)	70	555	10	25	630	40	25	70	30	30	80	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.97			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1858		1770	1846			1784			1750	
Flt Permitted	0.33	1.00		0.39	1.00			0.82			0.90	
Satd. Flow (perm)	610	1858		720	1846			1476			1597	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	76	603	11	27	685	43	27	76	33	33	87	76
RTOR Reduction (vph)	0	0	0	0	1	0	0	18	0	0	36	0
Lane Group Flow (vph)	76	614	0	27	727	0	0	118	0	0	160	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	75.8	75.8		75.8	75.8			15.2			15.2	
Effective Green, g (s)	75.8	75.8		75.8	75.8			15.2			15.2	
Actuated g/C Ratio	0.76	0.76		0.76	0.76			0.15			0.15	
Clearance Time (s)	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	
Lane Grp Cap (vph)	462	1408		545	1399			224			242	
v/s Ratio Prot		0.33			c0.39							
v/s Ratio Perm	0.12			0.04				0.08			c0.10	
v/c Ratio	0.16	0.44		0.05	0.52			0.53			0.66	
Uniform Delay, d1	3.3	4.4		3.0	4.8			39.1			40.0	
Progression Factor	1.00	1.00		1.00	1.00			1.00			0.71	
Incremental Delay, d2	0.8	1.0		0.2	1.4			2.2			6.6	
Delay (s)	4.1	5.4		3.2	6.2			41.3			34.9	
Level of Service	A	A		A	A			D			C	
Approach Delay (s)		5.2			6.1			41.3			34.9	
Approach LOS		A			A			D			C	

Intersection Summary

HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

HCM Signalized Intersection Capacity Analysis

2: Meridian Ave N & N 50th St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	625	10	50	925	25	40	150	45	25	90	20
Future Volume (vph)	40	625	10	50	925	25	40	150	45	25	90	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.97			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1858		1770	3525			1799			1809	
Flt Permitted	0.24	1.00		0.32	1.00			0.92			0.85	
Satd. Flow (perm)	456	1858		601	3525			1665			1557	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	679	11	54	1005	27	43	163	49	27	98	22
RTOR Reduction (vph)	0	0	0	0	1	0	0	13	0	0	10	0
Lane Group Flow (vph)	43	690	0	54	1031	0	0	242	0	0	137	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	70.3	70.3		70.3	70.3			20.2			20.2	
Effective Green, g (s)	70.3	70.3		70.3	70.3			20.2			20.2	
Actuated g/C Ratio	0.70	0.70		0.70	0.70			0.20			0.20	
Clearance Time (s)	4.5	4.5		4.5	4.5			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	320	1306		422	2478			336			314	
v/s Ratio Prot		c0.37			0.29							
v/s Ratio Perm	0.09			0.09				c0.15			0.09	
v/c Ratio	0.13	0.53		0.13	0.42			0.72			0.44	
Uniform Delay, d1	4.9	7.0		4.8	6.2			37.3			34.9	
Progression Factor	1.00	1.00		1.00	1.00			0.95			1.00	
Incremental Delay, d2	0.9	1.5		0.6	0.5			7.4			1.0	
Delay (s)	5.7	8.5		5.5	6.8			42.6			35.9	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		8.4			6.7			42.6			35.9	
Approach LOS		A			A			D			D	

Intersection Summary



















HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	66.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.





















HCM 2010 Signalized Intersection Summary
 3: Roosevelt Way NE & NE 65th St

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	510	80	120	430	0	0	0	0	125	660	145
Future Volume (veh/h)	0	510	80	120	430	0	0	0	0	125	660	145
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	1900				1863	1863	1863
Adj Flow Rate, veh/h	0	554	87	130	467	0				136	717	158
Adj No. of Lanes	0	1	0	1	1	0				1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	2				2	2	2
Cap, veh/h	0	669	105	301	1004	0				641	673	572
Arrive On Green	0.00	0.43	0.43	0.10	0.72	0.00				0.36	0.36	0.36
Sat Flow, veh/h	0	1572	247	1774	1863	0				1774	1863	1583
Grp Volume(v), veh/h	0	0	641	130	467	0				136	717	158
Grp Sat Flow(s),veh/h/ln	0	0	1819	1774	1863	0				1774	1863	1583
Q Serve(g_s), s	0.0	0.0	28.1	3.4	9.6	0.0				4.8	32.5	6.4
Cycle Q Clear(g_c), s	0.0	0.0	28.1	3.4	9.6	0.0				4.8	32.5	6.4
Prop In Lane	0.00		0.14	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	0	774	301	1004	0				641	673	572
V/C Ratio(X)	0.00	0.00	0.83	0.43	0.47	0.00				0.21	1.07	0.28
Avail Cap(c_a), veh/h	0	0	774	375	1004	0				641	673	572
HCM Platoon Ratio	1.00	1.00	1.00	1.33	1.33	1.33				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.70	0.70	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	23.0	16.6	7.2	0.0				19.9	28.8	20.4
Incr Delay (d2), s/veh	0.0	0.0	10.0	0.7	1.1	0.0				0.8	53.6	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	16.2	1.7	5.1	0.0				2.5	26.6	3.0
LnGrp Delay(d),s/veh	0.0	0.0	32.9	17.3	8.3	0.0				20.6	82.4	21.6
LnGrp LOS			C	B	A					C	F	C
Approach Vol, veh/h		641			597						1011	
Approach Delay, s/veh		32.9			10.3						64.6	
Approach LOS		C			B						E	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	10.2	42.8		37.0		53.0						
Change Period (Y+Rc), s	3.5	4.5		4.5		4.5						
Max Green Setting (Gmax), s	10.5	34.5		32.5		48.5						
Max Q Clear Time (g_c+I1), s	5.4	30.1		34.5		11.6						
Green Ext Time (p_c), s	0.1	2.7		0.0		9.4						
Intersection Summary												
HCM 2010 Ctrl Delay				41.1								
HCM 2010 LOS				D								

HCM 2010 Signalized Intersection Summary
4: 12th Ave NE & NE 65th St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 				
Traffic Volume (veh/h)	140	490	0	0	480	115	80	820	125	0	0	0
Future Volume (veh/h)	140	490	0	0	480	115	80	820	125	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1863	1863			
Adj Flow Rate, veh/h	152	533	0	0	522	125	87	891	136			
Adj No. of Lanes	1	2	0	0	1	1	0	2	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	510	1986	0	0	831	706	104	1122	537			
Arrive On Green	0.03	0.19	0.00	0.00	0.89	0.89	0.34	0.34	0.34			
Sat Flow, veh/h	1774	3632	0	0	1863	1583	308	3309	1583			
Grp Volume(v), veh/h	152	533	0	0	522	125	523	455	136			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1863	1583	1847	1770	1583			
Q Serve(g_s), s	4.0	11.6	0.0	0.0	6.2	0.9	23.5	20.6	5.6			
Cycle Q Clear(g_c), s	4.0	11.6	0.0	0.0	6.2	0.9	23.5	20.6	5.6			
Prop In Lane	1.00		0.00	0.00		1.00	0.17		1.00			
Lane Grp Cap(c), veh/h	510	1986	0	0	831	706	626	600	537			
V/C Ratio(X)	0.30	0.27	0.00	0.00	0.63	0.18	0.83	0.76	0.25			
Avail Cap(c_a), veh/h	562	1986	0	0	831	706	626	600	537			
HCM Platoon Ratio	0.33	0.33	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.58	0.58	0.00	0.00	0.09	0.09	1.00	1.00	1.00			
Uniform Delay (d), s/veh	12.1	20.8	0.0	0.0	3.0	2.7	27.4	26.5	21.5			
Incr Delay (d2), s/veh	0.2	0.2	0.0	0.0	0.3	0.0	12.4	8.8	1.1			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	2.0	5.8	0.0	0.0	2.7	0.4	14.1	11.5	5.8			
LnGrp Delay(d),s/veh	12.3	21.0	0.0	0.0	3.3	2.8	39.9	35.3	22.7			
LnGrp LOS	B	C			A	A	D	D	C			
Approach Vol, veh/h		685			647			1114				
Approach Delay, s/veh		19.1			3.2			35.9				
Approach LOS		B			A			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		55.0		35.0	10.3	44.7						
Change Period (Y+Rc), s		4.5		4.5	3.5	4.5						
Max Green Setting (Gmax), s		50.5		30.5	9.5	37.5						
Max Q Clear Time (g_c+I1), s		13.6		25.5	6.0	8.2						
Green Ext Time (p_c), s		9.3		2.9	0.1	8.8						
Intersection Summary												
HCM 2010 Ctrl Delay				22.5								
HCM 2010 LOS				C								

HCM Signalized Intersection Capacity Analysis
 5: 15th Ave NE/15th Ave NE & NE 65th St

UW Master Plan EIS
 Existing (2015) Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	45	530	40	55	495	45	35	475	135	65	355	45
Future Volume (vph)	45	530	40	55	495	45	35	475	135	65	355	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.99			0.99			0.97			0.99	
Flt Protected		1.00			1.00			1.00			0.99	
Satd. Flow (prot)		1840			1835			3419			3464	
Flt Permitted		0.90			0.85			0.55			0.75	
Satd. Flow (perm)		1662			1564			1897			2627	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	576	43	60	538	49	38	516	147	71	386	49
RTOR Reduction (vph)	0	3	0	0	3	0	0	27	0	0	9	0
Lane Group Flow (vph)	0	665		0	644		0	674		0	497	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2			2			3			4		
Actuated Green, G (s)		36.9			36.9			19.5			20.1	
Effective Green, g (s)		36.9			36.9			19.5			20.1	
Actuated g/C Ratio		0.41			0.41			0.22			0.22	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		681			641			411			586	
v/s Ratio Prot												
v/s Ratio Perm		0.40			c0.41			c0.36			c0.19	
v/c Ratio		0.98			1.00			1.64			0.85	
Uniform Delay, d1		26.1			26.6			35.2			33.5	
Progression Factor		1.08			1.15			1.00			1.00	
Incremental Delay, d2		28.9			30.4			299.2			11.0	
Delay (s)		57.1			61.0			334.4			44.4	
Level of Service		E			E			F			D	
Approach Delay (s)		57.1			61.0			334.4			44.4	
Approach LOS		E			E			F			D	

Intersection Summary

HCM 2000 Control Delay	132.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	87.1%	ICU Level of Service	E
Analysis Period (min)	15		

















c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

HCM Signalized Intersection Capacity Analysis

6: 25th Ave NE & NE 65th St

UW Master Plan EIS
Existing (2015) Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	410	120	20	385	40	200	595	45	55	230	40
Future Volume (vph)	25	410	120	20	385	40	200	595	45	55	230	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frt		0.97			0.99			0.99			0.98	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		3417			3484			3469			3445	
Flt Permitted		0.92			0.91			0.55			0.69	
Satd. Flow (perm)		3138			3182			1921			2388	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	27	446	130	22	418	43	217	647	49	60	250	43
RTOR Reduction (vph)	0	30	0	0	9	0	0	4	0	0	12	0
Lane Group Flow (vph)	0	573	0	0	474	0	0	909	0	0	341	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2			2			3			4		
Actuated Green, G (s)		26.2			26.2			34.2			16.1	
Effective Green, g (s)		26.2			26.2			34.2			16.1	
Actuated g/C Ratio		0.29			0.29			0.38			0.18	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		913			926			729			427	
v/s Ratio Prot												
v/s Ratio Perm		c0.18			0.15			c0.47			c0.14	
v/c Ratio		0.63			0.51			2.49dl			0.80	
Uniform Delay, d1		27.7			26.6			27.9			35.4	
Progression Factor		1.02			1.00			1.00			1.00	
Incremental Delay, d2		0.3			2.0			122.2			10.0	
Delay (s)		28.6			28.6			150.1			45.4	
Level of Service		C			C			F			D	
Approach Delay (s)		28.6			28.6			150.1			45.4	
Approach LOS		C			C			F			D	
Intersection Summary												
HCM 2000 Control Delay			78.3				HCM 2000 Level of Service		E			
HCM 2000 Volume to Capacity ratio			0.94									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		13.5			
Intersection Capacity Utilization			76.3%				ICU Level of Service		D			
Analysis Period (min)			15									
dl Defacto Left Lane. Recode with 1 though lane as a left lane.												
c Critical Lane Group												

HCM 2010 Research does not support Non-NEMA phasing.

Intersection

Int Delay, s/veh 1.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑	↑	
Traffic Vol, veh/h	995	15	110	470	5	95
Future Vol, veh/h	995	15	110	470	5	95
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1082	16	120	511	5	103

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	1098	1585
Stage 1	-	-	1090
Stage 2	-	-	495
Critical Hdwy	-	4.14	7.54
Critical Hdwy Stg 1	-	-	6.54
Critical Hdwy Stg 2	-	-	6.54
Follow-up Hdwy	-	2.22	3.52
Pot Cap-1 Maneuver	-	631	73
Stage 1	-	-	230
Stage 2	-	-	525
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	631	62
Mov Cap-2 Maneuver	-	-	62
Stage 1	-	-	230
Stage 2	-	-	425

Approach	EB	WB	NB
HCM Control Delay, s	0	2.3	19.3
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	359	-	-	631	-
HCM Lane V/C Ratio	0.303	-	-	0.189	-
HCM Control Delay (s)	19.3	-	-	12	-
HCM Lane LOS	C	-	-	B	-
HCM 95th %tile Q(veh)	1.3	-	-	0.7	-

HCM Signalized Intersection Capacity Analysis

UW Master Plan EIS

1: Meridian Ave N & N 45th St

Future (2028) No Action Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	649	15	25	667	45	25	70	30	30	80	70
Future Volume (vph)	80	649	15	25	667	45	25	70	30	30	80	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.97			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1857		1770	1845			1784			1750	
Flt Permitted	0.30	1.00		0.33	1.00			0.83			0.91	
Satd. Flow (perm)	563	1857		613	1845			1497			1608	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	705	16	27	725	49	27	76	33	33	87	76
RTOR Reduction (vph)	0	1	0	0	2	0	0	13	0	0	25	0
Lane Group Flow (vph)	87	720	0	27	772	0	0	123	0	0	171	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	75.3	75.3		75.3	75.3			15.7			15.7	
Effective Green, g (s)	75.3	75.3		75.3	75.3			15.7			15.7	
Actuated g/C Ratio	0.75	0.75		0.75	0.75			0.16			0.16	
Clearance Time (s)	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	
Lane Grp Cap (vph)	423	1398		461	1389			235			252	
v/s Ratio Prot		0.39			c0.42							
v/s Ratio Perm	0.15			0.04				0.08			c0.11	
v/c Ratio	0.21	0.52		0.06	0.56			0.52			0.68	
Uniform Delay, d1	3.6	5.0		3.2	5.2			38.7			39.8	
Progression Factor	1.00	1.00		1.00	1.00			1.00			0.79	
Incremental Delay, d2	1.1	1.4		0.2	1.6			2.1			6.9	
Delay (s)	4.7	6.3		3.4	6.9			40.8			38.1	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		6.2			6.7			40.8			38.1	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	67.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

HCM Signalized Intersection Capacity Analysis
 2: Meridian Ave N & N 50th St

UW Master Plan EIS
 Future (2028) No Action Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	690	10	65	1225	35	55	210	65	25	95	20
Future Volume (vph)	45	690	10	65	1225	35	55	210	65	25	95	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.97			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1859		1770	3524			1798			1810	
Flt Permitted	0.14	1.00		0.25	1.00			0.92			0.85	
Satd. Flow (perm)	260	1859		470	3524			1669			1559	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	750	11	71	1332	38	60	228	71	27	103	22
RTOR Reduction (vph)	0	0	0	0	2	0	0	10	0	0	7	0
Lane Group Flow (vph)	49	761	0	71	1368	0	0	349	0	0	145	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	64.7	64.7		64.7	64.7			25.8			25.8	
Effective Green, g (s)	64.7	64.7		64.7	64.7			25.8			25.8	
Actuated g/C Ratio	0.65	0.65		0.65	0.65			0.26			0.26	
Clearance Time (s)	4.5	4.5		4.5	4.5			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	168	1202		304	2280			430			402	
v/s Ratio Prot		c0.41			0.39							
v/s Ratio Perm	0.19			0.15				c0.21			0.09	
v/c Ratio	0.29	0.63		0.23	0.60			0.81			0.36	
Uniform Delay, d1	7.7	10.5		7.3	10.2			34.8			30.4	
Progression Factor	1.00	1.00		1.00	1.00			0.87			1.00	
Incremental Delay, d2	4.4	2.5		1.8	1.2			11.0			0.6	
Delay (s)	12.0	13.1		9.1	11.4			41.4			30.9	
Level of Service	B	B		A	B			D			C	
Approach Delay (s)		13.0			11.3			41.4			30.9	
Approach LOS		B			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

HCM Signalized Intersection Capacity Analysis
 3: Roosevelt Way NE & NE 65th St

UW Master Plan EIS
 Future (2028) No Action Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗		↖	↗					↖	↗	↖
Traffic Volume (vph)	0	475	120	125	400	0	0	0	0	80	886	175
Future Volume (vph)	0	475	120	125	400	0	0	0	0	80	886	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		3.5	4.5					4.5	4.5	4.5
Lane Util. Factor		1.00		1.00	1.00					1.00	1.00	1.00
Frt		0.97		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		1812		1770	1863					1770	1863	1583
Flt Permitted		1.00		0.14	1.00					0.95	1.00	1.00
Satd. Flow (perm)		1812		257	1863					1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	516	130	136	435	0	0	0	0	87	963	190
RTOR Reduction (vph)	0	10	0	0	0	0	0	0	0	0	0	87
Lane Group Flow (vph)	0	636	0	136	435	0	0	0	0	87	963	103
Turn Type		NA		D.P+P	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		29.0		37.0	40.5					40.5	40.5	40.5
Effective Green, g (s)		29.0		37.0	40.5					40.5	40.5	40.5
Actuated g/C Ratio		0.32		0.41	0.45					0.45	0.45	0.45
Clearance Time (s)		4.5		3.5	4.5					4.5	4.5	4.5
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		583		240	838					796	838	712
v/s Ratio Prot		c0.35		0.05	c0.23						c0.52	
v/s Ratio Perm				0.18						0.05		0.07
v/c Ratio		1.09		0.57	0.52					0.11	1.15	0.14
Uniform Delay, d1		30.5		35.9	17.8					14.3	24.8	14.6
Progression Factor		1.00		0.37	0.16					1.00	1.00	1.00
Incremental Delay, d2		64.3		1.8	1.3					0.3	80.9	0.4
Delay (s)		94.8		14.9	4.2					14.6	105.6	15.0
Level of Service		F		B	A					B	F	B
Approach Delay (s)		94.8			6.7			0.0			85.3	
Approach LOS		F			A			A			F	



















Intersection Summary

HCM 2000 Control Delay	69.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	96.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
 3: Roosevelt Way NE & NE 65th St

UW Master Plan EIS
 Future (2028) No Action Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	475	120	125	400	0	0	0	0	80	886	175
Future Volume (veh/h)	0	475	120	125	400	0	0	0	0	80	886	175
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	1900				1863	1863	1863
Adj Flow Rate, veh/h	0	516	130	136	435	0				87	963	190
Adj No. of Lanes	0	1	0	1	1	0				1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	2				2	2	2
Cap, veh/h	0	463	117	218	838	0				798	838	712
Arrive On Green	0.00	0.32	0.32	0.16	0.90	0.00				0.45	0.45	0.45
Sat Flow, veh/h	0	1437	362	1774	1863	0				1774	1863	1583
Grp Volume(v), veh/h	0	0	646	136	435	0				87	963	190
Grp Sat Flow(s),veh/h/ln	0	0	1799	1774	1863	0				1774	1863	1583
Q Serve(g_s), s	0.0	0.0	29.0	2.1	3.9	0.0				2.6	40.5	6.8
Cycle Q Clear(g_c), s	0.0	0.0	29.0	2.1	3.9	0.0				2.6	40.5	6.8
Prop In Lane	0.00		0.20	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	0	580	218	838	0				798	838	712
V/C Ratio(X)	0.00	0.00	1.11	0.62	0.52	0.00				0.11	1.15	0.27
Avail Cap(c_a), veh/h	0	0	580	238	838	0				798	838	712
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.53	0.53	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	30.5	35.3	2.7	0.0				14.3	24.8	15.5
Incr Delay (d2), s/veh	0.0	0.0	72.9	2.4	1.2	0.0				0.3	80.7	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	26.1	3.1	2.0	0.0				1.3	39.5	3.1
LnGrp Delay(d),s/veh	0.0	0.0	103.4	37.7	3.9	0.0				14.6	105.5	16.4
LnGrp LOS			F	D	A					B	F	B
Approach Vol, veh/h		646			571						1240	
Approach Delay, s/veh		103.4			11.9						85.5	
Approach LOS		F			B						F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	11.5	33.5		45.0		45.0						
Change Period (Y+Rc), s	4.5	* 4.5		4.5		4.5						
Max Green Setting (Gmax), s	8.0	* 29		40.5		40.5						
Max Q Clear Time (g_c+I1), s	4.1	31.0		42.5		5.9						
Green Ext Time (p_c), s	1.2	0.0		0.0		3.4						
Intersection Summary												
HCM 2010 Ctrl Delay			73.1									
HCM 2010 LOS			E									
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

4: 12th Ave NE & NE 65th St

Future (2028) No Action Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗			↖	↗		↖↖	↗			
Traffic Volume (vph)	150	405	0	0	505	80	80	1036	130	0	0	0
Future Volume (vph)	150	405	0	0	505	80	80	1036	130	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5	4.5		4.5	4.5			
Lane Util. Factor	1.00	0.95			1.00	1.00		0.95	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1770	3539			1863	1583		3527	1583			
Flt Permitted	0.19	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	350	3539			1863	1583		3527	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	440	0	0	549	87	87	1126	141	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	45	0	0	44	0	0	0
Lane Group Flow (vph)	163	440	0	0	549	42	0	1213	97	0	0	0
Turn Type	D.P+P	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			4				
Permitted Phases	6					6	4		4			
Actuated Green, G (s)	42.0	45.5			34.0	34.0		35.5	35.5			
Effective Green, g (s)	42.0	45.5			34.0	34.0		35.5	35.5			
Actuated g/C Ratio	0.47	0.51			0.38	0.38		0.39	0.39			
Clearance Time (s)	3.5	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			
Lane Grp Cap (vph)	289	1789			703	598		1391	624			
v/s Ratio Prot	c0.05	0.12			c0.29							
v/s Ratio Perm	0.21					0.03		0.34	0.06			
v/c Ratio	0.56	0.25			0.78	0.07		0.87	0.16			
Uniform Delay, d1	31.1	12.6			24.7	17.9		25.2	17.6			
Progression Factor	0.29	0.26			0.22	0.00		1.00	1.00			
Incremental Delay, d2	0.8	0.1			0.8	0.0		7.8	0.5			
Delay (s)	10.0	3.3			6.3	0.0		32.9	18.1			
Level of Service	A	A			A	A		C	B			
Approach Delay (s)		5.1			5.5			31.4			0.0	
Approach LOS		A			A			C			A	





















Intersection Summary

HCM 2000 Control Delay	18.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	96.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
 4: 12th Ave NE & NE 65th St

UW Master Plan EIS
 Future (2028) No Action Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 				
Traffic Volume (veh/h)	150	405	0	0	505	80	80	1036	130	0	0	0
Future Volume (veh/h)	150	405	0	0	505	80	80	1036	130	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1863	1863			
Adj Flow Rate, veh/h	163	440	0	0	549	87	87	1126	141			
Adj No. of Lanes	1	2	0	0	1	1	0	2	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	378	1789	0	0	704	598	98	1330	625			
Arrive On Green	0.16	1.00	0.00	0.00	0.76	0.76	0.39	0.39	0.39			
Sat Flow, veh/h	1774	3632	0	0	1863	1583	248	3372	1583			
Grp Volume(v), veh/h	163	440	0	0	549	87	649	564	141			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1863	1583	1850	1770	1583			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	15.8	1.4	29.4	25.5	5.3			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	15.8	1.4	29.4	25.5	5.3			
Prop In Lane	1.00		0.00	0.00		1.00	0.13		1.00			
Lane Grp Cap(c), veh/h	378	1789	0	0	704	598	730	698	625			
V/C Ratio(X)	0.43	0.25	0.00	0.00	0.78	0.15	0.89	0.81	0.23			
Avail Cap(c_a), veh/h	397	1789	0	0	704	598	730	698	625			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.16	0.16	0.00	0.00	0.09	0.09	1.00	1.00	1.00			
Uniform Delay (d), s/veh	26.3	0.0	0.0	0.0	8.8	7.0	25.4	24.2	18.1			
Incr Delay (d2), s/veh	0.1	0.1	0.0	0.0	0.8	0.0	15.2	9.8	0.8			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.3	0.0	0.0	0.0	7.8	0.6	18.0	14.3	5.8			
LnGrp Delay(d),s/veh	26.5	0.1	0.0	0.0	9.6	7.1	40.6	34.0	19.0			
LnGrp LOS	C	A			A	A	D	C	B			
Approach Vol, veh/h		603			636			1354				
Approach Delay, s/veh		7.2			9.2			35.6				
Approach LOS		A			A			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		50.0		40.0	11.5	38.5						
Change Period (Y+Rc), s		4.5		4.5	4.5	* 4.5						
Max Green Setting (Gmax), s		45.5		35.5	8.0	* 34						
Max Q Clear Time (g_c+I1), s		2.0		31.4	2.0	17.8						
Green Ext Time (p_c), s		3.8		2.8	1.7	3.6						
Intersection Summary												
HCM 2010 Ctrl Delay				22.5								
HCM 2010 LOS				C								
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
 5: 15th Ave NE/15th Ave NE & NE 65th St

UW Master Plan EIS
 Future (2028) No Action Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	50	430	50	50	485	45	40	510	255	85	425	40
Future Volume (vph)	50	430	50	50	485	45	40	510	255	85	425	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.99			0.99			0.95			0.99	
Flt Protected		1.00			1.00			1.00			0.99	
Satd. Flow (prot)		1831			1835			3363			3474	
Flt Permitted		0.79			0.83			0.57			0.69	
Satd. Flow (perm)		1458			1534			1924			2416	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	467	54	54	527	49	43	554	277	92	462	43
RTOR Reduction (vph)	0	4	0	0	3	0	0	60	0	0	6	0
Lane Group Flow (vph)	0	571	0	0	627	0	0	814	0	0	591	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2			2			3			4		
Actuated Green, G (s)		29.5			29.5			27.5			19.5	
Effective Green, g (s)		29.5			29.5			27.5			19.5	
Actuated g/C Ratio		0.33			0.33			0.31			0.22	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		477			502			587			523	
v/s Ratio Prot												
v/s Ratio Perm		0.39			c0.41			c0.42			c0.24	
v/c Ratio		1.20			1.25			1.39			1.13	
Uniform Delay, d1		30.2			30.2			31.2			35.2	
Progression Factor		1.18			0.83			1.00			1.00	
Incremental Delay, d2		107.3			118.4			184.1			80.1	
Delay (s)		143.0			143.6			215.3			115.4	
Level of Service		F			F			F			F	
Approach Delay (s)		143.0			143.6			215.3			115.4	
Approach LOS		F			F			F			F	

Intersection Summary

HCM 2000 Control Delay	160.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

HCM Signalized Intersection Capacity Analysis
6: 25th Ave NE & NE 65th St

UW Master Plan EIS
Future (2028) No Action Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕			↕↕	
Traffic Volume (vph)	20	425	80	15	390	50	231	687	30	60	301	40
Future Volume (vph)	20	425	80	15	390	50	231	687	30	60	301	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frt		0.98			0.98			1.00			0.99	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		3452			3476			3480			3461	
Flt Permitted		0.89			0.88			0.54			0.68	
Satd. Flow (perm)		3090			3054			1915			2359	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	462	87	16	424	54	251	747	33	65	327	43
RTOR Reduction (vph)	0	17	0	0	10	0	0	3	0	0	9	0
Lane Group Flow (vph)	0	554	0	0	484	0	0	1028	0	0	426	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2			2			3			4		
Actuated Green, G (s)		19.2			19.2			39.8			17.5	
Effective Green, g (s)		19.2			19.2			39.8			17.5	
Actuated g/C Ratio		0.21			0.21			0.44			0.19	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		659			651			846			458	
v/s Ratio Prot												
v/s Ratio Perm		c0.18			0.16			c0.54			c0.18	
v/c Ratio		0.84			0.74			2.92dl			0.93	
Uniform Delay, d1		33.9			33.1			25.1			35.7	
Progression Factor		0.86			1.00			1.00			1.00	
Incremental Delay, d2		1.3			7.5			107.7			25.7	
Delay (s)		30.6			40.6			132.8			61.3	
Level of Service		C			D			F			E	
Approach Delay (s)		30.6			40.6			132.8			61.3	
Approach LOS		C			D			F			E	

Intersection Summary

HCM 2000 Control Delay	79.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

Intersection

Int Delay, s/veh 2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑	↑	
Traffic Vol, veh/h	1411	20	65	282	5	90
Future Vol, veh/h	1411	20	65	282	5	90
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1534	22	71	307	5	98

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	1555	1840
Stage 1	-	-	1545
Stage 2	-	-	295
Critical Hdwy	-	4.14	7.54
Critical Hdwy Stg 1	-	-	6.54
Critical Hdwy Stg 2	-	-	6.54
Follow-up Hdwy	-	2.22	3.52
Pot Cap-1 Maneuver	-	422	47
Stage 1	-	-	120
Stage 2	-	-	689
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	422	41
Mov Cap-2 Maneuver	-	-	41
Stage 1	-	-	120
Stage 2	-	-	573

Approach	EB	WB	NB
HCM Control Delay, s	0	2.9	30
HCM LOS			D

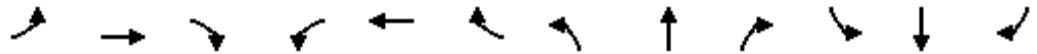
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	245	-	-	422	-
HCM Lane V/C Ratio	0.421	-	-	0.167	-
HCM Control Delay (s)	30	-	-	15.2	-
HCM Lane LOS	D	-	-	C	-
HCM 95th %tile Q(veh)	2	-	-	0.6	-

HCM Signalized Intersection Capacity Analysis

1: Meridian Ave N & N 45th St

UW Master Plan EIS

Future (2028) Alt 1 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	714	15	29	758	51	25	70	34	30	80	70
Future Volume (vph)	80	714	15	29	758	51	25	70	34	30	80	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.96			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1857		1770	1845			1779			1750	
Flt Permitted	0.25	1.00		0.30	1.00			0.82			0.90	
Satd. Flow (perm)	474	1857		551	1845			1479			1588	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	776	16	32	824	55	27	76	37	33	87	76
RTOR Reduction (vph)	0	1	0	0	2	0	0	14	0	0	25	0
Lane Group Flow (vph)	87	791	0	32	877	0	0	126	0	0	171	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	75.8	75.8		75.8	75.8			15.2			15.2	
Effective Green, g (s)	75.8	75.8		75.8	75.8			15.2			15.2	
Actuated g/C Ratio	0.76	0.76		0.76	0.76			0.15			0.15	
Clearance Time (s)	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	
Lane Grp Cap (vph)	359	1407		417	1398			224			241	
v/s Ratio Prot		0.43			c0.48							
v/s Ratio Perm	0.18			0.06				0.09			c0.11	
v/c Ratio	0.24	0.56		0.08	0.63			0.56			0.71	
Uniform Delay, d1	3.6	5.1		3.1	5.6			39.3			40.3	
Progression Factor	1.00	1.00		1.00	1.00			1.00			0.80	
Incremental Delay, d2	1.6	1.6		0.4	2.1			3.2			9.3	
Delay (s)	5.2	6.7		3.5	7.7			42.6			41.5	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		6.6			7.6			42.6			41.5	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

HCM Signalized Intersection Capacity Analysis

2: Meridian Ave N & N 50th St

UW Master Plan EIS

Future (2028) Alt 1 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	690	10	65	1225	35	55	210	65	25	95	25
Future Volume (vph)	45	690	10	65	1225	35	55	210	65	25	95	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.97			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1859		1770	3524			1798			1804	
Flt Permitted	0.14	1.00		0.25	1.00			0.92			0.86	
Satd. Flow (perm)	260	1859		470	3524			1665			1560	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	750	11	71	1332	38	60	228	71	27	103	27
RTOR Reduction (vph)	0	0	0	0	2	0	0	10	0	0	8	0
Lane Group Flow (vph)	49	761	0	71	1368	0	0	349	0	0	149	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	64.7	64.7		64.7	64.7			25.8			25.8	
Effective Green, g (s)	64.7	64.7		64.7	64.7			25.8			25.8	
Actuated g/C Ratio	0.65	0.65		0.65	0.65			0.26			0.26	
Clearance Time (s)	4.5	4.5		4.5	4.5			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	168	1202		304	2280			429			402	
v/s Ratio Prot		c0.41			0.39							
v/s Ratio Perm	0.19			0.15				c0.21			0.10	
v/c Ratio	0.29	0.63		0.23	0.60			0.81			0.37	
Uniform Delay, d1	7.7	10.5		7.3	10.2			34.9			30.4	
Progression Factor	1.00	1.00		1.00	1.00			0.88			1.00	
Incremental Delay, d2	4.4	2.5		1.8	1.2			11.1			0.6	
Delay (s)	12.0	13.1		9.1	11.4			41.8			31.0	
Level of Service	B	B		A	B			D			C	
Approach Delay (s)		13.0			11.3			41.8			31.0	
Approach LOS		B			B			D			C	

Intersection Summary

HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	85.9%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

HCM Signalized Intersection Capacity Analysis
 3: Roosevelt Way NE & NE 65th St

UW Master Plan EIS
 Future (2028) Alt 1 Weekday PM Peak Hour





















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↻		↻	↻					↻	↻	↻
Traffic Volume (vph)	0	475	123	130	400	0	0	0	0	109	914	175
Future Volume (vph)	0	475	123	130	400	0	0	0	0	109	914	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		3.5	4.5					4.5	4.5	4.5
Lane Util. Factor		1.00		1.00	1.00					1.00	1.00	1.00
Frt		0.97		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		1811		1770	1863					1770	1863	1583
Flt Permitted		1.00		0.14	1.00					0.95	1.00	1.00
Satd. Flow (perm)		1811		257	1863					1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	516	134	141	435	0	0	0	0	118	993	190
RTOR Reduction (vph)	0	10	0	0	0	0	0	0	0	0	0	84
Lane Group Flow (vph)	0	640	0	141	435	0	0	0	0	118	993	106
Turn Type		NA		D.P+P	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		29.0		37.0	40.5					40.5	40.5	40.5
Effective Green, g (s)		29.0		37.0	40.5					40.5	40.5	40.5
Actuated g/C Ratio		0.32		0.41	0.45					0.45	0.45	0.45
Clearance Time (s)		4.5		3.5	4.5					4.5	4.5	4.5
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		583		240	838					796	838	712
v/s Ratio Prot		c0.35		0.05	c0.23						c0.53	
v/s Ratio Perm				0.19						0.07		0.07
v/c Ratio		1.10		0.59	0.52					0.15	1.18	0.15
Uniform Delay, d1		30.5		36.0	17.8					14.6	24.8	14.6
Progression Factor		1.00		0.30	0.10					1.00	1.00	1.00
Incremental Delay, d2		66.7		2.1	1.3					0.4	95.3	0.4
Delay (s)		97.2		13.1	3.1					15.0	120.0	15.0
Level of Service		F		B	A					B	F	B
Approach Delay (s)		97.2			5.6			0.0			95.2	
Approach LOS		F			A			A			F	

Intersection Summary		
HCM 2000 Control Delay	75.3	HCM 2000 Level of Service E
HCM 2000 Volume to Capacity ratio	1.09	
Actuated Cycle Length (s)	90.0	Sum of lost time (s) 12.5
Intersection Capacity Utilization	98.6%	ICU Level of Service F
Analysis Period (min)	15	

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
 3: Roosevelt Way NE & NE 65th St

UW Master Plan EIS
 Future (2028) Alt 1 Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	475	123	130	400	0	0	0	0	109	914	175
Future Volume (veh/h)	0	475	123	130	400	0	0	0	0	109	914	175
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	1900				1863	1863	1863
Adj Flow Rate, veh/h	0	516	134	141	435	0				118	993	190
Adj No. of Lanes	0	1	0	1	1	0				1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	2				2	2	2
Cap, veh/h	0	460	119	218	838	0				798	838	712
Arrive On Green	0.00	0.32	0.32	0.16	0.90	0.00				0.45	0.45	0.45
Sat Flow, veh/h	0	1427	371	1774	1863	0				1774	1863	1583
Grp Volume(v), veh/h	0	0	650	141	435	0				118	993	190
Grp Sat Flow(s),veh/h/ln	0	0	1797	1774	1863	0				1774	1863	1583
Q Serve(g_s), s	0.0	0.0	29.0	2.4	3.9	0.0				3.5	40.5	6.8
Cycle Q Clear(g_c), s	0.0	0.0	29.0	2.4	3.9	0.0				3.5	40.5	6.8
Prop In Lane	0.00		0.21	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	0	579	218	838	0				798	838	712
V/C Ratio(X)	0.00	0.00	1.12	0.65	0.52	0.00				0.15	1.18	0.27
Avail Cap(c_a), veh/h	0	0	579	238	838	0				798	838	712
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.52	0.52	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	30.5	35.4	2.7	0.0				14.6	24.8	15.5
Incr Delay (d2), s/veh	0.0	0.0	75.8	2.8	1.2	0.0				0.4	95.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	26.5	3.3	2.0	0.0				1.8	42.9	3.1
LnGrp Delay(d),s/veh	0.0	0.0	106.3	38.2	3.9	0.0				15.0	119.9	16.4
LnGrp LOS			F	D	A					B	F	B
Approach Vol, veh/h		650			576						1301	
Approach Delay, s/veh		106.3			12.3						95.2	
Approach LOS		F			B						F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	11.5	33.5		45.0		45.0						
Change Period (Y+Rc), s	4.5	* 4.5		4.5		4.5						
Max Green Setting (Gmax), s	8.0	* 29		40.5		40.5						
Max Q Clear Time (g_c+I1), s	4.4	31.0		42.5		5.9						
Green Ext Time (p_c), s	1.1	0.0		0.0		3.4						
Intersection Summary												
HCM 2010 Ctrl Delay				79.2								
HCM 2010 LOS				E								
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
 4: 12th Ave NE & NE 65th St

UW Master Plan EIS
 Future (2028) Alt 1 Weekday PM Peak Hour





















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	405	0	0	505	80	49	1079	137	0	0	0
Future Volume (vph)	150	405	0	0	505	80	49	1079	137	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5	4.5		4.5	4.5			
Lane Util. Factor	1.00	0.95			1.00	1.00		0.95	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1770	3539			1863	1583		3532	1583			
Flt Permitted	0.19	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	345	3539			1863	1583		3532	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	440	0	0	549	87	53	1173	149	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	46	0	0	46	0	0	0
Lane Group Flow (vph)	163	440	0	0	549	41	0	1226	103	0	0	0
Turn Type	D.P+P	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			4				
Permitted Phases	6					6	4		4			
Actuated Green, G (s)	41.8	45.3			33.8	33.8		35.7	35.7			
Effective Green, g (s)	41.8	45.3			33.8	33.8		35.7	35.7			
Actuated g/C Ratio	0.46	0.50			0.38	0.38		0.40	0.40			
Clearance Time (s)	3.5	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			
Lane Grp Cap (vph)	286	1781			699	594		1401	627			
v/s Ratio Prot	c0.05	0.12			c0.29							
v/s Ratio Perm	0.21					0.03		0.35	0.06			
v/c Ratio	0.57	0.25			0.79	0.07		0.88	0.16			
Uniform Delay, d1	31.3	12.7			24.9	18.0		25.1	17.5			
Progression Factor	0.32	0.32			0.20	0.00		1.00	1.00			
Incremental Delay, d2	1.0	0.1			0.8	0.0		7.9	0.6			
Delay (s)	10.9	4.1			5.8	0.0		33.0	18.1			
Level of Service	B	A			A	A		C	B			
Approach Delay (s)		6.0			5.0			31.4			0.0	
Approach LOS		A			A			C			A	

Intersection Summary		
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.80	B
Actuated Cycle Length (s)	90.0	Sum of lost time (s)
Intersection Capacity Utilization	98.6%	12.5
Analysis Period (min)	15	ICU Level of Service
		F

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
 4: 12th Ave NE & NE 65th St

UW Master Plan EIS
 Future (2028) Alt 1 Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	150	405	0	0	505	80	49	1079	137	0	0	0
Future Volume (veh/h)	150	405	0	0	505	80	49	1079	137	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1863	1863			
Adj Flow Rate, veh/h	163	440	0	0	549	87	53	1173	149			
Adj No. of Lanes	1	2	0	0	1	1	0	2	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	373	1781	0	0	700	595	59	1378	628			
Arrive On Green	0.16	1.00	0.00	0.00	0.75	0.75	0.40	0.40	0.40			
Sat Flow, veh/h	1774	3632	0	0	1863	1583	150	3475	1583			
Grp Volume(v), veh/h	163	440	0	0	549	87	657	569	149			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1863	1583	1855	1770	1583			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	16.1	1.4	29.7	25.8	5.6			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	16.1	1.4	29.7	25.8	5.6			
Prop In Lane	1.00		0.00	0.00		1.00	0.08		1.00			
Lane Grp Cap(c), veh/h	373	1781	0	0	700	595	736	702	628			
V/C Ratio(X)	0.44	0.25	0.00	0.00	0.78	0.15	0.89	0.81	0.24			
Avail Cap(c_a), veh/h	393	1781	0	0	700	595	736	702	628			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.21	0.21	0.00	0.00	0.09	0.09	1.00	1.00	1.00			
Uniform Delay (d), s/veh	26.7	0.0	0.0	0.0	9.0	7.2	25.4	24.2	18.1			
Incr Delay (d2), s/veh	0.2	0.1	0.0	0.0	0.8	0.0	15.4	9.9	0.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.3	0.0	0.0	0.0	7.8	0.6	18.3	14.4	6.1			
LnGrp Delay(d),s/veh	26.9	0.1	0.0	0.0	9.8	7.2	40.7	34.0	19.0			
LnGrp LOS	C	A			A	A	D	C	B			
Approach Vol, veh/h		603			636			1375				
Approach Delay, s/veh		7.3			9.5			35.6				
Approach LOS		A			A			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		49.8		40.2	11.5	38.3						
Change Period (Y+Rc), s		4.5		4.5	4.5	* 4.5						
Max Green Setting (Gmax), s		45.3		35.7	8.0	* 34						
Max Q Clear Time (g_c+I1), s		2.0		31.7	2.0	18.1						
Green Ext Time (p_c), s		3.8		2.8	1.7	3.5						
Intersection Summary												
HCM 2010 Ctrl Delay				22.7								
HCM 2010 LOS				C								
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

5: 15th Ave NE/15th Ave NE & NE 65th St

UW Master Plan EIS
 Future (2028) Alt 1 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	50	430	50	50	485	45	40	510	255	85	425	40
Future Volume (vph)	50	430	50	50	485	45	40	510	255	85	425	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.99			0.99			0.95			0.99	
Flt Protected		1.00			1.00			1.00			0.99	
Satd. Flow (prot)		1831			1835			3363			3474	
Flt Permitted		0.79			0.83			0.57			0.69	
Satd. Flow (perm)		1458			1534			1924			2416	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	467	54	54	527	49	43	554	277	92	462	43
RTOR Reduction (vph)	0	4	0	0	3	0	0	60	0	0	6	0
Lane Group Flow (vph)	0	571		0	0	627	0	0	814	0	0	591
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2			2			3			4		
Actuated Green, G (s)		29.5			29.5			27.5			19.5	
Effective Green, g (s)		29.5			29.5			27.5			19.5	
Actuated g/C Ratio		0.33			0.33			0.31			0.22	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		477			502			587			523	
v/s Ratio Prot												
v/s Ratio Perm		0.39			c0.41			c0.42			c0.24	
v/c Ratio		1.20			1.25			1.39			1.13	
Uniform Delay, d1		30.2			30.2			31.2			35.2	
Progression Factor		1.23			0.83			1.00			1.00	
Incremental Delay, d2		107.3			113.3			184.1			80.1	
Delay (s)		144.3			138.6			215.3			115.4	
Level of Service		F			F			F			F	
Approach Delay (s)		144.3			138.6			215.3			115.4	
Approach LOS		F			F			F			F	

Intersection Summary

HCM 2000 Control Delay	159.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

HCM Signalized Intersection Capacity Analysis

6: 25th Ave NE & NE 65th St

UW Master Plan EIS

Future (2028) Alt 1 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	20	425	105	19	390	50	256	761	36	108	348	40
Future Volume (vph)	20	425	105	19	390	50	256	761	36	108	348	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frt		0.97			0.98			0.99			0.99	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		3432			3474			3479			3459	
Flt Permitted		0.89			0.82			0.55			0.60	
Satd. Flow (perm)		3070			2863			1920			2088	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	462	114	21	424	54	278	827	39	117	378	43
RTOR Reduction (vph)	0	23	0	0	10	0	0	3	0	0	7	0
Lane Group Flow (vph)	0	575	0	0	489	0	0	1141	0	0	531	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2			2			3			4		
Actuated Green, G (s)		19.3			19.3			37.7			19.5	
Effective Green, g (s)		19.3			19.3			37.7			19.5	
Actuated g/C Ratio		0.21			0.21			0.42			0.22	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		658			613			804			452	
v/s Ratio Prot												
v/s Ratio Perm		c0.19			0.17			c0.59			c0.25	
v/c Ratio		0.87			0.80			3.27dl			1.17	
Uniform Delay, d1		34.2			33.5			26.1			35.2	
Progression Factor		0.86			1.00			1.00			1.00	
Incremental Delay, d2		1.7			10.4			196.0			99.7	
Delay (s)		31.1			43.9			222.1			135.0	
Level of Service		C			D			F			F	
Approach Delay (s)		31.1			43.9			222.1			135.0	
Approach LOS		C			D			F			F	

Intersection Summary

HCM 2000 Control Delay	132.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.22		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

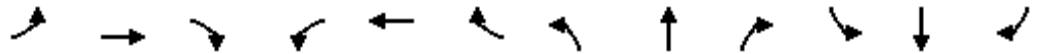
Intersection						
Int Delay, s/veh	6.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑↑		↑↑	
Traffic Vol, veh/h	1452	22	45	261	11	185
Future Vol, veh/h	1452	22	45	261	11	185
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1578	24	49	284	12	201
Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	1602	0	1830	801
Stage 1	-	-	-	-	1590	-
Stage 2	-	-	-	-	240	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	-	404	-	68	327
Stage 1	-	-	-	-	153	-
Stage 2	-	-	-	-	777	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	404	-	60	327
Mov Cap-2 Maneuver	-	-	-	-	60	-
Stage 1	-	-	-	-	153	-
Stage 2	-	-	-	-	683	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		2.2		59.1	
HCM LOS					F	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	262	-	-	404	-	
HCM Lane V/C Ratio	0.813	-	-	0.121	-	
HCM Control Delay (s)	59.1	-	-	15.1	-	
HCM Lane LOS	F	-	-	C	-	
HCM 95th %tile Q(veh)	6.4	-	-	0.4	-	

HCM Signalized Intersection Capacity Analysis

1: Meridian Ave N & N 45th St

UW Master Plan EIS

Future (2028) Alt 2 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	714	15	28	741	50	25	70	34	34	80	70
Future Volume (vph)	80	714	15	28	741	50	25	70	34	34	80	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.96			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1857		1770	1845			1779			1751	
Flt Permitted	0.26	1.00		0.29	1.00			0.83			0.89	
Satd. Flow (perm)	489	1857		549	1845			1487			1565	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	776	16	30	805	54	27	76	37	37	87	76
RTOR Reduction (vph)	0	1	0	0	2	0	0	14	0	0	24	0
Lane Group Flow (vph)	87	791	0	30	857	0	0	126	0	0	176	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	75.5	75.5		75.5	75.5			15.5			15.5	
Effective Green, g (s)	75.5	75.5		75.5	75.5			15.5			15.5	
Actuated g/C Ratio	0.76	0.76		0.76	0.76			0.16			0.16	
Clearance Time (s)	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	
Lane Grp Cap (vph)	369	1402		414	1392			230			242	
v/s Ratio Prot		0.43			c0.46							
v/s Ratio Perm	0.18			0.05				0.09			c0.11	
v/c Ratio	0.24	0.56		0.07	0.62			0.55			0.73	
Uniform Delay, d1	3.7	5.2		3.2	5.6			39.0			40.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00			0.81	
Incremental Delay, d2	1.5	1.6		0.3	2.0			2.7			10.2	
Delay (s)	5.1	6.9		3.5	7.7			41.7			43.0	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		6.7			7.5			41.7			43.0	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

HCM Signalized Intersection Capacity Analysis

2: Meridian Ave N & N 50th St

UW Master Plan EIS

Future (2028) Alt 2 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	690	10	65	1225	35	55	210	65	25	95	20
Future Volume (vph)	45	690	10	65	1225	35	55	210	65	25	95	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.97			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1859		1770	3524			1798			1810	
Flt Permitted	0.14	1.00		0.25	1.00			0.92			0.85	
Satd. Flow (perm)	260	1859		470	3524			1669			1559	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	750	11	71	1332	38	60	228	71	27	103	22
RTOR Reduction (vph)	0	0	0	0	2	0	0	10	0	0	7	0
Lane Group Flow (vph)	49	761	0	71	1368	0	0	349	0	0	145	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	64.7	64.7		64.7	64.7			25.8			25.8	
Effective Green, g (s)	64.7	64.7		64.7	64.7			25.8			25.8	
Actuated g/C Ratio	0.65	0.65		0.65	0.65			0.26			0.26	
Clearance Time (s)	4.5	4.5		4.5	4.5			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	168	1202		304	2280			430			402	
v/s Ratio Prot		c0.41			0.39							
v/s Ratio Perm	0.19			0.15				c0.21			0.09	
v/c Ratio	0.29	0.63		0.23	0.60			0.81			0.36	
Uniform Delay, d1	7.7	10.5		7.3	10.2			34.8			30.4	
Progression Factor	1.00	1.00		1.00	1.00			0.88			1.00	
Incremental Delay, d2	4.4	2.5		1.8	1.2			11.0			0.6	
Delay (s)	12.0	13.1		9.1	11.4			41.5			30.9	
Level of Service	B	B		A	B			D			C	
Approach Delay (s)		13.0			11.3			41.5			30.9	
Approach LOS		B			B			D			C	

Intersection Summary

HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

HCM Signalized Intersection Capacity Analysis

3: Roosevelt Way NE & NE 65th St

UW Master Plan EIS
 Future (2028) Alt 2 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗		↖	↖					↖	↖	↖
Traffic Volume (vph)	0	475	124	130	400	0	0	0	0	80	914	175
Future Volume (vph)	0	475	124	130	400	0	0	0	0	80	914	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		3.5	4.5					4.5	4.5	4.5
Lane Util. Factor		1.00		1.00	1.00					1.00	1.00	1.00
Frt		0.97		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		1811		1770	1863					1770	1863	1583
Flt Permitted		1.00		0.14	1.00					0.95	1.00	1.00
Satd. Flow (perm)		1811		257	1863					1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	516	135	141	435	0	0	0	0	87	993	190
RTOR Reduction (vph)	0	10	0	0	0	0	0	0	0	0	0	84
Lane Group Flow (vph)	0	641	0	141	435	0	0	0	0	87	993	106
Turn Type		NA		D.P+P	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		29.0		37.0	40.5					40.5	40.5	40.5
Effective Green, g (s)		29.0		37.0	40.5					40.5	40.5	40.5
Actuated g/C Ratio		0.32		0.41	0.45					0.45	0.45	0.45
Clearance Time (s)		4.5		3.5	4.5					4.5	4.5	4.5
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		583		240	838					796	838	712
v/s Ratio Prot		c0.35		0.05	c0.23						c0.53	
v/s Ratio Perm				0.19						0.05		0.07
v/c Ratio		1.10		0.59	0.52					0.11	1.18	0.15
Uniform Delay, d1		30.5		36.0	17.8					14.3	24.8	14.6
Progression Factor		1.00		0.28	0.07					1.00	1.00	1.00
Incremental Delay, d2		67.3		2.2	1.4					0.3	95.3	0.4
Delay (s)		97.8		12.1	2.6					14.6	120.0	15.0
Level of Service		F		B	A					B	F	B
Approach Delay (s)		97.8			5.0			0.0			97.1	
Approach LOS		F			A			A			F	



















Intersection Summary			
HCM 2000 Control Delay	76.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	98.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary

3: Roosevelt Way NE & NE 65th St

UW Master Plan EIS
 Future (2028) Alt 2 Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	475	124	130	400	0	0	0	0	80	914	175
Future Volume (veh/h)	0	475	124	130	400	0	0	0	0	80	914	175
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	516	135	141	435	0				87	993	190
Adj No. of Lanes	0	1	0	1	1	0				1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	459	120	218	838	0				798	838	712
Arrive On Green	0.00	0.32	0.32	0.16	0.90	0.00				0.45	0.45	0.45
Sat Flow, veh/h	0	1424	373	1774	1863	0				1774	1863	1583
Grp Volume(v), veh/h	0	0	651	141	435	0				87	993	190
Grp Sat Flow(s),veh/h/ln	0	0	1797	1774	1863	0				1774	1863	1583
Q Serve(g_s), s	0.0	0.0	29.0	2.4	3.9	0.0				2.6	40.5	6.8
Cycle Q Clear(g_c), s	0.0	0.0	29.0	2.4	3.9	0.0				2.6	40.5	6.8
Prop In Lane	0.00		0.21	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	0	579	218	838	0				798	838	712
V/C Ratio(X)	0.00	0.00	1.12	0.65	0.52	0.00				0.11	1.18	0.27
Avail Cap(c_a), veh/h	0	0	579	238	838	0				798	838	712
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.53	0.53	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	30.5	35.4	2.7	0.0				14.3	24.8	15.5
Incr Delay (d2), s/veh	0.0	0.0	76.5	2.9	1.2	0.0				0.3	95.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	26.6	3.3	2.0	0.0				1.3	42.9	3.1
LnGrp Delay(d),s/veh	0.0	0.0	107.0	38.2	3.9	0.0				14.6	119.9	16.4
LnGrp LOS			F	D	A					B	F	B
Approach Vol, veh/h		651			576						1270	
Approach Delay, s/veh		107.0			12.3						97.2	
Approach LOS		F			B						F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	11.5	33.5		45.0		45.0						
Change Period (Y+Rc), s	4.5	* 4.5		4.5		4.5						
Max Green Setting (Gmax), s	8.0	* 29		40.5		40.5						
Max Q Clear Time (g_c+I1), s	4.4	31.0		42.5		5.9						
Green Ext Time (p_c), s	1.1	0.0		0.0		3.4						
Intersection Summary												
HCM 2010 Ctrl Delay			80.2									
HCM 2010 LOS			F									
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

4: 12th Ave NE & NE 65th St

UW Master Plan EIS

Future (2028) Alt 2 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	405	0	0	505	80	34	1080	137	0	0	0
Future Volume (vph)	150	405	0	0	505	80	34	1080	137	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5	4.5		4.5	4.5			
Lane Util. Factor	1.00	0.95			1.00	1.00		0.95	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1770	3539			1863	1583		3534	1583			
Flt Permitted	0.19	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	350	3539			1863	1583		3534	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	440	0	0	549	87	37	1174	149	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	45	0	0	47	0	0	0
Lane Group Flow (vph)	163	440	0	0	549	42	0	1211	102	0	0	0
Turn Type	D.P+P	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			4				
Permitted Phases	6					6	4		4			
Actuated Green, G (s)	42.0	45.5			34.0	34.0		35.5	35.5			
Effective Green, g (s)	42.0	45.5			34.0	34.0		35.5	35.5			
Actuated g/C Ratio	0.47	0.51			0.38	0.38		0.39	0.39			
Clearance Time (s)	3.5	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			
Lane Grp Cap (vph)	289	1789			703	598		1393	624			
v/s Ratio Prot	c0.05	0.12			c0.29							
v/s Ratio Perm	0.21					0.03		0.34	0.06			
v/c Ratio	0.56	0.25			0.78	0.07		0.87	0.16			
Uniform Delay, d1	31.1	12.6			24.7	17.9		25.1	17.6			
Progression Factor	0.29	0.26			0.20	0.00		1.00	1.00			
Incremental Delay, d2	0.8	0.1			0.8	0.0		7.6	0.6			
Delay (s)	9.9	3.3			5.8	0.0		32.7	18.2			
Level of Service	A	A			A	A		C	B			
Approach Delay (s)		5.1			5.0			31.1			0.0	
Approach LOS		A			A			C			A	





















Intersection Summary

HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	98.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
4: 12th Ave NE & NE 65th St

UW Master Plan EIS
Future (2028) Alt 2 Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 				
Traffic Volume (veh/h)	150	405	0	0	505	80	34	1080	137	0	0	0
Future Volume (veh/h)	150	405	0	0	505	80	34	1080	137	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1863	1863			
Adj Flow Rate, veh/h	163	440	0	0	549	87	37	1174	149			
Adj No. of Lanes	1	2	0	0	1	1	0	2	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	378	1789	0	0	704	598	42	1389	625			
Arrive On Green	0.16	1.00	0.00	0.00	0.76	0.76	0.39	0.39	0.39			
Sat Flow, veh/h	1774	3632	0	0	1863	1583	106	3521	1583			
Grp Volume(v), veh/h	163	440	0	0	549	87	649	562	149			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1863	1583	1857	1770	1583			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	15.8	1.4	29.3	25.4	5.7			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	15.8	1.4	29.3	25.4	5.7			
Prop In Lane	1.00		0.00	0.00		1.00	0.06		1.00			
Lane Grp Cap(c), veh/h	378	1789	0	0	704	598	733	698	625			
V/C Ratio(X)	0.43	0.25	0.00	0.00	0.78	0.15	0.89	0.81	0.24			
Avail Cap(c_a), veh/h	397	1789	0	0	704	598	733	698	625			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.13	0.13	0.00	0.00	0.09	0.09	1.00	1.00	1.00			
Uniform Delay (d), s/veh	26.3	0.0	0.0	0.0	8.8	7.0	25.4	24.2	18.2			
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.8	0.0	14.8	9.6	0.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.3	0.0	0.0	0.0	7.8	0.6	18.0	14.2	6.1			
LnGrp Delay(d),s/veh	26.4	0.0	0.0	0.0	9.6	7.1	40.1	33.8	19.1			
LnGrp LOS	C	A			A	A	D	C	B			
Approach Vol, veh/h		603			636			1360				
Approach Delay, s/veh		7.2			9.2			35.2				
Approach LOS		A			A			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		50.0		40.0	11.5	38.5						
Change Period (Y+Rc), s		4.5		4.5	4.5	* 4.5						
Max Green Setting (Gmax), s		45.5		35.5	8.0	* 34						
Max Q Clear Time (g_c+I1), s		2.0		31.3	2.0	17.8						
Green Ext Time (p_c), s		3.8		2.9	1.7	3.6						
Intersection Summary												
HCM 2010 Ctrl Delay				22.4								
HCM 2010 LOS				C								
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

5: 15th Ave NE/15th Ave NE & NE 65th St

UW Master Plan EIS
 Future (2028) Alt 2 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	50	430	50	50	485	45	40	510	255	85	425	40
Future Volume (vph)	50	430	50	50	485	45	40	510	255	85	425	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.99			0.99			0.95			0.99	
Flt Protected		1.00			1.00			1.00			0.99	
Satd. Flow (prot)		1831			1835			3363			3474	
Flt Permitted		0.79			0.83			0.57			0.69	
Satd. Flow (perm)		1458			1534			1924			2416	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	467	54	54	527	49	43	554	277	92	462	43
RTOR Reduction (vph)	0	4	0	0	3	0	0	60	0	0	6	0
Lane Group Flow (vph)	0	571	0	0	627	0	0	814	0	0	591	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2			2			3			4		
Actuated Green, G (s)		29.5			29.5			27.5			19.5	
Effective Green, g (s)		29.5			29.5			27.5			19.5	
Actuated g/C Ratio		0.33			0.33			0.31			0.22	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		477			502			587			523	
v/s Ratio Prot												
v/s Ratio Perm		0.39			c0.41			c0.42			c0.24	
v/c Ratio		1.20			1.25			1.39			1.13	
Uniform Delay, d1		30.2			30.2			31.2			35.2	
Progression Factor		1.20			0.84			1.00			1.00	
Incremental Delay, d2		107.3			113.3			184.1			80.1	
Delay (s)		143.5			138.9			215.3			115.4	
Level of Service		F			F			F			F	
Approach Delay (s)		143.5			138.9			215.3			115.4	
Approach LOS		F			F			F			F	

Intersection Summary

HCM 2000 Control Delay	159.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

HCM Signalized Intersection Capacity Analysis
6: 25th Ave NE & NE 65th St

UW Master Plan EIS
Future (2028) Alt 2 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕			↕↕	
Traffic Volume (vph)	20	425	105	19	390	50	256	762	36	60	348	40
Future Volume (vph)	20	425	105	19	390	50	256	762	36	60	348	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frt		0.97			0.98			0.99			0.99	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		3432			3474			3479			3469	
Flt Permitted		0.89			0.82			0.54			0.67	
Satd. Flow (perm)		3070			2863			1914			2333	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	462	114	21	424	54	278	828	39	65	378	43
RTOR Reduction (vph)	0	23	0	0	10	0	0	3	0	0	8	0
Lane Group Flow (vph)	0	575	0	0	489	0	0	1142	0	0	478	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2			2			3			4		
Actuated Green, G (s)		19.3			19.3			39.7			17.5	
Effective Green, g (s)		19.3			19.3			39.7			17.5	
Actuated g/C Ratio		0.21			0.21			0.44			0.19	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		658			613			844			453	
v/s Ratio Prot												
v/s Ratio Perm		c0.19			0.17			c0.60			c0.20	
v/c Ratio		0.87			0.80			3.27dl			1.06	
Uniform Delay, d1		34.2			33.5			25.1			36.2	
Progression Factor		0.86			1.00			1.00			1.00	
Incremental Delay, d2		1.7			10.4			166.8			57.6	
Delay (s)		31.2			43.9			191.9			93.8	
Level of Service		C			D			F			F	
Approach Delay (s)		31.2			43.9			191.9			93.8	
Approach LOS		C			D			F			F	

Intersection Summary

HCM 2000 Control Delay	112.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

Intersection

Int Delay, s/veh 6.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑	↑	
Traffic Vol, veh/h	1451	22	45	260	11	185
Future Vol, veh/h	1451	22	45	260	11	185
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1577	24	49	283	12	201

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	0	1601
Stage 1	-	-	1589
Stage 2	-	-	239
Critical Hdwy	-	-	4.14
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	5.84
Follow-up Hdwy	-	-	2.22
Pot Cap-1 Maneuver	-	-	405
Stage 1	-	-	153
Stage 2	-	-	778
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	-	405
Mov Cap-2 Maneuver	-	-	-
Stage 1	-	-	153
Stage 2	-	-	684

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	59.1
HCM LOS			F

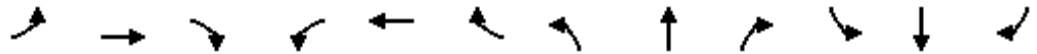
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	262	-	-	405	-
HCM Lane V/C Ratio	0.813	-	-	0.121	-
HCM Control Delay (s)	59.1	-	-	15.1	-
HCM Lane LOS	F	-	-	C	-
HCM 95th %tile Q(veh)	6.4	-	-	0.4	-

HCM Signalized Intersection Capacity Analysis

1: Meridian Ave N & N 45th St

UW Master Plan EIS

Future (2028) Alt 3 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	714	15	28	735	50	25	70	34	34	80	70
Future Volume (vph)	80	714	15	28	735	50	25	70	34	34	80	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.96			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1857		1770	1845			1779			1751	
Flt Permitted	0.27	1.00		0.29	1.00			0.83			0.89	
Satd. Flow (perm)	494	1857		549	1845			1487			1565	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	776	16	30	799	54	27	76	37	37	87	76
RTOR Reduction (vph)	0	1	0	0	2	0	0	14	0	0	24	0
Lane Group Flow (vph)	87	791	0	30	851	0	0	126	0	0	176	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	75.5	75.5		75.5	75.5			15.5			15.5	
Effective Green, g (s)	75.5	75.5		75.5	75.5			15.5			15.5	
Actuated g/C Ratio	0.76	0.76		0.76	0.76			0.16			0.16	
Clearance Time (s)	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	
Lane Grp Cap (vph)	372	1402		414	1392			230			242	
v/s Ratio Prot		0.43			c0.46							
v/s Ratio Perm	0.18			0.05				0.09			c0.11	
v/c Ratio	0.23	0.56		0.07	0.61			0.55			0.73	
Uniform Delay, d1	3.6	5.2		3.2	5.6			39.0			40.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00			0.81	
Incremental Delay, d2	1.5	1.6		0.3	2.0			2.7			10.2	
Delay (s)	5.1	6.9		3.5	7.6			41.7			43.0	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		6.7			7.4			41.7			43.0	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	72.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

HCM Signalized Intersection Capacity Analysis

2: Meridian Ave N & N 50th St

UW Master Plan EIS

Future (2028) Alt 3 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	690	10	65	1225	35	55	210	65	25	95	20
Future Volume (vph)	45	690	10	65	1225	35	55	210	65	25	95	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.97			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1859		1770	3524			1798			1810	
Flt Permitted	0.14	1.00		0.25	1.00			0.92			0.85	
Satd. Flow (perm)	260	1859		470	3524			1669			1559	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	750	11	71	1332	38	60	228	71	27	103	22
RTOR Reduction (vph)	0	0	0	0	2	0	0	10	0	0	7	0
Lane Group Flow (vph)	49	761	0	71	1368	0	0	349	0	0	145	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	64.7	64.7		64.7	64.7			25.8			25.8	
Effective Green, g (s)	64.7	64.7		64.7	64.7			25.8			25.8	
Actuated g/C Ratio	0.65	0.65		0.65	0.65			0.26			0.26	
Clearance Time (s)	4.5	4.5		4.5	4.5			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	168	1202		304	2280			430			402	
v/s Ratio Prot		c0.41			0.39							
v/s Ratio Perm	0.19			0.15				c0.21			0.09	
v/c Ratio	0.29	0.63		0.23	0.60			0.81			0.36	
Uniform Delay, d1	7.7	10.5		7.3	10.2			34.8			30.4	
Progression Factor	1.00	1.00		1.00	1.00			0.88			1.00	
Incremental Delay, d2	4.4	2.5		1.8	1.2			11.0			0.6	
Delay (s)	12.0	13.1		9.1	11.4			41.5			30.9	
Level of Service	B	B		A	B			D			C	
Approach Delay (s)		13.0			11.3			41.5			30.9	
Approach LOS		B			B			D			C	

Intersection Summary

HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

HCM Signalized Intersection Capacity Analysis

3: Roosevelt Way NE & NE 65th St

UW Master Plan EIS
Future (2028) Alt 3 Weekday PM Peak Hour





















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↻		↻	↻					↻	↻	↻
Traffic Volume (vph)	0	475	124	131	400	0	0	0	0	80	919	175
Future Volume (vph)	0	475	124	131	400	0	0	0	0	80	919	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		3.5	4.5					4.5	4.5	4.5
Lane Util. Factor		1.00		1.00	1.00					1.00	1.00	1.00
Frt		0.97		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		1811		1770	1863					1770	1863	1583
Flt Permitted		1.00		0.14	1.00					0.95	1.00	1.00
Satd. Flow (perm)		1811		257	1863					1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	516	135	142	435	0	0	0	0	87	999	190
RTOR Reduction (vph)	0	10	0	0	0	0	0	0	0	0	0	84
Lane Group Flow (vph)	0	641	0	142	435	0	0	0	0	87	999	106
Turn Type		NA		D.P+P	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		29.0		37.0	40.5					40.5	40.5	40.5
Effective Green, g (s)		29.0		37.0	40.5					40.5	40.5	40.5
Actuated g/C Ratio		0.32		0.41	0.45					0.45	0.45	0.45
Clearance Time (s)		4.5		3.5	4.5					4.5	4.5	4.5
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		583		240	838					796	838	712
v/s Ratio Prot		c0.35		0.05	c0.23						c0.54	
v/s Ratio Perm				0.19						0.05		0.07
v/c Ratio		1.10		0.59	0.52					0.11	1.19	0.15
Uniform Delay, d1		30.5		36.0	17.8					14.3	24.8	14.6
Progression Factor		1.00		0.28	0.07					1.00	1.00	1.00
Incremental Delay, d2		67.3		2.3	1.4					0.3	98.2	0.4
Delay (s)		97.8		12.4	2.6					14.6	122.9	15.0
Level of Service		F		B	A					B	F	B
Approach Delay (s)		97.8			5.0			0.0			99.5	
Approach LOS		F			A			A			F	

Intersection Summary		
HCM 2000 Control Delay	77.3	HCM 2000 Level of Service E
HCM 2000 Volume to Capacity ratio	1.10	
Actuated Cycle Length (s)	90.0	Sum of lost time (s) 12.5
Intersection Capacity Utilization	99.0%	ICU Level of Service F
Analysis Period (min)	15	

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
 3: Roosevelt Way NE & NE 65th St

UW Master Plan EIS
 Future (2028) Alt 3 Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	475	124	131	400	0	0	0	0	80	919	175
Future Volume (veh/h)	0	475	124	131	400	0	0	0	0	80	919	175
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	1900				1863	1863	1863
Adj Flow Rate, veh/h	0	516	135	142	435	0				87	999	190
Adj No. of Lanes	0	1	0	1	1	0				1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	2				2	2	2
Cap, veh/h	0	459	120	218	838	0				798	838	712
Arrive On Green	0.00	0.32	0.32	0.16	0.90	0.00				0.45	0.45	0.45
Sat Flow, veh/h	0	1424	373	1774	1863	0				1774	1863	1583
Grp Volume(v), veh/h	0	0	651	142	435	0				87	999	190
Grp Sat Flow(s),veh/h/ln	0	0	1797	1774	1863	0				1774	1863	1583
Q Serve(g_s), s	0.0	0.0	29.0	2.4	3.9	0.0				2.6	40.5	6.8
Cycle Q Clear(g_c), s	0.0	0.0	29.0	2.4	3.9	0.0				2.6	40.5	6.8
Prop In Lane	0.00		0.21	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	0	579	218	838	0				798	838	712
V/C Ratio(X)	0.00	0.00	1.12	0.65	0.52	0.00				0.11	1.19	0.27
Avail Cap(c_a), veh/h	0	0	579	238	838	0				798	838	712
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.53	0.53	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	30.5	35.4	2.7	0.0				14.3	24.8	15.5
Incr Delay (d2), s/veh	0.0	0.0	76.5	3.0	1.2	0.0				0.3	98.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	26.6	3.3	2.0	0.0				1.3	43.6	3.1
LnGrp Delay(d),s/veh	0.0	0.0	107.0	38.3	3.9	0.0				14.6	122.8	16.4
LnGrp LOS			F	D	A					B	F	B
Approach Vol, veh/h		651			577						1276	
Approach Delay, s/veh		107.0			12.4						99.6	
Approach LOS		F			B						F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	11.5	33.5		45.0		45.0						
Change Period (Y+Rc), s	4.5	* 4.5		4.5		4.5						
Max Green Setting (Gmax), s	8.0	* 29		40.5		40.5						
Max Q Clear Time (g_c+I1), s	4.4	31.0		42.5		5.9						
Green Ext Time (p_c), s	1.1	0.0		0.0		3.4						
Intersection Summary												
HCM 2010 Ctrl Delay				81.4								
HCM 2010 LOS				F								
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

4: 12th Ave NE & NE 65th St

UW Master Plan EIS

Future (2028) Alt 3 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗			↕	↗		↕↕	↗			
Traffic Volume (vph)	150	405	0	0	505	80	34	1078	137	0	0	0
Future Volume (vph)	150	405	0	0	505	80	34	1078	137	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5	4.5		4.5	4.5			
Lane Util. Factor	1.00	0.95			1.00	1.00		0.95	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1770	3539			1863	1583		3534	1583			
Flt Permitted	0.19	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	350	3539			1863	1583		3534	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	440	0	0	549	87	37	1172	149	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	45	0	0	47	0	0	0
Lane Group Flow (vph)	163	440	0	0	549	42	0	1209	102	0	0	0
Turn Type	D.P+P	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			4				
Permitted Phases	6					6	4		4			
Actuated Green, G (s)	42.0	45.5			34.0	34.0		35.5	35.5			
Effective Green, g (s)	42.0	45.5			34.0	34.0		35.5	35.5			
Actuated g/C Ratio	0.47	0.51			0.38	0.38		0.39	0.39			
Clearance Time (s)	3.5	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			
Lane Grp Cap (vph)	289	1789			703	598		1393	624			
v/s Ratio Prot	c0.05	0.12			c0.29							
v/s Ratio Perm	0.21					0.03		0.34	0.06			
v/c Ratio	0.56	0.25			0.78	0.07		0.87	0.16			
Uniform Delay, d1	31.1	12.6			24.7	17.9		25.1	17.6			
Progression Factor	0.29	0.26			0.20	0.00		1.00	1.00			
Incremental Delay, d2	0.8	0.1			0.8	0.0		7.5	0.6			
Delay (s)	9.9	3.3			5.8	0.0		32.6	18.2			
Level of Service	A	A			A	A		C	B			
Approach Delay (s)		5.1			5.0			31.0			0.0	
Approach LOS		A			A			C			A	





















Intersection Summary

HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	99.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
4: 12th Ave NE & NE 65th St

UW Master Plan EIS
Future (2028) Alt 3 Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 				
Traffic Volume (veh/h)	150	405	0	0	505	80	34	1078	137	0	0	0
Future Volume (veh/h)	150	405	0	0	505	80	34	1078	137	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1863	1863			
Adj Flow Rate, veh/h	163	440	0	0	549	87	37	1172	149			
Adj No. of Lanes	1	2	0	0	1	1	0	2	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	378	1789	0	0	704	598	42	1389	625			
Arrive On Green	0.16	1.00	0.00	0.00	0.76	0.76	0.39	0.39	0.39			
Sat Flow, veh/h	1774	3632	0	0	1863	1583	106	3521	1583			
Grp Volume(v), veh/h	163	440	0	0	549	87	648	561	149			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1863	1583	1857	1770	1583			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	15.8	1.4	29.2	25.3	5.7			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	15.8	1.4	29.2	25.3	5.7			
Prop In Lane	1.00		0.00	0.00		1.00	0.06		1.00			
Lane Grp Cap(c), veh/h	378	1789	0	0	704	598	733	698	625			
V/C Ratio(X)	0.43	0.25	0.00	0.00	0.78	0.15	0.88	0.80	0.24			
Avail Cap(c_a), veh/h	397	1789	0	0	704	598	733	698	625			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.13	0.13	0.00	0.00	0.09	0.09	1.00	1.00	1.00			
Uniform Delay (d), s/veh	26.3	0.0	0.0	0.0	8.8	7.0	25.3	24.2	18.2			
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.8	0.0	14.6	9.6	0.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.3	0.0	0.0	0.0	7.8	0.6	17.9	14.2	6.1			
LnGrp Delay(d),s/veh	26.4	0.0	0.0	0.0	9.6	7.1	40.0	33.7	19.1			
LnGrp LOS	C	A			A	A	D	C	B			
Approach Vol, veh/h		603			636			1358				
Approach Delay, s/veh		7.2			9.2			35.1				
Approach LOS		A			A			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		50.0		40.0	11.5	38.5						
Change Period (Y+Rc), s		4.5		4.5	4.5	* 4.5						
Max Green Setting (Gmax), s		45.5		35.5	8.0	* 34						
Max Q Clear Time (g_c+I1), s		2.0		31.2	2.0	17.8						
Green Ext Time (p_c), s		3.8		3.0	1.7	3.6						
Intersection Summary												
HCM 2010 Ctrl Delay				22.3								
HCM 2010 LOS				C								
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis
 5: 15th Ave NE/15th Ave NE & NE 65th St

UW Master Plan EIS
 Future (2028) Alt 3 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	50	430	50	50	485	45	40	510	255	85	425	40
Future Volume (vph)	50	430	50	50	485	45	40	510	255	85	425	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.99			0.99			0.95			0.99	
Flt Protected		1.00			1.00			1.00			0.99	
Satd. Flow (prot)		1831			1835			3363			3474	
Flt Permitted		0.79			0.83			0.57			0.69	
Satd. Flow (perm)		1458			1534			1924			2416	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	467	54	54	527	49	43	554	277	92	462	43
RTOR Reduction (vph)	0	4	0	0	3	0	0	60	0	0	6	0
Lane Group Flow (vph)	0	571		0	0	627	0	0	814	0	0	591
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2			2			3			4		
Actuated Green, G (s)		29.5			29.5			27.5			19.5	
Effective Green, g (s)		29.5			29.5			27.5			19.5	
Actuated g/C Ratio		0.33			0.33			0.31			0.22	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		477			502			587			523	
v/s Ratio Prot												
v/s Ratio Perm		0.39			c0.41			c0.42			c0.24	
v/c Ratio		1.20			1.25			1.39			1.13	
Uniform Delay, d1		30.2			30.2			31.2			35.2	
Progression Factor		1.20			0.84			1.00			1.00	
Incremental Delay, d2		107.3			113.3			184.1			80.1	
Delay (s)		143.5			138.9			215.3			115.4	
Level of Service		F			F			F			F	
Approach Delay (s)		143.5			138.9			215.3			115.4	
Approach LOS		F			F			F			F	

Intersection Summary

HCM 2000 Control Delay	159.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

HCM Signalized Intersection Capacity Analysis

6: 25th Ave NE & NE 65th St

UW Master Plan EIS

Future (2028) Alt 3 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	20	425	106	19	390	50	256	761	36	60	350	40
Future Volume (vph)	20	425	106	19	390	50	256	761	36	60	350	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frt		0.97			0.98			0.99			0.99	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		3431			3474			3479			3469	
Flt Permitted		0.90			0.82			0.54			0.67	
Satd. Flow (perm)		3076			2868			1914			2336	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	462	115	21	424	54	278	827	39	65	380	43
RTOR Reduction (vph)	0	23	0	0	10	0	0	3	0	0	8	0
Lane Group Flow (vph)	0	576		0	489		0	1141		0	480	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2			2			3			4		
Actuated Green, G (s)		19.4			19.4			39.6			17.5	
Effective Green, g (s)		19.4			19.4			39.6			17.5	
Actuated g/C Ratio		0.22			0.22			0.44			0.19	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		663			618			842			454	
v/s Ratio Prot												
v/s Ratio Perm		c0.19			0.17			c0.60			c0.21	
v/c Ratio		0.87			0.79			3.27dl			1.06	
Uniform Delay, d1		34.1			33.4			25.2			36.2	
Progression Factor		0.86			1.00			1.00			1.00	
Incremental Delay, d2		1.6			10.0			167.7			58.2	
Delay (s)		31.0			43.3			192.9			94.4	
Level of Service		C			D			F			F	
Approach Delay (s)		31.0			43.3			192.9			94.4	
Approach LOS		C			D			F			F	

Intersection Summary

HCM 2000 Control Delay	112.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

Intersection

Int Delay, s/veh 6.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑	↑	
Traffic Vol, veh/h	1453	22	45	260	11	185
Future Vol, veh/h	1453	22	45	260	11	185
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1579	24	49	283	12	201

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	1603	1830
Stage 1	-	-	1591
Stage 2	-	-	239
Critical Hdwy	-	4.14	6.84
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	5.84
Follow-up Hdwy	-	2.22	3.52
Pot Cap-1 Maneuver	-	404	68
Stage 1	-	-	153
Stage 2	-	-	778
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	404	60
Mov Cap-2 Maneuver	-	-	60
Stage 1	-	-	153
Stage 2	-	-	684

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	59.1
HCM LOS			F

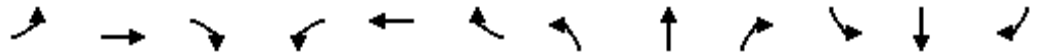
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	262	-	-	404	-
HCM Lane V/C Ratio	0.813	-	-	0.121	-
HCM Control Delay (s)	59.1	-	-	15.1	-
HCM Lane LOS	F	-	-	C	-
HCM 95th %tile Q(veh)	6.4	-	-	0.4	-

HCM Signalized Intersection Capacity Analysis

1: Meridian Ave N & N 45th St

UW Master Plan EIS

Future (2028) Alt 4 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	714	15	29	756	51	25	70	34	34	80	70
Future Volume (vph)	80	714	15	29	756	51	25	70	34	34	80	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	1.00		1.00	1.00			1.00			1.00	
Frt	1.00	1.00		1.00	0.99			0.96			0.95	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1857		1770	1845			1779			1751	
Flt Permitted	0.25	1.00		0.29	1.00			0.83			0.89	
Satd. Flow (perm)	473	1857		549	1845			1487			1565	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	776	16	32	822	55	27	76	37	37	87	76
RTOR Reduction (vph)	0	1	0	0	2	0	0	14	0	0	24	0
Lane Group Flow (vph)	87	791	0	32	875	0	0	126	0	0	176	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	75.5	75.5		75.5	75.5			15.5			15.5	
Effective Green, g (s)	75.5	75.5		75.5	75.5			15.5			15.5	
Actuated g/C Ratio	0.76	0.76		0.76	0.76			0.16			0.16	
Clearance Time (s)	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	
Lane Grp Cap (vph)	357	1402		414	1392			230			242	
v/s Ratio Prot		0.43			c0.47							
v/s Ratio Perm	0.18			0.06				0.09			c0.11	
v/c Ratio	0.24	0.56		0.08	0.63			0.55			0.73	
Uniform Delay, d1	3.7	5.2		3.2	5.7			39.0			40.2	
Progression Factor	1.00	1.00		1.00	1.00			1.00			0.81	
Incremental Delay, d2	1.6	1.6		0.4	2.2			2.7			10.2	
Delay (s)	5.3	6.9		3.6	7.9			41.7			42.8	
Level of Service	A	A		A	A			D			D	
Approach Delay (s)		6.7			7.7			41.7			42.8	
Approach LOS		A			A			D			D	

Intersection Summary

HCM 2000 Control Delay	12.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

HCM Signalized Intersection Capacity Analysis

2: Meridian Ave N & N 50th St

UW Master Plan EIS

Future (2028) Alt 4 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	690	10	65	1225	35	55	210	65	25	95	20
Future Volume (vph)	45	690	10	65	1225	35	55	210	65	25	95	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			5.0			5.0	
Lane Util. Factor	1.00	1.00		1.00	0.95			1.00			1.00	
Frt	1.00	1.00		1.00	1.00			0.97			0.98	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	1859		1770	3524			1798			1810	
Flt Permitted	0.14	1.00		0.25	1.00			0.92			0.85	
Satd. Flow (perm)	260	1859		470	3524			1669			1559	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	750	11	71	1332	38	60	228	71	27	103	22
RTOR Reduction (vph)	0	0	0	0	2	0	0	10	0	0	7	0
Lane Group Flow (vph)	49	761	0	71	1368	0	0	349	0	0	145	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4			4	
Permitted Phases	2			2			4			4		
Actuated Green, G (s)	64.7	64.7		64.7	64.7			25.8			25.8	
Effective Green, g (s)	64.7	64.7		64.7	64.7			25.8			25.8	
Actuated g/C Ratio	0.65	0.65		0.65	0.65			0.26			0.26	
Clearance Time (s)	4.5	4.5		4.5	4.5			5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	
Lane Grp Cap (vph)	168	1202		304	2280			430			402	
v/s Ratio Prot		c0.41			0.39							
v/s Ratio Perm	0.19			0.15				c0.21			0.09	
v/c Ratio	0.29	0.63		0.23	0.60			0.81			0.36	
Uniform Delay, d1	7.7	10.5		7.3	10.2			34.8			30.4	
Progression Factor	1.00	1.00		1.00	1.00			0.88			1.00	
Incremental Delay, d2	4.4	2.5		1.8	1.2			11.0			0.6	
Delay (s)	12.0	13.1		9.1	11.4			41.6			30.9	
Level of Service	B	B		A	B			D			C	
Approach Delay (s)		13.0			11.3			41.6			30.9	
Approach LOS		B			B			D			C	

Intersection Summary

HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	9.5
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

HCM Signalized Intersection Capacity Analysis

3: Roosevelt Way NE & NE 65th St

UW Master Plan EIS
Future (2028) Alt 4 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↗		↖	↖					↖	↖	↖
Traffic Volume (vph)	0	475	124	130	400	0	0	0	0	80	915	175
Future Volume (vph)	0	475	124	130	400	0	0	0	0	80	915	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		3.5	4.5					4.5	4.5	4.5
Lane Util. Factor		1.00		1.00	1.00					1.00	1.00	1.00
Frt		0.97		1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00		0.95	1.00					0.95	1.00	1.00
Satd. Flow (prot)		1811		1770	1863					1770	1863	1583
Flt Permitted		1.00		0.14	1.00					0.95	1.00	1.00
Satd. Flow (perm)		1811		257	1863					1770	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	516	135	141	435	0	0	0	0	87	995	190
RTOR Reduction (vph)	0	10	0	0	0	0	0	0	0	0	0	84
Lane Group Flow (vph)	0	641	0	141	435	0	0	0	0	87	995	106
Turn Type		NA		D.P+P	NA					Perm	NA	Perm
Protected Phases		2		1	6						4	
Permitted Phases				2						4		4
Actuated Green, G (s)		29.0		37.0	40.5					40.5	40.5	40.5
Effective Green, g (s)		29.0		37.0	40.5					40.5	40.5	40.5
Actuated g/C Ratio		0.32		0.41	0.45					0.45	0.45	0.45
Clearance Time (s)		4.5		3.5	4.5					4.5	4.5	4.5
Vehicle Extension (s)		3.0		3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		583		240	838					796	838	712
v/s Ratio Prot		c0.35		0.05	c0.23						c0.53	
v/s Ratio Perm				0.19						0.05		0.07
v/c Ratio		1.10		0.59	0.52					0.11	1.19	0.15
Uniform Delay, d1		30.5		36.0	17.8					14.3	24.8	14.6
Progression Factor		1.00		0.28	0.07					1.00	1.00	1.00
Incremental Delay, d2		67.3		2.2	1.4					0.3	96.2	0.4
Delay (s)		97.8		12.1	2.6					14.6	121.0	15.0
Level of Service		F		B	A					B	F	B
Approach Delay (s)		97.8			5.0			0.0			97.9	
Approach LOS		F			A			A			F	



















Intersection Summary

HCM 2000 Control Delay	76.4	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	98.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
 3: Roosevelt Way NE & NE 65th St

UW Master Plan EIS
 Future (2028) Alt 4 Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	475	124	130	400	0	0	0	0	80	915	175
Future Volume (veh/h)	0	475	124	130	400	0	0	0	0	80	915	175
Number	5	2	12	1	6	16				7	4	14
Initial Q (Qb), veh	0	0	0	0	0	0				0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00				1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00				1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	0	1863	1900	1863	1863	0				1863	1863	1863
Adj Flow Rate, veh/h	0	516	135	141	435	0				87	995	190
Adj No. of Lanes	0	1	0	1	1	0				1	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92				0.92	0.92	0.92
Percent Heavy Veh, %	0	2	2	2	2	0				2	2	2
Cap, veh/h	0	459	120	218	838	0				798	838	712
Arrive On Green	0.00	0.32	0.32	0.16	0.90	0.00				0.45	0.45	0.45
Sat Flow, veh/h	0	1424	373	1774	1863	0				1774	1863	1583
Grp Volume(v), veh/h	0	0	651	141	435	0				87	995	190
Grp Sat Flow(s),veh/h/ln	0	0	1797	1774	1863	0				1774	1863	1583
Q Serve(g_s), s	0.0	0.0	29.0	2.4	3.9	0.0				2.6	40.5	6.8
Cycle Q Clear(g_c), s	0.0	0.0	29.0	2.4	3.9	0.0				2.6	40.5	6.8
Prop In Lane	0.00		0.21	1.00		0.00				1.00		1.00
Lane Grp Cap(c), veh/h	0	0	579	218	838	0				798	838	712
V/C Ratio(X)	0.00	0.00	1.12	0.65	0.52	0.00				0.11	1.19	0.27
Avail Cap(c_a), veh/h	0	0	579	238	838	0				798	838	712
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	1.00				1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	1.00	0.53	0.53	0.00				1.00	1.00	1.00
Uniform Delay (d), s/veh	0.0	0.0	30.5	35.4	2.7	0.0				14.3	24.8	15.5
Incr Delay (d2), s/veh	0.0	0.0	76.5	2.9	1.2	0.0				0.3	96.1	0.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0				0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	26.6	3.3	2.0	0.0				1.3	43.1	3.1
LnGrp Delay(d),s/veh	0.0	0.0	107.0	38.2	3.9	0.0				14.6	120.8	16.4
LnGrp LOS			F	D	A					B	F	B
Approach Vol, veh/h		651			576						1272	
Approach Delay, s/veh		107.0			12.3						98.0	
Approach LOS		F			B						F	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	1	2		4		6						
Phs Duration (G+Y+Rc), s	11.5	33.5		45.0		45.0						
Change Period (Y+Rc), s	4.5	* 4.5		4.5		4.5						
Max Green Setting (Gmax), s	8.0	* 29		40.5		40.5						
Max Q Clear Time (g_c+I1), s	4.4	31.0		42.5		5.9						
Green Ext Time (p_c), s	1.1	0.0		0.0		3.4						
Intersection Summary												
HCM 2010 Ctrl Delay			80.6									
HCM 2010 LOS			F									
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

4: 12th Ave NE & NE 65th St

UW Master Plan EIS

Future (2028) Alt 4 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	405	0	0	505	80	34	1079	137	0	0	0
Future Volume (vph)	150	405	0	0	505	80	34	1079	137	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.5	4.5			4.5	4.5		4.5	4.5			
Lane Util. Factor	1.00	0.95			1.00	1.00		0.95	1.00			
Frt	1.00	1.00			1.00	0.85		1.00	0.85			
Flt Protected	0.95	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (prot)	1770	3539			1863	1583		3534	1583			
Flt Permitted	0.19	1.00			1.00	1.00		1.00	1.00			
Satd. Flow (perm)	350	3539			1863	1583		3534	1583			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	440	0	0	549	87	37	1173	149	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	45	0	0	47	0	0	0
Lane Group Flow (vph)	163	440	0	0	549	42	0	1210	102	0	0	0
Turn Type	D.P+P	NA			NA	Perm	Perm	NA	Perm			
Protected Phases	5	2			6			4				
Permitted Phases	6					6	4		4			
Actuated Green, G (s)	42.0	45.5			34.0	34.0		35.5	35.5			
Effective Green, g (s)	42.0	45.5			34.0	34.0		35.5	35.5			
Actuated g/C Ratio	0.47	0.51			0.38	0.38		0.39	0.39			
Clearance Time (s)	3.5	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			
Lane Grp Cap (vph)	289	1789			703	598		1393	624			
v/s Ratio Prot	c0.05	0.12			c0.29							
v/s Ratio Perm	0.21					0.03		0.34	0.06			
v/c Ratio	0.56	0.25			0.78	0.07		0.87	0.16			
Uniform Delay, d1	31.1	12.6			24.7	17.9		25.1	17.6			
Progression Factor	0.29	0.26			0.20	0.00		1.00	1.00			
Incremental Delay, d2	0.8	0.1			0.8	0.0		7.6	0.6			
Delay (s)	9.9	3.3			5.8	0.0		32.7	18.2			
Level of Service	A	A			A	A		C	B			
Approach Delay (s)		5.1			5.0			31.1			0.0	
Approach LOS		A			A			C			A	





















Intersection Summary

HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.5
Intersection Capacity Utilization	98.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Signalized Intersection Summary
4: 12th Ave NE & NE 65th St

UW Master Plan EIS
Future (2028) Alt 4 Weekday PM Peak Hour

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 						 				
Traffic Volume (veh/h)	150	405	0	0	505	80	34	1079	137	0	0	0
Future Volume (veh/h)	150	405	0	0	505	80	34	1079	137	0	0	0
Number	5	2	12	1	6	16	7	4	14			
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0			
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00			
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Adj Sat Flow, veh/h/ln	1863	1863	0	0	1863	1863	1900	1863	1863			
Adj Flow Rate, veh/h	163	440	0	0	549	87	37	1173	149			
Adj No. of Lanes	1	2	0	0	1	1	0	2	1			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Percent Heavy Veh, %	2	2	0	0	2	2	2	2	2			
Cap, veh/h	378	1789	0	0	704	598	42	1389	625			
Arrive On Green	0.16	1.00	0.00	0.00	0.76	0.76	0.39	0.39	0.39			
Sat Flow, veh/h	1774	3632	0	0	1863	1583	106	3521	1583			
Grp Volume(v), veh/h	163	440	0	0	549	87	648	562	149			
Grp Sat Flow(s),veh/h/ln	1774	1770	0	0	1863	1583	1857	1770	1583			
Q Serve(g_s), s	0.0	0.0	0.0	0.0	15.8	1.4	29.2	25.3	5.7			
Cycle Q Clear(g_c), s	0.0	0.0	0.0	0.0	15.8	1.4	29.2	25.3	5.7			
Prop In Lane	1.00		0.00	0.00		1.00	0.06		1.00			
Lane Grp Cap(c), veh/h	378	1789	0	0	704	598	733	698	625			
V/C Ratio(X)	0.43	0.25	0.00	0.00	0.78	0.15	0.88	0.80	0.24			
Avail Cap(c_a), veh/h	397	1789	0	0	704	598	733	698	625			
HCM Platoon Ratio	2.00	2.00	1.00	1.00	2.00	2.00	1.00	1.00	1.00			
Upstream Filter(I)	0.13	0.13	0.00	0.00	0.09	0.09	1.00	1.00	1.00			
Uniform Delay (d), s/veh	26.3	0.0	0.0	0.0	8.8	7.0	25.3	24.2	18.2			
Incr Delay (d2), s/veh	0.1	0.0	0.0	0.0	0.8	0.0	14.7	9.6	0.9			
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
%ile BackOfQ(50%),veh/ln	3.3	0.0	0.0	0.0	7.8	0.6	17.9	14.2	6.1			
LnGrp Delay(d),s/veh	26.4	0.0	0.0	0.0	9.6	7.1	40.0	33.8	19.1			
LnGrp LOS	C	A			A	A	D	C	B			
Approach Vol, veh/h		603			636			1359				
Approach Delay, s/veh		7.2			9.2			35.2				
Approach LOS		A			A			D				
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2		4	5	6						
Phs Duration (G+Y+Rc), s		50.0		40.0	11.5	38.5						
Change Period (Y+Rc), s		4.5		4.5	4.5	* 4.5						
Max Green Setting (Gmax), s		45.5		35.5	8.0	* 34						
Max Q Clear Time (g_c+I1), s		2.0		31.2	2.0	17.8						
Green Ext Time (p_c), s		3.8		2.9	1.7	3.6						
Intersection Summary												
HCM 2010 Ctrl Delay				22.3								
HCM 2010 LOS				C								
Notes												

* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.

HCM Signalized Intersection Capacity Analysis

5: 15th Ave NE/15th Ave NE & NE 65th St

UW Master Plan EIS
Future (2028) Alt 4 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	50	430	50	50	485	45	40	510	255	85	425	40
Future Volume (vph)	50	430	50	50	485	45	40	510	255	85	425	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.99			0.99			0.95			0.99	
Flt Protected		1.00			1.00			1.00			0.99	
Satd. Flow (prot)		1831			1835			3363			3474	
Flt Permitted		0.79			0.83			0.57			0.69	
Satd. Flow (perm)		1458			1534			1924			2416	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	467	54	54	527	49	43	554	277	92	462	43
RTOR Reduction (vph)	0	4	0	0	3	0	0	60	0	0	6	0
Lane Group Flow (vph)	0	571	0	0	627	0	0	814	0	0	591	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2			2			3			4		
Actuated Green, G (s)		29.5			29.5			27.5			19.5	
Effective Green, g (s)		29.5			29.5			27.5			19.5	
Actuated g/C Ratio		0.33			0.33			0.31			0.22	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		477			502			587			523	
v/s Ratio Prot												
v/s Ratio Perm		0.39			c0.41			c0.42			c0.24	
v/c Ratio		1.20			1.25			1.39			1.13	
Uniform Delay, d1		30.2			30.2			31.2			35.2	
Progression Factor		1.20			0.84			1.00			1.00	
Incremental Delay, d2		107.3			113.3			184.1			80.1	
Delay (s)		143.5			138.9			215.3			115.4	
Level of Service		F			F			F			F	
Approach Delay (s)		143.5			138.9			215.3			115.4	
Approach LOS		F			F			F			F	

Intersection Summary

HCM 2000 Control Delay	159.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.27		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

HCM Signalized Intersection Capacity Analysis

6: 25th Ave NE & NE 65th St

UW Master Plan EIS

Future (2028) Alt 4 Weekday PM Peak Hour



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕			↕↕			↕↕			↕↕	
Traffic Volume (vph)	20	425	105	19	390	50	255	760	36	60	347	40
Future Volume (vph)	20	425	105	19	390	50	255	760	36	60	347	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			0.95			0.95	
Frt		0.97			0.98			0.99			0.99	
Flt Protected		1.00			1.00			0.99			0.99	
Satd. Flow (prot)		3432			3474			3479			3469	
Flt Permitted		0.89			0.82			0.54			0.67	
Satd. Flow (perm)		3070			2863			1914			2334	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	462	114	21	424	54	277	826	39	65	377	43
RTOR Reduction (vph)	0	23	0	0	10	0	0	3	0	0	8	0
Lane Group Flow (vph)	0	575		0	489		0	1139		0	477	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			3			4	
Permitted Phases	2			2			3			4		
Actuated Green, G (s)		19.3			19.3			39.7			17.5	
Effective Green, g (s)		19.3			19.3			39.7			17.5	
Actuated g/C Ratio		0.21			0.21			0.44			0.19	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		658			613			844			453	
v/s Ratio Prot												
v/s Ratio Perm		c0.19			0.17			c0.60			c0.20	
v/c Ratio		0.87			0.80			3.26dl			1.05	
Uniform Delay, d1		34.2			33.5			25.1			36.2	
Progression Factor		0.86			1.00			1.00			1.00	
Incremental Delay, d2		1.7			10.4			165.2			56.9	
Delay (s)		31.2			43.9			190.4			93.1	
Level of Service		C			D			F			F	
Approach Delay (s)		31.2			43.9			190.4			93.1	
Approach LOS		C			D			F			F	

Intersection Summary

HCM 2000 Control Delay	111.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	83.5%	ICU Level of Service	E
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM 2010 Research does not support Non-NEMA phasing.

Intersection

Int Delay, s/veh 6.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↑	↑↑	↑	
Traffic Vol, veh/h	1449	22	45	261	11	185
Future Vol, veh/h	1449	22	45	261	11	185
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	100	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	1575	24	49	284	12	201

Major/Minor	Major1	Major2	Minor1
Conflicting Flow All	0	1599	1827
Stage 1	-	-	1587
Stage 2	-	-	240
Critical Hdwy	-	4.14	6.84
Critical Hdwy Stg 1	-	-	5.84
Critical Hdwy Stg 2	-	-	5.84
Follow-up Hdwy	-	2.22	3.52
Pot Cap-1 Maneuver	-	406	68
Stage 1	-	-	153
Stage 2	-	-	777
Platoon blocked, %	-	-	-
Mov Cap-1 Maneuver	-	406	60
Mov Cap-2 Maneuver	-	-	60
Stage 1	-	-	153
Stage 2	-	-	683

Approach	EB	WB	NB
HCM Control Delay, s	0	2.2	59.1
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	262	-	-	406	-
HCM Lane V/C Ratio	0.813	-	-	0.12	-
HCM Control Delay (s)	59.1	-	-	15.1	-
HCM Lane LOS	F	-	-	C	-
HCM 95th %tile Q(veh)	6.4	-	-	0.4	-

- 2 ARTERIAL OPERATIONS
 - 2.1 SUMMARY
 - 2.2 SYNCHRO 9 REPORTS

PM PEAK HOUR ARTERIAL OPERATIONS SUMMARY

Arterial LOS is evaluated along six corridors within the study area. Arterial performance is based on the average vehicle speed and the arterial class of the corridor, as defined by Highway Capacity Manual 2000, Exhibit 15-2. The average speed along the corridor includes vehicle travel time as well as delay from traffic signals. Signal delay for arterial LOS is based on Synchro 9 methodology and the arterial class is determined by Synchro 9 based on the speed limit and intersection spacing of the corridor. Travel time projections and average speeds reported from the Synchro model were calibrated to data measured in the field. The adjustment or calibration factor accounts for operational impacts from vehicle queuing, mid-block pedestrian crossing, on-street parking maneuvers, etc. not reflected in the Synchro delay calculations. Future travel times from the Synchro model are multiplied by the adjustment factor to determine future travel times calibrated to field conditions and accounting for the factors described (i.e., queuing, parking, etc.).

Existing	Field Travel Time (m:ss)	Field Speed (mph)	Synchro Travel Time (m:ss)	Synchro Speed (mph)	Travel Time Factor	Speed Factor	Factored Travel Time (m:ss)	Factored Speed (mph)	LOS
NE 45th St Eastbound	08:25	11.7	07:29	13.2	1.1	0.9	08:25	11.7	D
NE 45th St Westbound	07:51	12.0	06:22	14.8	1.2	0.8	07:51	12.0	D
Pacific St Eastbound	04:32	15.9	02:30	28.7	1.8	0.6	04:32	15.9	D
Pacific St Westbound	03:30	20.6	02:07	33.9	1.6	0.6	03:30	20.6	C
11th Ave Northbound	04:19	8.5	02:25	15.1	1.8	0.6	04:19	8.5	E
Roosevelt Way Southbound	05:21	14.4	02:39	29.0	2.0	0.5	05:21	14.4	C
15th Ave Northbound	06:58	8.2	05:12	11.0	1.3	0.7	06:58	8.2	E
15th Ave Southbound	06:03	9.4	04:43	12.1	1.3	0.8	06:03	9.4	D
Montlake Blvd Northbound	05:32	14.0	02:50	27.3	1.9	0.5	05:32	14.0	E
Montlake Blvd Southbound	11:01	8.0	04:05	21.4	2.7	0.4	11:01	8.0	F
Stevens Way Eastbound	07:38	3.2	02:16	10.9	3.4	0.3	07:38	3.2	F
Stevens Way Westbound	05:26	2.7	01:36	9.0	3.4	0.3	05:26	2.7	F

No Action					Alternative 1						
Synchro Travel Time (s)	Factored Travel Time (m:ss)	Synchro Speed	Factored Speed (mph)	LOS	Synchro Travel Time (s)	Factored Travel Time (m:ss)	Synchro Speed	Factored Speed (mph)	LOS		
NE 45th St Eastbound	437.5	08:12	13.5	12.0	D	NE 45th St Eastbound	437.1	08:12	13.5	D	
NE 45th St Westbound	395.9	08:07	14.3	11.6	D	NE 45th St Westbound	432.4	08:52	13.1	10.6	D
Pacific St Eastbound	130.2	03:55	33.2	18.3	C	Pacific St Eastbound	205.9	06:12	21.0	11.6	E
Pacific St Westbound	120.0	03:17	36.0	21.9	C	Pacific St Westbound	126.8	03:28	34.1	20.7	C
11th Ave Northbound	247.1	07:21	8.9	5.0	F	11th Ave Northbound	312.9	09:18	7.0	3.9	F
Roosevelt Way Southbound	219.4	07:22	21.0	10.4	D	Roosevelt Way Southbound	258.9	08:42	17.8	8.8	E
15th Ave Northbound	318.2	07:06	10.7	8.0	E	15th Ave Northbound	352.7	07:52	9.7	7.2	E
15th Ave Southbound	290.2	06:13	11.8	9.2	D	15th Ave Southbound	380.9	08:09	9.0	7.0	F
Montlake Blvd Northbound	206.8	06:43	22.5	11.5	E	Montlake Blvd Northbound	241.9	07:51	19.2	9.9	F
Montlake Blvd Southbound	230.2	10:20	22.8	8.5	F	Montlake Blvd Southbound	229.9	10:19	22.9	8.5	F
Stevens Way Eastbound	122.4	06:53	12.1	3.6	F	Stevens Way Eastbound	126.3	07:06	11.7	3.5	F
Stevens Way Westbound	81.3	04:36	10.6	3.1	F	Stevens Way Westbound	112.9	06:23	7.7	2.3	F

Alternative 2					Alternative 3						
Synchro Travel Time (s)	Factored Travel Time (m:ss)	Synchro Speed	Factored Speed (mph)	LOS	Synchro Travel Time (s)	Factored Travel Time (m:ss)	Synchro Speed	Factored Speed (mph)	LOS		
NE 45th St Eastbound	439.3	08:15	13.4	11.9	D	NE 45th St Eastbound	437.0	08:12	13.5	12.0	D
NE 45th St Westbound	432.0	08:52	13.1	10.6	D	NE 45th St Westbound	429.6	08:49	13.2	10.7	D
Pacific St Eastbound	216.1	06:31	20.0	11.1	E	Pacific St Eastbound	239.4	07:13	18.0	10.0	F
Pacific St Westbound	127.3	03:29	33.9	20.6	C	Pacific St Westbound	127.4	03:29	33.9	20.6	C
11th Ave Northbound	306.9	09:07	7.2	4.0	F	11th Ave Northbound	316.7	09:25	6.9	3.9	F
Roosevelt Way Southbound	256.7	08:37	18.0	8.9	E	Roosevelt Way Southbound	261.1	08:46	17.6	8.8	E
15th Ave Northbound	348.4	07:46	9.8	7.3	E	15th Ave Northbound	358.5	08:00	9.5	7.1	E
15th Ave Southbound	376.2	08:03	9.1	7.1	E	15th Ave Southbound	369.5	07:54	9.3	7.2	E
Montlake Blvd Northbound	245.6	07:58	18.9	9.7	F	Montlake Blvd Northbound	237.9	07:43	19.5	10.0	F
Montlake Blvd Southbound	231.9	10:25	22.7	8.4	F	Montlake Blvd Southbound	227.7	10:13	23.1	8.6	F
Stevens Way Eastbound	126.2	07:06	11.7	3.5	F	Stevens Way Eastbound	126.6	07:07	11.7	3.5	F
Stevens Way Westbound	112.4	06:21	7.7	2.3	F	Stevens Way Westbound	113.7	06:25	7.6	2.2	F

Alternative 4	Synchro Travel Time (s)	Factored Travel Time (m:ss)	Synchro Speed	Factored Speed (mph)	LOS
NE 45th St Eastbound	465.2	08:44	12.7	11.3	D
NE 45th St Westbound	424.1	08:42	13.3	10.8	D
Pacific St Eastbound	200.2	06:02	21.6	11.9	E
Pacific St Westbound	126.6	03:28	34.1	20.8	C
11th Ave Northbound	308.6	09:10	7.1	4.0	F
Roosevelt Way Southbound	257.3	08:39	17.9	8.9	E
15th Ave Northbound	339.1	07:34	10.1	7.5	E
15th Ave Southbound	393.0	08:24	8.7	6.8	F
Montlake Blvd Northbound	238.5	07:44	19.5	10.0	F
Montlake Blvd Southbound	224.6	10:05	23.4	8.7	F
Stevens Way Eastbound	134.1	07:33	11.0	3.3	F
Stevens Way Westbound	108.4	06:07	8.0	2.4	F

Urban Street Class	I	II	III	IV
Range of free-flow speeds (FFS)	55 to 45 mi/h	45 to 35 mi/h	35 to 30 mi/h	35 to 25 mi/h
Typical FFS	50 mi/h	40 mi/h	35 mi/h	30 mi/h
LOS	Average Travel Speed (mi/h)			
A	> 42	> 35	> 30	> 25
B	> 34-42	> 28-35	> 24-30	> 19-25
C	> 27-34	> 22-28	> 18-24	> 13-19
D	> 21-27	> 17-22	> 14-18	> 9-13
E	> 16-21	> 13-17	> 10-14	> 7-9
F	≤ 16	≤ 13	≤ 10	≤ 7

Source: Highway Capacity Manual

Corridor	Arterial Class (as defined in Synchro)
NE 45th St Eastbound	IV
NE 45th St Westbound	IV
Pacific St Eastbound	III
Pacific St Westbound	III
11th Ave Northbound	IV
Roosevelt Way Southbound	IV
15th Ave Northbound	IV
15th Ave Southbound	IV
Montlake Blvd Northbound	III
Montlake Blvd Southbound	III
Stevens Way Eastbound	IV
Stevens Way Westbound	IV

Arterial Level of Service: NB 11th Ave NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 43rd St	IV	30	18.5	14.6	33.1	0.10	11.2	D
NE 45th St	IV	30	18.0	17.7	35.7	0.10	10.1	D
	IV	30	19.0	6.1	25.1	0.13	18.2	C
NE 50th St	IV	30	18.9	32.2	51.1	0.13	8.9	E
Total	IV		74.4	70.6	145.0	0.46	11.3	D

Arterial Level of Service: NB 15th Ave NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE Pacific St	IV	30	19.0	31.4	50.4	0.13	9.1	D
Stevens Way	IV	30	22.6	35.9	58.5	0.15	9.3	D
NE Campus Pkwy	IV	30	12.4	7.4	19.8	0.05	9.9	D
UW Campus Parking Ac	IV	30	10.8	1.6	12.4	0.05	13.8	C
NE 42nd St	IV	30	18.4	12.8	31.2	0.10	11.8	D
NE 43rd St	IV	30	18.8	13.4	32.2	0.10	11.6	D
NE 45th St	IV	30	18.2	41.6	59.8	0.10	6.1	F
NE 47th St	IV	30	19.0	17.0	36.0	0.13	12.7	D
NE 50th St	IV	30	22.4	40.0	62.4	0.12	7.2	E
Total	IV		161.6	201.1	362.7	0.94	9.3	D

Arterial Level of Service: SB 15th Ave NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 50th St	IV	30	21.1	16.1	37.2	0.14	13.6	C
NE 47th St	IV	30	22.4	15.4	37.8	0.12	11.9	D
NE 45th St	IV	30	19.0	29.9	48.9	0.13	9.3	D
NE 43rd St	IV	30	18.2	12.0	30.2	0.10	12.0	D
NE 42nd St	IV	30	18.8	11.9	30.7	0.10	12.2	D
NE 41st St	IV	30	18.4	1.0	19.4	0.10	18.9	C
NE Campus Pkwy	IV	30	10.8	12.1	22.9	0.05	7.5	E
Stevens Way	IV	30	12.4	21.2	33.6	0.05	5.8	F
NE Pacific St	IV	30	22.6	42.5	65.1	0.15	8.3	E
Total	IV		163.7	162.1	325.8	0.95	10.5	D

Arterial Level of Service: NB Montlake Blvd NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
E Lake Washington Bl	III	30	17.4	31.1	48.5	0.13	9.6	F
E Hamlin St	III	30	15.1	0.2	15.3	0.11	25.1	B
Husky Stadium Parkin	III	30	29.8	19.3	49.1	0.23	17.2	D
Husky Stadium Parkin	III	30	19.2	5.7	24.9	0.14	20.8	C
Montlake Blvd NE	III	34	61.5	3.5	65.0	0.58	31.9	A
Stevens Way	III	35	13.3	2.7	16.0	0.10	22.2	C
Total	III		156.3	62.5	218.8	1.29	21.2	C

Arterial Level of Service: SB Montlake Blvd NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Stevens Way	III	30	37.5	14.4	51.9	0.30	20.5	C
Montlake Blvd NE	III	35	13.3	21.6	34.9	0.10	10.2	E
	III	34	61.5	6.8	68.3	0.58	30.4	A
NE Pacific St	III	30	19.2	22.9	42.1	0.14	12.3	E
E Hamlin St	III	30	29.8	0.1	29.9	0.23	28.3	B
SR-520 EB Ramps	III	30	15.1	55.0	70.1	0.11	5.5	F
Total	III		176.4	120.8	297.2	1.46	17.6	D

Arterial Level of Service: EB NE 45th St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
5th Ave NE	IV	30	32.2	29.5	61.7	0.24	14.3	C
	IV	30	17.0	28.1	45.1	0.09	7.5	E
Roosevelt Way NE	IV	30	23.3	16.7	40.0	0.16	14.0	C
11th Ave NE	IV	30	10.3	5.8	16.1	0.05	10.2	D
12th Ave NE	IV	30	12.2	3.1	15.3	0.05	12.7	D
Brooklyn Ave NE	IV	30	11.5	5.0	16.5	0.05	11.1	D
University Way NE	IV	30	11.8	9.3	21.1	0.05	8.9	E
15th Ave NE	IV	30	12.2	9.2	21.4	0.05	9.0	D
Memorial Way NE	IV	30	20.2	13.8	34.0	0.11	11.9	D
18th Ave NE	IV	30	12.7	1.9	14.6	0.06	13.8	C
19th Ave NE	IV	30	13.1	4.7	17.8	0.06	11.7	D
20th Ave NE	IV	30	7.6	2.1	9.7	0.03	12.4	D
Montlake Blvd NE	IV	30	52.3	62.8	115.1	0.40	12.4	D
Union Bay PI NE	IV	30	30.6	51.5	82.1	0.23	10.2	D
Total	IV		267.0	243.5	510.5	1.64	11.5	D

Arterial Level of Service: WB NE 45th St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 45th Pl	IV	30	25.3	55.1	80.4	0.18	8.1	E
Montlake Blvd NE	IV	30	30.6	20.8	51.4	0.23	16.3	C
20th Ave NE	IV	30	52.3	16.6	68.9	0.40	20.7	B
19th Ave NE	IV	30	7.6	2.7	10.3	0.03	11.7	D
18th Ave NE	IV	30	13.1	3.4	16.5	0.06	12.6	D
17th Ave NE	IV	30	12.7	16.2	28.9	0.06	7.0	F
15th Ave NE	IV	30	20.2	26.0	46.2	0.11	8.8	E
University Way NE	IV	30	12.2	6.4	18.6	0.05	10.4	D
Brooklyn Ave NE	IV	30	11.8	8.2	20.0	0.05	9.3	D
12th Ave NE	IV	30	11.5	3.8	15.3	0.05	11.9	D
11th Ave NE	IV	30	12.2	11.7	23.9	0.05	8.1	E
Roosevelt Way NE	IV	30	10.3	2.2	12.5	0.05	13.1	C
7th Ave NE	IV	30	23.3	21.3	44.6	0.16	12.5	D
5th Ave NE	IV	30	17.0	8.2	25.2	0.09	13.5	C
Total	IV		260.1	202.6	462.7	1.57	12.2	D

Arterial Level of Service: EB NE Pacific St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
15th Ave NE	III	30	9.1	45.3	54.4	0.06	3.9	F
	III	30	34.6	12.9	47.5	0.27	20.6	C
Hospital Access	III	30	15.2	18.2	33.4	0.11	11.6	E
Montlake Blvd NE	III	30	11.6	3.5	15.1	0.07	17.8	D
Total	III		70.5	79.9	150.4	0.51	12.3	E

Arterial Level of Service: WB NE Pacific St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hospital Access	III	30	11.6	16.5	28.1	0.07	9.6	F
NE Pacific Pl	III	30	15.2	7.0	22.2	0.11	17.5	D
15th Ave NE	III	30	34.6	31.0	65.6	0.27	14.9	D
University Way NE	III	30	9.1	2.5	11.6	0.06	18.2	C
Total	III		70.5	57.0	127.5	0.51	14.5	D

Arterial Level of Service: SB Roosevelt Way NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 50th St	IV	30	21.9	27.7	49.6	0.15	10.6	D
NE 47th St	IV	30	18.9	6.4	25.3	0.13	17.9	C
NE 45th St	IV	30	19.1	46.3	65.4	0.13	7.0	F
NE 42nd St (north)	IV	30	28.3	5.0	33.3	0.20	21.9	B
NE 42nd St (south)	IV	30	13.6	5.6	19.2	0.06	11.2	D
NE Campus Pkwy	IV	30	15.6	0.3	15.9	0.09	19.6	B
Total	IV		117.4	91.3	208.7	0.75	12.9	D

Arterial Level of Service: EB Stevens Way

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
15th Ave NE	III	30	8.6	23.4	32.0	0.06	6.3	F
Montlake Blvd NE	III	30	39.2	23.6	62.8	0.31	17.7	D
Montlake Blvd NE	III	30	7.7	65.1	72.8	0.05	2.4	F
Total	III		55.5	112.1	167.6	0.41	8.9	F

Arterial Level of Service: WB Stevens Way

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Montlake Blvd NE	IV	30	19.4	56.4	75.8	0.11	5.1	F
Montlake Blvd NE	IV	30	11.2	24.9	36.1	0.05	4.9	F
15th Ave NE	IV	30	15.0	45.0	60.0	0.08	5.0	F
Total	IV		45.6	126.3	171.9	0.24	5.0	F

Arterial Level of Service: NB 11th Ave NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 43rd St	IV	30	18.5	87.1	105.6	0.10	3.5	F
NE 45th St	IV	30	18.0	20.7	38.7	0.10	9.3	D
	IV	30	19.0	6.9	25.9	0.13	17.6	C
NE 50th St	IV	30	18.9	58.0	76.9	0.13	5.9	F
Total	IV		74.4	172.7	247.1	0.46	6.6	F

Arterial Level of Service: NB 15th Ave NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE Pacific St	IV	30	19.0	35.4	54.4	0.13	8.4	E
Stevens Way	IV	30	22.6	42.2	64.8	0.15	8.4	E
NE Campus Pkwy	IV	30	12.4	4.5	16.9	0.05	11.6	D
UW Campus Parking Ac	IV	30	10.8	1.8	12.6	0.05	13.6	C
NE 42nd St	IV	30	18.4	12.9	31.3	0.10	11.7	D
NE 43rd St	IV	30	18.8	14.1	32.9	0.10	11.4	D
NE 45th St	IV	30	18.2	76.9	95.1	0.10	3.8	F
NE 47th St	IV	30	19.0	8.9	27.9	0.13	16.4	C
NE 50th St	IV	30	22.4	14.3	36.7	0.12	12.2	D
Total	IV		161.6	211.0	372.6	0.94	9.1	D

Arterial Level of Service: SB 15th Ave NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 50th St	IV	30	21.1	13.9	35.0	0.14	14.5	C
NE 47th St	IV	30	22.4	8.9	31.3	0.12	14.3	C
NE 45th St	IV	30	19.0	22.5	41.5	0.13	11.0	D
NE 43rd St	IV	30	18.2	7.1	25.3	0.10	14.4	C
NE 42nd St	IV	30	18.8	10.9	29.7	0.10	12.6	D
NE 41st St	IV	30	18.4	3.0	21.4	0.10	17.2	C
NE Campus Pkwy	IV	30	10.8	5.9	16.7	0.05	10.2	D
Stevens Way	IV	30	12.4	23.4	35.8	0.05	5.5	F
NE Pacific St	IV	30	22.6	65.9	88.5	0.15	6.1	F
Total	IV		163.7	161.5	325.2	0.95	10.5	D

Arterial Level of Service: NB Montlake Blvd NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
E Lake Washington Bl	III	30	17.4	44.5	61.9	0.13	7.5	F
520 EB/WB HOV Ramp	III	30	9.7	26.4	36.1	0.06	6.3	F
E Hamlin St	III	30	6.8	0.2	7.0	0.04	22.7	C
Husky Stadium Parkin	III	30	29.8	26.9	56.7	0.23	14.9	D
Husky Stadium Parkin	III	30	19.2	8.1	27.3	0.14	18.9	C
Montlake Blvd NE	III	34	61.5	3.0	64.5	0.58	32.2	A
Stevens Way	III	35	13.3	1.9	15.2	0.10	23.4	C
Total	III		157.7	111.0	268.7	1.29	17.3	D

Arterial Level of Service: SB Montlake Blvd NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Stevens Way	III	35	35.4	17.7	53.1	0.30	20.0	C
Montlake Blvd NE	III	35	13.3	15.7	29.0	0.10	12.2	E
	III	34	61.5	7.3	68.8	0.58	30.1	A
NE Pacific St	III	30	19.2	22.4	41.6	0.14	12.4	E
E Hamlin St	III	30	29.8	1.3	31.1	0.23	27.2	B
	III	30	6.8	16.7	23.5	0.04	6.8	F
SR-520 EB Ramps	III	30	9.7	26.5	36.2	0.06	6.2	F
Total	III		175.7	107.6	283.3	1.46	18.5	C

Arterial Level of Service: EB NE 45th St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
5th Ave NE	IV	30	32.2	34.4	66.6	0.24	13.2	C
	IV	30	17.0	18.9	35.9	0.09	9.5	D
Roosevelt Way NE	IV	30	23.3	23.8	47.1	0.16	11.9	D
11th Ave NE	IV	30	10.3	2.8	13.1	0.05	12.5	D
12th Ave NE	IV	30	12.2	4.7	16.9	0.05	11.5	D
Brooklyn Ave NE	IV	30	11.5	2.0	13.5	0.05	13.5	C
University Way NE	IV	30	11.8	6.1	17.9	0.05	10.4	D
15th Ave NE	IV	30	12.2	17.5	29.7	0.05	6.5	F
Memorial Way NE	IV	30	20.2	7.0	27.2	0.11	14.9	C
18th Ave NE	IV	30	12.7	1.2	13.9	0.06	14.5	C
19th Ave NE	IV	30	13.1	9.7	22.8	0.06	9.1	D
20th Ave NE	IV	30	7.6	1.4	9.0	0.03	13.4	C
Montlake Blvd NE	IV	30	52.3	68.0	120.3	0.40	11.9	D
Union Bay PI NE	IV	30	30.6	39.6	70.2	0.23	11.9	D
Total	IV		267.0	237.1	504.1	1.64	11.7	D

Arterial Level of Service: WB NE 45th St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 45th Pl	IV	30	25.3	63.4	88.7	0.18	7.3	E
Montlake Blvd NE	IV	30	30.6	12.1	42.7	0.23	19.6	B
20th Ave NE	IV	30	52.3	21.2	73.5	0.40	19.4	B
19th Ave NE	IV	30	7.6	7.3	14.9	0.03	8.1	E
18th Ave NE	IV	30	13.1	0.3	13.4	0.06	15.5	C
17th Ave NE	IV	30	12.7	11.6	24.3	0.06	8.3	E
15th Ave NE	IV	30	20.2	22.9	43.1	0.11	9.4	D
University Way NE	IV	30	12.2	7.5	19.7	0.05	9.8	D
Brooklyn Ave NE	IV	30	11.8	6.0	17.8	0.05	10.5	D
12th Ave NE	IV	30	11.5	10.5	22.0	0.05	8.3	E
11th Ave NE	IV	30	12.2	12.3	24.5	0.05	7.9	E
Roosevelt Way NE	IV	30	10.3	5.2	15.5	0.05	10.6	D
7th Ave NE	IV	30	23.3	35.4	58.7	0.16	9.5	D
5th Ave NE	IV	30	17.0	8.8	25.8	0.09	13.2	C
Total	IV		260.1	224.5	484.6	1.57	11.7	D

Arterial Level of Service: EB NE Pacific St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
15th Ave NE	III	30	9.1	29.0	38.1	0.06	5.5	F
	III	30	34.6	10.9	45.5	0.27	21.5	C
Hospital Access	III	30	15.2	15.6	30.8	0.11	12.6	E
Montlake Blvd NE	III	30	11.6	4.2	15.8	0.07	17.0	D
Total	III		70.5	59.7	130.2	0.51	14.2	D

Arterial Level of Service: WB NE Pacific St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hospital Access	III	30	11.6	13.4	25.0	0.07	10.8	E
NE Pacific Pl	III	30	15.2	7.2	22.4	0.11	17.3	D
15th Ave NE	III	30	34.6	27.6	62.2	0.27	15.8	D
University Way NE	III	30	9.1	1.3	10.4	0.06	20.3	C
Total	III		70.5	49.5	120.0	0.51	15.4	D

Arterial Level of Service: SB Roosevelt Way NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 50th St	IV	30	21.9	35.3	57.2	0.15	9.2	D
NE 47th St	IV	30	18.9	24.0	42.9	0.13	10.6	D
NE 45th St	IV	30	19.1	75.0	94.1	0.13	4.9	F
NE 42nd St (north)	IV	30	28.3	15.3	43.6	0.20	16.7	C
NE 42nd St (south)	IV	30	13.6	9.1	22.7	0.06	9.5	D
NE Campus Pkwy	IV	30	15.6	0.5	16.1	0.09	19.4	B
Total	IV		117.4	159.2	276.6	0.75	9.7	D

Arterial Level of Service: EB Stevens Way

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
15th Ave NE	III	30	8.6	20.4	29.0	0.06	6.9	F
Montlake Blvd NE	III	30	39.2	21.5	60.7	0.31	18.3	C
Montlake Blvd NE	III	30	7.7	54.0	61.7	0.05	2.9	F
Total	III		55.5	95.9	151.4	0.41	9.8	F

Arterial Level of Service: WB Stevens Way

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Montlake Blvd NE	IV	30	19.4	56.8	76.2	0.11	5.1	F
Montlake Blvd NE	IV	30	11.2	13.2	24.4	0.05	7.3	E
15th Ave NE	IV	30	15.0	41.9	56.9	0.08	5.3	F
Total	IV		45.6	111.9	157.5	0.24	5.5	F

Arterial Level of Service: NB 11th Ave NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 43rd St	IV	30	18.5	139.0	157.5	0.10	2.3	F
NE 45th St	IV	30	18.0	21.8	39.8	0.10	9.1	D
	IV	30	19.0	11.6	30.6	0.13	14.9	C
NE 50th St	IV	30	18.9	66.1	85.0	0.13	5.3	F
Total	IV		74.4	238.5	312.9	0.46	5.2	F

Arterial Level of Service: NB 15th Ave NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE Pacific St	IV	30	19.0	69.5	88.5	0.13	5.2	F
Stevens Way	IV	30	22.6	36.2	58.8	0.15	9.2	D
NE Campus Pkwy	IV	30	12.4	4.6	17.0	0.05	11.6	D
UW Campus Parking Ac	IV	30	10.8	1.8	12.6	0.05	13.6	C
NE 42nd St	IV	30	18.4	12.4	30.8	0.10	11.9	D
NE 43rd St	IV	30	18.8	14.7	33.5	0.10	11.2	D
NE 45th St	IV	30	18.2	109.8	128.0	0.10	2.8	F
NE 47th St	IV	30	19.0	10.3	29.3	0.13	15.6	C
NE 50th St	IV	30	22.4	20.3	42.7	0.12	10.5	D
Total	IV		161.6	279.6	441.2	0.94	7.7	E

Arterial Level of Service: SB 15th Ave NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 50th St	IV	30	21.1	15.4	36.5	0.14	13.9	C
NE 47th St	IV	30	22.4	8.9	31.3	0.12	14.3	C
NE 45th St	IV	30	19.0	23.6	42.6	0.13	10.7	D
NE 43rd St	IV	30	18.2	8.3	26.5	0.10	13.7	C
NE 42nd St	IV	30	18.8	11.7	30.5	0.10	12.3	D
NE 41st St	IV	30	18.4	3.7	22.1	0.10	16.6	C
NE Campus Pkwy	IV	30	10.8	5.2	16.0	0.05	10.7	D
Stevens Way	IV	30	12.4	22.5	34.9	0.05	5.6	F
NE Pacific St	IV	30	22.6	154.4	177.0	0.15	3.1	F
Total	IV		163.7	253.7	417.4	0.95	8.2	E

Arterial Level of Service: NB Montlake Blvd NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
E Lake Washington Bl	III	30	17.4	45.9	63.3	0.13	7.4	F
520 EB/WB HOV Ramp	III	30	9.7	50.5	60.2	0.06	3.7	F
E Hamlin St	III	30	6.8	0.2	7.0	0.04	22.7	C
Husky Stadium Parkin	III	30	29.8	33.4	63.2	0.23	13.4	E
Husky Stadium Parkin	III	30	19.2	11.0	30.2	0.14	17.1	D
Montlake Blvd NE	III	34	61.5	2.6	64.1	0.58	32.4	A
Stevens Way	III	35	13.3	3.9	17.2	0.10	20.7	C
Total	III		157.7	147.5	305.2	1.29	15.2	D

Arterial Level of Service: SB Montlake Blvd NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Stevens Way	III	35	35.4	21.7	57.1	0.30	18.6	C
Montlake Blvd NE	III	35	13.3	11.0	24.3	0.10	14.6	D
	III	34	61.5	11.9	73.4	0.58	28.3	B
NE Pacific St	III	30	19.2	22.8	42.0	0.14	12.3	E
E Hamlin St	III	30	29.8	1.2	31.0	0.23	27.3	B
	III	30	6.8	16.4	23.2	0.04	6.8	F
SR-520 EB Ramps	III	30	9.7	26.3	36.0	0.06	6.3	F
Total	III		175.7	111.3	287.0	1.46	18.3	C

Arterial Level of Service: EB NE 45th St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
5th Ave NE	IV	30	32.2	36.6	68.8	0.24	12.8	D
	IV	30	17.0	17.3	34.3	0.09	9.9	D
Roosevelt Way NE	IV	30	23.3	25.9	49.2	0.16	11.3	D
11th Ave NE	IV	30	10.3	4.3	14.6	0.05	11.2	D
12th Ave NE	IV	30	12.2	5.5	17.7	0.05	10.9	D
Brooklyn Ave NE	IV	30	11.5	1.3	12.8	0.05	14.3	C
University Way NE	IV	30	11.8	9.4	21.2	0.05	8.8	E
15th Ave NE	IV	30	12.2	18.2	30.4	0.05	6.3	F
Memorial Way NE	IV	30	20.2	9.0	29.2	0.11	13.9	C
18th Ave NE	IV	30	12.7	1.2	13.9	0.06	14.5	C
19th Ave NE	IV	30	13.1	11.2	24.3	0.06	8.6	E
20th Ave NE	IV	30	7.6	1.6	9.2	0.03	13.1	C
Montlake Blvd NE	IV	30	52.3	71.9	124.2	0.40	11.5	D
Union Bay PI NE	IV	30	30.6	25.5	56.1	0.23	14.9	C
Total	IV		267.0	238.9	505.9	1.64	11.7	D

Arterial Level of Service: WB NE 45th St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 45th Pl	IV	30	25.3	40.0	65.3	0.18	10.0	D
Montlake Blvd NE	IV	30	30.6	28.5	59.1	0.23	14.1	C
20th Ave NE	IV	30	52.3	23.4	75.7	0.40	18.8	C
19th Ave NE	IV	30	7.6	7.5	15.1	0.03	8.0	E
18th Ave NE	IV	30	13.1	0.3	13.4	0.06	15.5	C
17th Ave NE	IV	30	12.7	14.4	27.1	0.06	7.4	E
15th Ave NE	IV	30	20.2	23.0	43.2	0.11	9.4	D
University Way NE	IV	30	12.2	9.6	21.8	0.05	8.9	E
Brooklyn Ave NE	IV	30	11.8	6.5	18.3	0.05	10.2	D
12th Ave NE	IV	30	11.5	8.0	19.5	0.05	9.4	D
11th Ave NE	IV	30	12.2	16.4	28.6	0.05	6.8	F
Roosevelt Way NE	IV	30	10.3	6.1	16.4	0.05	10.0	D
7th Ave NE	IV	30	23.3	44.4	67.7	0.16	8.2	E
5th Ave NE	IV	30	17.0	9.5	26.5	0.09	12.8	D
Total	IV		260.1	237.6	497.7	1.57	11.4	D

Arterial Level of Service: EB NE Pacific St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
15th Ave NE	III	30	9.1	93.9	103.0	0.06	2.0	F
	III	30	34.6	18.8	53.4	0.27	18.4	C
Hospital Access	III	30	15.2	17.4	32.6	0.11	11.9	E
Montlake Blvd NE	III	30	11.6	5.3	16.9	0.07	15.9	D
Total	III		70.5	135.4	205.9	0.51	9.0	F

Arterial Level of Service: WB NE Pacific St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hospital Access	III	30	11.6	9.7	21.3	0.07	12.6	E
NE Pacific Pl	III	30	15.2	7.1	22.3	0.11	17.4	D
15th Ave NE	III	30	34.6	33.9	68.5	0.27	14.3	D
University Way NE	III	30	9.1	5.6	14.7	0.06	14.3	D
Total	III		70.5	56.3	126.8	0.51	14.6	D

Arterial Level of Service: SB Roosevelt Way NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 50th St	IV	30	21.9	35.1	57.0	0.15	9.2	D
NE 47th St	IV	30	18.9	25.8	44.7	0.13	10.2	D
NE 45th St	IV	30	19.1	109.6	128.7	0.13	3.6	F
NE 42nd St (north)	IV	30	28.3	16.4	44.7	0.20	16.3	C
NE 42nd St (south)	IV	30	13.6	11.1	24.7	0.06	8.7	E
NE Campus Pkwy	IV	30	15.6	0.5	16.1	0.09	19.4	B
Total	IV		117.4	198.5	315.9	0.75	8.5	E

Arterial Level of Service: EB Stevens Way

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
15th Ave NE	III	30	8.6	23.8	32.4	0.06	6.2	F
Montlake Blvd NE	III	30	39.2	19.2	58.4	0.31	19.0	C
Montlake Blvd NE	III	30	7.7	60.2	67.9	0.05	2.6	F
Total	III		55.5	103.2	158.7	0.41	9.4	F

Arterial Level of Service: WB Stevens Way

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Montlake Blvd NE	IV	30	19.4	56.9	76.3	0.11	5.1	F
Montlake Blvd NE	IV	30	11.2	23.6	34.8	0.05	5.1	F
15th Ave NE	IV	30	15.0	63.1	78.1	0.08	3.8	F
Total	IV		45.6	143.6	189.2	0.24	4.6	F

Arterial Level of Service: NB 11th Ave NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 43rd St	IV	30	18.5	132.2	150.7	0.10	2.5	F
NE 45th St	IV	30	18.0	22.5	40.5	0.10	8.9	E
	IV	30	19.0	11.1	30.1	0.13	15.2	C
NE 50th St	IV	30	18.9	66.7	85.6	0.13	5.3	F
Total	IV		74.4	232.5	306.9	0.46	5.3	F

Arterial Level of Service: NB 15th Ave NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE Pacific St	IV	30	19.0	62.2	81.2	0.13	5.6	F
Stevens Way	IV	30	22.6	35.7	58.3	0.15	9.3	D
NE Campus Pkwy	IV	30	12.4	4.3	16.7	0.05	11.8	D
UW Campus Parking Ac	IV	30	10.8	1.9	12.7	0.05	13.5	C
NE 42nd St	IV	30	18.4	12.6	31.0	0.10	11.9	D
NE 43rd St	IV	30	18.8	14.6	33.4	0.10	11.2	D
NE 45th St	IV	30	18.2	106.4	124.6	0.10	2.9	F
NE 47th St	IV	30	19.0	10.3	29.3	0.13	15.6	C
NE 50th St	IV	30	22.4	20.0	42.4	0.12	10.6	D
Total	IV		161.6	268.0	429.6	0.94	7.9	E

Arterial Level of Service: SB 15th Ave NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 50th St	IV	30	21.1	15.3	36.4	0.14	13.9	C
NE 47th St	IV	30	22.4	9.0	31.4	0.12	14.3	C
NE 45th St	IV	30	19.0	23.5	42.5	0.13	10.7	D
NE 43rd St	IV	30	18.2	8.2	26.4	0.10	13.8	C
NE 42nd St	IV	30	18.8	11.7	30.5	0.10	12.3	D
NE 41st St	IV	30	18.4	3.8	22.2	0.10	16.6	C
NE Campus Pkwy	IV	30	10.8	5.0	15.8	0.05	10.8	D
Stevens Way	IV	30	12.4	22.3	34.7	0.05	5.7	F
NE Pacific St	IV	30	22.6	150.1	172.7	0.15	3.1	F
Total	IV		163.7	248.9	412.6	0.95	8.3	E

Arterial Level of Service: NB Montlake Blvd NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
E Lake Washington Bl	III	30	17.4	46.6	64.0	0.13	7.3	F
520 EB/WB HOV Ramp	III	30	9.7	54.1	63.8	0.06	3.5	F
E Hamlin St	III	30	6.8	0.1	6.9	0.04	23.0	C
Husky Stadium Parkin	III	30	29.8	33.2	63.0	0.23	13.4	E
Husky Stadium Parkin	III	30	19.2	11.5	30.7	0.14	16.8	D
Montlake Blvd NE	III	34	61.5	2.6	64.1	0.58	32.4	A
Stevens Way	III	35	13.3	3.8	17.1	0.10	20.8	C
Total	III		157.7	151.9	309.6	1.29	15.0	D

Arterial Level of Service: SB Montlake Blvd NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Stevens Way	III	35	35.4	21.6	57.0	0.30	18.6	C
Montlake Blvd NE	III	35	13.3	11.0	24.3	0.10	14.6	D
	III	34	61.5	15.7	77.2	0.58	26.9	B
NE Pacific St	III	30	19.2	20.8	40.0	0.14	12.9	E
E Hamlin St	III	30	29.8	1.2	31.0	0.23	27.3	B
	III	30	6.8	16.6	23.4	0.04	6.8	F
SR-520 EB Ramps	III	30	9.7	26.3	36.0	0.06	6.3	F
Total	III		175.7	113.2	288.9	1.46	18.1	C

Arterial Level of Service: EB NE 45th St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
5th Ave NE	IV	30	32.2	36.5	68.7	0.24	12.8	D
	IV	30	17.0	17.2	34.2	0.09	9.9	D
Roosevelt Way NE	IV	30	23.3	26.0	49.3	0.16	11.3	D
11th Ave NE	IV	30	10.3	3.6	13.9	0.05	11.8	D
12th Ave NE	IV	30	12.2	5.3	17.5	0.05	11.1	D
Brooklyn Ave NE	IV	30	11.5	1.3	12.8	0.05	14.3	C
University Way NE	IV	30	11.8	9.3	21.1	0.05	8.9	E
15th Ave NE	IV	30	12.2	18.8	31.0	0.05	6.2	F
Memorial Way NE	IV	30	20.2	9.3	29.5	0.11	13.7	C
18th Ave NE	IV	30	12.7	1.2	13.9	0.06	14.5	C
19th Ave NE	IV	30	13.1	11.6	24.7	0.06	8.4	E
20th Ave NE	IV	30	7.6	1.7	9.3	0.03	13.0	D
Montlake Blvd NE	IV	30	52.3	74.0	126.3	0.40	11.3	D
Union Bay PI NE	IV	30	30.6	25.2	55.8	0.23	15.0	C
Total	IV		267.0	241.0	508.0	1.64	11.6	D

Arterial Level of Service: WB NE 45th St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 45th Pl	IV	30	25.3	40.0	65.3	0.18	10.0	D
Montlake Blvd NE	IV	30	30.6	29.4	60.0	0.23	13.9	C
20th Ave NE	IV	30	52.3	23.5	75.8	0.40	18.8	C
19th Ave NE	IV	30	7.6	8.2	15.8	0.03	7.6	E
18th Ave NE	IV	30	13.1	0.3	13.4	0.06	15.5	C
17th Ave NE	IV	30	12.7	15.0	27.7	0.06	7.3	E
15th Ave NE	IV	30	20.2	23.4	43.6	0.11	9.3	D
University Way NE	IV	30	12.2	9.3	21.5	0.05	9.0	E
Brooklyn Ave NE	IV	30	11.8	6.5	18.3	0.05	10.2	D
12th Ave NE	IV	30	11.5	8.2	19.7	0.05	9.3	D
11th Ave NE	IV	30	12.2	14.8	27.0	0.05	7.2	E
Roosevelt Way NE	IV	30	10.3	6.3	16.6	0.05	9.9	D
7th Ave NE	IV	30	23.3	42.9	66.2	0.16	8.4	E
5th Ave NE	IV	30	17.0	9.4	26.4	0.09	12.9	D
Total	IV		260.1	237.2	497.3	1.57	11.4	D

Arterial Level of Service: EB NE Pacific St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
15th Ave NE	III	30	9.1	104.9	114.0	0.06	1.8	F
	III	30	34.6	18.3	52.9	0.27	18.5	C
Hospital Access	III	30	15.2	17.1	32.3	0.11	12.0	E
Montlake Blvd NE	III	30	11.6	5.3	16.9	0.07	15.9	D
Total	III		70.5	145.6	216.1	0.51	8.6	F

Arterial Level of Service: WB NE Pacific St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hospital Access	III	30	11.6	10.3	21.9	0.07	12.3	E
NE Pacific Pl	III	30	15.2	7.3	22.5	0.11	17.3	D
15th Ave NE	III	30	34.6	33.6	68.2	0.27	14.4	D
University Way NE	III	30	9.1	5.6	14.7	0.06	14.3	D
Total	III		70.5	56.8	127.3	0.51	14.5	D

Arterial Level of Service: SB Roosevelt Way NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 50th St	IV	30	21.9	35.1	57.0	0.15	9.2	D
NE 47th St	IV	30	18.9	25.7	44.6	0.13	10.2	D
NE 45th St	IV	30	19.1	108.2	127.3	0.13	3.6	F
NE 42nd St (north)	IV	30	28.3	16.5	44.8	0.20	16.3	C
NE 42nd St (south)	IV	30	13.6	10.3	23.9	0.06	9.0	D
NE Campus Pkwy	IV	30	15.6	0.5	16.1	0.09	19.4	B
Total	IV		117.4	196.3	313.7	0.75	8.6	E

Arterial Level of Service: EB Stevens Way

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
15th Ave NE	III	30	8.6	23.2	31.8	0.06	6.3	F
Montlake Blvd NE	III	30	39.2	19.3	58.5	0.31	19.0	C
Montlake Blvd NE	III	30	7.7	60.0	67.7	0.05	2.6	F
Total	III		55.5	102.5	158.0	0.41	9.4	F

Arterial Level of Service: WB Stevens Way

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Montlake Blvd NE	IV	30	19.4	56.9	76.3	0.11	5.1	F
Montlake Blvd NE	IV	30	11.2	23.5	34.7	0.05	5.1	F
15th Ave NE	IV	30	15.0	62.7	77.7	0.08	3.9	F
Total	IV		45.6	143.1	188.7	0.24	4.6	F

Arterial Level of Service: NB 11th Ave NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 43rd St	IV	30	18.5	142.5	161.0	0.10	2.3	F
NE 45th St	IV	30	18.0	21.8	39.8	0.10	9.1	D
	IV	30	19.0	11.7	30.7	0.13	14.9	C
NE 50th St	IV	30	18.9	66.2	85.1	0.13	5.3	F
Total	IV		74.4	242.2	316.6	0.46	5.2	F

Arterial Level of Service: NB 15th Ave NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE Pacific St	IV	30	19.0	83.6	102.6	0.13	4.5	F
Stevens Way	IV	30	22.6	36.7	59.3	0.15	9.2	D
NE Campus Pkwy	IV	30	12.4	4.1	16.5	0.05	11.9	D
UW Campus Parking Ac	IV	30	10.8	1.7	12.5	0.05	13.7	C
NE 42nd St	IV	30	18.4	12.5	30.9	0.10	11.9	D
NE 43rd St	IV	30	18.8	15.1	33.9	0.10	11.1	D
NE 45th St	IV	30	18.2	115.2	133.4	0.10	2.7	F
NE 47th St	IV	30	19.0	10.6	29.6	0.13	15.4	C
NE 50th St	IV	30	22.4	20.0	42.4	0.12	10.6	D
Total	IV		161.6	299.5	461.1	0.94	7.3	E

Arterial Level of Service: SB 15th Ave NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 50th St	IV	30	21.1	14.7	35.8	0.14	14.2	C
NE 47th St	IV	30	22.4	9.6	32.0	0.12	14.0	C
NE 45th St	IV	30	19.0	23.7	42.7	0.13	10.7	D
NE 43rd St	IV	30	18.2	8.3	26.5	0.10	13.7	C
NE 42nd St	IV	30	18.8	11.7	30.5	0.10	12.3	D
NE 41st St	IV	30	18.4	3.7	22.1	0.10	16.6	C
NE Campus Pkwy	IV	30	10.8	5.2	16.0	0.05	10.7	D
Stevens Way	IV	30	12.4	22.5	34.9	0.05	5.6	F
NE Pacific St	IV	30	22.6	142.2	164.8	0.15	3.3	F
Total	IV		163.7	241.6	405.3	0.95	8.5	E

Arterial Level of Service: NB Montlake Blvd NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
E Lake Washington Bl	III	30	17.4	45.9	63.3	0.13	7.4	F
520 EB/WB HOV Ramp	III	30	9.7	48.0	57.7	0.06	3.9	F
E Hamlin St	III	30	6.8	0.2	7.0	0.04	22.7	C
Husky Stadium Parkin	III	30	29.8	32.3	62.1	0.23	13.6	E
Husky Stadium Parkin	III	30	19.2	10.5	29.7	0.14	17.4	D
Montlake Blvd NE	III	34	61.5	2.6	64.1	0.58	32.4	A
Stevens Way	III	35	13.3	4.0	17.3	0.10	20.5	C
Total	III		157.7	143.5	301.2	1.29	15.4	D

Arterial Level of Service: SB Montlake Blvd NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Stevens Way	III	35	35.4	21.8	57.2	0.30	18.6	C
Montlake Blvd NE	III	35	13.3	10.9	24.2	0.10	14.7	D
	III	34	61.5	10.6	72.1	0.58	28.8	B
NE Pacific St	III	30	19.2	22.9	42.1	0.14	12.3	E
E Hamlin St	III	30	29.8	1.0	30.8	0.23	27.4	B
	III	30	6.8	15.8	22.6	0.04	7.0	F
SR-520 EB Ramps	III	30	9.7	26.2	35.9	0.06	6.3	F
Total	III		175.7	109.2	284.9	1.46	18.4	C

Arterial Level of Service: EB NE 45th St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
5th Ave NE	IV	30	32.2	36.5	68.7	0.24	12.8	D
	IV	30	17.0	17.3	34.3	0.09	9.9	D
Roosevelt Way NE	IV	30	23.3	25.9	49.2	0.16	11.3	D
11th Ave NE	IV	30	10.3	4.3	14.6	0.05	11.2	D
12th Ave NE	IV	30	12.2	5.3	17.5	0.05	11.1	D
Brooklyn Ave NE	IV	30	11.5	1.4	12.9	0.05	14.2	C
University Way NE	IV	30	11.8	9.6	21.4	0.05	8.7	E
15th Ave NE	IV	30	12.2	18.3	30.5	0.05	6.3	F
Memorial Way NE	IV	30	20.2	8.9	29.1	0.11	13.9	C
18th Ave NE	IV	30	12.7	1.2	13.9	0.06	14.5	C
19th Ave NE	IV	30	13.1	10.7	23.8	0.06	8.7	E
20th Ave NE	IV	30	7.6	1.9	9.5	0.03	12.7	D
Montlake Blvd NE	IV	30	52.3	71.9	124.2	0.40	11.5	D
Union Bay PI NE	IV	30	30.6	25.5	56.1	0.23	14.9	C
Total	IV		267.0	238.7	505.7	1.64	11.7	D

Arterial Level of Service: WB NE 45th St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 45th Pl	IV	30	25.3	40.0	65.3	0.18	10.0	D
Montlake Blvd NE	IV	30	30.6	26.5	57.1	0.23	14.6	C
20th Ave NE	IV	30	52.3	23.3	75.6	0.40	18.9	C
19th Ave NE	IV	30	7.6	7.1	14.7	0.03	8.2	E
18th Ave NE	IV	30	13.1	0.3	13.4	0.06	15.5	C
17th Ave NE	IV	30	12.7	13.9	26.6	0.06	7.6	E
15th Ave NE	IV	30	20.2	23.2	43.4	0.11	9.3	D
University Way NE	IV	30	12.2	9.7	21.9	0.05	8.8	E
Brooklyn Ave NE	IV	30	11.8	6.6	18.4	0.05	10.2	D
12th Ave NE	IV	30	11.5	8.5	20.0	0.05	9.1	D
11th Ave NE	IV	30	12.2	15.7	27.9	0.05	6.9	F
Roosevelt Way NE	IV	30	10.3	6.3	16.6	0.05	9.9	D
7th Ave NE	IV	30	23.3	44.2	67.5	0.16	8.3	E
5th Ave NE	IV	30	17.0	9.5	26.5	0.09	12.8	D
Total	IV		260.1	234.8	494.9	1.57	11.4	D

Arterial Level of Service: EB NE Pacific St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
15th Ave NE	III	30	9.1	125.6	134.7	0.06	1.6	F
	III	30	34.6	20.0	54.6	0.27	18.0	D
Hospital Access	III	30	15.2	17.8	33.0	0.11	11.8	E
Montlake Blvd NE	III	30	11.6	5.5	17.1	0.07	15.7	D
Total	III		70.5	168.9	239.4	0.51	7.7	F

Arterial Level of Service: WB NE Pacific St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hospital Access	III	30	11.6	9.1	20.7	0.07	13.0	E
NE Pacific Pl	III	30	15.2	7.0	22.2	0.11	17.5	D
15th Ave NE	III	30	34.6	35.0	69.6	0.27	14.1	D
University Way NE	III	30	9.1	5.8	14.9	0.06	14.1	D
Total	III		70.5	56.9	127.4	0.51	14.5	D

Arterial Level of Service: SB Roosevelt Way NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 50th St	IV	30	21.9	35.2	57.1	0.15	9.2	D
NE 47th St	IV	30	18.9	25.9	44.8	0.13	10.1	D
NE 45th St	IV	30	19.1	111.7	130.8	0.13	3.5	F
NE 42nd St (north)	IV	30	28.3	16.4	44.7	0.20	16.3	C
NE 42nd St (south)	IV	30	13.6	11.1	24.7	0.06	8.7	E
NE Campus Pkwy	IV	30	15.6	0.5	16.1	0.09	19.4	B
Total	IV		117.4	200.8	318.2	0.75	8.5	E

Arterial Level of Service: EB Stevens Way

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
15th Ave NE	III	30	8.6	23.4	32.0	0.06	6.3	F
Montlake Blvd NE	III	30	39.2	19.4	58.6	0.31	18.9	C
Montlake Blvd NE	III	30	7.7	60.3	68.0	0.05	2.6	F
Total	III		55.5	103.1	158.6	0.41	9.4	F

Arterial Level of Service: WB Stevens Way

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Montlake Blvd NE	IV	30	19.4	56.9	76.3	0.11	5.1	F
Montlake Blvd NE	IV	30	11.2	23.8	35.0	0.05	5.1	F
15th Ave NE	IV	30	15.0	63.7	78.7	0.08	3.8	F
Total	IV		45.6	144.4	190.0	0.24	4.6	F

Arterial Level of Service: NB 11th Ave NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 43rd St	IV	30	18.5	133.5	152.0	0.10	2.4	F
NE 45th St	IV	30	18.0	22.5	40.5	0.10	8.9	E
	IV	30	19.0	11.1	30.1	0.13	15.2	C
NE 50th St	IV	30	18.9	66.8	85.7	0.13	5.3	F
Total	IV		74.4	233.9	308.3	0.46	5.3	F

Arterial Level of Service: NB 15th Ave NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE Pacific St	IV	30	19.0	98.0	117.0	0.13	3.9	F
Stevens Way	IV	30	22.6	39.8	62.4	0.15	8.7	E
NE Campus Pkwy	IV	30	12.4	5.7	18.1	0.05	10.8	D
UW Campus Parking Ac	IV	30	10.8	1.7	12.5	0.05	13.7	C
NE 42nd St	IV	30	18.4	12.9	31.3	0.10	11.7	D
NE 43rd St	IV	30	18.8	14.2	33.0	0.10	11.4	D
NE 45th St	IV	30	18.2	96.2	114.4	0.10	3.2	F
NE 47th St	IV	30	19.0	9.8	28.8	0.13	15.9	C
NE 50th St	IV	30	22.4	18.1	40.5	0.12	11.1	D
Total	IV		161.6	296.4	458.0	0.94	7.4	E

Arterial Level of Service: SB 15th Ave NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 50th St	IV	30	21.1	15.3	36.4	0.14	13.9	C
NE 47th St	IV	30	22.4	8.5	30.9	0.12	14.5	C
NE 45th St	IV	30	19.0	22.8	41.8	0.13	10.9	D
NE 43rd St	IV	30	18.2	8.5	26.7	0.10	13.6	C
NE 42nd St	IV	30	18.8	12.0	30.8	0.10	12.2	D
NE 41st St	IV	30	18.4	3.7	22.1	0.10	16.6	C
NE Campus Pkwy	IV	30	10.8	5.6	16.4	0.05	10.4	D
Stevens Way	IV	30	12.4	23.7	36.1	0.05	5.4	F
NE Pacific St	IV	30	22.6	165.0	187.6	0.15	2.9	F
Total	IV		163.7	265.1	428.8	0.95	8.0	E

Arterial Level of Service: NB Montlake Blvd NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
E Lake Washington Bl	III	30	17.4	46.2	63.6	0.13	7.3	F
520 EB/WB HOV Ramp	III	30	9.7	50.1	59.8	0.06	3.8	F
E Hamlin St	III	30	6.8	0.2	7.0	0.04	22.7	C
Husky Stadium Parkin	III	30	29.8	30.7	60.5	0.23	14.0	E
Husky Stadium Parkin	III	30	19.2	10.0	29.2	0.14	17.7	D
Montlake Blvd NE	III	34	61.5	2.6	64.1	0.58	32.4	A
Stevens Way	III	35	13.3	4.3	17.6	0.10	20.2	C
Total	III		157.7	144.1	301.8	1.29	15.4	D

Arterial Level of Service: SB Montlake Blvd NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Stevens Way	III	35	35.4	22.5	57.9	0.30	18.3	C
Montlake Blvd NE	III	35	13.3	11.1	24.4	0.10	14.6	D
	III	34	61.5	10.4	71.9	0.58	28.8	B
NE Pacific St	III	30	19.2	21.1	40.3	0.14	12.8	E
E Hamlin St	III	30	29.8	0.9	30.7	0.23	27.5	B
	III	30	6.8	14.9	21.7	0.04	7.3	F
SR-520 EB Ramps	III	30	9.7	25.9	35.6	0.06	6.3	F
Total	III		175.7	106.8	282.5	1.46	18.5	C

Arterial Level of Service: EB NE 45th St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
5th Ave NE	IV	30	32.2	36.6	68.8	0.24	12.8	D
	IV	30	17.0	17.3	34.3	0.09	9.9	D
Roosevelt Way NE	IV	30	23.3	26.1	49.4	0.16	11.3	D
11th Ave NE	IV	30	10.3	3.6	13.9	0.05	11.8	D
12th Ave NE	IV	30	12.2	5.3	17.5	0.05	11.1	D
Brooklyn Ave NE	IV	30	11.5	1.3	12.8	0.05	14.3	C
University Way NE	IV	30	11.8	9.8	21.6	0.05	8.6	E
15th Ave NE	IV	30	12.2	18.7	30.9	0.05	6.2	F
Memorial Way NE	IV	30	20.2	7.6	27.8	0.11	14.6	C
18th Ave NE	IV	30	12.7	1.2	13.9	0.06	14.5	C
19th Ave NE	IV	30	13.1	11.8	24.9	0.06	8.4	E
20th Ave NE	IV	30	7.6	2.1	9.7	0.03	12.4	D
Montlake Blvd NE	IV	30	52.3	74.8	127.1	0.40	11.2	D
Union Bay PI NE	IV	30	30.6	25.1	55.7	0.23	15.0	C
Total	IV		267.0	241.3	508.3	1.64	11.6	D

Arterial Level of Service: WB NE 45th St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 45th Pl	IV	30	25.3	40.0	65.3	0.18	10.0	D
Montlake Blvd NE	IV	30	30.6	30.6	61.2	0.23	13.7	C
20th Ave NE	IV	30	52.3	23.3	75.6	0.40	18.9	C
19th Ave NE	IV	30	7.6	9.1	16.7	0.03	7.2	E
18th Ave NE	IV	30	13.1	0.3	13.4	0.06	15.5	C
17th Ave NE	IV	30	12.7	12.9	25.6	0.06	7.9	E
15th Ave NE	IV	30	20.2	25.2	45.4	0.11	8.9	E
University Way NE	IV	30	12.2	9.2	21.4	0.05	9.0	D
Brooklyn Ave NE	IV	30	11.8	6.5	18.3	0.05	10.2	D
12th Ave NE	IV	30	11.5	8.4	19.9	0.05	9.2	D
11th Ave NE	IV	30	12.2	14.9	27.1	0.05	7.1	E
Roosevelt Way NE	IV	30	10.3	6.3	16.6	0.05	9.9	D
7th Ave NE	IV	30	23.3	48.1	71.4	0.16	7.8	E
5th Ave NE	IV	30	17.0	9.6	26.6	0.09	12.8	D
Total	IV		260.1	244.4	504.5	1.57	11.2	D

Arterial Level of Service: EB NE Pacific St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
15th Ave NE	III	30	9.1	86.4	95.5	0.06	2.2	F
	III	30	34.6	20.0	54.6	0.27	18.0	D
Hospital Access	III	30	15.2	17.8	33.0	0.11	11.8	E
Montlake Blvd NE	III	30	11.6	5.5	17.1	0.07	15.7	D
Total	III		70.5	129.7	200.2	0.51	9.2	F

Arterial Level of Service: WB NE Pacific St

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hospital Access	III	30	11.6	9.5	21.1	0.07	12.8	E
NE Pacific Pl	III	30	15.2	7.2	22.4	0.11	17.3	D
15th Ave NE	III	30	34.6	33.8	68.4	0.27	14.3	D
University Way NE	III	30	9.1	5.6	14.7	0.06	14.3	D
Total	III		70.5	56.1	126.6	0.51	14.6	D

Arterial Level of Service: SB Roosevelt Way NE

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
NE 50th St	IV	30	21.9	35.2	57.1	0.15	9.2	D
NE 47th St	IV	30	18.9	25.8	44.7	0.13	10.2	D
NE 45th St	IV	30	19.1	107.9	127.0	0.13	3.6	F
NE 42nd St (north)	IV	30	28.3	16.5	44.8	0.20	16.3	C
NE 42nd St (south)	IV	30	13.6	11.1	24.7	0.06	8.7	E
NE Campus Pkwy	IV	30	15.6	0.5	16.1	0.09	19.4	B
Total	IV		117.4	197.0	314.4	0.75	8.6	E

Arterial Level of Service: EB Stevens Way

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
15th Ave NE	III	30	8.6	22.7	31.3	0.06	6.4	F
Montlake Blvd NE	III	30	39.2	19.0	58.2	0.31	19.1	C
Montlake Blvd NE	III	30	7.7	68.2	75.9	0.05	2.3	F
Total	III		55.5	109.9	165.4	0.41	9.0	F

Arterial Level of Service: WB Stevens Way

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Montlake Blvd NE	IV	30	19.4	56.9	76.3	0.11	5.1	F
Montlake Blvd NE	IV	30	11.2	24.3	35.5	0.05	5.0	F
15th Ave NE	IV	30	15.0	57.9	72.9	0.08	4.1	F
Total	IV		45.6	139.1	184.7	0.24	4.7	F

Cordon Volume Analysis

				No Action			Alternative 1				Alternative 2				Alternative 3				Alternative 4			
Int Ref #	Cordon	Location	Direction	Total Volume	Project Trips	Percent Project Share	Total Volume	Project Trips	Percent Project Share	Percent Increase	Total Volume	Project Trips	Percent Project Share	Percent Increase	Total Volume	Project Trips	Percent Project Share	Percent Increase	Total Volume	Project Trips	Percent Project Share	Percent Increase
15	NE 45th Street	E/O 7th Avenue NE	EB	1,015	5	0%	1,163	148	13%	15%	1,165	150	13%	15%	1,163	148	13%	15%	1,169	154	13%	15%
	NE 45th Street	E/O 7th Avenue NE	WB	970	10	1%	1,217	247	20%	25%	1,213	243	20%	25%	1,217	247	20%	25%	1,225	255	21%	26%
23	NE 45th Street	E/O 15th Avenue NE	EB	945	0	0%	1,037	92	9%	10%	1,045	100	10%	11%	1,027	82	8%	9%	1,065	120	11%	13%
	NE 45th Street	E/O 15th Avenue NE	WB	880	1	0%	983	103	10%	12%	999	119	12%	14%	969	89	9%	10%	1,021	141	14%	16%
29	NE 45th Street	E/O Mary Gates Memorial Drive NE	EB	1,305	2	0%	1,426	116	8%	9%	1,426	116	8%	9%	1,426	116	8%	9%	1,425	115	8%	9%
	NE 45th Street	E/O Mary Gates Memorial Drive NE	WB	960	2	0%	1,046	81	8%	9%	1,045	80	8%	9%	1,045	80	8%	9%	1,046	81	8%	9%
4	Roosevelt Way NE	S/O NE 50th Street	SB	1,070	3	0%	1,110	40	4%	4%	1,106	36	3%	3%	1,116	46	4%	4%	1,105	35	3%	3%
18	Roosevelt Way NE	S/O NE 45th Street	SB	1,520	3	0%	1,577	57	4%	4%	1,572	52	3%	3%	1,584	64	4%	4%	1,565	45	3%	3%
5	11th Avenue NE	S/O NE 50th Street	NB	1,235	1	0%	1,302	67	5%	5%	1,294	59	5%	5%	1,306	71	5%	6%	1,293	58	4%	5%
19	11th Avenue NE	S/O NE 45th Street	NB	1,695	4	0%	1,854	159	9%	9%	1,834	139	8%	8%	1,864	169	9%	10%	1,837	142	8%	8%
58	University Bridge	N/O NE 40th Street	NB	1,310	0	0%	1,344	34	3%	3%	1,340	30	2%	2%	1,346	36	3%	3%	1,346	36	3%	3%
	University Bridge	N/O NE 40th Street	SB	1,730	0	0%	1,781	51	3%	3%	1,774	44	2%	3%	1,784	54	3%	3%	1,784	54	3%	3%
8	15th Avenue NE	S/O NE 50th Street	NB	890	2	0%	958	68	7%	8%	954	64	7%	7%	970	80	8%	9%	922	32	3%	4%
	15th Avenue NE	S/O NE 50th Street	SB	455	1	0%	470	15	3%	3%	470	15	3%	3%	475	20	4%	4%	457	2	0%	0%
23	15th Avenue NE	S/O NE 45th Street	NB	925	6	1%	1,030	105	10%	11%	1,022	97	9%	10%	1,042	117	11%	13%	995	70	7%	8%
	15th Avenue NE	S/O NE 45th Street	SB	695	3	0%	759	64	8%	9%	757	62	8%	9%	768	73	10%	11%	735	40	5%	6%
56	15th Avenue NE	N/O NE Campus Parkway	NB	775	6	1%	896	121	14%	16%	888	113	13%	15%	914	139	15%	18%	914	139	15%	18%
	15th Avenue NE	N/O NE Campus Parkway	SB	590	5	1%	699	109	16%	18%	693	103	15%	17%	713	123	17%	21%	713	123	17%	21%
67	15th Avenue NE	N/O NE Pacific Street	NB	565	7	1%	700	135	19%	24%	691	126	18%	22%	720	155	22%	27%	720	155	22%	27%
	15th Avenue NE	N/O NE Pacific Street	SB	685	7	1%	793	108	14%	16%	787	102	13%	15%	809	124	15%	18%	809	124	15%	18%
63	NE Pacific Street	E/O 6th Avenue NE	EB	740	3	0%	916	176	19%	24%	911	171	19%	23%	924	184	20%	25%	924	184	20%	25%
	NE Pacific Street	E/O 6th Avenue NE	WB	715	6	1%	900	185	21%	26%	897	182	20%	25%	900	185	21%	26%	900	185	21%	26%
67	NE Pacific Street	E/O 15th Avenue NE	EB	1,580	16	1%	1,913	333	17%	21%	1,896	316	17%	20%	1,947	367	19%	23%	1,947	367	19%	23%
	NE Pacific Street	E/O 15th Avenue NE	WB	755	8	1%	990	235	24%	31%	984	229	23%	30%	1,002	247	25%	33%	1,002	247	25%	33%
77	NE Pacific Street	W/O Montlake Boulevard NE	EB	1,280	12	1%	1,479	199	13%	16%	1,461	181	12%	14%	1,505	225	15%	18%	1,505	225	15%	18%
	NE Pacific Street	W/O Montlake Boulevard NE	WB	710	6	1%	844	134	16%	19%	837	127	15%	18%	851	141	17%	20%	851	141	17%	20%
38	Montlake Boulevard NE	S/O NE 44th Street	NB	2,100	4	0%	2,296	196	9%	9%	2,296	196	9%	9%	2,296	196	9%	9%	2,296	196	9%	9%
	Montlake Boulevard NE	S/O NE 44th Street	SB	1,055	2	0%	1,221	166	14%	16%	1,221	166	14%	16%	1,221	166	14%	16%	1,221	166	14%	16%
71	Montlake Boulevard NE	N/O Wahkiakum Road	NB	2,155	4	0%	2,351	196	8%	9%	2,387	232	10%	11%	2,327	172	7%	8%	2,327	172	7%	8%
	Montlake Boulevard NE	N/O Wahkiakum Road	SB	975	2	0%	1,141	166	15%	17%	1,173	198	17%	20%	1,119	144	13%	15%	1,119	144	13%	15%
77	Montlake Boulevard NE	N/O NE Pacific Street	NB	1,685	0	0%	1,722	37	2%	2%	1,736	51	3%	3%	1,708	23	1%	1%	1,708	23	1%	1%
	Montlake Boulevard NE	N/O NE Pacific Street	SB	1,065	0	0%	1,137	72	6%	7%	1,172	107	9%	10%	1,105	40	4%	4%	1,105	40	4%	4%
78	Montlake Boulevard NE	N/O SR 520	NB	2,525	6	0%	2,701	176	7%	7%	2,712	187	7%	7%	2,690	165	6%	7%	2,690	165	6%	7%
	Montlake Boulevard NE	N/O SR 520	SB	2,270	12	1%	2,741	271	10%	21%	2,758	288	10%	21%	2,735	265	10%	20%	2,735	265	10%	20%
2	NE 50th Street	E/O 7th Avenue NE	EB	720	3	0%	789			10%	788			9%	791			10%	785			9%
	NE 50th Street	E/O 7th Avenue NE	WB	930	2	0%	1,051			13%	1,049			13%	1,057			14%	1,026			10%
44	NE 42nd Street	E/O 7th Avenue NE	EB	335	0	0%	347			4%	347			4%	347			4%	347			4%
	NE 42nd Street	E/O 7th Avenue NE	WB	225	0	0%	238			6%	238			6%	238			6%	238			6%
51	NE 40th Street	E/O 7th Avenue NE	EB	430	0	0%	430			0%	430			0%	430			0%	430			0%
	NE 40th Street	E/O 7th Avenue NE	WB	495	1	0%	510			3%	508			3%	511			3%	511			3%

5

PEDESTRIAN ANALYSIS

5.1 SCREENLINE SUMMARY

5.2 SCREENLINE CAPACITY CALCULATIONS

5.3 TRANSIT RIDERSHIP PEDESTRIAN GROWTH

5.4 ACTION ALTERNATIVE PEDESTRIAN GROWTH

5.5 TRANSIT STOP PEDESTRIAN SPACE SUMMARY

5.6 EXISTING TRANSIT STOP PEDESTRIAN SPACE

University of Washington EIS
Pedestrian Analysis

Include Ped Bridges? Yes

Nearest Study Int. ID	Crossing ID	Screenline	Campus Sector	Intersection Roadway 1 (N/S)	Intersection Roadway 2 (E/W)	Intersection Approach Leg	Existing		Background		Future Growth from Transit Ridership Summarized by Screenline	No Action Alternative		Action Alternatives																
							Event Scaling Factor	Scaled Existing Hour Ped Count	Existing LOS	Background		Future (2028) Background Peak Hour Ped Count	Future (2028) No Action Hour Ped Count	No Action Alternative LOS	Alt 1		Alt 2		Alt 3		Alt 4									
										10%					60%	Alt 1 Growth Factor	Alt 1 Relative to No Action	Alt 2 Growth Factor	Alt 2 Relative to No Action	Alt 3 Growth Factor	Alt 3 Relative to No Action	Alt 4 Growth Factor	Alt 4 Relative to No Action							
36	1	Montlake Blvd	East	25th Ave NE	Pend Oreille Rd NE/ NE 44th St	North	245	1.00	245	LOS A	25	270	270	LOS A	0.13	35	305	LOS A	0.23	62	332	LOS A	0.04	11	281	LOS A	0.28	75	345	LOS A
36	1	Montlake Blvd	East	25th Ave NE	Pend Oreille Rd NE/ NE 44th St	South	169	1.00	169	LOS A	17	186	186	LOS A	0.13	24	210	LOS A	0.23	43	229	LOS A	0.04	7	193	LOS A	0.28	52	238	LOS A
36	2	Montlake Blvd	East	Montlake Blvd NE	E-1 Pedestrian Bridge	Bridge	682	0.77	522	LOS A	52	574	574	LOS A	0.13	75	649	LOS A	0.23	132	706	LOS A	0.04	23	597	LOS A	0.28	161	735	LOS A
36	3	Montlake Blvd	East	Montlake Blvd NE	IMA Pedestrian Bridge	Bridge	3,724	0.77	2,850	LOS A	285	3,135	3,135	LOS A	0.13	408	3,543	LOS A	0.23	721	3,856	LOS B	0.04	125	3,260	LOS A	0.28	878	4,013	LOS B
74	4	Montlake Blvd	East	Montlake Blvd NE	Hec Ed Pedestrian Bridge	Bridge	2,938	0.77	2,248	LOS A	225	2,473	2,473	LOS A	0.13	322	2,795	LOS A	0.23	569	3,042	LOS A	0.04	99	2,572	LOS A	0.28	693	3,166	LOS A
74	5	Montlake Blvd	East	Montlake Blvd NE	NE Pacific Place	North	No crossing at this approach																							
74	5	Montlake Blvd	East	Montlake Blvd NE	NE Pacific Place	South	3,290	0.77	2,518	LOS C	252	2,770	2,770	LOS C	0.13	360	3,130	LOS C	0.23	637	3,407	LOS E	0.04	111	2,881	LOS C	0.28	775	3,545	LOS E
77	6	Montlake Blvd	East	Montlake Blvd NE	Stadium Pedestrian Bridge	Bridge	4,198	0.77	3,213	LOS A	321	3,534	3,534	LOS A	0.22	777	4,311	LOS A	0.22	777	4,311	LOS A	0.28	990	4,524	LOS A	0.04	141	3,675	LOS A
77	7	Montlake Blvd	South	Montlake Blvd NE	NE Pacific Street	North	1,277	0.77	977	LOS A	98	1,075	1,075	LOS A	0.22	237	1,312	LOS A	0.22	237	1,312	LOS A	0.28	301	1,376	LOS A	0.04	43	1,118	LOS A
77	7	Montlake Blvd	South	Montlake Blvd NE	NE Pacific Street	South	No crossing at this approach																							
Screenline Subtotal - Montlake Blvd NE							16,523		12,742	LOS A	1,274	0	14,016	736	0	14,752	LOS A	2,238	16,990	LOS A	3,178	17,930	LOS A	1,667	16,419	LOS A	2,818	17,570	LOS A	
77	7	Pacific St	South	Montlake Blvd NE	NE Pacific Street	East	1,004	0.77	768	LOS A	77	845	845	LOS A	0.22	186	1,031	LOS A	0.22	186	1,031	LOS A	0.28	237	1,082	LOS A	0.04	34	879	LOS A
77	7	Pacific St	South	Montlake Blvd NE	NE Pacific Street	West	911	0.77	697	LOS A	70	767	767	LOS A	0.22	169	936	LOS A	0.22	169	936	LOS A	0.28	215	982	LOS A	0.04	31	798	LOS A
76	8	Pacific St	South	UWMC Access	NE Pacific Street	East	No crossing at this approach																							
76	8	Pacific St	South	UWMC Access	NE Pacific Street	West	266	1.00	266	LOS A	27	293	293	LOS A	0.22	64	357	LOS A	0.22	64	357	LOS A	0.28	82	375	LOS A	0.04	12	305	LOS A
75	10	Pacific St	South	UWMC East Pedestrian Bridge (T-Wing)	NE Pacific Street	Bridge	264	1.00	264	LOS A	26	290	290	LOS A	0.22	64	354	LOS A	0.22	64	354	LOS A	0.28	81	371	LOS A	0.04	12	302	LOS A
67	11	Pacific St	South	Mid-block crossing	NE Pacific Street	Mid-block	106	1.00	106	LOS A	11	117	117	LOS A	0.50	58	175	LOS A	0.40	47	164	LOS A	0.53	62	179	LOS A	0.50	58	175	LOS A
67	12	Pacific St	South	UWMC West Pedestrian Bridge (Hitchcock)	NE Pacific Street	Bridge	243	1.00	243	LOS A	24	267	267	LOS A	0.50	134	401	LOS A	0.40	107	374	LOS A	0.53	142	409	LOS A	0.50	134	401	LOS A
67	13	Pacific St	South	15th Avenue NE	NE Pacific Street	East	547	1.00	547	LOS A	55	602	602	LOS A	0.50	301	903	LOS A	0.40	241	843	LOS A	0.53	319	921	LOS A	0.50	301	903	LOS A
67	13	Pacific St	South	15th Avenue NE	NE Pacific Street	West	360	1.00	360	LOS A	36	396	396	LOS A	0.50	198	594	LOS A	0.40	158	554	LOS A	0.53	210	606	LOS A	0.50	198	594	LOS A
Screenline Subtotal - NE Pacific St							3,701		3,252	LOS A	325	0	3,577	163	0	3,740	LOS A	1,174	4,914	LOS A	1,036	4,776	LOS A	1,348	5,088	LOS A	780	4,520	LOS A	
67	13	15th Avenue	South	15th Avenue NE	NE Pacific Street	North	1,702	1.00	1,702	LOS B	170	1,872	1,872	LOS B	0.50	936	2,808	LOS C	0.40	749	2,621	LOS C	0.53	992	2,864	LOS C	0.50	936	2,808	LOS C
67	13	15th Avenue	South	15th Avenue NE	NE Pacific Street	South	186	1.00	186	LOS A	19	205	205	LOS A	0.50	102	307	LOS A	0.40	82	287	LOS A	0.53	108	313	LOS A	0.50	102	307	LOS A
67	14	15th Avenue	West	15th Avenue NE	Mid-block crossing	Mid-block	62	1.00	62	LOS A	6	68	68	LOS A	0.50	35	105	LOS A	0.40	28	98	LOS A	0.53	37	107	LOS A	0.50	35	105	LOS A
61	15	15th Avenue	West	15th Avenue NE	NE 40th St/ W Stevens Way	North	557	1.00	557	LOS A	56	613	613	LOS A	0.50	316	947	LOS A	0.40	252	883	LOS A	0.53	334	965	LOS A	0.50	316	947	LOS A
61	15	15th Avenue	West	15th Avenue NE	NE 40th St/ W Stevens Way	South	385	1.00	385	LOS A	39	424	424	LOS A	0.50	218	654	LOS A	0.40	174	610	LOS A	0.53	231	667	LOS A	0.50	218	654	LOS A
50	16	15th Avenue	West	15th Avenue NE	Campus Pkwy Pedestrian Bridge	Bridge	1,770	1.00	1,770	LOS A	177	1,947	1,947	LOS A	0.50	1,003	3,008	LOS A	0.40	802	2,807	LOS A	0.53	1,063	3,068	LOS A	0.50	1,003	3,008	LOS A
50	17	15th Avenue	West	15th Avenue NE	NE 41st Street	North	355	1.00	355	LOS A	36	391	391	LOS A	0.50	311	933	LOS A	0.40	249	871	LOS A	0.53	329	951	LOS A	0.50	311	933	LOS A
50	17	15th Avenue	West	15th Avenue NE	NE 41st Street	South	121	1.00	121	LOS A	12	206	206	LOS A	0.50	106	318	LOS A	0.40	85	297	LOS A	0.53	112	324	LOS A	0.50	106	318	LOS A
42	18	15th Avenue	West	15th Avenue NE	NE 42nd Street	North	730	1.00	730	LOS A	73	803	803	LOS A	0.50	438	1,241	LOS B	0.40	511	1,289	LOS C	0.53	677	1,955	LOS C	0.50	438	1,241	LOS C
42	18	15th Avenue	West	15th Avenue NE	NE 42nd Street	South	692	1.00	692	LOS A	69	761	761	LOS A	0.50	415	1,176	LOS B	0.40	485	1,187	LOS C	0.53	642	1,854	LOS C	0.50	415	1,176	LOS C
34	19	15th Avenue	West	15th Avenue NE	NE 43rd Street	North	194	1.00	194	LOS A	19	213	213	LOS A	0.15	51	391	LOS A	0.15	51	391	LOS A	0.15	51	391	LOS A	0.18	61	401	LOS A
34	19	15th Avenue	West	15th Avenue NE	NE 43rd Street	South	420	1.00	420	LOS A	42	462	462	LOS A	0.15	110	845	LOS A	0.15	110	845	LOS A	0.15	110	845	LOS A	0.18	132	867	LOS A
23	20	15th Avenue	West	15th Avenue NE	NE 45th Street	North	359	1.00	359	LOS A	36	395	395	LOS A	0.15	61	468	LOS A	0.15	61	468	LOS A	0.15	61	468	LOS A	0.18	73	480	LOS A
23	20	15th Avenue	West	15th Avenue NE	NE 45th Street	South	333	1.00	333	LOS A	33	366	366	LOS A	0.15	57	434	LOS A	0.15	57	434	LOS A	0.15	57	434	LOS A	0.18	68	445	LOS A
Screenline Subtotal - 15th Avenue NE							7,866		7,866	LOS A	787	1,507	10,160	1,635	242	12,037	LOS A	4,551	16,588	LOS A	3,696	15,733	LOS A	4,804	16,841	LOS A	4,606	16,643	LOS A	
23	20	45th Street	West	15th Avenue NE	NE 45th Street	East	206	1.00	206	LOS A	21	227	227	LOS A	0.15	35	268	LOS A	0.15	35	268	LOS A	0.15	35	268	LOS A	0.18	42	275	LOS A
23	20	45th Street	West	15th Avenue NE	NE 45th Street	West	274	1.00	274	LOS A	27	301	301	LOS A	0.15	47	357	LOS A	0.15	47	357	LOS A	0.15	47	357	LOS A	0.18	56	366	LOS A
24	21	45th Street	Central	17th Avenue NE	NE 45th Street	East	345	1.00	345	LOS A	35	380	380	LOS A	0.15	57	437	LOS A	0.15	57	437	LOS A	0.15	57	437	LOS A	0.18	68	448	LOS A
24	21	45th Street	Central	17th Avenue NE	NE 45th Street	West	260	1.00	260	LOS A	26	286	286	LOS A	0.15	43	329	LOS A	0.15	43	329	LOS A	0.15	43	329	LOS A	0.18	51	337	LOS A
25	22	45th Street	Central	18th Avenue NE	NE 45th Street	East	97	1.00	97	LOS A	10	107	107	LOS A	0.15	16	123	LOS A	0.15	16	123	LOS A	0.15	16	123	LOS A	0.18	19	126	LOS A
25	22	45th Street	Central	18th Avenue NE	NE 45th Street	West	95	1.00	95	LOS A	10	105	105	LOS A	0.15	16	121	LOS A	0.15	16	121	LOS A	0.15	16	121	LOS A	0.18	19	124	LOS A
26	23	45th Street	Central	19th Avenue NE	NE 45th Street	East	241	1.00	241	LOS A	24	265	265	LOS A	0.15	40	305	LOS A	0.15	40	305	LOS A	0.15	40	305</					

University of Washington EIS
Pedestrian Analysis - Maximum Saturation Flow

Existing Year:
2016
Existing Peak
Hour
Pedestrian
Count:

Nearest Study Int. ID	Crossing ID	Intersection Roadway 1 (N/S)	Intersection Roadway 2 (E/W)	Intersection Approach Leg	Demand (people per one hour)	Xwalk Length (ft)	Xwalk Width (ft)	Xwalk Area (sf)	Walk Speed (ft/s)					LOS B		LOS C		LOS D		LOS E		LOS F		Cycle Length (s)	Walk Time (s)	Flash Walk Time (s)	Don't Walk Time (s)	Walk + Flash Don't Walk Time (s)	Percent W+FDW Cycle Length	W+FDW Time per hour (s)	People/hour at LOS B	People/hour at LOS C	People/hour at LOS D	Max Saturation Flow: People/hour at LOS E	People/hour at LOS F
									LOS B Walk Speed	LOS C Walk Speed	LOS D Walk Speed	LOS E Walk Speed	LOS F Walk Speed	LOS B (sf/person)	LOS B (people/s econd)	LOS C (sf/person)	LOS C (people/s econd)	LOS D (sf/person)	LOS D (people/ second)	LOS E (sf/person)	LOS E (people/s econd)	LOS F (sf/person)	LOS F (people/s econd)												
36	36	1	25th Ave NE	Pend Oreille Rd NE/ NE 44th St	North	245	75	20	1500	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	140	7	12	19	14%	489	978	1467	2445	2445	4890	
36	36	1	26th Ave NE	Pend Oreille Rd NE/ NE 44th St	South	169	70	20	1400	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	140	7	12	19	14%	489	978	1467	2445	2445	4890	
NA	36	2	Montlake Blvd NE	E-1 Pedestrian Bridge	Bridge	682	140	10	1400	4.2	4	3.8	2.5	2.5	35	1	25	2	15	3.0	10	2.5	5	5	NA	NA	NA	NA	100%	3600	3600	7200	10800	9000	18000
NA	36	3	Montlake Blvd NE	IMA Pedestrian Bridge	Bridge	3724	130	10	1300	4.2	4	3.8	2.5	2.5	35	1	25	2	15	3.0	10	2.5	5	5	NA	NA	NA	NA	100%	3600	3600	7200	10800	9000	18000
NA	74	4	Montlake Blvd NE	Hec Ed Pedestrian Bridge	Bridge	2938	200	20	4000	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	NA	NA	NA	NA	100%	3600	7200	10800	18000	18000	36000	
74	74	5	Montlake Blvd NE	NE Pacific Place	North	No crossing at this approach																													
74	74	5	Montlake Blvd NE	NE Pacific Place	South	3,290	65	20	1300	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	120	8	14	22	18%	660	1320	1980	3300	3300	6600	
NA	77	6	Montlake Blvd NE	Stadium Pedestrian Bridge	Bridge	4198	325	55	17875	4.2	4	3.8	2.5	2.5	35	7	25	9	15	14	10	13.8	5	27.5	NA	NA	NA	NA	100%	3600	25200	32400	50400	49680	99000
77	77	7	Montlake Blvd NE	NE Pacific Street	North	1,277	65	45	2925	4.2	4	3.8	2.5	2.5	35	5	25	7	15	11	10	11.3	5	22.5	120	7	18	25	21%	750	1200	1800	2850	8475	16875
77	77	7	Montlake Blvd NE	NE Pacific Street	South	No crossing at this approach																													
77	77	7	Montlake Blvd NE	NE Pacific Street	East	1,004	50	20	1000	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	120	7	12	19	16%	570	1140	1710	2850	2850	5700	
77	77	7	Montlake Blvd NE	NE Pacific Street	West	911	40	35	1400	4.2	4	3.8	2.5	2.5	35	4	25	6	15	9	10	8.8	5	17.5	120	7	12	19	16%	570	2280	3420	5130	5016	9975
76	76	8	UWMC Access	NE Pacific Street	East	No crossing at this approach																													
76	76	8	UWMC Access	NE Pacific Street	West	266	45	20	900	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	120	7	15	22	18%	660	1320	1980	3300	3300	6600	
NA	75	10	UWMC East Pedestrian Bridge	NE Pacific Street	Bridge	264	150	30	4500	4.2	4	3.8	2.5	2.5	35	4	25	5	15	8	10	7.5	5	15	NA	NA	NA	NA	100%	3600	14400	18000	28800	27000	54000
67	67	11	Mid-block crossing	NE Pacific Street	Mid-block	106	50	20	1000	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	100	8	9	17	17%	612	1224	1836	3060	3060	6120	
NA	67	12	UWMC West Pedestrian Bridge	NE Pacific Street	Bridge	243	115	20	2300	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	NA	NA	NA	NA	100%	3600	7200	10800	18000	18000	36000	
67	67	13	15th Avenue NE	NE Pacific Street	East	547	80	20	1600	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	100	7	16	23	23%	828	1656	2484	4140	4140	8280	
67	67	13	15th Avenue NE	NE Pacific Street	West	360	80	20	1600	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	100	7	15	22	22%	792	1584	2376	3960	3960	7920	
67	67	13	15th Avenue NE	NE Pacific Street	North	1,702	60	20	1200	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	100	7	11	18	18%	648	1296	1944	3240	3240	6480	
67	67	13	15th Avenue NE	NE Pacific Street	South	186	60	20	1200	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	100	7	11	18	18%	648	1296	1944	3240	3240	6480	
NA	67	14	15th Avenue NE	Mid-block crossing	Mid-block	62	50	10	500	4.2	4	3.8	2.5	2.5	35	1	25	2	15	3	10	2.5	5	5	NA	NA	NA	NA	100%	3600	3600	7200	10800	9000	18000
61	61	15	15th Avenue NE	NE 40th St/ W Stevens Way	North	557	60	15	900	4.2	4	3.8	2.5	2.5	35	2	25	2	15	4	10	3.8	5	7.5	100	7	12	19	19%	684	1368	1368	2736	2599	5130
61	61	15	15th Avenue NE	NE 40th St/ W Stevens Way	South	385	55	15	825	4.2	4	3.8	2.5	2.5	35	2	25	2	15	4	10	3.8	5	7.5	100	7	12	19	19%	684	1368	1368	2736	2599	5130
NA	50	16	15th Avenue NE	Campus Pkwy Pedestrian Bridge	Bridge	1770	155	15	2325	4.2	4	3.8	2.5	2.5	35	2	25	2	15	4	10	3.8	5	7.5	NA	NA	NA	NA	100%	3600	7200	14400	13680	27000	
50	50	17	15th Avenue NE	NE 41st Street	North	355	60	15	900	4.2	4	3.8	2.5	2.5	35	2	25	2	15	4	10	3.8	5	7.5	100	10	11	21	21%	756	1512	1512	3024	2873	5670
50	50	17	15th Avenue NE	NE 41st Street	South	121	70	15	1050	4.2	4	3.8	2.5	2.5	35	2	25	2	15	4	10	3.8	5	7.5	100	10	11	21	21%	756	1512	1512	3024	2873	5670
42	42	18	15th Avenue NE	NE 42nd Street	North	730	55	20	1100	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	100	7	9	16	16%	576	1152	1728	2880	2880	5760	
42	42	18	15th Avenue NE	NE 42nd Street	South	692	55	20	1100	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	100	7	9	16	16%	576	1152	1728	2880	2880	5760	
34	34	19	15th Avenue NE	NE 43rd Street	North	194	55	20	1100	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	100	7	9	16	16%	576	1152	1728	2880	2880	5760	
34	34	19	15th Avenue NE	NE 43rd Street	South	420	50	20	1000	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	100	7	9	16	16%	576	1152	1728	2880	2880	5760	
23	23	20	15th Avenue NE	NE 45th Street	North	359	65	20	1300	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	100	7	11	18	18%	648	1296	1944	3240	3240	6480	
23	23	20	15th Avenue NE	NE 45th Street	South	333	70	20	1400	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	100	7	11	18	18%	648	1296	1944	3240	3240	6480	
23	23	20	15th Avenue NE	NE 45th Street	East	206	60	20	1200	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	100	7	10	17	17%	612	1224	1836	3060	3060	6120	
23	23	20	15th Avenue NE	NE 45th Street	West	274	55	20	1100	4.2	4	3.8	2.5	2.5	35	2	25	3	15	5	10	5	10	100	7	8	15	15%	540	1080	1620	2700	2700	5400	
24	24	21	17th Avenue NE	NE 45th Street	East	345	50	15	750	4.2	4	3.8	2.5	2.5	35	2	25	2	15	4	10	3.8	5	7.5	100	7	8	15	15%	540	1080	1080	2160	2052	4050
24	24	21	17th Avenue NE	NE 45th Street	West	260	50	15	750	4.2	4	3.8	2.5	2.5	35	2	25	2	15	4	10	3.8	5	7.5	100	7	10	17	17%	612	1224	1224	2448	2326	4590
25	25	22	18th Avenue NE	NE 45th Street	East	97	50	15	750	4.2	4	3.8	2.5	2.5	35	2	25	2	15	4	10	3.8	5	7.5	100	9	8	17	17%	612	1224	1224	2448	2326	4590
25	25	22	18th Avenue NE	NE 45th Street	West	95	50	15	750	4.2	4	3.8	2.5	2.5	35	2	25	2	15	4	10	3.8	5	7.5											

Transit Ridership Pedestrian Growth Trip Table

Total New Riders 3,270

10,060 Net New Transit Trips Generated (TDR Table 5.3)

Crossing Screenline	Location	Campus Sector	Ridership Percent Growth		Ridership Growth	
			Total Percent Growth Per Location	Percent Growth Crossing Screenline	Total New Transit Riders per Location	New Transit Riders Crossing Screenline
15th Avenue NE	U District Station (Brooklyn)	West	35%	100%	1,144	1,144
15th Avenue NE	15th Avenue NE	West	20%	50%	654	327
15th Avenue NE	Campus Parkway	West	5%	100%	163	163
NE Pacific St	NE Pacific Street	South	10%	50%	327	163
Montlake Blvd NE	U Link Station (Husky Stadium)	South	20%	100%	654	654
none	Stevens Way	Central	5%	0%	163	0
Montlake Blvd NE	Montlake Blvd NE	East	5%	50%	163	82
	Check		100%		3,270	2,534
Summary by Campus Sector	<i>West Campus Subtotal</i>	West			1,962	1,635
	<i>South Campus Subtotal</i>	South			981	817
	<i>Central Campus Subtotal</i>	Central			163	0
	<i>East Campus Subtotal</i>	East			163	82
						New Transit Riders Crossing Screenline
					Total New Transit Riders per Location	Crossing Screenline
Summary by Screenline	<i>Screenline Subtotal</i>	Montlake Blvd NE			817	736
	<i>Screenline Subtotal</i>	NE Pacific St			327	163
	<i>Screenline Subtotal</i>	15th Avenue NE			1,962	1,635

Action Alternative Pedestrian Growth

Int ID	Campus Sector	Percent Increase Relative to No Action Alternative			
		Alternative 1	Alternative 2	Alternative 3	Alternative 4
1	West of I-5	10%	10%	10%	10%
2	North of 45th	5%	5%	5%	5%
3	North of 45th	5%	5%	5%	5%
4	North of 45th	5%	5%	5%	5%
5	North of 45th	5%	5%	5%	5%
6	North of 45th	5%	5%	5%	5%
7	North of 45th	5%	5%	5%	5%
8	North of 45th	5%	5%	5%	5%
9	North of 45th	5%	5%	5%	5%
10	North of 45th	5%	5%	5%	5%
11	North of 45th	5%	5%	5%	5%
12	North of 45th	5%	5%	5%	5%
13	North of 45th	5%	5%	5%	5%
14	West of I-5	10%	10%	10%	10%
15	South of 45th and west of MIO	15%	15%	15%	15%
16	South of 45th and west of MIO	15%	15%	15%	15%
17	South of 45th and west of MIO	15%	15%	15%	15%
18	South of 45th and west of MIO	15%	15%	15%	15%
19	South of 45th and west of MIO	15%	15%	15%	15%
20	South of 45th and west of MIO	15%	15%	15%	15%
21	South of 45th and west of MIO	15%	15%	15%	15%
22	South of 45th and west of MIO	15%	15%	15%	15%
23	Central Campus	15%	15%	15%	18%
24	Central Campus	15%	15%	15%	18%
25	Central Campus	15%	15%	15%	18%
26	Central Campus	15%	15%	15%	18%
27	Central Campus	15%	15%	15%	18%
28	East Campus	13%	23%	4%	28%
29	East Campus	13%	23%	4%	28%
30	South of 45th and west of MIO	15%	15%	15%	15%
31	South of 45th and west of MIO	15%	15%	15%	15%
32	South of 45th and west of MIO	15%	15%	15%	15%
33	South of 45th and west of MIO	15%	15%	15%	15%
34	Central Campus	15%	15%	15%	18%
35	Central Campus	15%	15%	15%	18%
36	East Campus	13%	23%	4%	28%
37	East Campus	13%	23%	4%	28%
38	East Campus	13%	23%	4%	28%
39	South of 45th and west of MIO	15%	15%	15%	15%
40	South of 45th and west of MIO	15%	15%	15%	15%
41	West Campus	50%	40%	53%	50%
42	West Campus	50%	40%	53%	50%
43	Central Campus	15%	15%	15%	18%
44	South of 45th and west of MIO	15%	15%	15%	15%
45	South of 45th and west of MIO	15%	15%	15%	15%
46	West Campus	50%	40%	53%	50%
47	West Campus	50%	40%	53%	50%
48	West Campus	50%	40%	53%	50%
49	West Campus	50%	40%	53%	50%
50	West Campus	50%	40%	53%	50%
51	West Campus	50%	40%	53%	50%
52	South of 45th and west of MIO	15%	15%	15%	15%
53	West Campus	50%	40%	53%	50%
54	West Campus	50%	40%	53%	50%
55	West Campus	50%	40%	53%	50%
56	West Campus	50%	40%	53%	50%
57	West of I-5	10%	10%	10%	10%
58	West Campus	50%	40%	53%	50%
59	West Campus	50%	40%	53%	50%
60	West Campus	50%	40%	53%	50%
61	West Campus	50%	40%	53%	50%
62	Central Campus	15%	15%	15%	18%
63	West of I-5	10%	10%	10%	10%
64	West Campus	50%	40%	53%	50%
65	West Campus	50%	40%	53%	50%
66	West Campus	50%	40%	53%	50%
67	West Campus	50%	40%	53%	50%
68	West Campus	50%	40%	53%	50%
69	West Campus	50%	40%	53%	50%
70	South Campus	22%	22%	28%	4%
71	East Campus	13%	23%	4%	28%
72	East Campus	13%	23%	4%	28%
73	East Campus	13%	23%	4%	28%
74	East Campus	13%	23%	4%	28%
75	South Campus	22%	22%	28%	4%
76	South Campus	22%	22%	28%	4%
77	South Campus	22%	22%	28%	4%
78	Montlake	25%	25%	25%	25%
79	Montlake	25%	25%	25%	25%

Existing				Background		No Action Alternative				Action Alternatives																					
Existing Peak Hour Pedestrian Count: (peak 15-minute video count)	Effective Area (sf)	Existing Pedestrian Space (sf/person)	Existing LOS	10% 60%		3%				Growth in Transit Ridership Summarized by Campus Sector	Alt 1			Alt 2			Alt 3			Alt 4											
				Brooklyn Background Growth	Light Rail Growth	Future (2028) Peak Hour Ped Count	No Action Alternative Growth	Future (2028) Action Peak Hour Ped Count	No Action Pedestrian Space (sf/person)		No Action LOS	Factor Relative to No Action	Alt 1 Growth Relative to No Action	Future (2028) Alt 1 Peak Hour Ped Count	Alt 1 Pedestrian Space (sf/person)	Alt 1 LOS	Factor Relative to No Action	Alt 2 Growth Relative to No Action	Future (2028) Alt 2 Peak Hour Ped Count	Alt 2 Pedestrian Space (sf/person)	Alt 2 LOS	Factor Relative to No Action	Alt 3 Growth Relative to No Action	Future (2028) Alt 3 Peak Hour Ped Count	Alt 3 Pedestrian Space (sf/person)	Alt 3 LOS	Factor Relative to No Action	Alt 4 Growth Relative to No Action	Future (2028) Alt 4 Peak Hour Ped Count	Alt 4 Pedestrian Space (sf/person)	Alt 4 LOS
39	1,930	49.5	LOS A	4		43		43	45.0	LOS A	123	0.22	9	175	11.1	LOS B	0.22	9	175	11.1	LOS B	0.28	12	178	10.9	LOS B	0.04	2	168	11.5	LOS B
45	1,930	42.9	LOS A	5		50		50	39.0	LOS A	123	0.22	11	183	10.5	LOS B	0.22	11	183	10.5	LOS B	0.28	14	186	10.4	LOS B	0.04	2	174	11.1	LOS B
38	315	8.3	LOS C	4		42		42	7.5	LOS C	123	0.50	21	185	1.7	LOS F	0.40	17	181	1.7	LOS F	0.53	22	186	1.7	LOS F	0.50	21	185	1.7	LOS F
122	4,175	34.2	LOS A	12	0	134	0	134	31.2	LOS A	817		41	1,360	3.1	LOS D		37	1,356	3.1	LOS D		48	1,367	3.1	LOS D		25	1,344	3.1	LOS D
24	2,624	109.3	LOS A	2	14	41	1	42	62.4	LOS A	245	0.50	21	308	8.5	LOS C	0.40	17	304	8.6	LOS C	0.53	22	309	8.5	LOS C	0.50	21	308	8.5	LOS C
23	2,035	88.5	LOS A	2	14	39	1	40	50.5	LOS A	245	0.50	20	305	6.7	LOS D	0.40	16	301	6.8	LOS D	0.53	21	306	6.6	LOS D	0.50	20	305	6.7	LOS D
52	2,534	48.7	LOS A	5	31	88	3	91	27.8	LOS A	245	0.15	14	350	7.2	LOS C	0.15	14	350	7.2	LOS C	0.15	14	350	7.2	LOS C	0.18	16	352	7.2	LOS C
99	7,194	72.7	LOS A	10	59	168	5	173	41.6	LOS A	1,635		55	2,599	2.8	LOS E		47	2,591	2.8	LOS E		57	2,601	2.8	LOS E		57	2,601	2.8	LOS E
25	1,073	42.9	LOS A	3		28		28	39.0	LOS A	12	0.13	4	44	24.5	LOS A	0.23	6	46	23.4	LOS A	0.04	1	41	26.3	LOS A	0.28	8	48	22.5	LOS A
25	2,990	119.6	LOS A	3		28		28	108.7	LOS A	12	0.13	4	44	68.3	LOS A	0.23	6	46	65.3	LOS A	0.04	1	41	73.4	LOS A	0.28	8	48	62.6	LOS A
27	564	20.9	LOS A	3		30		30	19.0	LOS A	12	0.15	4	46	12.3	LOS B	0.15	4	46	12.3	LOS B	0.15	4	46	12.3	LOS B	0.18	5	47	12.0	LOS B
28	1,122	40.1	LOS A	3		31		31	36.4	LOS A	12	0.13	4	47	23.8	LOS A	0.23	7	50	22.4	LOS A	0.04	1	44	25.5	LOS A	0.28	9	52	21.6	LOS A
105	5,748	54.7	LOS A	11	0	116	0	116	49.6	LOS A	82		16	263	21.9	LOS A		23	270	21.3	LOS A		7	254	22.7	LOS A		30	277	20.8	LOS A
122	4,175	34.2	LOS A	12	0	134	0	951	4.4	LOS D	817		41	1,360	3.1	LOS D		37	1,356	3.1	LOS D		48	1,367	3	LOS D		25	1,344	3.1	LOS D
99	7,194	72.7	LOS A	10	59	168	5	1,808	4.0	LOS D	1,635		55	2,599	2.8	LOS E		47	2,591	2.8	LOS E		57	2,601	3	LOS E		57	2,601	2.8	LOS E
105	5,748	54.7	LOS A	11	0	116	0	198	29.1	LOS A	82		16	263	21.9	LOS A		23	270	21.3	LOS A		7	254	23	LOS A		30	277	20.8	LOS A

University of Washington EIS
 Pedestrian Analysis - Transit Stop Capacity

Site	N/S Street	E/W Street	Transit Stop Notes	Existing Measurements	Effective	Peak 15-Min Pedestrian Count	Existing (2017) Pedestrian	Existing (2017)
				Total Area (sf)	Area (sf)	Existing 2017 (Video Data)	Space (sf/person)	Waiting Area LOS
1	Montlake Blvd	NE Pacific St	Bay 1, south side of NE Pacific St	1946	1930	39	49	A
2	Montlake Blvd	NE Pacific St	Bay 2, south side of NE Pacific St	1946	1930	45	43	A
5	15th Ave NE	NE Pacific St	North side of Pacific St, under ped bridge	324	315	38	8	C
7	15th Ave NE	NE Campus Pkwy	East side of 15th Ave NE, north of Stevens Way campus entrance	2641	2624.22	24	109	A
10	15th Ave NE	NE 42nd St	East side of 15th Ave NE, north of NE 42nd St	2044	2035.36	23	88	A
11	15th Ave NE	NE 43rd St	West side of 15th Ave NE, south of NE 43rd St	2629	2534.2	52	49	A
14	Montlake Blvd	NE Pacific Place	Bay 4, west side of Montlake Blvd, across from Husky Stadium entrance	1095	1072.5	25	43	A
15	Montlake Blvd	NE Pacific Place	Bay 3, east side of Montlake Blvd	3016	2990	25	120	A
16	Stevens Way	Pend Orielle Rd	East side of Stevens Way	565	563.5	27	21	A
18	Stevens Way	Benton Ln	West side of Stevens Way	1137.5	1122	28	40	A

6

TRANSIT ANALYSIS

- 6.1 TRANSIT TRAVEL TIME ANALYSIS SUMMARY
- 6.2 TRANSIT SCREENLINE MAP
- 6.3 TRANSIT SCREENLINE DEMAND TO CAPACITY SUMMARY
- 6.4 TRANSIT SCREENLINE EXISTING CAPACITY & SERVICE
- 6.5 TRANSIT SCREENLINE FUTURE CAPACITY & SERVICE
- 6.6 TRANSIT SCREENLINE DEMAND ALLOCATION

Corridor	Existing		No Action			Alt 1		Delta
	GP	Transit - Exist	GP	Transit - No Action	Delta	GP	Transit - Alt 1	
NE 45th St Eastbound	11.7	5.2	11.7	4.8	-0.4	10.7	4	-0.8
NE 45th St Westbound	12	5.2	10.8	4	-1.2	9.4	3.2	-0.8
Pacific St Eastbound	15.9	14.7	18.1	12.3	-2.4	9.5	4.6	-7.7
Pacific St Westbound	20.6	7.3	21.5	18.3	11	19.9	13.8	-4.5
11th Ave Northbound	8.5	5.9	8.5	5.1	-0.8	7.7	4.3	-0.8
Roosevelt Way Southbound	14.4	12.6	12	4.9	-7.7	11.8	4.6	-0.3
15th Ave Northbound	8.2	7.8	9	14.1	6.3	8.8	11.3	-2.8
15th Ave Southbound	9.4	5.8	9.2	6.8	1	7.6	4.4	-2.4
Montlake Blvd Northbound	14	20	10.8	15.1	-4.9	9.5	11.3	-3.8
Montlake Blvd Southbound								
Stevens Way Eastbound	3.2	6.8	3.5	8.8	2	3.5	8	-0.8
Stevens Way Westbound	2.7	2.7	3.3	3	0.3	2.6	3	0

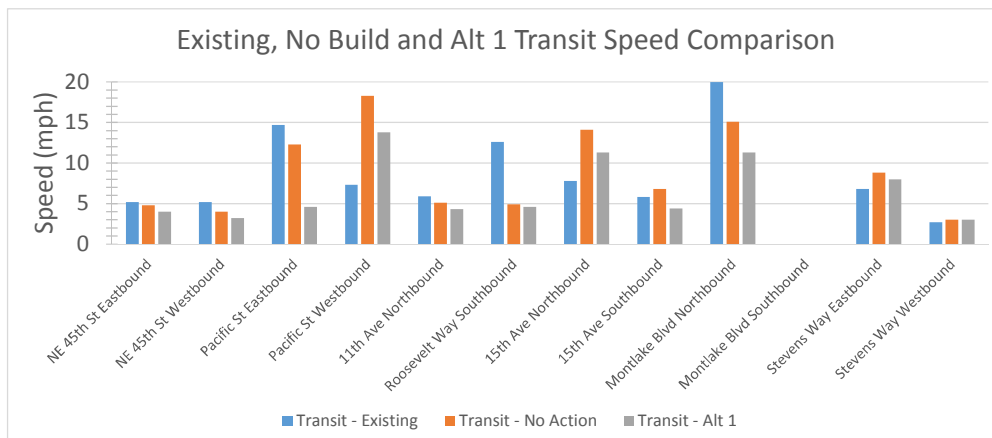
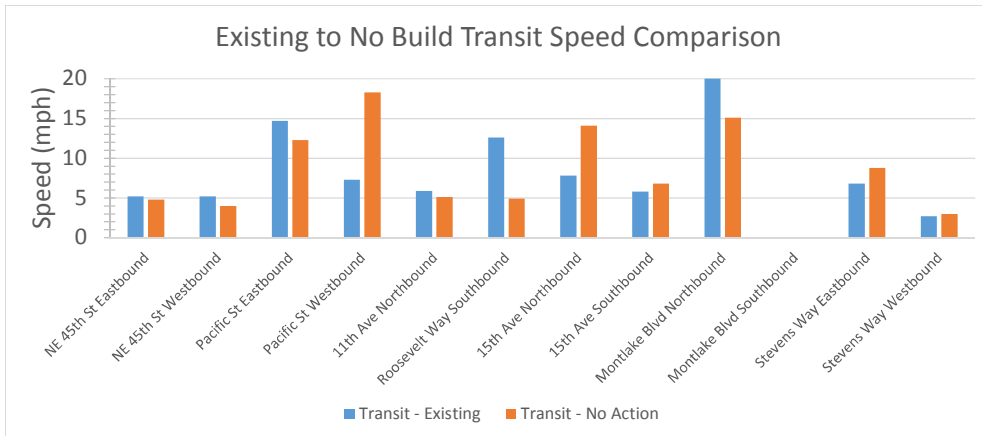
Assumptions:

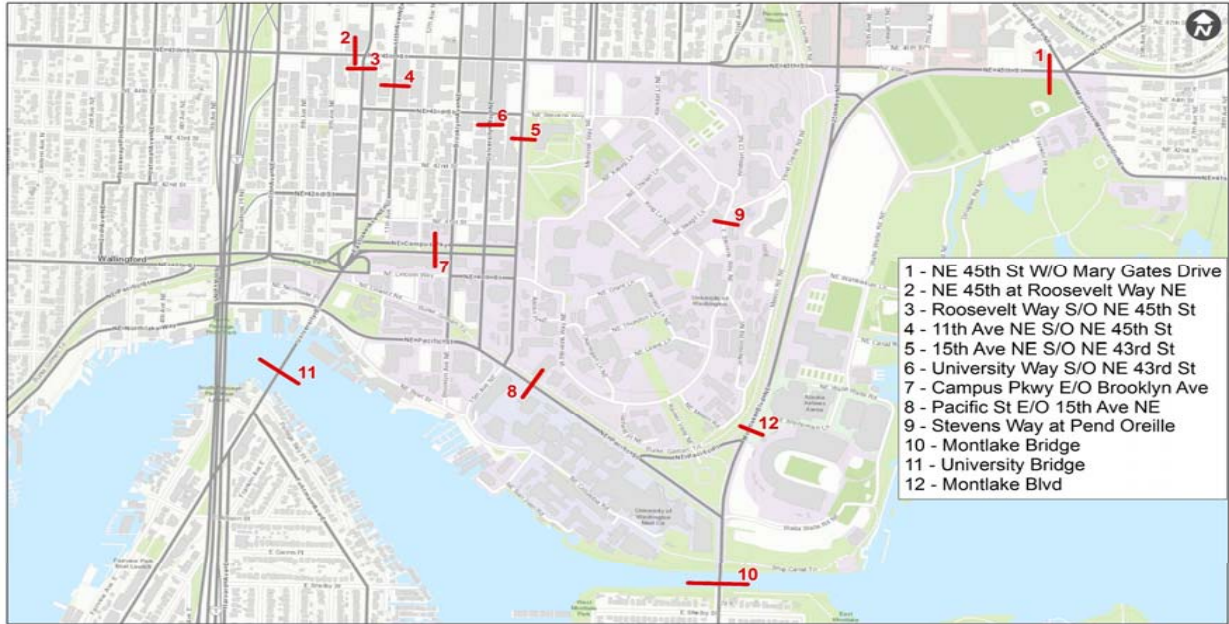
Existing to No Build Ridership Growth =	12%
Dwell per On (seconds) =	2.75
Dwell per Off (seconds) =	2.5
Rapid Ride Routes Buses/Hour =	5

Development Growth	
Total New Riders	10,060
PM Peak Period Ridership	3,351

Pedestrian Screenline Distribution

Location	Campus Sector	% of Future Growth	New Riders
15th Avenue NE/U-District Station	West	35%	1,173
15th Avenue NE	West	20%	670
15th Avenue NE/Campus Parkway	West	5%	168
NE Pacific St	South	10%	335
Montlake Blvd NE/U-Link Stadium	South	20%	670
Stevens Way	Central	5%	167
Montlake Blvd NE	East	5%	168
Total		100%	3,351





- Transit Screenline**
- 1 NE 45th St W/O Mary Gates Drive
 - 2 NE 45th W/O Brooklyn Ave NE
 - 3 Roosevelt Way S/O NE 45th St
 - 4 11th Ave NE S/O NE 45th St
 - 5 15th Ave NE S/O NE 43rd St
 - 6 University Way S/O NE 43rd St
 - 7 Campus Pkwy E/O Brooklyn Ave
 - 8 Pacific St E/O 15th Ave NE
 - 9 Stevens Way at Pend Oreille
 - 10 Montlake Bridge
 - 11 University Bridge
 - 12 Montlake Blvd

- Pedestrian Screenline/Hub**
- 15th Avenue NE/U-District Station
 - 15th Avenue NE
 - 15th Avenue NE/Campus Parkway
 - NE Pacific St
 - Montlake Blvd NE/U-Link Stadium
 - Stevens Way
 - Montlake Blvd NE

Transit Screenlines
 University of Washington Campus Mobility Framework
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Demand to Capacity

Future Demand and Capacity Summary

#	Location	Demand (Background)	Demand (Background + Dev)	Capacity	D/C Background	D/C Back + Dev	Impact
1	NE 45th St W/O Mary Gates Drive	655	983	2,430	27%	40%	13%
2	NE 45th & Roosevelt Way	610	831	1,040	59%	80%	21%
3	Roosevelt Way S/O NE 45th St	121	121	325	37%	37%	0%
4	11th Ave NE S/O NE 45th St	216	216	325	67%	67%	0%
5	15th Ave NE S/O NE 43rd St	1,084	1,591	4,200	26%	38%	12%
6	University Way S/O NE 43rd St	459	516	650	71%	79%	9%
7	Campus Pkwy E/O Brooklyn Ave	995	1,159	1,210	82%	96%	14%
8	Pacific St E/O 15th Ave NE	969	1,354	4,140	23%	33%	9%
9	Stevens Way at Pend Oreille	1,175	1,216	1,860	63%	65%	2%
10	Montlake Bridge	1,095	1,447	2,270	48%	64%	16%
11	University Bridge	724	757	1,380	52%	55%	2%
12	Montlake Blvd	333	570	730	46%	78%	33%
B Total		8,103	10,191	19,830	41%	51%	
Link A	U-District Station	16,275	17,305	23,400	70%	74%	
Link B	UW/Stadium Station	16,275	16,864	23,400	70%	72%	
L Total		32,550	34,169	46,800	70%	73%	
Grand Total		40,654	44,360	66,630	61%	67%	

Capacity

Existing PM Peak Hour Screenline Total Capacity		
#	Location	Capacity
1	NE 45th St W/O Mary Gates Drive	1,180
2	NE 45th & Roosevelt Way	1,730
3	Roosevelt Way S/O NE 45th St	520
4	11th Ave NE S/O NE 45th St	520
5	15th Ave NE S/O NE 43rd St	3,600
6	University Way S/O NE 43rd St	1,040
7	Campus Pkwy E/O Brooklyn Ave	1,810
8	Pacific St E/O 15th Ave NE	4,660
9	Stevens Way at Pend Oreille	2,070
10	Montlake Bridge	2,190
11	University Bridge	920
12	Montlake Blvd	780
B Total		21,020
Link A	U-District Station	0
Link B	UW/Stadium Station	8,550
L Total		8,550
Grand Total		29,570

Future PM Peak Hour Screenline Total Capacity

#	Location	Capacity
1	NE 45th St W/O Mary Gates Drive	2,430
2	NE 45th & Roosevelt Way	1,040
3	Roosevelt Way S/O NE 45th St	325
4	11th Ave NE S/O NE 45th St	325
5	15th Ave NE S/O NE 43rd St	4,200
6	University Way S/O NE 43rd St	650
7	Campus Pkwy E/O Brooklyn Ave	1,210
8	Pacific St E/O 15th Ave NE	4,140
9	Stevens Way at Pend Oreille	1,860
10	Montlake Bridge	2,270
11	University Bridge	1,380
12	Montlake Blvd	730
B Total		19,830
Link A	U-District Station	23400
Link B	UW/Stadium Station	23400
L Total		46,800
Grand Total		66,630

Total Capacity Change (Future - Existing)

#	Location	Capacity
1	NE 45th St W/O Mary Gates Drive	1250
2	NE 45th & Roosevelt Way	-690
3	Roosevelt Way S/O NE 45th St	-195
4	11th Ave NE S/O NE 45th St	-195
5	15th Ave NE S/O NE 43rd St	600
6	University Way S/O NE 43rd St	-390
7	Campus Pkwy E/O Brooklyn Ave	-600
8	Pacific St E/O 15th Ave NE	-520
9	Stevens Way at Pend Oreille	-210
10	Montlake Bridge	80
11	University Bridge	460
12	Montlake Blvd	-50
B Total		(410)
Link A	U-District Station	23400
Link B	UW/Stadium Station	14850
L Total		38,250
Grand Total		37,840

Demand

Existing PM Peak Hour Screenline Total Demand		
#	Location	Demand
1	NE 45th St W/O Mary Gates Drive	584
2	NE 45th & Roosevelt Way	544
3	Roosevelt Way S/O NE 45th St	108
4	11th Ave NE S/O NE 45th St	386
5	15th Ave NE S/O NE 43rd St	967
6	University Way S/O NE 43rd St	820
7	Campus Pkwy E/O Brooklyn Ave	1,110
8	Pacific St E/O 15th Ave NE	865
9	Stevens Way at Pend Oreille	1,049
10	Montlake Bridge	977
11	University Bridge	646
12	Montlake Blvd	297
B Total		8,353
Link A	U-District Station	-
Link B	UW/Stadium Station	1,400
L Total		1,400
Grand Total		9,753

Background Only

Future PM Peak Hour Screenline Total Demand

#	Location	Demand
1	NE 45th St W/O Mary Gates Drive	655
2	NE 45th & Roosevelt Way	610
3	Roosevelt Way S/O NE 45th St	121
4	11th Ave NE S/O NE 45th St	216
5	15th Ave NE S/O NE 43rd St	1,084
6	University Way S/O NE 43rd St	459
7	Campus Pkwy E/O Brooklyn Ave	995
8	Pacific St E/O 15th Ave NE	969
9	Stevens Way at Pend Oreille	1,175
10	Montlake Bridge	1,095
11	University Bridge	724
12	Montlake Blvd	333
B Total		8,103
Link A	U-District Station	16275
Link B	UW/Stadium Station	16275.4
L Total		32,550
Grand Total		40,654

Background with New Trips

Future PM Peak Hour Screenline Total Demand

#	Location	Demand
1	NE 45th St W/O Mary Gates Drive	983
2	NE 45th & Roosevelt Way	831
3	Roosevelt Way S/O NE 45th St	121
4	11th Ave NE S/O NE 45th St	216
5	15th Ave NE S/O NE 43rd St	1,591
6	University Way S/O NE 43rd St	516
7	Campus Pkwy E/O Brooklyn Ave	1,159
8	Pacific St E/O 15th Ave NE	1,354
9	Stevens Way at Pend Oreille	1,216
10	Montlake Bridge	1,447
11	University Bridge	757
12	Montlake Blvd	570
B Total		10,191
Link A	U-District Station	17,305
Link B	UW/Stadium Station	16,864
L Total		34,169
Grand Total		44,360

Demand to Capacity

Existing Demand to Existing Capacity		
#	Location	Demand / Capacity
1	NE 45th St W/O Mary Gates Drive	49%
2	NE 45th & Roosevelt Way	31%
3	Roosevelt Way S/O NE 45th St	21%
4	11th Ave NE S/O NE 45th St	74%
5	15th Ave NE S/O NE 43rd St	27%
6	University Way S/O NE 43rd St	79%
7	Campus Pkwy E/O Brooklyn Ave	61%
8	Pacific St E/O 15th Ave NE	19%
9	Stevens Way at Pend Oreille	51%
10	Montlake Bridge	45%
11	University Bridge	70%
12	Montlake Blvd	38%
B Total		40%
Link A	U-District Station	-
Link B	UW/Stadium Station	16%
L Total		16%
Grand Total		33%

Background Only

Future Demand to Future Capacity

#	Location	Demand / Capacity
1	NE 45th St W/O Mary Gates Drive	27%
2	NE 45th & Roosevelt Way	59%
3	Roosevelt Way S/O NE 45th St	37%
4	11th Ave NE S/O NE 45th St	67%
5	15th Ave NE S/O NE 43rd St	26%
6	University Way S/O NE 43rd St	71%
7	Campus Pkwy E/O Brooklyn Ave	82%
8	Pacific St E/O 15th Ave NE	23%
9	Stevens Way at Pend Oreille	63%
10	Montlake Bridge	48%
11	University Bridge	52%
12	Montlake Blvd	46%
B Total		41%
Link A	U-District Station	70%
Link B	UW/Stadium Station	70%
L Total		70%
Grand Total		61%

Background with New Trips

Future Demand to Future Capacity

#	Location	Demand / Capacity
1	NE 45th St W/O Mary Gates Drive	40%
2	NE 45th & Roosevelt Way	80%
3	Roosevelt Way S/O NE 45th St	37%
4	11th Ave NE S/O NE 45th St	67%
5	15th Ave NE S/O NE 43rd St	38%
6	University Way S/O NE 43rd St	79%
7	Campus Pkwy E/O Brooklyn Ave	96%
8	Pacific St E/O 15th Ave NE	33%
9	Stevens Way at Pend Oreille	65%
10	Montlake Bridge	64%
11	University Bridge	55%
12	Montlake Blvd	78%
B Total		51%
Link A	U-District Station	74%
Link B	UW/Stadium Station	72%
L Total		73%
Grand Total		67%

2016 Routes and Frequency

All Routes	Peak Frequency	Peak Trips	Coach Length	Seated Capacity
31	20	2	40	40
32	20	2	40	40
43	30	1	60	65
44	10	5	60	65
45	15	3	60	65
48	15	3	60	65
49	12	4	60	65
65	10	5	60	65
67	10	5	60	65
70	10	5	40	40
71	30	1	60	65
73	30	1	60	65
74	15	3	60	65
75	30	1	40	40
78	40	1	60	65
167	30	1	60	65
271	15	3	60	65
277	30	1	40	40
372	10	5	60	65
373	15	3	60	65
540	20	2	40	40
541	15	3	60	65
542	15	3	60	65
556	30	1	60	65
586	30	1	40	40
810	20	2	60	65
821	60	1	60	65
855	20	2	60	65
860	20	2	60	65
871	20	2	60	65
880	20	2	60	65
Link	6	19	3	450

Link peak trips *2 to account for capacity serving two directions

Existing trains during peak period are half 2 car, half 3 car (see Link Capacity source above). Assuming 3 cars.

Existing PM Peak Hour APC Summary by Screenline										
Screenline	On Street	Cross Street	Direction	Stop ID	Load	Ons	Offs	# Veh	Avg Veh Load	
1	NE 45th St	Mary Gates Memorial	Eastbound	29920	416	17	28	11	37.8	
	NE 45th St	Union Bay Pl NE	Westbound	25200	168	29	13	11	15.3	
		Total			584	46	41	22		
2	NE 45th St	9th Ave W	Westbound	29455	390	77	56	7	55.7	
	NE 45th St	Roosevelt	Eastbound	29865	154	77	36	10	15.4	
		Total			544	154	92	17		
3	Roosevelt Way NE	NE 45th St	Southbound	9605	108	24	24	12	9.0	
		Total			108	24	24	12		
4	11th Ave NE	NE 45th St	Northbound	9650	386	60	71	13	29.7	
		Total			386	60	71	13		
5	15th Ave NE	NE 43rd St	Southbound	10912	451	323	79	36	12.5	
	15th Ave NE	NE 42nd St	Northbound	11352	516	141	363	35	14.7	
		Total			967	464	442	71		
6	University Way NE	NE 43rd St	Southbound	9134	188	34	48	11	17.1	
			Northbound	9582	632	137	30	13	48.6	
		Total			820	171	78	24		
7	NE Campus Pkwy	Brooklyn Ave NE	Westbound	9138	562	237	84	17	33.1	
			Eastbound	9580	188	44	168	10	18.8	
			Eastbound	9575	360	419	109	18	20.0	
		Total			1110	700	361	45		
8	NE Pacific St	15th Ave NE	Northbound	29240	329	59	34	43	7.7	
			Southbound	29240	536	127	11	43	12.5	
		Total			865	186	45	86		
9	Stevens Way	Pend Oreille Rd	Westbound	75406	341	95	86	20	17.1	
			Eastbound	75410	708	165	68	13	54.5	
		Total			1049	260	154	33		
10	Pacific St	Montlake Blvd	Southbound	29247	740	349	74	22	33.6	
	Montlake Blvd	E Shelby St	Northbound	25752	237	6	58	8	29.6	
		Total			977	355	132	30		
11	Harvard Ave E	Eastlake Ave E	Northbound	10915	94	5	8	5	18.8	
	Eastlake Ave E	Harvard Ave E	Northbound	9560	183	4	9	6	30.5	
	Eastlake Ave E	Harvard Ave E	Southbound	9141	182	7	6	6	30.3	
	Harvard Ave E	Eastlake Ave E	Southbound	10916	187	18	9	5	37.4	
		Total			646	34	32	22		
12	Montlake Blvd	Pacific Place	Northbound	25765	297	134	39	8	37.1	
	Montlake Blvd	Pacific Place	Southbound	0	0	0	0	0	0.0	
		Total			297	134	39	8		
Link A	U-District Station	43rd & Brooklyn	Northbound	29247	-	-	-	-	-	
	U-District Station	43rd & Brooklyn	Southbound	25752	-	-	-	-	-	
		Total			0	0	0			
Link B	UW/Stadium Station	Montlake Blvd/Pacific St	Northbound	29247	667	-	-	-	-	
	UW/Stadium Station	Montlake Blvd/Pacific St	Southbound	25752	733	-	-	-	-	
		Total			1400	0	0			

9456 2454 1472 375

Existing PM Peak Hour Screenline Total		
#	Location	Load
1	NE 45th St W/O Mary Gates Drive	584
2	NE 45th St & Roosevelt Way	544
3	Roosevelt Way S/O NE 45th St	108
4	11th Ave NE S/O NE 45th St	386
5	15th Ave NE S/O NE 43rd St	967
6	University Way S/O NE 43rd St	820
7	Campus Pkwy E/O Brooklyn Ave	1,110
8	Pacific St E/O 15th Ave NE	865
9	Stevens Way at Pend Oreille	1,049
10	Montlake Bridge	977
11	University Bridge	646
12	Montlake Blvd	297
Link B	UW/Stadium Station	1400

Future 2025 PM Peak Hour Screenline Total		
#	Location	Load
1	NE 45th St W/O Mary Gates Drive	655
2	NE 45th St & Roosevelt Way	610
3	Roosevelt Way S/O NE 45th St	121
4	11th Ave NE S/O NE 45th St	216
5	15th Ave NE S/O NE 43rd St	1,084
6	University Way S/O NE 43rd St	459
7	Campus Pkwy E/O Brooklyn Ave	995
8	Pacific St E/O 15th Ave NE	969
9	Stevens Way at Pend Oreille	1,175
10	Montlake Bridge	1,095
11	University Bridge	724
12	Montlake Blvd	333
Link A	U-District Station	16,275
Link B	UW/Stadium Station	16,275

Screenline Growth 12%

2-hr to 1hr Conversion Factor 0.65

2025 Routes and Frequency

Minutes Per Peak 60

Link Trains Assumed 4

All Routes	Peak Frequency (mins)	Peak Trips	Route Type	Coach Length	Seated Capacity
31	20	2	Local	40	40
32	20	2	Local	40	40
540	20	2	ST	40	40
542	15	3	ST	60a	65
554	30	1	Express	60a	65
556	30	1	ST	60a	65
1002	10	5	Frequent	60a	65
1009	10	5	Rapid	60b	65
1012	10	5	Rapid	60b	65
1013	10	5	Frequent	60a	65
1014	10	5	Frequent	60a	65
1019	10	5	Frequent	60a	65
1063	10	5	Rapid	60b	65
1064	10	5	Frequent	60a	65
1071	10	5	Rapid	60b	65
1996	10	5	Frequent	60a	65
2004	10	5	Frequent	60a	65
2516	15	3	Express	60a	65
2998	15	3	Express	60a	65
3008	30	1	Local	40	40
3101	30	1	Local	40	40
3122	30	1	Local	40	40
3123	30	1	Local	40	40
3208	30	1	Local	40	40
Link	3	39	Rail	-	600
Total					

¹Daily Trips data collected from One Bus Away on 6/14/2016

Peak trips are 3-hour from 3-6PM

Existing Frequency (2017) Used

Link peak trips *2 to account for capacity serving two directions. Two stations are assumed in 2025.

Route Information			
Route Type		Headway	Assumed Frequency (mins)
Frequent ¹	Frequent	10-15 minutes	10
Express ¹	Express	15-30 minutes	15
Local ²	Local	30 minutes	30
Rapidride ³	Rapid	10-15 minutes (or better)	10
Sound Transit ⁴	ST	-	-

Assumes same number of daily trips as 2016

¹From KC LRP (pg. 6)

²Estimated

³Metro Future RapidRide Expansion Plan (2016)

⁴Based on Existing (2016) Headways

Seated Capacity			
Type		Capacity	Assumed Capacity
40-foot Standard Bus	40	37-45	40
60-foot Articulated	60a	61-65	65
60-foot BRT bus	60b	27-37	65
Link ¹	100	150	150

¹Per car. 4 cars assumed in 2025

http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_165ch-06.pdf

http://www.soundtransit.org/sites/default/files/documents/pdf/st2/appd_c_08_07.pdf

Link Load: <http://www.seattletimes.com/seattle-news/transportation/sound-transit-keeping-close-eye-on-crowded-light-rail-trains/>

		Transit Screenline Allocation															
New Riders per Location		1	2	3	4	5	6	7	8	9	10	11	12	Link A	Link B	Total	
Location																	
15th Avenue NE/U-District Station	1,145		57				57				57			1,030		1,201	
15th Avenue NE	654	164	164			360			131		131					950	
15th Avenue NE/Campus Parkway	164							164				33				197	
NE Pacific St	327	82				98			180		65		82			507	
Montlake Blvd NE/U-Link Stadium	654										33		65		589	687	
Stevens Way	164	41				49			33	41	33					197	
Montlake Blvd NE	164	41							41		33		90			205	
Total	3,270	328	221	0	0	507	57	164	385	41	352	33	237	1030	589	3,944	

General Distribution from FEIS	
NB	30%
SB	20%
EB	25%
WB	25%
Total	100%

Future PM Peak Hour Screenline Total

#	Location	Load
1	NE 45th St W/O Mary Gates Drive	983
2	NE 45th St & Roosevelt Way	831
3	Roosevelt Way S/O NE 45th St	121
4	11th Ave NE S/O NE 45th St	216
5	15th Ave NE S/O NE 43rd St	1,591
6	University Way S/O NE 43rd St	516
7	Campus Pkwy E/O Brooklyn Ave	1,159
8	Pacific St E/O 15th Ave NE	1,354
9	Stevens Way at Pend Oreille	1,216
10	Montlake Bridge	1,447
11	University Bridge	757
12	Montlake Blvd	570
Link A	U-District Station	17,305
Link B	UW/Stadium Station	16,864

Screenlines	1	2	3	4	5	6	7	8	9	10	11	12	Link A	Link B
# of New Passengers	328	221	0	0	507	57	164	385	41	352	33	237	1030	589
% of New Passengers	10%	7%	0%	0%	16%	2%	5%	12%	1%	11%	1%	7%	32%	18%

		Screenline:														
Origin		1	2	3	4	5	6	7	8	9	10	11	12	Link A	Link B	
15th Avenue NE/U-District	0%	5%	0%	0%	0%	5%	0%	0%	0%	5%	0%	0%	0%	90%	0%	105%
15th Avenue NE	25%	25%	0%	0%	55%	0%	0%	20%	0%	20%	0%	0%	0%	0%	0%	145%
15th Avenue NE/Campus F	0%	0%	0%	0%	0%	0%	100%	0%	0%	0%	20%	0%	0%	0%	0%	120%
NE Pacific St	25%	0%	0%	0%	30%	0%	0%	55%	0%	20%	0%	25%	0%	0%	0%	155%
Montlake Blvd NE/U-Link S	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	10%	0%	90%	0%	105%
Stevens Way	25%	0%	0%	0%	30%	0%	0%	20%	25%	20%	0%	0%	0%	0%	0%	120%
Montlake Blvd NE	25%	0%	0%	0%	0%	0%	0%	25%	0%	20%	0%	55%	0%	0%	0%	125%
Total	10%	7%	0%	0%	16%	2%	5%	12%	1%	11%	1%	7%	32%	18%	121%	

105%

Origin - # of New Riders	1	2	3	4	5	6	7	8	9	10	11	12	Link A	Link B	Total	
15th Avenue NE/U-District Station	A - 1145	0 (0%)	57 (5%)	0 (0%)	0 (0%)	0 (0%)	57 (5%)	0 (0%)	0 (0%)	0 (0%)	57 (5%)	0 (0%)	0 (0%)	1030 (90%)	0 (0%)	1201 (105%)
15th Avenue NE	B - 654	164 (25%)	164 (25%)	0 (0%)	0 (0%)	360 (55%)	0 (0%)	0 (0%)	131 (20%)	0 (0%)	131 (20%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	950 (145%)
15th Avenue NE/Campus Parkway	C - 164	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	164 (100%)	0 (0%)	0 (0%)	0 (0%)	33 (20%)	0 (0%)	0 (0%)	0 (0%)	197 (120%)
NE Pacific St	D - 327	82 (25%)	0 (0%)	0 (0%)	0 (0%)	98 (30%)	0 (0%)	0 (0%)	180 (55%)	0 (0%)	65 (20%)	0 (0%)	82 (25%)	0 (0%)	0 (0%)	507 (155%)
Montlake Blvd NE/U-Link Stadium	E - 654	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	33 (5%)	0 (0%)	65 (10%)	0 (0%)	589 (90%)	687 (105%)
Stevens Way	F - 164	41 (25%)	0 (0%)	0 (0%)	0 (0%)	49 (30%)	0 (0%)	0 (0%)	33 (20%)	41 (25%)	33 (20%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	197 (120%)
Montlake Blvd NE	G - 164	41 (25%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	41 (25%)	0 (0%)	33 (20%)	0 (0%)	90 (55%)	0 (0%)	0 (0%)	205 (125%)
Total - 3270		328 (10%)	221 (7%)	0 (0%)	0 (0%)	507 (16%)	57 (2%)	164 (5%)	385 (12%)	41 (1%)	352 (11%)	33 (1%)	237 (7%)	1030 (32%)	589 (18%)	3944 (121%)

APPENDIX D REFERENCES

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